

Primal Sound and its Application in Tone Pedagogy of Western Classical Flute

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Abstract

Developing an expressive and beautiful tone is one of the essential accomplishments to which instrumentalists and singers of all levels and styles aspire. Many tone instructional methods and concepts have been prevalent worldwide since Quantz's time (1697-1773) and remain influential. Tone quality is considered as the most important basic attribute of all music and the most vital concept in the evaluation of the goodness or badness of a tone, although in musical literature the concept and its pedagogy are most unexplored and misinterpreted. In this research, primal sound is used as a natural and holistic element of tone pedagogy that encompasses the emotionally motivated expression and reflexive automatic body responses that engage the whole performer's body and mind. This research investigates how the reflexive automatic body responses can be used as a facilitator between instrument and instrumentalist to construct the key components of tone and tone pedagogy. This research explores tone production and offers strategies for individual flute students and teachers. The data was collected by participant observation and semi-structured interviews with Melbourne master flute players and teachers at Monash and Melbourne Universities, and the Australian Flute Festival (2011). There are major benefits from the accomplishments of an effective tone production through the efficient use of primal sound including balanced onset and release, sustaining a healthy root tone, and connecting to the body's automatic response system.

Keywords *flute, pedagogy, tone, tone production, holistic, primal sound.*

Introduction

Developing a resonant and beautiful tone is one of the essential accomplishments to which all the flute players of all levels aspire. Many tone instructional methods and tonal concepts have been prevalent worldwide since Quantz's time (1697–1773) and remain influential. As Seashore says, tone quality is considered as 'the most important basic attribute of all music' and the 'most vital concept in the evaluation of the goodness or badness of a tone' although in musical literature the concept and its pedagogy are most unexplored and misinterpreted (Seashore, 1936, 1942). The present discussion draws on the current research literature on vocal pedagogy to formulate new understandings based on the substantiation of formerly held concepts and techniques, the refinement of erroneous beliefs, and the novel presentation of the collected data consolidated

with more physiological and anatomical considerations. As will be explained, primal sound is used as a natural and holistic element of tone pedagogy that encompasses the reflexive automatic body responses that engage the whole performer's body and mind. Primal sound also functions as a facilitator between instrument and instrumentalist and makes important interactions with the key components of tone such as posture, air column, breathing, resonance and stylistic interpretation. Although extant research literature discusses primal sound in vocal pedagogy (see Chapman, 2006), no scholarly research has been found that addresses this in instrumental music performance and pedagogy.

The holistic attitude, that is operational throughout this study, focuses more on the natural causality of pedagogical methods and concepts rather than merely the experimental act of practicing them. Thus, this discussion attempts to represent scientifically recognized principles to help performers gain the awareness and knowledge that not only they are capable of producing a vibrant tone but also ways of reproducing that tone. Nothing is more frustrating to a performer than making a freely produced resonant tone and then being incapable of doing it again. This issue is not just unique to flute players but to all other instrumentalists as well as singers. Thus, this research will benefit performers and teachers seeking functional solutions that contribute to progress in music performance education.

Context

Historically, tone production has been of great interest to flute pedagogues and performers since the seventeenth century. The concept, use and definition of the tone of the flute have evolved due to the development of the instrument's construction, changes in artistic and aesthetic values, and stylistic diversity. Quantz's seminal flute treatise of 1752 can be determined as a turning point and a reliable source for the pedagogical practices related to eighteenth century tone production. This included extensive studies and exercises to develop the flute tone¹. Quantz's instructions on tone production are based on the belief that the principles of tone production on flute echo those of singing (Quantz, 2001).

Subsequently, in the early nineteenth century, Theobald Boehm (1794–1881), the inventor of the modern flute, developed an elaborate mechanism which allowed much more controllable tone, precise intonation and ease of playing in keys which were previously complicated and difficult (for further information see Westrup and Harrison, 1976). This led to the shift from imitating the 'patterns and qualities of the French language' towards the adaptation of the flute to imitate 'violin performance and the adoption of violin terminology such as the term *détaché*, which is performed on the flute through producing articulated breath pulses by the abdomen that could be likened to an act of silent laughing' (Crawford, 2011, quoted in BastaniNezhad 2012a).

Later on, during the twenty century, the influence of the French flute school played a leading role in the development of the standards of tone production (for more information on the French flute school read Gearheart, 2011). The French flute school was founded by Taffanel (1844-1908), 'the father of modern flute playing' in the early twentieth century and developed through the efforts of his pupils, especially Barrère

(1876-1944), Moyses (1889-1984) and Le Roy (1898-1985) (Blakeman, 2005, p.218). These musicians, who studied at the Paris Conservatoire with Taffanel (1844-1908) and Gaubert (1879-1941), represented a philosophy of tone production which was strongly influenced by singing (see Barrère, 1936; Moyses, 1934, 1973, 1991 and 1998; Le Roy, 1965). Their philosophy of tone production advocated advanced instruction concerning various adaptations of the performer's embouchure in order to improve tonal quality. The concept of tone production was handed down to the contemporary flute pedagogues whose approaches, such as Dick (1986), Graf (2003), Galway (2009) and Hill (1995), still advocate the important connection between flute tone instructions and singing. For example, Dick (1986) properly discusses the influence of human vocal cords, throat pitch and the shapes of different vowels on the pitch of the flute. Also, having been influenced by the twentieth century and contemporary composers, flute tone has become more than just an aesthetic goal in itself, rather it is a more flexible and dynamic practice of expression, in other words it has become a musical tool (BastaniNezhad, 2012a).

The gap in the existing literature

The tonal instructions and philosophy of the French schools of flute performance, such as those related to tone development, sustaining tone and producing variable tone colors, are strongly inspired by singing. Almost all the instructions handed down by the French masters to their students indicate the superiority of vocally-influenced approaches and voice pedagogy (Gearheart, 2011). Barrère (1936) holds that the quality of tone is mainly reliant on the flutist's inner concept of the sound. He contends that the flutist, similar to a singer, requires the efficient use of the lips and mouth in order to form the air passage into the flute. Similar to Barrère, Moyses's (1973) principles of tone production mainly concentrate on the use of the same lyrical excerpts that he heard and played at the opera and explore the similarities that exist between various voice types (such as tenor and bass arias) and their identifying qualities. He also emphasizes the shape of the embouchure and especially its flexibility as the determining elements that directly impact the beauty, the pitch accuracy and intonation of the tone (Moyes, 1973). According to Moyses (1973, p. 5), these are essential for students to achieve the 'special art of Bel Canto, staccato (with extremely short notes, but with good quality and above all, the art of emitting extremely soft notes with greatest expression and with those inflections which only singers are privileged to have' (Moyes, 1973, p. 5). Similarly, Le Roy's (1965) philosophy of tone production is based on embouchure control through focusing on the flexibility and relaxation of the embouchure, which requires efficient breath support by the abdominal muscles as does a singer. He also accentuates the independence of the embouchure from the movement or air to facilitate producing the notes of the upper registers and tone colours.

There are strong connections and interactions between the pedagogy of the flute and that of singing which can be used to improve flute tone production. However, the author holds that the French pedagogical instructions can be facilitated through including a natural and holistic pedagogy that helps to improve the art of "letting the tone happen" (see BastaniNezhad, 2012a, p. 42). It is argued that French tone instructions

are largely based on the segmented physical manipulations of, for example, the lips and jaw movements in order to develop the tone rather than the holistic pedagogical behaviors that involve the performer's body as a whole. The segmented tone pedagogy can be enhanced through utilizing primal sound as a reflexive stimulus and natural intermediary between instrument and instrumentalist. Thus, in the holistic pedagogical context, instead of focusing on the physical act of practicing or learning a pedagogical task, the preference is on placing the task into a context or mode to let that happen automatically. This is especially important for non-native French-speaking performers who are not familiar with the patterns of French language and phonations. This aspect of tone pedagogy, which will be developed through this research, remains unstated and largely ambiguous in the literature related to flute pedagogy.

Primal sound

'Primal' is defined as original or primitive and therefore a primal sound could be described as an inner and original sound that is made by humans and other mammals. Primal sounds already exist in individuals since birth and only need to be rediscovered and implemented naturally at will in order to achieve the root tone that is the basis of good performance. Brown states that the 'primal sound originates in the larynx'² where it becomes molded into vowels and consonants, whose combinations construct language or talking (Brown, 1998). The primal sound could be made in two ways: (1) involuntarily, as when it springs from an individual's emotions such as when shocked or injured; and (2) voluntarily, as if it arises from thinking and planning, such as when someone says Uh-hum [əhəm] while nodding in agreement, or Hu-huh [həhə] when teasing or mocking someone, or Hey [hey] when shouting a name to catch someone's attention.

Primal sounds are caused by various emotional triggers such as joy, fear, sadness and pleasure, that can lead individuals into different mental-emotional states. These are always accompanied with both a vocal phonation or primal sound and a muscular reaction. For instance, when one's finger is cut or burnt, the response would most likely be a loud vocal 'Aaakh' or 'Aaaau' that is synchronized with the contraction of the muscles around the point of pain in order to move quickly away from its source. Both vocal and physical reactions stem from a body automatic reflexive response that leads the brain to create a motor command due to an internal stimulus to which the body responds automatically. This process occurs automatically as there is no conscious thinking required for its formation.

The notion of primal sound is fundamental to tone pedagogy. The most important reason for learning to use the primal sound in tone pedagogy is that by engendering a potential mental-physical facility performers become constantly connected to the somatic emotional reflexive responses. This specific notion of the primal sounds could be drawn on as a valuable pedagogical tool in order to improve integrative tone production for flute players to achieve 'the maximum result for the minimum of effort' (Crawford, 2011). Primal sounds create an internal connection point and a natural intermediary between the performers as a whole body-mind composite in the process of tone production. This provides performers with the valuable potential to tune their

instruments into the body's primal frequency produced by the vibrations of the whole body that is well-grounded and perfectly balanced.³ Through this, the performer will initially be able to tune her/himself internally, and subsequently to ensure tuning the external instrument and to acquire the original tone of the instrument known as the root tone. There are two general processes involved in reaching the root tone: (1) tuning the inner musician which is followed by (2) tuning the instrument into the inner musician⁴. Normally, the performer's body and mind may take a long time to become thoroughly connected via various training regimes. When the training exercises are developed through the primal sounds, both the resultant tone and the process of its production will be homogenized, instantaneous and far less entangled. This is because the performer's reflexive physiological responses are connected. This engenders optimal energy to support the performer's air column and the performer will acquire a tone that is pure and guaranteed.

The author has participated in about sixteen flute master classes and twenty-four workshops across Australia and Iran given by prominent flute players in which the students were very often encouraged to improve tone by employing the support of the abdominal wall. The teacher might somewhat vaguely say, 'Please start your tone from your belly', while pointing his/her fingers towards the abdominal wall without specific reference to any particular part of the abdominal wall or clarifying what it actually means to play or start from the belly. Often this will be accompanied by asking a student to model the teacher's flute tone in order to duplicate a tone that is almost the same in quality, flow and loudness. This needs an aural focus on the part of the student who rarely seems to be connected to his or her body's motor responses. The whole process is trial and error, and depends heavily on the students auditory ability that can help them to adjust tone to get as close as possible to that of the teacher. However, what actually happens is that the student has to listen before starting to play but without having the ideal of what he/she is aiming to perceive and play through inner hearing. Accordingly, the other guest participants who are only the listeners will attempt to perceive both the teacher's tone and what the performing student is going to play in very different ways. Therefore, there is always the uncertainty that the student may not experience what the instructor requests and means. Sometimes, this mode turns into mindless or mechanical repetitions that mostly account for subsequent tonal disturbance, muscular fatigue and other disorders such as embouchure dystonia.⁵

Based on the author's experience on the performance of the ney, the chief wind instrument of Iranian classical music, there seems to be a natural and close unity between the sound of the tone and human primal sound that can be used as the reflexive bodily responses in the pedagogy of the root tone that is the basic and best tone of the instrument.⁶ As investigated, primal sounds are considered as one of the most important core components of the root tone that has the same support and process with the root tone of the instrument.

Current debate on the pedagogy of tone production

It can be argued that the primal sound obviously originates in the larynx while the energy needed for its constant continuation is provided by the lower abdomen as the

major compartment of the body's centre of gravity. As pointed out formerly, the lower abdomen is automatically involved in the production of the tone.

Based on the collected data, there has been no agreement among flute teachers on the extent of the involvement of each compartment in tone production. Bart Feller, the principal flutist of New Jersey Symphony and New York City Opera Orchestra, in his flute teaching focused 'about eighty percent on the throat and less than twenty percent on the abdomen';⁷ whereas, those who are of the belief that lower abdominal support accounts for tone production are many. For example, research findings shows that De Reede,⁸ Pinschhof,⁹ Heinzmann¹⁰ and many others hold more positive views towards use of the abdomen rather than the throat.

With respect to the current views, according to the research findings, especially those of Feldenkrais (1992) and Isshiki (1961) concerning the lower abdomen and subglottic function respectively, it can be understood that the two components provide a kind of natural dynamic participation in the process of tone production whose magnitude of effects vary due to a number of factors, prominently frequency, pitch and blowing. For, 'when singing at [a] high pitch, resistance at the glottis would play [a] more important role in the elevation of subglottic pressure than exhaling exertion, while on phonation at low pitch the latter would be more significant than the former' (Isshiki, 1961, p. 89). This not only indicates the joint abdominal and subglottic participation in music expression, but more importantly, shows that all the observations required in singing regarding the pitch, dynamic and other tone-related parameters must be met by performers in order to succeed in healthy tone production. This means that, as with a singer, whose vocal cords have to be tuned to the actual pitch of a written note, the vibrations of the performer's body should be the well-adjusted to the note that the performer aims to play. Therefore, as an example, if an individual thinks of an A in his/her mind while aiming to play a different pitch, such as a D flat, on the instrument, a clash between the body's vibration as well as the muscle memory involved and that of the tone of the instrument occurs. In other words, as Barrère says, the quality of tone production is primarily determined by the 'flutist's inner concept of the sound' (Barrère, 1936, p. 34). The tone of the instrument is in fact the continuation of the performer's inner sound or mental pitch. This important phenomenon can be defined as body-mind tone adjustment that signifies that the inner and external tones should be merged into one tonal entity to form the performer's tonal print or root tone. This important unity between instrument and instrumentalist may be unexplored by many performers but can be developed through understanding the natural interactions between aural-musical knowledge and the body's motor responses. Otherwise natural tone production will be precluded or disturbed by unwanted dysfunctions.

The phenomenon of body-mind tone adjustment occurs due to the function of vocal cord muscle memory that make the vocal cords respond automatically to all motor commands, such as pitch and resonance variations, when singing, playing, or even thinking of a specific note. Thus, the muscle memory, as Indik says, incorporates more than what is stored in the brain as can be found in the 'smile crease lines on a face, in the muscular arms of a stone mason, and also in every cell's DNA' as well as the entire tonal and musical characteristics of performers (Indik, 2006). This attribute is intrinsic to a healthy person regardless of the ongoing external performing activities

and tasks relating to the instrument. Therefore, it is not irrelevant to say that ‘performers play with their mind and ears not their lips’ (Lotfi, 2010; Pinschof, Oct, 2011); or, as Rosewall states, ‘A tone exists first as a mental concept, and the quality of the mental concept determines the quality of the tone’ which is consolidated into our long term memory as a firm skill (1961, pp. 5–6).

Another characteristic that seems to be fundamental to tone development is related to the important distinction that exists between the stages embedded in tone pedagogy. This could fall into three phases: perception, performance and subsequent recollection of the perceived material. This feature will connect individuals to memory and its variable functions that are all fundamental to music learning. Memory could be defined as ‘an impression of the past that is to some extent accessible in present’ (Indik, 2006). In this sense, the memory will connect us both to past and present methods, ideas, actions and reactions.

Methodology

Utilizing this personal knowledge as well as that of various prominent musicians, the author attempts to investigate the advanced techniques employed to improve tone development through use of the primal sound. Thus, participant observation will be employed in this research. This methodology encompasses various roles held by the researcher (sometimes simultaneously) such as participant performer, teacher and observer. Participant observation is an appropriate method that allows immersion and reflexive description of the experiences of learning and teaching about complex paradigms such as tone pedagogy. Becker (1958, p. 652) advocates strongly for participant observation stating that the ‘approach is close to everyday interaction, involving conversations to discover participants’ interpretations of situations they are involved in’. In attempting to understand music pedagogy, this type of intimate approach appears to be particularly apt. As a ‘participant observer’ my data collection took the form of maintaining a reflective journal of my observations during my lessons and audio recordings of the lessons where possible to facilitate review and analysis. To paraphrase Becker, this methodology allows a thick description of the pedagogical paradigms and modes of communication. As Jorgenson states, ‘participant observation concentrates on in-depth description and analysis of some phenomenon or set of phenomenon’ that is fundamental to the undertaking of this research (1980, p. 23). This allows a thick description of the pedagogical data to be apprehended successfully by the researcher as well as the readers of the research.

In order to inform the research problem and broaden my participant research, semi-structured interviews have been undertaken worldwide with accomplished flute players, teachers and student-teachers and pedagogues of Australian universities,¹¹ at the Australian Flute Festival (2011) in Canberra, various master classes held by distinguished international flutists in Australia and Tehran Arts University in Iran through various visits to Tehran. This multifaceted approach allowed me to adopt both an insider and outsider perspective to the pedagogical systems under investigation to facilitate in-depth research. Thus, I could both remain as a learner and performer/teacher while maintaining ongoing dialogue with my master teachers throughout the

data collection processes. These strategies are of paramount significance in improving the accuracy of collected data. Thus, I hope to be a balanced musician-performer who provides an efficient model of pedagogue for meeting the students' needs through constantly accommodating and adapting new skills and knowledge to his/her teaching to better deal with the complications lying between theory and practice in all physical and musical aspects.

In addition, this approach allows me to use the recordings of my own personal experience as a student and later a teacher, as well as the recordings (with the permission of my flute teachers) of the new lessons that I currently undertake. In total I have collected some thirty recordings, each ninety minutes long and embracing three lessons each. I obtained the written permission of my former teachers to use this material. I have also sought formal ethical approval from Monash University, where I study, in order to conform to ethical standards. The audio data from each interview was grouped according to the name of the interviewees and thematically codified based on their instructions or responses in relation to the underlying content.

Furthermore, I undertook two seminars during my fieldwork research in Tehran and Shiraz in Iran in order to expand my research findings. These revealed the many challenges flute students encounter within tone pedagogy due to lack of an integrative methodical and responsive approach towards tone pedagogy. Additionally, I found out that there are countless delicacies involved in pedagogy of tone, a large portion of which are actually the secrets that are handed down from master to pupil without resource to documentation. Also, employing data from voice pedagogy and various voice pedagogues has largely helped to contribute to a pedagogical foundation that reflects a holistic and combined research understanding.

Lower abdominal-muscles (sub-umbilical)

Making the primal sounds could form a kind of motor learning involving the performer's whole body and generating automatic responses in the form of phonatory vocalized sounds. It is notable that the autonomic mechanism engaged in the formation of the primal sounds employs the abdominal muscles at the beginning of the phonatory release (see Figure 1). This means that each onset becomes simultaneous with an automatic pull of the lower abdominal muscles towards the spine. This maneuver of the lower abdomen is intrinsic to almost all kinds of muscular movements that individuals make. As Feldenkrais (1992, p. 207) states, 'The tonus of the abdomen is affected by relaxing the eyes, the mouth, the shoulders, the genitals, the anal sphincter, the legs and toes, the fingers, the ribs, and (most of all) the head'. This important involvement of the lower abdomen serves to generate a kind of coordinated and balanced onset that can be employed voluntarily by means of silent phonation in order to start a healthy root tone in flute and ney playing. The physiological rationale lies in the coordinated onset that provides supporting energy by the abdominal muscles to release a resonant sound that is as natural and smooth as the primal sound.

Through this, the primal sounds contribute to the prevention of unwanted and unnecessary sounds that could be caused by a tense abdomen and stiffened ribs muscles as is commonly observed during tone production. Therefore, by encouraging

the student to vocalize a primal sound silently, the natural onset will be immediately felt in the abdominal area while she is not voluntarily involved in or controlling any muscular action. Thus, coordinated onset could be considered the most important outcome of the abdominal contribution to tone pedagogy. It is crucial to note that any voluntary muscular act or intervening force on the part of the performer can break or prevent the natural onset. This in return will result in breathy onset and inconsistent and explosive initial sounds that may occur due to the explosive act of the abdominal hard breath attack as well as glottal¹² and pharyngeal restriction (see Luchsinger & Arnold, 1965). This demonstrates the necessity of holistic body responses through the use of primal sounds in tone pedagogy in order to minimize the performer's voluntary action to make a balanced onset. This is much like the silent singing of a note into the instrument while remaining interconnected with the body's reflexive responses. This resulting tone will maintain its vibrancy throughout the entire duration of the note, regardless of the frequency and volume of the tone involved so long as the coordinated maneuver of the lower abdominal muscles is continued. The pull-in phase could be followed by either relaxing or letting-go the abdomen, diaphragm and intercostals as Crawford (2011) says, or according to Pinschof, through an inward kick generated by the muscles of the lower abdomen to expel the remaining air and invite the new air to come in automatically.¹³

In addition to creating a coordinated onset, this implication of the sub-umbilical¹⁴ muscles being stimulated by primal sounds could tremendously contribute to the concept of breath management and air column as they deal with the speed, pressure and volume of air. As far as the relationship between the primal sounds and the change of the vowel shape in the mouth are concerned, the sub-umbilical muscles also encompass all the tonal articulatory, resonance and projection factors as well.

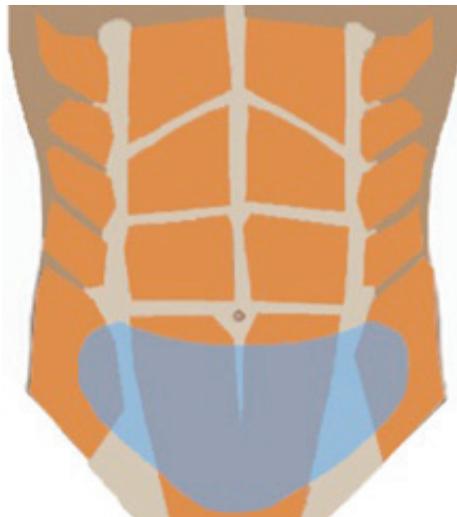


Figure 1 Lower abdominal (sub-umbilical) muscles

Onset-release exercises

The production of the root tone can be considered through two interrelated phases as onset and release. The onset can be defined as the way a performer commences the tone and is more of an internal phenomenon while release is as much the art or technique of balancing the onset tone and could be considered an external experience. This implies that although having commenced the tone with a good onset, the release of the sound could be complicated and disturbed and lead to a bad continuation and termination of the sound. Therefore, it is hard to reach an ideal tonal outcome without learning to achieve a balanced onset. On the other hand, the character of the tonal release will influence the succeeding onset as it constantly transports the energy of each onset tone throughout the tonal continuation. Thus, it is crucial that the release remains unified in terms of quality, underlying speed and flow of the air, in relation to the rest of the melodic line. In this sense, these two concepts are merged into one dynamic concept or cycle that could be referred to as a balanced onset-release cycle. Based on the research findings, what is normally taught in master classes regarding tone development mainly embraces a variety of instructional techniques and materials to facilitate the release but with rare attention to training onset that is an essential prerequisite for the release. This approach is an unskillful attempt at tone development, serving to provide a bunch of quick and handy tonal remedies to provide short-term improvement. However, these may not be fully communicable and durable as a basis for an effective solution to tone development. This would be similar to an instant pain relief remedy that one can use for toothache instead of the effective investment in durable treatment to overcome the root of the problem.

Every performer, regardless of whether s/he is an experienced or novice musician, needs to begin with exercises in onset and release when starting to practice or to play a piece. Even at a high level of technical efficiency, tonal study should be prioritized as it is the tone that brings the music to the acoustic realm. Any disturbance of the tone will directly impede the underlying energy of the sound that ensures the interconnection between the notes and the keys of the instrument. This can be done through practicing ascending and descending semitones, seconds and thirds while blowing long notes starting around second octave B as in Moyses exercises on tone development (For example, see Moyses, 1934, pp. 6–7).

Practice strategies

The optimal condition in which the body can be voluntarily involved in the production of a natural and automatic onset-release is via applying a neutral vowel as follows. This utilization of the vowels through primal sound in flute playing, as Crawford says, is a very French way of playing the flute. She explains that, the French way of speaking is very light as they use constantly a sense of natural breath and rolling out of the voice is smooth compared to other languages such as German or English (2011).

As discussed, the primal sounds provide a range of natural phonations that involve the motor reflex responses and coordinated muscular maneuvering of the lower abdominal muscles. Among the variable output of (projection) primal sounds, the

vowel [ʌ], as in words run, luck and flood, can be used as the most primary and common vocal expression in many languages and cultures.¹⁵ This is the sound made on various occasions such as in moaning, grunting, sighing as well as when someone is thinking of something loudly or hesitating before answering a question. Among phoneticians, this vowel is also known as the universal, neutralized or indefinite vowel as there is no conscious effort required for its formation by individuals (see Miller, 1986). What makes the usage of the [ʌ] distinct, compared to the other vowels, is its natural contribution to the root position of the tongue in the mouth, a tension-free embouchure set, throat and vocal cords.

The following simple exercises are represented to familiarize performers with the balanced onset-release in tone pedagogy.

Exercise 1

The first exercise is like repeated gasping or panting along with the breathing and spoken pattern HA, HA, HA, HA (similar to a laughter syllable). This may be presented several times as a phrase unit while a short and soft H will be heard successively. It is important to maintain a relaxed posture prior to starting this exercise. Also, the teacher can ask the student to take a few deep breaths in advance to ensure easy respiration. The onset of each release coincides with the lower abdomen being pulled inwards to generate the energy required for the production of the H sound. Each onset can be detected by putting the hands a few inches below the navel, that is commonly referred to as cough or sneeze point, as well as the flanks (between the lowest rib and the hip joint). The same maneuver can be recreated voluntarily by encouraging students to cough deliberately several times while the hands are on the lower abdomen.

Exercise 2

Repeat the spoken syllable HUH, HUH, HUH, HUH (such as oo in zoo) as a phrase unit several times. The sound of this sequence corresponds with a silent 'u' and would be reminiscent of the external phonatory output of a soft groaning.

When practicing the two above exercises, the abdomen attains a kind of rubber-bouncing movement that is steady and gentle.¹⁶ The impetus for the engagement of this muscle function is in fact the same movement of the abdominal wall towards the spine as occurs in making primal sound. This kind of automatic reflex contributes to maintain the constant rhythm of the phonations and help the syllables to terminate as clearly as they commenced. Also, the learner will immediately notice the commencement of the airflow coinciding with each silent vocalized release; however, there should not be any voluntary breath expulsion that is merely supported by pulling in the abdomen. This implies that each maneuver of abdominal muscles must be coordinated with the breath flow otherwise it turns into an unfruitful mechanical action disturbing both the tone and breathing.

Through doing the onset-release exercises, one can easily experience the natural joint function of both the throat, as it relates to the various vowel shapes and subglottic function, and the lower abdomen, as it provides the exhaling energy of air

column. As studied (Isshiki, 1961) in voice pedagogy, both the subglottic pressure¹⁷ and the blowing or exhaling exertion are responsible for pitch regulation volume variations, and the volume of the phonation and ultimately the tone produced. Given the intimate bonds between the art of singing and flute performance in the process of healthy tone production, these would be the structural components of the coordinated onset requiring the ideal openness of the throat, a tension-free larynx, and a full and loose abdomen, while attaining all their supporting energy from a well-grounded posture.¹⁸

Student response to tonal teaching

The confusion that students often encounter in relation to learned skills or materials is caused mainly by a lack of insight into the ways through which they perceive, perform and recall pedagogical information during the learning process. Individuals improve their ability to recognize and perceive skills in different ways through sensory and short-term memory until it becomes fixed as a long-term memory.¹⁹ In addition to short-term and long-term memory, memory can be understood as (1) declarative memory that is the conscious or intentional recollection of facts, ideas, and events; and (2) non-declarative memory that is unconscious or non-intentional, or a procedural form of memory dealing with skills and habits. For example, remembering a music learning session with a specific teacher would be an example of declarative memory whereas improving the learned skill as a consequence of the lesson is an example of non-declarative memory. This indicates that although in motor learning, used in tone development, performers have to consciously attend and later consciously recall, the capability to perform the skill itself is independent of conscious recollection (Squire & Kandel, 1999). Thus, the underlying brain processes and neural pathways related to the declarative memory and its function's quality are distinctly different from those of non-declarative memory in establishing long-term memory in music learning (Squire & Kandel, 1999). Further progress in one form of memory does not specifically reflect improvement in the other one. For example, a bright declarative music learner, who easily recalls step-by-step detailed instructions, may be a slow motor learner and vice versa. Therefore, it is the performers' mental concept of the tone and musical knowledge through auditory sense that mainly drive the formation of the tone. This can be developed through teaching the students how to develop the tone through engaging their cognitive and physiological abilities. This approach can be supported by familiarizing the students with a large variety of excellent tones of the accomplished performers on a regular basis through employing live or recorded tone models. This helps internalization of the resonance of a good tone in relation to the acoustics, variable registers, dynamics, stylistic interpretation, etc. The research on instrumental modeling to improve the tonal quality can be traced back to Sang (1987) who represented important aspects of effective tone modeling, such as posture, embouchure, phrasing, vibrato, aural discrimination. However, it seems to be wrong to think that one should only imitate his/her teacher's own tonal quality since everyone is born with specific unique innate set of potentials.

Beyond the internalizing stage would be the visualizing technique. This signifies visualizing the optimal tonal resonance in the mind while blowing either a real or an imaginary instrument. The brain cannot recognize the difference between doing something in reality and doing something in the imagination (Waitley, 2012). For example, when blowing to the imaginary instrument, individuals will have the same muscle reactions as if they had blown into a real instrument.

Thus, it can be argued that the ability to distinguish the characteristics of a good tone will be the result of recognizing, performing and revisiting the distinctions repeatedly (see Squire & Kandel, 1999). The final tonal outcome could be completely different from what it was initially conceived or attempted (see Squire & Kandel, 1999). This is a natural condition in the process of tone production and indicates that the student is on the right track to explore his/her own root tone. This condition occurs because the performers are largely dependent upon perceptual learning in order to achieve effective control over complex musical tasks such as tone development. Also, it is important to note the priming memory which can occur after only one exposure to a stimulus. This can have very long lasting, and can lead to both good and bad habits in musical performance. In tone production, performers experience priming not only in relation to the ideas and thoughts, but also to the physical resonance of tone and pedagogical tasks involved in tone development. After practicing learned skills for a period of time, as Petersen says, new tasks may be stored more efficiently and effectively as an internal set of programs that are quite different from the initial model (Petersen, 1998).

This intriguing but valuable function of the human memory engages performers' individuality that might be neglected in tone development. Performers are born with different musical competences, individual ingenuity and physical features, such as the shape and size of the body and bone density,²⁰ as well as age, cultural and the environmental features, which influence the knowledge, artistic consideration and the quality of the tone sought and produced. Therefore, an effective method of tone development should be responsive to individual attributes. Unfortunately, these attributes often remain undeveloped because of unbalanced teaching practices. This in return prevents performers from achieving their own unique tonal-print effectively.

Having discussed the exercises to raise the awareness of the automatic body reflexes through primal sound, the following section will present an exercise in how to coordinate breathing, primal sound and embouchure to make an ideal tone.

Ha-whh-ha dissociation exercise

Ha-whh-ha is a separation exercise by Crawford that helps to achieve a resonant tone by dissociating breathing and embouchure, on the one hand, and helps to connect the breathing and the process of tone production to the natural primal sound reflex on the other hand. In this sense, Ha-whh-ha is a way of discovering the most relaxed and resonant tone production with the minimum of effort in the embouchure and with more dependence on primal sound as the natural intermediary between the instrument and instrumentalist. This should lead to gaining the maximum result for the minimum of effort in tone production, a desirable aim for every flute player.

Ha-whh-ha represents the three phases which occur during one relaxed exhalation. The three phases are (1) ha with an open position of the mouth followed by the beginning of tone discovery through smoothly closing the embouchure; (2) the mid-phase or whh which is the semi-closed position of the mouth which is required to make a good sound; (3) the third phase ha is simply the gradually opening of the mouth during the remaining exhalation, i.e. a continuation of the out-breath accompanied by a smooth return of the mouth to the open position or ha shape. Thus, the three phases are all produced through an exhalation which consists of one simple and constant out-breath.

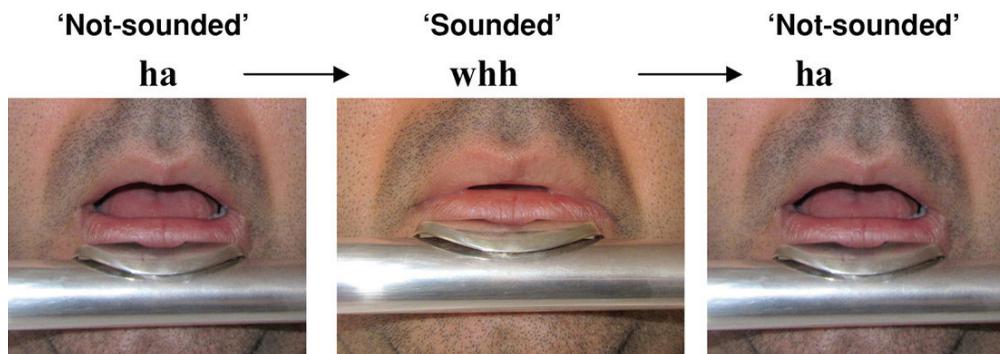


Figure 2 “ha-whh-ha” exercise

In order to practice ha-whh-ha exercise, one starts with an open mouth as the out-breath begins before the forming of an embouchure. This is similar to sighing while closing the embouchure quickly but smoothly until a tone is produced. The starting position of the lips is very similar to the shape of the mouth in the neutral vowel [Λ], but producing only a whispered breath sound at the beginning of ha which should continue until and after the tone speaks. This helps the learner to gain an effortless and natural tone while they are fully connected to the automatic body response through the silent [Λ] sound. The sigh provides the flow of air throughout the whole process. This manner is in contrast to the habitual and routine style of tone production that requires the embouchure to be adjusted prior to breathing and therefore before getting connected to the body automatic responses. In other words, the tone is not produced until the embouchure comes into its ideal shape and the optimal physical closure by means of imitating the silent whh sound. However, if the lips get too close, then the tone will be restrained or dampened. Thus the silent whh sound should bring the embouchure aperture only to its optimum size for the best result. That is followed by bringing the embouchure back to the former ha position. It is very important not to stop, force or resist breathing out when one opens the mouth when performing the third phase (that is the silent ha again). Therefore, practicing the whole exercise could be described as a single out-breath during which the embouchure is gradually formed and then unformed, with the important distinction that the air is constantly blowing out throughout the entire task. Eventually, the ha-whh-ha exercise can lead to the discovery of low register tone or that of the second register with more relaxed bottom lip.

Other variations of this exercise are as follows:

1. 'Ha – whh – ha'.
The whole exercise is performed with one breath.
2. 'Ha – whh ' whh – ha'.
In this, the inhalation occurs in the middle of the exercise without moving the embouchure. One may need to breathe in through the nose for this variation.
3. 'Ha' ha' ha' ha' Whh' whh' whh' whh' Ha' ha' ha' ha'.

In the third variation, many tiny breaths are taken and released through the gradual formation and dissolution of the ideal embouchure. The commas show the breathing places. The shape of the embouchure should follow the vowel shape of the mouth (i.e. ha or whh) which precedes the comma. Crawford (2012) sees ha-whh-ha as an exercise in control through dissociation.

Benefits of Ha-whh-ha

By repeating this exercise over time, the learner will understand the condition in which the breathing, embouchure and air column's supporting energy, and therefore the whole body, interact to make a perfect tone. As Crawford (2012) says, the purpose of this exercise is twofold: (1) to dissociate the process of tone production from breathing, and (2) dissociate breathing from the forming of an embouchure. This assists in the discovery of the primal sound and therefore the natural, most relaxed and resonant tone of the instrument. In addition, this is an efficient method to beat the negative habitual behaviour in breathing and tone production. The principle behind this exercise can also be applied to other areas such as breathing in whilst continuing to finger a passage. This approach emphasizes an accretional music learning method by training separate body parts and putting them together subsequently to achieve further improvement. Another valuable outcome of ha-whh-ha is its contribution towards gaining coordinated onset-release. Thus, when the performer is under stress or has a lower physical energy, and no routine practicing and preparation, ha-whh-ha can be a means by which the performer is interconnected and the ideal root tone quality is rediscovered most efficiently. Finally, it helps the airflow inside the mouth to be direct and balanced in either cheek and sufficiently supported by the air column at the beginning, during and after tone release. This is especially useful for those who play an end-blown wind instrument, such as Persian ney, in addition to the transverse flute. The reason is that the accumulation of the air that occurs in one side of the mouth is most likely to slow or even trap the airflow when playing flute as the author encountered.

Sustaining resonant tone quality

After the learner has mastered the skill of the coordinated onset-release, s/he may enter a more advanced phase that is the art of sustaining the root tone throughout its continuation. There are many performers who start a piece with a free and resonant tone, but the quality is gradually lost as the performance proceeds. This problem in sustaining

the tone emanates mainly from degradation caused due to a lack of connection to the body's automatic reflex system. This may be considered the major source of failure in achieving the sustained root tone through adhering to a segmented approach rather than a holistic attitude in tone pedagogy. In addition to this, an improperly expended breath power or over-blowing, attaining active jaws and embouchure, dysfunctional support-balance, breathing inefficiency are also considered as other important roots of the problem.²¹ In order to sustain the quality of the onset tone one must follow the natural principles with which they were born, as in primal sound-making. As observed in more than eight master classes held in Australia by accomplished European pedagogues, the teacher sets the student's embouchure as well as the head and the neck according to what is thought to be correct, however what is rarely considered is the naturalness of the tone and that whether the student's tone is based on the body's natural vibration or not.

Exercises for sustaining tone

Sustaining the tone quality throughout a performance is of paramount significance. A number of original exercises by the author, are represented here to help individuals with sustaining the tone quality. With increased skill, dynamic, tempo and register variations may also be introduced. It is recommended that the student should revisit the onset-release exercises prior to the sustaining exercises to ensure linking to the automatic body reflex system. Also, it is wise to precede each sustaining exercise with a vocalization (in some cases in a lower octave) of the exercises using the [Λ] vowel to ensure the ideal energy of the air column in relation to the abdomen and throat. This results in a condition in which the performer is not consciously thinking of his/her embouchure or any kind of voluntary muscle action while the air stream serves to sustain the tone throughout the phrase. It is equally important to practice at a gentle tempo and to focus on the tone produced. These approaches all help to explore the ideal model sound of the onset tone that is the basis for the rest of the phrase. Gradually, the learner will reach a level of mastery in which both the onset and the release of the tone are synchronized and combined. This mode of the tone, referred to by the author as the root tone, would be compatible with the body's reflexive energy and its natural vibration as occurs in making the primal sounds. Finally, it is wise to begin playing a non-legato passage with a legato version, as the former may seem to be more precarious due to the lack of tonal consistency which may be experienced between the separated notes of the phrase.

Exercise 2.1



Conclusion

Discovering a natural and effective primal sound helps performers achieve one of the foremost objectives in tone pedagogy that is a balanced onset and release. In addition to the balanced onset-release, the efficient employment of primal sound leads to major tonal accomplishments as outlined below:

- Balanced onset of tone
- Connecting to the body automatic response system
- Constancy of quality all over the duration of the tone
- Balanced release or smooth and flowing delivery of tone
- Optimal condition for sustaining a healthy root tone
- Improving the muscle memory and its refinement required for tonal development
- Discovering the root tone

The teacher can use the concept of primal sound as a raw and unique material to reflect tonal diversity and individuality rather than similarities. This may be opposed to the mainstream teaching that emphasize imitation in preference to individuality in tone pedagogy that is dependent on the inborn inner potential ability that largely contributes to the constitution and notion of tonal identity. This signifies that human sound is both diverse and complex in nature, and the vocal and tonal instruments should reflect that diversity (Crawford, 2011).

This approach also encompasses learning that combines holistic, physiological and accretional ²² modes. Utilizing such a combined approach considerably helps to disentangle the complexity embedded in tone pedagogy, such as in attempting to describe tonal characteristics and musical attributes that are often difficult or sometimes impossible to describe literally. For example, Teacher says ‘Play from your heart, dear’, Student asks ‘How?’, the Teacher says ‘Haven’t you ever been in love?’, the Student replies ‘No!’ while feeling hopeless or incompetent. The author has encountered such unrealistic expressions many times during his apprenticeship. These may raise a sensation of insufficiency and lack of confidence in the students. Accordingly, students are encouraged to seek out a solution to the problem through external remedies rather than through their real natural and innate potential. As discussed, both learning and memory are heavily influenced by a performer’s emotional learning. This means that the way the performer thinks and feels about former experience will directly change the way of learning and performing (Damasio, 1999).

Endnotes

¹ It is noted that there are a couple of works by Jacques Hotteterre (1707) and Michel Corrette (1740) that were published before Quantz’s treatise. Quantz’s writing resonates with the two earlier texts but, Quantz’ was a much more comprehensive work, which is three hundred thirty four pages long, and offers a far more advanced approach towards music pedagogy which encompasses not only flute performance, but also singing and the pedagogy of other instruments.

² Larynx refers to the area at the top of the throat that houses the vocal cords, though it is incorrectly used as vocal cords.

- ³ In singing, this ability of using primal sounds can be explored through various exercises that target human primal sounds as the basis for personal vocal tone (see Chapman, 2006 and Brown, 1998).
- ⁴ This refers to the principles of natural learning that draws upon the inner game practices to facilitate music learning and performance (Green & Gallwey, 1987). This attitude holds that in order to reach excellence in an outer game, such as music performance and learning, one is primarily required to win the inner game, which is within the semantic and meaning frames. Thus, all pedagogical and behavioral challenges and changes facing performers can be practiced as an inner work (i.e. use of the primal sound as an automatic stimulus) first to obtain the effect (i.e. tone production) that stimulus designed for. Therefore, in this article the inner musician/performer or inner ear symbolizes the concept of inner game in music pedagogy.
- ⁵ In one case, the author observed that careless tone practicing leads to chronic embouchure dystonia i.e. a state of abnormal muscle tone causing muscular spasm. For further information on performer's dystonia see Altenmüller & Jabusch (2010) and Schmidt et al. (2009).
- ⁶ For further information on the pedagogy of the root tone see BastaniNezhad (2012a).
- ⁷ Interview and formal lesson with Bart Feller at Victorian College of the Arts, Melbourne, AU (10-11 April, 2012).
- ⁸ Anne-Cathérine Heinzmann is a soloist, chamber- and orchestral musician and performs regularly in Germany and across Europe. In 1999 Anne-Cathérine Heinzmann was appointed Deputy Principal Flute of the Opera Orchestra in Frankfurt am Main.
- ⁹ Thomas Pinschof, a well-respected Viennese flutist and pedagogue, left the Vienna Symphony Orchestra in order to concentrate on the work with his 'ENSEMBLE I', a chamber music group which he founded in 1971. He was invited to Melbourne with ENSEMBLE I by the Victorian College of the Arts as Artist in Residence in 1976. In the course of his research he developed the 'Pinschofon', a special bass flute named after him.
- ¹⁰ Rien de Reede was flutist in the Royal Concertgebouworchestra for more than 30 years. He is much in demand as a chamber music coach as well as a jury member of flute and wind competitions. As an editor for Amadeus Verlag (Switzerland), Broekmans & Van Poppel, and Knuf (The Netherlands) he published numerous volumes of flute music and books on the flute.
- ¹¹ The author has been in contact with flute students and flute teachers, other instrumental and singing teachers at Monash University since 2009.
- ¹² According to Oxford Dictionary of English Grammar, Glottal means produced by the glottis. Glottis refers to the combination of the vocal cords and their interrelated space.
- ¹³ Please see Pinschof's automatic breathing by author.
- ¹⁴ Subumbilical muscles are the same as the lower abdominal muscles that are placed a little below the umbilicus or navel.
- ¹⁵ The vowel [ə], as in words about and woman, is considered as another neutral vocal phoneme and most common vowel in spoken language that is closely similar to [ʌ] although a minimal distinction exists between their duration.
- ¹⁶ It is actually the diaphragm, as the main respiratory muscle, along with the other respiratory muscles including the abdomen and intercostals that that produce this kind of effect. However, of the lower abdomen will provide flute performers with a visible and controllable tool in breath management and can be considered as where proper birthing begins" (Everett, 1964, p.4). Also, read Bastaninezhad (2012b) on breathing.
- ¹⁷ Subglottic pressure is the pressure of airflow below the vocal cords (sub-glottic pressure) causing the cords apart and a spring-like action. This action repeats so long as the breath is exhaled. Subglottic pressure is vital to the production of voice and is considered a main source of energy of the voice as well as the tone of wind instruments (see Isshiki, 1961).
- ¹⁸ Please see the section on support-balance by author.
- ¹⁹ Regarding sensory memory please read Coltheart, 1980, pp. 183-228.
- ²⁰ Bone density is a medical term referring to the amount of matter per cubic centimeter of bones.
- ²¹ Based on the data collected through interviewing Pinschof (Oct. 2011) & De Reede (2011), Feller (2012) and others.
- ²² For more information on accretional tone pedagogy please see BastaniNezhad (2012a).

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Biography

Arya BastaniNezhad was born in Shiraz, Iran and studied ney with the Iranian ney master teachers. After completing a Bachelor of Music Performance on the ney, and Master of Music in Western classical flute performance at Tehran Arts University, Arya began his PhD in Music Education at Monash University in 2009. Arya has taught at Tehran's Art University and Monash University, lecturing on Solfege and sight-reading, Flute, Ney (Persian Flute), Ensemble and the Basics of Musical Performance. Arya's doctoral study focused on the hybridized forms of music pedagogy, audiation-based composition and performance. His special area of interest focuses on parallel interconnected music education, and the ways that musical values are re-negotiated in modern Iranian pedagogy. In 2013 Arya was awarded a PhD in Music Education for his research into flute and ney pedagogies.