A singer/songwriter, composer and student’s reflections on the therapeutic, imaginative and creative effects of music and sound drones, rhythm, overtones and vowel sounds

“I shook my tambourine the whole time, because it helped me remember that even though I was going through different neighborhoods, I was still me.” Jonathan Safran Foer (2005, p.53)

Music and sound have always been a focal point in my life. As an infant, and before I could speak, I would sit between my mother and grandmother as they conversed, listening to the sounds of their conversation and emulating the patterns of their exchange with made-up language. And as a child I would spend many hours in my room beside my tape deck, listening repeatedly to top 40 hits, blues, rock and folk songs, at times fixating on artists and playing them exclusively until I had memorised all the lyrics and could emulate the unique timbres of the singers’ voices and characteristic vocal phrasing. I especially loved singers whose pitch patterns were derived from speech, including Bob Dylan, Sonny Terry and Bobby Mcgee and Billie Holiday, as well as the rich vocals of blues, country and jazz singers like Ella Fitzgerald and Emmylou Harris. The activity of emulating these vocal timbres and phrases, flexing and stretching words in a way to evoke emotion, tell a story and create the music’s form could absorb me for many hours at a time and I wouldn’t notice the time going by. My own interpretations of these songs grew organically from this process and, combined with my love for writing, my own songwriting. My early intimacy and fascination with words and their sounds and these distinct voices issuing from my stereo continue to influence my music-making today.

Given how engrossed I was during these sessions and the sustained enjoyment I experienced, these activities can be understood as an example of flow. Csikszentmihalyi (1996, p.2) defines this phenomenon as “a state of full engagement, control, concentration and action awareness, occurring during an activity that is perceived as highly self-rewarding and that is characterised by clear goals, unambiguous feedback, distortion of time perception, loss of self-consciousness and a balance between the challenges and skills required to best perform it.” Notably, my perception of lyrics, my voice and my attention to the sonic components were significant in inducing these flow states. On this, Byrne (2006, p.4) contends that “Music and flow are strictly linked because music can sustain peoples’
intrinsic motivation - one of the main features of flow experience.” In particular, I perceived the strong resonances of the vowel sounds in these words (Goldman, 2002) while singing and, combined with the right registers, certain sounds would just ‘feel right’. This perception would then influence and guide my lyrical decisions.

Many researchers have discussed the physicality of playing music, and that music as an embodied experience can be the source of new work (e.g., Bartleet & Ellis, 2010; Carless & Douglas cited in Bartleet & Ellis, 2010; Moffit Cook cited in Campbell, 1992; Dossey cited in Campbell, 1992). Indeed, as Pelias (2002) observes, “Unlike traditional scholarship where the body seems to slip away, performers generate and present their insights through the body, a knowing body, dependent on its participatory and empathic capacities” (cited in Bartleet & Ellis, 2010, p.35). In these terms I have noticed that my perceptions of the musical elements of vowels, overtones, drone and rhythm have influenced my creative flow as well as my management of performance anxiety.

Given the physicality of playing music (Pelias, 2002) and my lived experience of the above elements, it follows that I might gain further insight into my musical path and practice through research into psychological and physiological responses associated with sound. While Bartlett and Ellis (2010) vouch for autoethnography as a complimentary research method for musicians and artists, I was initially skeptical about using this method, as I was concerned that through unpacking my creative process and concentrating on the functional aspects of music, the integrity of my artistic voice might be compromised or marginalised. However, Gioia’s (2006) ethnomusicological research on music's therapeutic origins emboldened me to continue. Gioia highlights the symbiotic relationship of music’s functional and artistic values across societies, drawing comparisons to architecture in its synergy of aesthetic and functional purposes, and stating that, “long before music became an aesthetic activity, its efficacy as a change agent was paramount” (p.2).

For millennia vowel and overtone singing has been practiced in ancient musical systems worldwide. These systems include the shamanic traditions of Mongolia, Africa, Arabia, Mexico, the traditions of Judaism and Christianity, and the spiritual traditions of Tibet (Tannous, 2017; Gioia, 2006; Goldman, 2002). In these systems the practice of vowel and overtone
singing has been thought to provide therapeutic benefits, enable shifts in consciousness and to invoke deities (Tannous, 2017; Gioia, 2006; Goldman, 2002). The psychoacoustics literature (e.g., Ooman, 2017; Hameroff & Penrose, 2017; Tannous, 2017) corroborates these therapeutic beliefs, with findings revealing that the presence of unique overtones, or formants (concentrations of acoustic energy around a particular frequency in the speech wave) in sung vowels and overtones can positively influence the body on electrical and cellular levels, including stimulation of brain waves and resonance of the brain’s mechanics, as well as influence the nervous system, which can lead to increased feelings of wellbeing. These processes underscore the increasing use of sound by western medicine as a complimentary therapy for the treatment of a range of physical and neurological conditions, as per the Tomatis Method, which uses the human voice’s harmonic resonance to correct problems related to speech, motor control, language and motivation (Tannous, 2017; Gioia, 2002; Goldman, 2002). Further, Hameroff and Penrose’s (2007) theory of consciousness known as ”orchestrated objective reduction” supports the contention that sound may affect consciousness. These authors posit that consciousness derives from deeper level, finer scale activities inside brain neurons, with recent research led by Bandyopadhyay (cited in Hameroff & Penrose, 2017) lending credence to this theory with the discovery of quantum vibrations in ‘microtubules’ inside brain neurons (Hameroff & Penrose, 2017) Supporting the work of Tomatis (2002) and others working in sound therapy, the research suggests that EEG rhythms (brain waves) derive from these vibrations, and that from a practical standpoint, treating brain microtubule vibrations could benefit a host of mental, neurological and cognitive conditions (Hameroff & Penrose, 2017).

Further, Ethnomusicologist and Sound Practitioner Alexandre Tannous's (2017) EEG studies conducted with subjects receiving his sound meditations graphically illustrate the effects of overtones on the patterns of electrical activity within the human brain. Along these lines, traditional uses of overtones and sung vowel sounds have also been considered to affect the body’s subtle energy systems as per Eastern metaphysical theories of Ayurvedic Indian medicine, which attest that singing vowels in different pitches can resonate and activate the different chakras. In Hindu tradition, chakras refer to the seven integrated energy points located along the centre of the body, which are thought to be correlated with the physical, mental, emotional and spiritual wellbeing of the reciter (Goldman, 2002).
Music therapist Jonathan Goldman (2002) has adapted this practice into his own contemporary therapy work with overtone singing.

When I am writing songs, my aesthetic judgments comprise a gestalt of the semantic and phonetic characteristics of words and my embodied responses to them, in what I have come to understand as a process of ‘zooming in and out’. For instance, in a similar vein to my emulation of spoken words as an infant, I have often generated songs through singing gibberish, which then influences my word selection. Similarly, I have noticed that sometimes when listening to song lyrics I do not process their semantic meaning; rather, I listen to the sounds of the words in the same way I listen to an instrumental melody. Along these lines, Composer and Sound Meditation facilitator Pauline Oliveros (2005) encourages musicians to balance ‘focal’ and ‘global’ attention for the purposes of improving and enhancing musicianship and creativity. According to Oliveros, ‘focal’ attention produces “clear detail limited to the object of attention” (p.25), while ‘global’ attention is “diffuse and continually expanding to take in the whole of the space/time continuum of sound” (p.26). Further, Oliveros asserts the importance of “flexibly employing both and recognising the difference” (p.13).

The perception of meaning through sound was initially investigated in the early 20th century by Carl Jung (cited in Hargreaves & North, 2011) in his research on sound and associations, where he discovered that when a person’s attention weakens they are more likely to make phonetic associations through sound rather than semantics; for example, a phonetic association would be ‘car’ and ‘cake’, while a semantic association would be ‘car’ and ‘vehicle’. Kugler (2003) further unpacks these findings when he contends that archetypal phonetic associations carry meaning, with Gioia (2006) and Campbell (2002) supporting this view. Given these influences, it could be argued that my state of flow during songwriting and listening experiences has been either induced or enhanced by a combination of the effects of overtones on the body and brain, the body’s regulatory and subtle energy systems, as well as phonetic meaning.

My sound-based composing within digital audio workstations comprises a similar mix of aural awareness and repeated listening, which as Hugill (2012) points out are key features of digital musicianship. This process of composing is similar to my songwriting both in its focus on timbre as a
vehicle for musical ideas (i.e., concentrating on sound spectrums and emulating the timbre of other singers’ voices), as well as listening to sounds divorced from their semantic meaning. When composing within a digital audio workstation, which allows for processing of the fine details of sound, I often listen to sounds removed from their original context and therefore any preconceived ideas I may hold on how that sound is to behave or be treated (for instance, the constraints of an acoustic instrument’s range). This abstraction then allows me to sculpt and guide the behaviour of processed, synthesised or acoustic sounds in unique and intuitive ways. Schueffer (2012) labels this listening method ‘reduced listening’, that is, “listening to a sound for its own sake, in itself, by removing its real or supposed source and any meaning it may convey” (cited in Hugill, 2012, p.52). Further, Schueffer’s thoughts chime with Jung’s findings on phonetic meaning when he points out that “A sound can have inherent value on its own and not just because of what it may appear to represent” (p.52).

During my Practical Composition studies with my supervisor Dr Kim Cunio at the Queensland Conservatorium of Music in 2016, many of my musical ideas that were presented in my recorded electroacoustic works were generated and developed through this process of reduced listening. Actions engendered by this listening method included improvisation and automation of the parameters of granular, fm and analogue synthesisers and digital signal processors, as well as repeated listening and refining of these performances, audio and midi recordings. Perhaps in a similar vein to my work with vowels, my repeated listening and attention to these sound spectrums assisted with inducing an altered state of consciousness that was conducive to a flow experience. Indeed, the time I would spend listening with ‘focal’ and ‘global’ attention (Oliveros, 2005) to the harmonic content of these sounds is similar to the active process of listening encouraged in sound meditation contexts to enable shifts in consciousness (Tunnous, 2017; Gioia, 2006; Oliveros, 2005). On this, Tunnous (2017) highlights the prominence of overtone emitting instruments in traditional and ceremonial music settings across societies, including Buddhist singing bowls, bells, gongs and didgeridoos. Indeed, many researchers espouse the use of these instruments for their health-giving properties and effects on consciousness (e.g., Tunnous, 2017; Gioia, 2006; Goldman, 2002; Oliveros, 2005; Campbell, 1992; Lee, 1989).

My Supervisor Kim described my composition classes with him at the Con
as “wholistic,” and that we were engaged in a process of “polishing innocence.” With Kim I worked towards a release of partially scored recorded works that represented a hybrid of popular and art music techniques. In these classes I received mentorship in harmony, theory and music history, music listening and discussion, recording, mixing and mastering techniques as well as software and equipment. Many of my classes would begin with playing Kim a musical idea I had composed and recorded at home on my computer, which he would then listen to, subsequently educating me in terms of the musical references he detected in my ideas. This entailed listening, analysis and discussion of a variety of styles, composers and pieces including Bulgarian folk singing, Bach chorales, Music concrete, American minimalism, and the works of contemporary classical composers.

As Kim noted in our classes many of my compositions are drone based. I often begin the process of composing through creating and listening to a drone either played on an instrument or through my computer, knowing that attentively listening to drones can facilitate a state of flow in my improvisations and sometimes prompt hearing musical ideas playing in my head, a phenomenon Oliver Sacks (2011, p.32) calls “musical imagery,” that is, musical ideas brought forth from the brain’s auditory cortex. For instance, I began composing my piece The Vagrant through building a harmonically rich and evolving bed of sound within my digital audio workstation. I then concentrated my attention on the overtones of this bed of sounds, which suggested the beginning of a melody to me and prompted a melody playing in my head that was later scored as a flute part. As Sacks notes, expectation and suggestion can greatly enhance musical imagery, even producing, as in this case, a “quasi-perceptual experience” (p.39). Similarly, in my piece Barriers and Boundaries the initial musical idea came from playing close interval movements on a bowed guitar over a recording of another droning bowed guitar tone. Through Kim's observations and my own reflections it became clear that I had linked the timbre of the sustained bowed guitar tones to the vocals of Bulgarian folk singing ensembles, that is, music characterised by melodic singing over a drone. This association had even informed my use of close major second intervals, which are distinct to this form of folk music. Notably, Kim also observed that some of my ideas were influenced by indie film soundtracks, reassuring me that “That’s okay; this is the context that you’re coming from....” For instance, I began composing my piece Pink Walls through listening to a
sustained tone of an Oud sample, with the timbre of this instrument evoking a subconscious reference to the instrumental film score of *The Motorcycle Diaries* (a score influenced by traditional south American music), which in turn informed my instrumentation choice of an acoustic guitar for the melody as well as the sparse melodic phrasing. Similarly, when I played Kim my original motif for *Requiem* (my composition for string quartet and electronics) Kim laughingly observed, “… very Twin Peaks,” and I did happen to be watching that series at the time.

From these examples it is clear that listening to sounds or music as a stimulus for mentally retrieving auditory information is an important part of my composing process. Hargreaves and North (2011) unpack the psychology of listening to music and assert that responses to music are determined by different properties of the music, the listener and the listening situation, and that these determinants have ‘reciprocal-feedback’ relationships with one another, which thus influence different responses (i.e., physiological, cognitive, social and emotional) (p.6). Further, and consistent with my experience of the drone evoking musical associations, these authors and Oliveros (2005) assert the existence of centrally stored networks of musical association in the brain or ‘inner personal musical libraries’ (p. 7) and attest that these networks are intrinsic to and mediate all musical activities, including listening, composing, improvising and performing. Hargreaves and North (2011) posit that this ‘library’ is made up of intra and inter- musical networks, that is, “the relationships which exist within musical pieces, and those relationships perceived between different pieces and styles, as well as from their social and cultural networks of association”. (p. 8) On this, Oliveros (2005) maintains that “sound pressure patterns influence hearing but cultural history and experience influence listening” (p.17). Further, in considering the auditory cortex’s processing of musical stimulus, Handle states that “there is no sound pressure variation that will always lead to one and only one perception” (cited in Oliveros, 2005, p. 17), with Oliveros adding that “Similarly there is no perception that always comes from one and only one pressure variation” (p. 18).

Drone has long been used in traditional contexts for its purported therapeutic benefits (Tunnous, 2017). Indeed, many practicing in the areas of sound therapy and meditation espouse that actively listening to drones enables the brain to access and process repressed or screened out information (Tunnous, 2017; Sacks, 2011; Gioia, 2006; Huiz, 2006;
Goldman, 2002; Campbell, 1992), while Oliveros (2005) maintains that “very little information transmitted to the brain by the sense organs is perceived at a conscious level. Reactions can take place without consciousness” (p.19). Driving this process is the automatic nervous system, which as Byrne (2006) notes determines aesthetic responses depending on its level of arousal, and which can be moderated by “stimulus objects such as artworks” (p.17). This is congruent with my experience of drones facilitating my creative ideas, as well as sung and played overtones inducing or enhancing a state of creative flow. Further, perhaps it could also be argued that the continuity of the drone as well as its masking of other auditory stimulus facilitate my perceived shifts in consciousness. On this, Sacks (2011) contends that for composers who “employ highly abstract forms of musical thought” (p.32), the removal of normal auditory input may make the auditory cortex hypersensitive and thus have heightened powers of musical imagery. Sacks exemplifies this in discussing Beethoven’s deafness, highlighting the even greater intellectual and architectural complexity of the composer’s later works. Pertinently, while researchers continue to reveal insights into psychological and physiological responses associated with sound, Tunnous (2017) brings to the fore the continuing mystery of consciousness and argues for the equal validity of indigenous and traditional truth-seeking methods such as shamanism, describing sound as a phenomenon “… as superficially simple and fundamentally inscrutable as consciousness itself” (p.1).

The issue of continuity in music is also pertinent to my experiences in managing performance anxiety. As a Singer/Songwriter I used to experience severe performance anxiety prior to going on stage, an anxious state manifested through racing pulse, rapid breathing, tight throat and trembling hands and voice. I did notice, however, that when this happened and within a few short moments after singing and playing my anxiety was ameliorated. Importantly I would usually begin my sets with a song that included a percussive strumming style on my guitar as well as rapidly sung lyrics. Perhaps the regulation of my breath required for this singing provided a calming effect. Indeed the literature on mysticism and natural healing has long recognised the linkage of the breath to wellness and heightened mental states, and that regulating the breath is a central tenet in Eastern and Western healing traditions (Gioia, 2006). Further, many espouse the use of movement and rhythm as a panacea for anxiety and restoring the body and mind to a state of harmony (Tunnous, 2017; Sacks,
Central to this effect is a process called ‘entrainment’, which states that the body contains an autonomic mechanism that synches it up with strong external rhythms, pulses and beats (Tunno, 2017; Goldman, 2002). Stanley (cited in Gioia, 2006) discusses this correlation of humans’ inner body rhythms, that is, breath, heartbeat, motion, walking and sleeping, to external rhythms, highlighting the calming effect of the mother’s heartbeat beginning in the womb. She also points out that babies only hours old will positively respond to external sensory rhythms in their environment through their carers’ rocking, walking and singing (cited in Gioia, 2006). This phenomenon of biorhythms syncing with external rhythms underscores the creation of music for the purposes of mediation and relaxation, and also permeates traditional indigenous perspectives. For example, the Temiar people of the Malaysian rainforest believe that a hypnotic state is evoked by sounds that move in tandem with the beat of the heart, and thus emulate these rhythms that they find in nature on their percussion instruments (Gioia, 2006).

Entrainment has also been found to apply in the area of frequency. (Halbern cited in Tunno, 2017; Goldman, 2002) The literature discusses the vibratory nature of matter, and that different parts and systems of the body vibrate at a fundamental frequency when functioning harmoniously (Tunno, 2017; Goldman, 2002; Gioia, 2006). As Halbern (2002) states, “every atom, molecule, cell and gland in the body radiates at a characteristic frequency and also absorbs frequencies specific to it” (cited in Goldman, 2002) Therefore, external sounds oscillating at these speeds and applied to the body are thought by many to restore or enhance the body’s state of harmony. Along these lines, the All-union Research Institute states that “Some oscillation, when applied to the human body, will affect a micro massage of tissues and cells which will affect a balance and improve blood circulation, metabolism and the pulsing of the nervous system and endocrine glands” (Goldman, 2002). This treatment may also underscore the Australian aborigines’ use of the didgeridoo for healing purposes (Gioia, 2006). Further, entrainment is a central tenet in the documented neuropsychological changes produced by drumming (Huiz cited in Campbell, 1992), which has been practiced in indigenous cultures and shamanic settings for millennia. In recent decades, drumming has ascended in prominence as a healing modality in professional music therapy settings for its purported impact on the electrical activity of the brain and motor
skills (Tunnous, 2017; Sacks, 2011; Gioia, 2006). Sacks (2011) highlights this link between human auditory and motor systems through presenting patient case studies that demonstrate the synchronisation of music, rhythm and movement in treating a range of mental and physical conditions.

This research project, which has included a retrospective on my creative process and work and management of performance anxiety, a literature review in the fields of psychoacoustics, ethnomusicology, psychology and neuroscience as well as the views of prominent practitioners in sound therapy and meditation, has provided me with valuable insights into how the musical elements of drone, overtones, vowel sounds and rhythm have influenced my artistic process and management of performance anxiety, as well as a deeper understanding of my psychological and physiological responses to music as a Singer/Songwriter, Composer and Performer.

As Ellis and Bartleet (2010) elucidate, autoethnographical research is a genre that connects the personal to the cultural, social and political and is characterised by a focus on “intimate involvement, engagement, and embodied participation” (p.7). Indeed, given the embodied and often personal nature of my knowledge base and creative practice, my wholistic approach to composition (Cunio, 2016) as well as the value I attribute to both mystical and scientific perspectives, I have found autoethnography to be an effective and appropriate method for examining, understanding and communicating some of the personal stories behind my creative experiences. I hope that my research provides valuable personal insights into psychological and physiological responses to music and sound and the role these responses can play in managing performance anxiety and facilitating the generation and development of musical ideas.
References


Ooman, P. (2017). *Red Bull Music Academy*. Available at:


**Secondary Sources**


