

Chapter 1: Body Mapping and Student Musicians' Development

Making music is an intricate, skilled and demanding activity, way beyond the scope of current scientific analysis. It brings together a baffling array of the best the human mind and body can offer, demanding a well-balanced combination of mental, expressive and physical excellence.
(Schippers in Llobet & Odam 2007:vii)

Introduction

Setting the scene: Jeanette's story

Jeanette is passionate about music and dreams of her solo debut at Carnegie Hall. She started piano lessons when she was six, and since the age of eight has focused her future plans on a performance career. Jeanette's teacher and parents have encouraged her aspirations and supported her participation in numerous young artist competitions and intensive summer school programs. At the age of 16 Jeanette is practicing an average of four hours a day, more in the weeks preceding a competition or audition. She is looking forward to college when she will be able to devote more hours a day to practicing.

But lately Jeanette has noticed some problems. Her wrists and hands tingle and ache 30 minutes into practicing, and frequently continue after she has finished. Her lower back hurts when she sits on the piano bench, and she occasionally experiences a shooting pain in her right leg shin when using the sustaining pedal. Jeanette has also recently discovered that she doesn't have the strength and endurance she needs to play the very fast passages, fortissimo dynamics, and double octaves in her repertoire. She also can't turn door-knobs or unscrew bottle tops easily.

Jeanette's mother took her to the doctor. His diagnosis was that everything was normal and since it only hurts when she plays, his advice was to take a break from playing. She also asked her teacher about these problems and his suggestions were to take Advil when it really hurts and schedule more breaks into her practice sessions. Jeanette is frustrated and scared. None of the advice is helping, and she has to finish memorizing her Beethoven Sonata this week because her next competition is only four weeks away. She is working as hard as she can but she has run out of options. Now Jeanette's really starting to question if she'll have a career in music.

Jeanette's story: fact or fiction?

Within the music world, stories such as Jeanette's are unfortunately all too common. For musicians at all stages of their development, numerous factors may contribute to the potential 'perfect storm' of conditions that result in either technical limitations or playing-related pain and injury. Musical performance is demanding. This fact is underappreciated and undervalued by many teachers, performers, and health practitioners. Addressing the issue of how best to train musicians to ensure optimal performing skills must be addressed.

For Jeanette, and so many other young musicians like her, there is a lack of consistency in the way they are taught. Many music teachers have not traditionally addressed movement concepts in their pedagogy because it was not part of their experience. For those with natural physical coordination and facility, technical ease is taken for granted and the prospect of pain or injury is not an issue. Unfortunately musicians with natural physical facility are in the minority. The statistics for playing-related injuries vary from study to study and are typically as high as 76%, although they share the common element of unnecessarily high numbers (Mencimer 2003).

They reflect that fact that large numbers of professional musicians have encountered problems in their performing resulting from biomechanical deficits.

Within the medical community there is a need for healthcare practitioners to be aware of the extraordinary demands musicians place on their bodies, and the complexity of risk factors that may contribute to playing-related disorders. For professionals and students aspiring to a performance career, 'don't play' is not a satisfactory prescription when it is the only solution offered. Educating teachers and musicians about the importance of self-care is a vital first step. Expert medical support for performing artists is also paramount but does not substitute for quality education in the first instance.

Empowering musicians with the knowledge and skills for mindful music-making is both the goal and the solution. The focus of this study is student musicians' perceptions of their performance and development as a result of exposure to Body Mapping (BMG), an innovative teaching approach that addresses movement quality.

Background to the study

Body Mapping has been in existence since the 1970's and is a relatively new discipline in the field of somatic education. Somatic educators study and teach the practical relationships of the mind and body in action (Conable 2003a). My interest in researching BMG comes from significant personal experience with the influence of this information on the musical development of myself and other musicians since 1998 when I began incorporating the principles into my performing and teaching. My experience with BMG has included its application in performance situations that include instrumental and vocal solo performances,

choral ensembles, and classroom music settings such as classes in choral conducting, choral methods, and performance enhancement.

I experienced a number of improvements to my own performance skills resulting from BMG. These included the resolution of a variety of issues evident after long periods of conducting, specifically: constant lower back pain; occasional numbness in my right hand; upper back pain and shoulder fatigue after long rehearsals and performances; and recurring vocal hoarseness. As a singer I also improved the efficiency of my breath support. The influence of my gesture on singers in my choirs was also notable in terms of tone quality and singer stamina. Choristers routinely reported to me that they experienced less fatigue in rehearsals and enjoyed more vocal freedom when singing for me than other conductors they regularly worked with. My colleagues also commented on a change in the quality of my choral ensemble sound, which they described as richer and warmer.

I have also witnessed the influence of BMG instruction on musicians who have been taught by other teachers of this discipline, most particularly Barbara Conable under whom I did my own training. My certification as an Andover Educator was granted in October 2002.

History of Body Mapping

William Conable's discovery of the practical applications of the body map date back to 1973, and by 1975 both he and Barbara Conable were developing and using BMG principles in their teaching of musicians and dancers at Ohio State University (Conable 2003, pers. comm., 30 August). At the time of his discovery Conable was Professor of Cello at The Ohio State University.

He was also a certified teacher of The Alexander Technique, having studied with two preeminent teachers of the technique, Marjorie Barstow and Frank Pierce Jones.

A revelatory teaching situation initiated Conable's thinking about the body map. It involved observation of a violin student experiencing difficulties with her bow arm, i.e. she was unable to bend 'her bow arm at the elbow' (Conable 1995:129). The solution to her problem was resolved when he was able to show her 'where her elbow joint really moved' as opposed to the way she was thinking about it (Conable 1995:129). He realized that her movement problem was the result of mis-mapping the location of her elbow joint (Conable 1995:129). Conable stated the underlying principle thus:

... if there is a conflict between the way the body is mapped and the way it actually is, people will behave as if the map were true... the map is the interface between conscious awareness and the bodily mechanism: it is literally how we know ourselves.

Conable's development of BMG was based on practical investigations that informed his understanding of body maps. He comprehended they were 'something constructed in consciousness' and further proposed 'the function of creating these maps may be in some way innate, but their contents are not' (Conable 1995:128). Resulting from the experience of rapid change in the violin student with whom he consulted, he also surmised that because body maps were 'able to be changed, they must be learned' and the means by which they are created resulted from a variety of sensory stimuli, including 'the experience of movement, of touching and being touched...' (Conable 1995:128).

Conable concludes that one of the most important aspects of the process of change was the evidence that it is possible to learn to change the map with ease and with surprisingly powerful results (Conable 1995:128). This fact predisposed BMG as an activity well suited to the needs of

musicians who are routinely engaged in learning processes requiring development of specific motor coordination skills. Retrospectively Barbara Conable describes ‘the wonderful synchrony’ that occurred with Bill Conable’s practical discovery and the scientific work that was being conducted simultaneously in the 1970’s (Conable 2003a:2). As this quote illustrates, the investigations ran parallel with each other but completely independently.

Bill Conable and I did not know when he discovered the body map practically... that it was also being named and explored by neuroscientists. I learned about the scientists’ work fairly recently. It would have helped us very much during our years of exploration to know about the scientists’ work, but we didn’t (Conable 2003a:6).

Thus the discovery of the practical application of the body map was made through the needs of a musician’s movement. The information was subsequently developed by William and Barbara into the self-inquiry method known as BMG (Conable 2003a).

In 1997 Barbara Conable founded Andover Educators for the specific purpose of further developing the BMG agenda. This included the training of musicians to teach the technique and deepen the understanding of it through professional exchanges, which also included research. It was also her intention that BMG textbooks with a specific pedagogical focus would also be published by musicians in Andover Educators. In March 1998, pianists Bridget Jankowski and Jeanne Hansen became the first certified Andover Educators. The cohort of Andover Educators who were trained by Barbara Conable in the early years of the organization represented teacher and performers with a variety of musical foci. They included: Janet Alcorn (voice), Amy Likar (flute), Diana McCollough (voice), David Nesmith (French horn), Roberta Gary (organ), Thom Miles (organ), Lea Pearson (flute), Anita King (piano), Thomas Mark (piano), Kurt-Alexander Zeller (voice), and Hitomi Ono (voice) from Japan. By October 2010 there were 52 certified Andover Educators (A. Likar 2010, pers. comm., October 28).

The focus of BMG has continued to be primarily concerned with the movement needs of musicians. Table 1.1 shows the key events in the history of BMG to date, including the biennial conferences and retreats, and the publication of BMG books and videos/DVD's. It was compiled through exchange of information via personal communications and my own experiences with Andover Educator's since I began training.

Table 1.1: Body Mapping Chronology

Year	Event
1973	Discovery of the practical applications of Body Mapping for musicians by William Conable
1975	Body Mapping integrated into the teaching of William Conable and Barbara Conable
1991	(August) <i>Origins and Theory of Mapping</i> paper presented by William Conable at the Third International Alexander Congress in Engelberg, Switzerland
1997	Andover Educators founded by Barbara Conable
1998	<ul style="list-style-type: none"> ▪ <i>What Every Musician Needs to Know about the Body</i> (Conable) ▪ (March) Bridget Jankowski & Jeanne Hansen certified as the first Andover Educators by Barbara Conable
2000	<ul style="list-style-type: none"> ▪ Revised Edition <i>What Every Musician Needs to Know about the Body</i> (Conable) ▪ <i>The Structures and Movement of Breathing</i> (Conable)
2002	<i>Evoking Sound: Body Mapping Principles & Basic Conducting Technique</i> (Jordan & Buchanan) Video; DVD released 2004
2003	<ul style="list-style-type: none"> ▪ (June) 1st Biennial International Conference & Retreat - Willamette University, Salem, Oregon; Anita King host ▪ <i>What Every Pianist Needs to Know About the Body</i> (Mark) Book & Video
2004	Andover Educators participation in Health Promotion in Schools of Music Conference, (Amy Likar, Heather Buchanan, Lea Pearson, Kathryn Woodard)
2005	<ul style="list-style-type: none"> ▪ (June) 2nd Biennial International Conference & Retreat - Asilomar, California;

	<p>Amy Likar host</p> <ul style="list-style-type: none"> ▪ (July) Amy Likar poster presentation at Performing Arts Medicine Association (PAMA) annual conference, Aspen, Colorado ▪ <i>What Every Dancer Needs to Know About the Body</i> (Gilmore) ▪ (December) Barbara Conable retired as President
2006	<ul style="list-style-type: none"> ▪ (January) Amy Likar appointed President ▪ <i>Body Mapping for Flutists</i> (Pearson) ▪ (July) Amy Likar 30 minute workshop at PAMA annual conference, Aspen, Colorado ▪ (July) Hitomi Ono appointed President of Andover Educators Japan
2007	<ul style="list-style-type: none"> ▪ (June) 3rd Biennial International Conference & Retreat - Denison University, Granville, Ohio; David Nesmith host ▪ 'Enhancing Musical Performance Through Somatic Pedagogy: An Introduction to Body Mapping for Choral Conductors' in <i>Teaching Music Through Performance in Choir, Vol.2</i> (Buchanan)
2008	<i>What Every Trombonist Needs to Know About the Body</i> (Vining)
2009	<ul style="list-style-type: none"> ▪ (June) 4th Biennial International Conference & Retreat - Northern Arizona University, Flagstaff, Arizona; Dave Vining host ▪ <i>What Every Singer Needs to Know About the Body</i> (Malde, Allen & Zeller) ▪ <i>Oboemotions</i> (Caplan) ▪ <i>What Every Violinist Needs to Know About the Body</i> (Johnson) ▪ <i>Move Well, Avoid Injury</i> (Conable & Likar) DVD
2010	<ul style="list-style-type: none"> ▪ (October) New website launched ▪ <i>Constructive Rest: An Audio Guide Series for Students of The Alexander Technique & Body Mapping, Vol. 1.</i> (Nesmith) Audio download
2011	(June) 5 th Biennial International Conference - Montclair State University, Upper Montclair, New Jersey; Heather Buchanan host

(Sources: Conable 1995; B. Conable 2003 pers. comm., 30 August; B. Conable 2010 pers. comm., 30 August & 1 October; A. Likar 2010 pers. comm., 30 September & 1 October; J. Hansen 2010 pers. comm., 1 October Oct; D. Nesmith 2010 pers. comm., 1 October; H. Ono 2010 pers. comm., 4 October)

Neuroscience - the scientific basis of Body Mapping

The work of neuroscientists confirms the existence and importance of the body map as described by William Conable (Nichols 2004). Body maps are neuronal representations of our

physical being, i.e. aspects of ‘the body’s anatomy’ that are ‘systematically mapped onto brain tissue’ (Blakeslee & Blakeslee 2007:7). Blakeslee and Blakeslee (2007:5) describe the structure and function of body maps as an organic network:

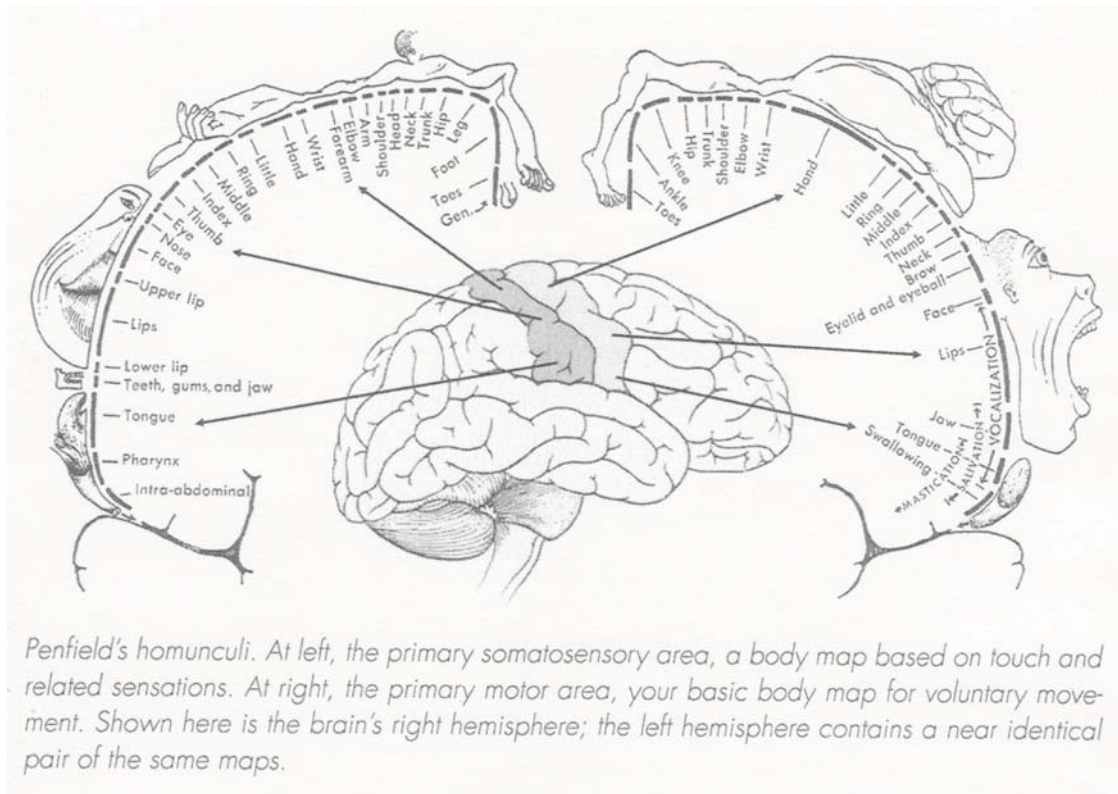
... your brain maps your body, the space around your body, and the social world... Every point on your body, each internal organ and every point in space out to the end of your fingertips, is mapped inside your brain. Your ability to sense, move, and act in the physical world arises from a rich network of flexible body maps distributed throughout your brain – maps that grow, shrink, and morph to suit your needs.

The terms ‘body map’, ‘body scheme’, ‘body image’ or ‘internal representation’ are used interchangeably in the literature (Conable 2003a; Johnson 2009). According to Conable (2003a), the concept of body map first appeared in scientific research about one hundred years ago. This is supported by the neuroscientist Pellegrino (2001:50) who writes in his 2001 study that the concept of an ‘internal representation of the body’ based on the ‘synthesis of visual and somatosensory sensations’ is almost a century old. Nichols suggests that the concept of a body map first occurs significantly earlier, in the work of the 19th century British neurologist John Hughlings Jackson, who was a proponent of the view that ‘that the body is represented on the cortical surface in the appropriate spatial relationships based on experimental work by Fritsch and Hitzig (1870)’ (Nichols 2004:¶12). Blakeslee and Blakeslee (2007:33) cite the work of British neurologists, Sir Henry Head and Gordon Holmes, who suggested the idea of the ‘body schema’ in 1911. Their research resulted in the understanding of the neural maps of the musculoskeletal system.

Head and Holmes figured out that... signals from your body’s musculoskeletal system are carried into your brain to determine your posture and the position of your limb. According to Head, we build up internal postural models of ourselves in conjunction with models of the surface of our bodies. He dubbed this the body schemata (now just called body schema), defined as “organized models of ourselves” (Blakeslee & Blakeslee 2007:33).

Body maps are located ubiquitously in the brain, including the cerebral cortex which is ‘the newest, and in humans the largest, part of the brain and the seat of intelligent perception and thought’ (Blakeslee & Blakeslee 2007:10). In the 1930’s and 1940’s, research by Wilder Penfield (a surgeon at the Montreal Neurological Institute) laid the foundation of understandings about cortical representations and their relationships to touch and movement. His publication *The Cerebral Cortex of Man* (1950) contained data on approximately 520 human brains and detailed information about the brain’s maps of the body’s surface. Penfield’s research was illustrated with a diagrammatic picture he nicknamed the homunculus (refer Figure 1.1 Penfield’s Homunculi). The homunculi as illustrated show the body maps for touch and voluntary movement in the right hemisphere of the brain. These maps are also duplicated in the left hemisphere of the brain. The primary somatosensory area (the darker shaded strip in Figure 1.1 - called the primary touch cortex) contains body maps based on touch. The primary motor cortex (lighter shaded strip in Figure 1.1) contains body maps for voluntary movements of the represented body parts (Blakeslee & Blakeslee 2007).

Figure 1.1: Penfield's Homunculi



(Source: Blakeslee & Blakeslee 2007:19)

The amount of cortical space allocated to specific body parts in the homunculi is notable. For example, in the primary motor cortex the muscles for the hands and mouth 'receive far richer projections from your motor cortex than do less dexterous muscle groups like those in your back, knees, and hips' (Blakeslee & Blakeslee 2007:22). This is due to the 'fast-changing, highly coordinated ways' that hands and mouths are used by comparison to the large muscle groups in the legs, for example (Blakeslee & Blakeslee 2007:22). Similar proportions are found in the primary somatosensory area as explained by Blakeslee and Blakeslee (2007:21).

The sensory receptors in your body are distributed unevenly. They are densely concentrated in the body parts where you need high acuity and dexterity, and sparse in parts where superior sensory resolution isn't paramount.

The implications of this information should be obvious for musicians. The regions of the body requiring the most dexterous coordination are naturally accommodated by the body maps in our brains. For example, the cortical surface for fingers, hand, lips and tongues is significantly richer than for the lower body (e.g. legs). In musicians, the lower body is not utilized to the same degree of fine motor coordination as the upper body structures.

Neuroscience also confirms ‘the maps in the executive areas of the cortex that represent the anatomy of the body are clearly dependent upon the motor and sensory experiences of the individual’ (Nichols 2004:¶16). Or stated another way: ‘the brain’s representations of the body, of movements, and of sounds are all shaped by experience’ (Schwartz & Begley 2002:212). Our neural patterns (body maps) are created by unique interactions with sensory stimuli (e.g. signals from the skin or the muscles or the retina) that are ‘picked up and assembled’ by the neurons and circuits in the brain (Damasio 1999:320). Nichols (2004:¶15) explains that our physical functioning is particularly influenced by ‘conscious representations of the musculoskeletal system’:

Conscious representations of the musculoskeletal system will influence motor learning and planning, and will have downstream effects on the cortical maps in the executive areas of primary motor cortex. Therefore, the details of the body map can influence cortical representation along the entire chain of information flow, from planning through execution.

The accuracy of the information contained in the body map therefore corresponds with the accuracy of the movement generated by this information. Nichols (2004:¶17) confirms that ‘if movement is based on an inaccurate knowledge or perception about the anatomy of the body, then pathologic changes can result.’ Tendonitis and carpal tunnel syndrome are two examples of pathological changes in the musculoskeletal system resulting from poor quality motor behaviors

(Nichols 2004). Nichols (2004:¶17) further states that ‘over-training of one specific motor pattern can also lead to pathologic changes, such as focal dystonias, in the central nervous system.’ In 2000 Nancy Byl reported on experiments on focal hand dystonia in three musicians. Her finding of an ‘85 to 98 percent improvement in fine motor skills...after they [musicians] took part in her sensorimotor retraining program’ has led to the conclusion that ‘in at least some patients with focal hand dystonia, the degraded cortical representation can be repaired (Schwartz & Begley 2002:220). However, Nichols further cautions:

It cannot be assumed that the “incorrect” usage of a musical instrument, or any other tool, or any part of the body is due to some distortion of the map on the motor cortex. The distortion of the map may develop in parallel with the disorder, but may be as much a result of the disease process or faulty motor practice...map distortions that develop may exacerbate and prolong the condition, however (R. Nichols 2010, pers. comm., 10 October).

Neuroplasticity is also important to body maps and their implications for movement. Neuroplasticity is the brain’s ability to change the content of neural networks and it is an ability that remains for the duration of one’s life (Beringer 2010). Schwartz and Begley (2002:15) describe neuroplasticity as ‘the ability of neurons to forge new connections, to blaze new paths through the cortex, even to assume new roles.’ Blakeslee and Blakeslee (2007:11) explain that ‘body-centered maps are profoundly plastic – capable of significant reorganization in response to damage, experience, or practice.’ While Damasio (2003:112) states that ‘it does take time to change the body and map the consequent changes’ the fact of neural plasticity resulting on brain-body interactions is confirmed and of great significance to performing artists desirous of making changes in the way they play. Moreover, the fact that ‘plasticity persists into adulthood’ also supports the potential for musicians of all ages to change the information contained within their body maps (Schwartz & Begley 2002:215).

Another asset in our neurological functioning is the existence of mirror neurons. Neurophysiological research by Giacomo Rizzolatti in the early 1990's at Parma University, Italy, with Macaque monkeys established a set of preliminary understandings about coordination of motor events (Pellegrino et al 1992). However, it was not until 1996 that Rizzolatti first published research confirming mirror neurons and 'multiple mirror neuron systems that specialize in carrying out and understanding not just the actions of others but their intentions, the social meaning of their behavior and their emotions' was first published (Blakeslee 2006:¶8). As the name implies, mirror neurons explain 'the modeling/mimicking process that is central to much human learning' Sylwester (2002:¶4). The relationship between planned actions and mirror neurons is still under investigation, but a range of applications have already been confirmed. For example, mirror neurons allow us to read intentions, simulate actions, and empathize with others (Blakeslee 2006). While research into mirror neurons continues, to date it is believed that they 'facilitate the preliminary motor neuron simulation, priming, programming, and rehearsing that occurs in children', a process that 'obviously enhances our eventual mastery of complex motor behaviors' (Sylwester 2002:¶10).

Neural circuits also contribute to brain function. Damasio (1999:331) describes the brain as a 'system of systems' with 'the action of neurons depend[ing] on the nearby assembly of neurons' to which they belong. 'Mirror neurons represent one stage in information processing that integrates sensory information with information based on memory and associations' (R. Nichols 2010, pers. comm., 10 October). The dynamic nature of brain circuits and their activities accounts for ongoing changes or brain plasticity. They also serve to connect different maps together (e.g. topographical and/or functional) (Damasio 1999; Nichols 2010). Nichols acknowledges that we have limited understanding of how these circuits operate, but he believes

that the ‘manner in which focal dystonias and other neurological disorders arise will depend on a deep understanding of the operation of these circuits’ (R. Nichols 2010, pers. comm., 10 October).

Questions about the ability of neuroscience to help musicians and other high level performers continue to be asked. For example, at the 2009 International Symposium on Performance Science, Altenmüller and Jabusch (2009:103) declared ‘most neuroscientists consider music as an excellent paradigm to study brain mechanisms related to sensorimotor or perceptive learning,’ furthermore:

Many neuroscientists are interested in musicians and in the neurobiology of music perception and performance. This interest is usually motivated by the attractiveness of the topic (music as an art) and by the enormous effects of music on brain networks and brain morphology, demonstrating the powerful mechanisms of brain plasticity in the short- and long-term range (Altenmüller & Jabusch 2009:103).

Neuroscience can be considered an area rich in opportunity for collaborative studies with musicians, but the degree to which musicians can be helped is still a matter of debate.

In short, scientific support for the body map is firmly established and research establishes that ‘your brain is teeming with body maps’ (Blakeslee & Blakeslee 2007:11). While significant progress has been made in understanding mind-body connections in the last century, Blakeslee and Blakeslee (2007:5) also recognize ‘the science of body maps...is a widely underappreciated piece of the puzzle’. Nichols confirms that ‘brain maps are not only simple representations of anatomy’ but also have ‘functional representations as well’ because movements as well as muscles are represented (R. Nichols 2010, pers. comm., 10 October). However, current knowledge about brain functioning and sensory and motor coordination is sufficient to confirm the validity of the body map in relation to musical movement. This further underscores the

importance of cultivating effective movement while developing musical technique. Nichols (2004:¶7) concurs with the need to emphasize 'the importance of educating musicians in anatomy and physiology of the motor system so that practices that can lead to pathology in the musculoskeletal system can be avoided'. This also leads to discussion of a related issue - musicians' health.

Musicians' Health

Effective movement is paramount in music-making due to the highly refined and intensely repetitive nature of performance. The fine-motor coordination skills developed by professional and amateur musicians require them to move in ways that are potentially more injurious than the predominantly gross-motor movements executed by professional athletes and dancers (Conable 2003a; Horvath 2002; Mark 2003). Wu et al (2009:371) confirms that 'efficient sensorimotor integration is essential for music performance.' Barbara Conable (2004a:¶2) summarizes the nature and importance of musical movement by stating:

... moving with ease and freedom and elegance has a direct influence on almost every aspect of our work: our ability to do complicated things quickly, gracefully and accurately, our control, our freedom to express our understanding of the music we are performing clearly and persuasively, even our ability to respond to music imaginatively.

Through advances in research and pedagogy, including a commitment to best practice in music medicine and music education, a clearer understanding and increased awareness about the impact of performance on the human body has emerged (Palac 2008; Schippers in Llobet & Odam 2007). In the last 30 years the field of 'arts medicine' has also developed, enabling the unique needs of performers to be more accurately comprehended and treated by the medical community (Graffman in Sataloff et al 2010:viii).

Mention of occupational diseases of musicians began in the 18th century. Harman (2010) notes in her historical review of performing arts medicine that the Italian physician Bernardino Ramazzini was the first to publish on the subject in 1713. The topic continued to be discussed through the nineteenth century but was focused mostly on the problems of keyboard players transitioning from playing on the lighter-touch harpsichords and fortepianos to the heavier action of the grand piano. Several new publications addressed the changing physiology of piano playing. The British physician George Vivian Poore conducted extensive research on 'pianists' cramp' (known today as focal dystonia) in the 1800's, and the German piano teacher Ludwig Deppe challenged the use of the 'isolated [finger] approach'. In particular, Deppe's book *Arm Ailments of the Pianist* (1885) advocated for the production of tone through the 'coordinated action of all parts of the arm.' Savage (2002:7) proposes that Deppe's biomechanical understanding was 'ahead of his time' and thus anticipated later studies. It was not until the 1920s in the USA that organized and extensive research into piano technique was undertaken. Otto Ortmann, director of the Peabody Conservatory in Baltimore, wrote two groundbreaking publications *The Physical Basis of Piano Touch and tone* (1925) and *The Physiological Mechanisms of Piano Technique* (1929) that were the result of scientific investigations using the most modern technology available at the time (Harman 2010). His work is regarded as 'the first to offer substantiated technical proof regarding the most efficient and physiologically correct positions of the piano-playing mechanism' (Savage 2002:8).

Despite the efforts of music teachers, performers and physicians in previous generations to address the problem of musicians' injuries, it was not until 2001 that the National Association of Schools of Music (NASM), (the American accrediting body for college and university-level music programs), finally recognized the importance of the issue. The following statement was added

to their general standards: 'Institutions should assist students in acquiring knowledge from qualified professionals regarding the prevention of performance injuries' (Harman 2010:16). While NASM did not prescribe the means by which this standard should be met, this statement was a catalyst for the formation of the Health Promotion in Schools of Music Project (HPSM) jointly organized by Kris Chesky (Director of Research and Development, Texas Center for Music and Medicine) and the Performing Arts Medical Association (PAMA).

In October 2004, the *Health Promotion in Schools of Music Conference* was held in Fort Worth, Texas. The attendees numbered 102 and comprised musicians, teachers, medical practitioners, health professionals, and researchers. A range of music and arts organizations also provided sponsorship, which reflected the wide-ranging interest in and support of the purpose of this conference in the USA and beyond. Sponsors of the conference included The Grammy's, the International Foundation for Music Research, the National Association of Music Merchants, and the National Endowment for the Arts. NASM identified four areas of musicians' health and these comprised the primary agenda discussions: vocal health, hearing health, mental health and neuromusculoskeletal health (HPSM conference proceedings 2004). The primary purpose of the HPSM project was to begin the process of providing adequate information and resources 'to assist schools of music to prevent occupational injuries associated with learning and performing music' (Chesky, Dawson & Manchester 2006:142). The aim of the conference was 'to connect health care experts with individuals and organizations involved in the education of musicians' (Chesky, Dawson & Manchester 2006:142).

The HPSM Project declarations and recommendations were published in 2006, two years after the conference. They resulted from the deliberations of four specialist working parties begun

during the conference (one for each health area) with additional input by the Board of Directors of the PAMA in 2005, and final review by the Executive Committee of NASM in 2005 and 2006 (Chesky, Dawson & Manchester 2006). Figure 1.2 contains the four HPSM consensus-based declarations resulting from the conference. Figure 1.3 contains the four HPSM consensus-based recommendations for action (Chesky, Dawson & Manchester 2006; Harman 2010). The declarations (Fig. 1.2) highlighted the importance of these four specific issues as they pertained to musicians' health and in doing so, paved the way for addressing the scope of the problems. The declarations also provided a basis for the recommendations (Fig. 1.3), which stated clear directions for the development of strategies and solutions.

Figure 1.2: Health Promotion in Schools of Music Consensus-based Declarations

1. Performance injuries are preventable. A holistic approach that encourages wellness and personal responsibility is necessary for prevention.
2. Schools of music do influence student behaviors through factors such as collective values, beliefs, and actions.
3. Without diminishing the concerns for musculoskeletal, vocal, and mental health, schools of music should recognize that Noise-Induced Hearing Loss is a widespread and serious public health issue and that music is always implicated as a causal factor.
4. Because many of the physical, psychological, and sociological determinants for performance injuries are well established before young musicians attend college, schools of music must prepare health-conscious music educators and produce injury-free musicians. Music education faculty must acknowledge the possible negative consequences of learning and performing music and prepare future teachers accordingly.

(Source: Chesky, Dawson & Manchester 2006:142; Harman 2010:17)

Figure 1.3: Health Promotion in Schools of Music Consensus-based Recommendations for Action

- 1. Adopt a Health Promotion Framework**
 - WHO defines *health* as a complete state of physical, mental, and social well-being, not just the absence of disease. Faculty within schools of music, particularly those with expertise in music performance, music education, pedagogy, and conducting, represent the primary channels for changing how music is taught and played in order to reduce performance injuries. Music faculty, more than any other group, embody the critical determinants for establishing social and cultural values and beliefs that are so important for influencing students.

- 2. Develop and Offer an Undergraduate “Occupational Health” Course for all Music Majors**
 - The primary role for all schools of music is education. Prevention education is the foundation for injury prevention.

- 3. Educate Students about Hearing Loss as Part of Ensemble-Based Instruction**
 - Experts agree that music students are at risk for hearing loss and that they should be routinely informed and educated as part of ensemble-based instruction.

- 4. Assist Students through Active Engagement with health Care Resources**
 - Music students need to know when and where to go for help. Health-care professionals need to know that music students may have unique and challenging health situations and that there are resources and performing arts medicine experts willing to help if needed.

(Source: Chesky, Dawson & Manchester 2006:143; Harman 2010:17)

In the initial recommendations provided for schools of music, Chesky, Dawson and Manchester (2006:142) stated:

HPSM recognizes the need for a common and unifying framework that consolidates an academic agenda that focuses on individual knowledge, responsibility, and action with a coherent and integrated continuum of experiences for students.

The nature of the HPSM recommendations was such that schools of music were encouraged to pursue the agenda in the manner best suited to their own resources and curricular structure. In

the institution where data for this study was collected, this recommendation facilitated administrative support for the continued role and value of BMG instruction in the curriculum. Research data confirming that ‘young musicians enter college with existing problems’ (Chesky, Dawson & Manchester 2006:142) was also a compelling reason why college-level instruction is a crucial place to address the problem. First, it is the last opportunity to assist students with biomechanical problems before they graduate and enter the professional world. Second, it is the ideal time to integrate this teaching into the curriculum for music education majors, so they can in turn facilitate constructive habits of body use with their students. And third, because tertiary faculties are viewed as leaders and role models in the field, university faculties also have access to music teachers and performance professionals through continuing education programs and guest teaching opportunities. Finally, more than any other level of education, university faculties have the broadest sphere of influence over students, performers and teachers in the music field.

The statistics that have fueled discussion and research into musicians’ health issues resulted from the 1986 landmark study of the 48 affiliate orchestras of the International Conference of Symphony and Opera Musicians by Fishbein and Middlestadt. Self-study information was received from 2212 of a possible 4025 professional musicians. Some of the study highlights include 82% reporting playing-related medical problems and 76% claiming that their ability to perform was adversely affected by the problem (Horvath 2002; Smith & Sataloff 2000). In addition, Conable (2003a citing the American Symphony Orchestra league) claims that the statistic for professional musicians currently out of work due to playing-related injuries (10%) is a conservative estimate in her experience. A more detailed discussion of health statistics, including comparisons of additional studies, is contained in Chapter 2.

Training musicians

Traditional approaches

In the USA, Europe and Australia, the value of exposure to music in early childhood education is well established and supported by a range of programs. In the USA, for example, group music programs such as Kindermusik and Music Together are parent-child experiences that offer early musical experiences to babies and toddlers. The focus of these methods is music and movement in developmentally appropriate curricula with adult participation an integral feature. Children in these programs have the opportunity to progress through a range of musical experiences from infancy through to the age of seven (www.kindermusik.com; www.musictogether.com).

The Suzuki Talent Education method and Yamaha Music Education System are two internationally-recognized music education methods for children aged three to eight. Suzuki students may begin instruction on violin or cello as young as three years old, although many wait until the age of five. The age for commencing instruction on these instruments depends on a number of variables, including the readiness of the child (attention span, physical maturity) and the preference of the teacher. The Suzuki approach to learning music emphasizes listening, imitation and repetition over formal reading skills (www.suzukieeducation.com/suzuki). The Yamaha Music Education System also caters for children between the ages of three and eight years, with a focus on ear training, singing, and keyboard skills in a group setting. As with Suzuki, Yamaha instruction is age-appropriate and focuses on aural development before instrumental technique and reading skills. The instructional emphasis is on acquiring musical skills in the sequence comprised of listening, singing, playing, and finally notating. Both approaches are supported by research that indicates the aural development of a young child is fully developed

by the age of four, in contrast to muscular strength and coordination which remains comparatively immature until the age of fifteen (www.yamaha.com/timely_instruction).

In elementary music classrooms, the inclusion of methods such as Orff and Kodaly is commonly found. Within a group music education setting, these methods provide ‘an opportunity to appreciate, duplicate, and create simple rhythmic patterns and musical intervals as an introduction to later more formalized music education in the form of private or small group music lessons’ (Brandfonbrener 2010:27). Instrumental instruction for brass, woodwind, string and percussion instruments taught in small groups is also offered in many public and private schools. The emphasis for many of these students is participation in school-based bands and orchestras. Participation in choirs also provides opportunities for vocal training for school students and is the principal means by which children in elementary and middle-schools receive instruction in voice.

Examples of children with exceptional musical talent being trained in discipline focused schools or music programs for the sole purpose of developing their skills occur world-wide. An example of a specialized educational environment in the USA is the American Boychoir School located in Princeton, New Jersey, which offers a comprehensive academic and musical education experience for boys from grades four through eight. Considered to be the finest boy choir in the USA, the students receive daily instruction in choral singing through participation in ensembles, academic classes, instruction in music theory, and individual lessons in vocal technique (www.americanboychoir.org). Similarly, high-school age students with performance career aspirations may gain admission into specialized conservatory training programs as a precursor to

a baccalaureate degree program. At all levels on training, individual instruction is a key component of the music education experience (Brandfonbrener 2010).

It is not uncommon for performing musicians to also engage in private music teaching through a private studio or an educational institution. Booth (2009:223) states that ‘the role of one-on-one music teacher is the one more musicians share than any other’. The influence of private music teachers is differentiated from the traditional classroom setting because it has continuity over a longer period, typically a number of years, and is highly personalized. Hence, ‘there is a potential for the music teacher to exert an inordinate amount of influence, both good and bad, on the musical and extramusical life and development of a vulnerable young student’ (Brandfonbrener 2010:28). The phenomenon of the private lesson is described by Booth (2009:223) as ‘an improvised teaching and learning duet, a work of art as much as of science, and it succeeds as much from the interpersonal as from the technical...’. There is no doubt that music teachers have traditionally been important influences in the lives of their students. Janet Horvath (2002:15) explains the importance of her teacher on her identity within her peers. She described the ‘honor’ of being a student of ‘the great cellist and pedagogue Janos Starker’ by saying:

Indiana University School of Music is a large, competitive place, and we Starker students were really in the limelight, right alongside the students of the legendary violinist Josef Gingold. We were talked about, emulated and the envy of the whole school.

During the course of a student’s musical career they will also typically change teachers as they progress through different stages of their pedagogical development. For example, from childhood until the time a student graduates from university they may have received private instruction from multiple teachers, each with their own unique influence on the student’s

development. Brandfonbrener's (2010:28) comment 'one can turn to almost any musical biography for confirmation of the important role of the teacher(s)' supports this.

An issue of concern with regard to private music lessons for students of any age is that they 'may be a victim of good intentions but poor information' (Brandfonbrener 2010:28). While music teachers in institutions of higher learning and public schools are required to prove qualifications for a certain level of training and expertise, within the private sector there is often little or no regulation of music teachers. Moreover, 'it is virtually impossible to monitor pedagogic technique and interpersonal relations in the music studio' (Brandfonbrener 2010:28). By contrast, in the hands of a well qualified teacher, private lessons become a positive and enriching experience. Booth (2009:229) describes the nurturing quality of this individual experience in metaphorical terms, as 'the circle of earth where we plant and care for the future we wish to see'. A further issue is that there is no single pedagogical approach for learning musical technique and this can create problems for students when switching teachers. For example, cellists may be taught different bow holds or instrument set-up, brass players may be taught different breathing techniques, and flute players may be taught different stances. Making major technical changes can be a source of confusion for students because the coordination of specific movement patterns is ingrained. Furthermore, the issue of ongoing professional development for private music teachers is worthy of mention. In the private sector it is typically left to the motivation of individual teachers with primary sources of support and information coming from professional music organizations in their area, or continuing education courses conducted through institutions of higher learning.

Developing 'healthy' technique

In the USA, recognition of the evidence of performance-related injuries in all areas of musical performance has been achieved through advocacy work by a range of professional organizations. These include the Performing Arts Medicine Association (PAMA) and the National Association for Music Education (MENC) as well as specific instrument or discipline focused organizations, e.g. the American String Teacher's Association (ASTA) and the National Flute Association (NFA). Sternbach (2004:36) affirms that while music teachers 'greatly enhance the quality of our young students' lives through music' the risks for injury when practicing and performing are great. He further states: 'most of us would agree that finding ways to avoid such problems in the first place is the best solution' (Sternbach 2004:36). This raises the question: *who will find the solutions?*

In his edited volume on the multifaceted pedagogical needs of pianists and their teachers, *A Symposium for Pianists and Teachers: Strategies to Develop the Mind and Body for Optimal Performance*, Kropff (2002:vi) states: 'we acknowledged some years ago the need for a comprehensive volume that dealt with the specifics of healthy piano technique and movement'. Members of the Committee on Technique, Movement and Wellness of the World Piano Pedagogy Conference provided the impetus for this publication which takes a holistic approach to healthful and effective piano technique. The authors include eight prominent pianists and pedagogues and two physicians experienced in the field of music medicine who present chapters under the following headings: the mechanical, the technical, the musical, the healthful, and the pedagogical (Kropff 2002). Healthy or non-healthy pianistic movement can only be established in so far as pianistic movement itself is clearly defined. Fink (2002:33) describes it as 'any

purposeful movement for musical ends' thus bringing the issue of movement into a central position.

The Taubman Approach is an example of a technical method developed in the field of piano pedagogy that addresses the issue of effective movement. It was initially developed from the study and research of Dorothy Taubman, and continues to be disseminated through The Golandsky Institute in New York City. The goal of the Taubman Approach is 'to teach proper coordination, ease and correct movement' for the purpose of 'preventing future limitations and injuries at the instrument' (Moran 2008:2). The workbooks produced for teachers and students include photographs of clear examples of body alignment in addition to instructions about the basic principles and positions required to execute the rotational movements of Taubman's method. Fundamental to successful application of Taubman principals are 'alignment and balance' which are 'the foundation of our physical relationship with the piano' (Moran 2008:3). Taubman principles are currently being expanded to string teaching pedagogy.

Instrument modifications to facilitate technical ease and prevent performance-related injuries are gaining acceptance. Traditional neck straps, designed to support the weight of heavy instruments such as the saxophone, are being replaced with harnesses which distribute the weight of the instrument more evenly through the body. Bassoonists have access to devices to assist with the weight of the instrument when seated (seat straps) or standing (shoulder strap/harness). Floor pegs are also recommended for large instruments such as bass clarinet, orchestral tuba, and baritone saxophone. Custom- designed chin rests are increasingly common for violinists and violists. Some instruments have experienced successful structural redesigned. For example: the angled head joint and off-set G key for flute; the 7/8-size piano keyboard; the

asymmetrical bodied Pellegrina viola; and Plexiglas mouthpieces for brass players (Dawson 2006; Horvath 2002).

How musicians learn

Understanding how we learn begins with an understanding of brain function. Research has demonstrated that the brain flourishes with the acquisition of new skills through activities such as playing a sport, playing a musical instrument, learning a new language, or learning how to dance. These activities require focus and practice which in turn stimulates the neural networks to 'grow new connections' and 'create new motor and sensory-motor maps for each new activity' (Bach-y-Rita 2001:¶2). Neural connections are strengthened each time the brain accesses the network, i.e. the more frequently they are engaged the stronger the signals and the clearer the information in the body map. Sprenger (1999:4) uses this analogy to illustrate that 'neural networks begin as rough paths and eventually become more like superhighways'. The brain's capacity to re-organize neurons, known as brain plasticity, occurs throughout life and is the principal reason for our ability to change our sensory-motor functioning (Beringer 2010; Fehmi & Robbins 2007; Rita 2110; Schwartz & Begley 2002; Sprenger 1999).

The acquisition of new motor skills requires deliberate practice. Research by Merzenich and Jenkins in 1993 confirmed that 'plastic changes in brain representations are generated only when behaviors are specifically attended' (Schwartz & Begley 2002:224). In other words, our capacity to pay attention is the key to the creation of new neural networks (Bach-y-Rita 2001; Schwartz & Begley 2002). By contrast, 'passive, unattended, or little-attended exercises are of limited value for driving neuroplasticity' (Schwartz & Begley 2002). The degree to which attention is directed is also significant. Sprenger (1999:94) states 'prolonged attention is not

only impossible, but also undesirable. The brain needs time for both focusing and processing'. This has implications for the time-frames in which neural networks are optimally developed. Currently the issue of attention remains an area of individual variance in learning experiences.

How attention shapes awareness is the subject of *The Open-Focus Brain* (Fehmi & Robbins 2007). From the results of his research and clinical experience, Fehmi concludes that 'attention is the central mechanism through which we guide our awareness and experience the world' (Fehmi & Robbins 2007:2). Fehmi further asserts that optimal mind-body functioning is the result of paying attention appropriately. He claims that it is our 'human ability to pay attention to how we attend' that sets us apart from other species and makes it possible for us to maximize our potential (Fehmi & Robbins 2007:168).

In the context of BMG, mindfulness and awareness are synonymous with attention (Conable 2003a). Millman (1999:19) believes that awareness is 'the beginning of all growth'. Langer (2006:5) describes mindfulness as 'an effortless, simple process that consists of drawing novel distinctions, that is, noticing new things'. Roberts (2009:1) defines mindfulness as 'a way of *being* in the world... responding, not reacting, to the ever-present flow of events and experiences in your life with patience, openness, and compassion'. This study is predicated on the idea that mindfulness in the present manifests in the ability to remain attentive to and focused on the task at hand.

According to Langer, the ability to be mindful requires flexibility in our habits of mind. Additionally, the ability to make choices derives from a state of mindfulness as opposed to functioning reactively (Langer 2006). Langer (1997:4) also specifies three characteristics of 'a

mindful approach to any activity: the continuous creation of new categories; openness to new information; and an implicit awareness of more than one perspective'. Roberts (2009) asseverates the importance of mindfulness in the way it can affect all aspects of our quality of life. Inappropriate application of the *fight-or-flight response* is one such example of a psychophysiological consequence of functioning mindlessly. For people with a chronically narrowed focus or field of attention, experiences and behaviors are limited (Fehmi 2007; Roberts 2009). Further support comes from Schwartz and Begley (2002:227) who assert that 'attention can control the brain's sensory processing'.

The importance of the way we pay attention cannot be overstated because it affects all facets of human functioning (Fehmi & Robbins 2007; Schwartz & Begley 2002). Fehmi describes changes in 'muscle tension, respiratory rate, and the flow of neurotransmitters and hormones' as a result of variations in the electrical patterns of the brain, 'the master control panel for our mind and body (Fehmi & Robbins 2007:13). Neuroscientist Mike Merzenich summarizes it simply: 'mental states matter' (Schwartz & Begley 2002:337).

The research findings for attention and learning are significant because they confirm the importance of the intentional learning process in BMG, known as re-mapping movement. Re-mapping is achieved through a combination of actively synthesizing cognitive information with practical activities in a state of inclusive awareness. Schwartz and Begley (2002:224) confirm the importance of paying attention for the sake of creating accurate body maps:

Physical changes in the brain depend for their creation on a mental state in the mind – the state called attention. Paying attention matters. It matters not only for the size of the brain's representation of this or that part of the body's surface, or this or that muscle. It matters for the dynamic structure of the very circuits of the brain and for the brain's ability to remake itself.

Blakeslee and Blakeslee (2007:37) also affirm the relationship between the body schema and its development:

Your body schema is a physiological construct... When you work with instructors of...movement training, you are basically working on body schema awareness. These methods teach you to purposefully attend to the many core elements of your schema as a means of self-exploration.

In sum, science confirms that all movement quality is governed by the information contained in our neuronal networks (body maps). Furthermore, our ability to provide accurate sensory-motor input is also dependent on the cultivation of a state of mindfulness or focused self-awareness. For musicians and practitioners of BMG, the ability to fully engage attention is a crucial part of their mind-body experience. For example, inclusion of the kinesthetic sense is an integral part of the sensory-motor learning process in BMG. Hooper (2005:12) testifies from her experience as a performer:

When I learned to tune this sense in [kinesthesia], I learned to pay more attention to how I was performing. I also learned that kinesthesia and common sense can be partners. It makes common sense to move in the easiest ways and in the ways that agree with how the body is designed.

Developing awareness of the multi-faceted needs of musicians is a recurring concern in the literature. For example, efforts by performers and pedagogues to address the issues surrounding technical difficulties, and performance-related pain and injury have resulted in acceptance of new pedagogical approaches and instrument modifications in some areas. However, when viewed against musicians' health statistics it is still evident that the needs of the majority of musicians are not being adequately met. That said, within the parameters of what is currently known about brain functioning, body movement, and learning, there is sufficient evidence to support the theory and practice of BMG.

Importance of this study

The research question

The question of the methodological impact of BMG in this study is implicit in the primary research question: 'How are student musicians' perceptions of their performance and development influenced by BMG?'

Through the analysis and presentation of data, this study specifically examines the following areas as they pertain to the research question:

- i) Describing the students' perceptions of the ways BMG enhances, or not, their ability for musical expression.
- ii) Probing the students' understanding of the perceptions they have with regard to changes in the following areas:
 - technical development and training
 - musical performance ability
 - self-awareness and the consequent impact on their performance
 - the degree to which they have achieved self-empowerment, i.e. the ongoing ability to evaluate the quality of their body movement in relation to sound and make the necessary adjustments for self-improvement as required
- iii) Identifying the different functions BMG plays in their perceptions of their musical development and performance.
- iv) Seeking the view of significant others (studio teacher, ensemble director, or performance area-related professional) in substantiating the students'

perceptions of the impact of BMG on their musical development and performance.

Significance of the study

The major significance of this study is the importance it assumes as the first of its kind in the field of BMG. It documents student musicians' perceptions, opinions, and thoughts on the influence of BMG on their performance and development. The study outcomes will provide the basis for future research in BMG, within the Andover Educator's network and also in the broader field of somatic education. In the future, BMG research will also provide a basis of comparison for disciplinary outcomes with the already well-researched somatic methods The Alexander Technique and the Feldenkrais Method.

This study has primary importance for music education and music performance. BMG has been developed specifically with the needs of musicians in mind. While the principles of effective movement are universal in BMG, the focus of their applications varies according to the musical specialty. In BMG, teachers and performers can find a common language that translates into their area of pedagogical focus. The outcomes of this study should inform the professional practice of musicians who want to enhance their technical capabilities and prevent performance-related pain and/or injuries. Similarly, it provides a foundation for educators to teach musical technique in combination with movement training. As a consequence, students cultivate the capacity for mindful music-making because they have been empowered with the knowledge and skills that enable them to make wise movement choices.

Within the field of music education there is also potential for the connection between self-regulated learning theory and BMG to be explored further. Research into self-regulated learning and musical performance has revealed characteristics of independent and effective learners, many of which were evident in the experiences of the successful students in this study. BMG's alignment with self-regulated learning theory deserves to be investigated. Additionally, by using an interpretive lens that focuses on student experiences, this study will be able to contribute to understanding ways in which the teaching-learning process can be made more effective and relevant. Subsequent curricular development within BMG may also result.

There are also important elements of relevance for practitioners and professionals in the field of music medicine. For example, by evaluating the effectiveness of BMG as an educational method suitable for inclusion in musicians' health programs requiring information for prevention of injury, or the re-training of movement for musicians recovering from injury.

Finally, this study is also an opportunity to contribute to Action Research methodology in the university music education setting, thereby contributing to the lesser developed qualitative research tradition in music education. Despite the highly subjective nature of the discipline music educators have historically often focused on quantitative research methods. The qualitative approach of this study yielded meaningful data for the Instructor-Researcher's professional practice, as well as the intended audience for this study.

Conclusion

On a daily basis I have witnessed the effect of BMG on the bodies, minds and music-making of my students as I have taught the course *What Every Musician Needs to Know about the Body*.

Yet this is not sufficient. For the credibility of the discipline at large, and for the sake of future research and development in the field, the impact of BMG must be legitimized through valid, documented research. Andover Educators (www.bodymap.org/main/ 2010) claims that BMG will 'enhance musicians' abilities and help those in pain and discomfort.' This research aims to document the impact of a BMG program on the musical performance outcomes and development of individuals learning the technique. This research, drawing on qualitative methods, will contribute to the literature assessing BMG in a manner not previously undertaken.

Chapter 2: Literature Review

*Qualitative inquiry cultivates the most useful of all human capacities –
the capacity to learn from others.*

(Patton 1990:7)

Introduction

This literature review describes the pedagogical phenomenon Body Mapping (BMG) and its importance for musicians and music educators. It also addresses and evaluates the areas of musicians' health, educational research into self-regulated learning, and other somatic disciplines as they apply to the issue of training musicians for sustainable careers. The all-encompassing issue of musicians' health establishes context for the importance of the role of education and the need for commensurate movement training for musicians. Discussion about self-regulated learning provides a framework for understanding students' BMG learning outcomes. Description of other somatic disciplines provides perspective for the development and relevance of BMG instruction, and the significance of this research study.

Musicians' health

The question: 'How can we express ourselves and recreate the great masterworks that we love with ease and expressivity, and yet avoid injury in the process?' (Horvath 2002:12) applies to musicians at all levels, but most appropriately to professionals and students aspiring to performing careers. For 'professional musicians who are looking toward avoiding injury, prolonging their careers, and performing to the best of their abilities' (Atkins 2009:219) the subject of musicians' health and wellbeing is vitally important. The destructive 'no pain, no gain' attitude embraced by generations of musicians has only been exposed in the last two decades as professional-level performers have gained the courage to publicly admit their plight. Pianists

Gary Graffman and Leon Fleisher, and cellist Janet Horvath are three well-known examples of currently active professional musicians who literally suffered for their art, and have consequently become advocates for the subject of musicians' health (Graffman in Sataloff, Brandfonbrener & Lederman 2010; Horvath 2002; Sataloff & Hawkshaw 2000).

Within the medical community, recognition of the importance of understanding the unique demands musicians place on their bodies in performance, and the consequences of those demands, has resulted in the specialized field of performing arts medicine. In the third edition of *Performing Arts Medicine*, Alice Brandfonbrener (2010:25) one of the pioneers in this field in the USA writes: '...there is a gratifyingly increased awareness of the health risks faced by the performing artist population, especially as compared with the level of awareness at the time the first edition was published in 1991.' Brandfonbrener's statement refers to awareness in the experience of music students, teachers, performers and health practitioners. This is in stark contrast to the experience of Graffman (2010:viii) in 1980. A self-described 'pianist victim of performance-related dysfunction', Graffman spent 20 years searching for medical assistance before he finally received an accurate diagnosis. As medical and health professionals have come to better understand the athletic rigors of musical performance, so too musicians and teachers have begun to face the fact that 'there are risks associated with music making that have yet to be fully addressed by our profession' (Palac 2008:18). With the convergence of understanding between disciplines, and the common goal of promoting sustainable performance careers, statements such as the following from leading neurologist Richard Lederman (2010:51) leave no doubt as to the complex, sophisticated and rigorous nature of performance:

It is difficult to think of any activities that make greater demands on the nervous system than the performing arts. Virtually all forms of music, dance, and the dramatic arts

require an extraordinary level of sensorimotor control, precision, speed, endurance, and in some cases strength.

For professional musicians, the specter of injury and its consequences are summarized by the equation: 'no performance – no income' (Lin in Sataloff, Brandfonbrener & Lederman 2010:vii). For tertiary-level students training in performance, evidence from conservatoires and schools of music world-wide indicates that students studying instruments such as piano, flute and strings 'disappear from professional training without a trace after reporting playing-related problems' (Schippers in Llobet & Odam 2007:vii). At the secondary school level, studies show that 'between one and two-thirds of secondary school students suffer performance aches, pains, and woes, whether or not they study privately' (Palac 2008:18). Stern warnings about the risks associated with music performance in statements from highly experienced performers, researchers, and medical professionals are now numerous. The following statements by Horvath, Graffman, Schippers and Hoppmann illustrate and reinforce this point:

- 'The statistics show that no musician or artist is immune from injury risk' (Horvath 2002:21).
- 'Physical conditions and injuries have little or nothing to do with musical talent' (Schippers in Llobet & Odam 2007:viii).
- 'It is also crucial to remember that the very act of performing can also be injurious to a performer's health' (Graffman in Sataloff, Brandfonbrener & Lederman 2010:viii).
- 'Unfortunately, for many musicians, the demands they place on their bodies lead to playing-related injuries...' (Hoppmann 2010:207).

These quotes highlight two important facts. Firstly, a high level of innate musical talent does not provide immunity from playing-related injuries; and secondly, musical performance is demanding for players at all levels.

World-wide research statistics on musicians at all levels of performance reveal a prevalence of overuse syndromes, repetitive stress injuries, and cumulative trauma disorders of the wrist, shoulders, upper extremity, neck, and back (Lederman 2003). While the nature of musicians' injuries may vary according to the individual and their performance area, the data reveals a prevalence of injuries that are musculoskeletal in nature (Brandfonbrener 2010; Buckbinder 2007; Hoppmann 2010). The literature firmly establishes that music performance poses significant risks to the health of musicians.

Medical problems of musicians

Rosen (2002:156), a physician with extensive experience treating pianists, describes two categories of medical problems affecting musicians. The first category contains purely medical conditions, i.e. illnesses and diseases that may occur in the course of one's life. Examples include, but are not limited to, diabetes, stroke, rheumatoid arthritis, cardio-respiratory diseases, gastrointestinal diseases, kidney disease, and cancer. While these medical conditions will affect a musicians' ability to sing, play, or conduct, performance demands are not the cause of the onset of the illness or disease. Performance-related problems occurring as a direct or indirect result of performing comprise the second category. Rosen (2002) identifies problems caused by faulty technique, poor environment, substandard quality of instrument, stress, and overuse as the primary causes of the health-related problems in this category.

Rosen's categories are supported by the clinical experience and research findings of numerous other medical practitioners and health professionals in the field of performing arts medicine, including Ackermann (2010), Brandfonbrener (2010), Harman (2010), Hoppmann (2010), Howard (2010), Lederman (2010), Marmor (2010), Sataloff & Hawkshaw (2010), Sataloff, Cohn & Hawkshaw (2010), and Winspur & Warrington (2010). Table 2.1 contains examples of medical conditions and performance-related conditions affecting musicians. It must be emphasized that this is a *partial list* of the types of conditions affecting musicians compiled by this researcher from the literature. Category I lists purely medical conditions while category II contains conditions arising directly from problems related to musical performance. It should be noted that some conditions appear in both categories, e.g. hearing loss and vocal nodules. These are examples of conditions requiring a medical evaluation to determine if the root cause is performance-related or not.

Table 2.1: Examples of medical conditions and performance-related conditions affecting musicians

<p style="text-align: center;">Category I</p> <p style="text-align: center;">Medical Conditions</p>	<p style="text-align: center;">Category II</p> <p style="text-align: center;">Performance-related Conditions</p>
<ul style="list-style-type: none"> ▪ AIDS/HIV Infection ▪ Allergies ▪ Anemia ▪ Asthma ▪ Bronchitis ▪ Cancer ▪ Cardio-respiratory Diseases ▪ Chronic fatigue syndrome ▪ Cold ▪ Cranial nerve disorders ▪ Diabetes ▪ Epilepsy ▪ Extremity injury (e.g. sprained ankle) ▪ Fibromyalgia ▪ Gastrointestinal Diseases ▪ Gastroesophageal Reflux (GERD) ▪ Headaches/migraines ▪ Hearing loss ▪ Hypothyroidism ▪ Influenza ▪ Kidney Disease ▪ Laryngitis ▪ Liver Disease ▪ Lyme disease ▪ Mononucleosis ▪ Multiple Sclerosis ▪ Parkinson’s disease ▪ Postnasal drip (PND) ▪ Presbyopia ▪ Rheumatoid Arthritis ▪ Sinusitis ▪ Stroke ▪ Tonsillitis ▪ Vocal tract problems (e.g. nodules, submucosal cysts, polyps) 	<ul style="list-style-type: none"> ▪ Dental risks ▪ Focal dystonia ▪ Focal/entrapment neuropathies (e.g. thoracic outlet syndrome, carpal tunnel syndrome, ulnar neuropathy) ▪ Hearing loss ▪ Hypopharyngeal dilation ▪ Lip allergies ▪ Lower back pain ▪ Motor dysfunction ▪ Musculotendinous overuse ▪ Nerve compression (embouchure) ▪ Nerve entrapment ▪ Orbicularis oris rupture ▪ Osteoarthritis ▪ Pneumothorax ▪ Repetitive strain injuries ▪ Superficial lip trauma ▪ Temporo-mandibular joints syndrome ▪ Vocal nodules

(Sources: Brandfonbrener 2010; Harman 2010; Hoppmann 2010; Horvath 2002; LaPine 2008; Lederman 2010; Marmor 2010; Rosen 2002; Sataloff & Hawkshaw 2010; Sataloff & Hawkshaw 2000; Sataloff, Cohn & Hawkshaw 2010)

Risk factors

It is well established that orchestral musicians have one of the highest risk factors and occurrences for occupational injury. One of the prevailing risk factors discussed in the literature is the fact that the motor and process skills requirements for musical performance vary widely according to the demands of the area (instrument, voice, conducting) and the individual musician (Buckbinder 2007).

Fishbein and Middlestadt's historic 1986 study for the International Conference of Symphony and Opera Musicians (ICSOM) was the first comprehensive survey of playing-related injuries. The results of this study are widely quoted in music medicine research and it remains the benchmark for a large population survey (Brandfonbrener 2010). Horvath (2002) also cites ICSOM survey statistics with cellists, harpists, pianists, double bass players and violinists reporting the highest rates of injury. Comparison of the ICSOM study results with more recent studies reveal similar statistics with regard to the rates of performance-related injury and the musicians in the highest risk categories. For example, a 2001 study by the Orthopedic Research Institute in Muenster, Germany found that '...70% of musicians have spinal problems, and that string players are at the highest risk for them' (Elliott 2001 online:¶1). Brandfonbrener (2010:26) cites keyboard and string instruments in the increased risk category owing to the 'higher frequency of repetitive actions' required for playing those instruments. However, she also states that instrumentalists playing with less musculoskeletal activity (e.g. brass players) are still at risk for injury. Performers on instruments requiring asymmetrical playing postures, such as flute, piccolo, French horn, violin, viola, trombone and guitar are also listed in the higher risk category for injury. For example, 'postures that are unnatural, such as those required of violinists and

violists, demand sustained muscle tension' (Buckbinder 2007:12). Excessive tension is also known to be a cause of injury (Ackermann 2010; Llobert & Odam 2007; Mark 2003).

There is more information available today for musicians, teachers, and medical professionals about the risk factors for performance-related injury than in the history of arts medicine. Within the field of arts medicine, voice medicine is considered the most advanced specialty (Sataloff & Hawkshaw 2000). However, with recent advances in understandings about the demands of playing on the upper body, arms and hands in particular, the needs of pianists, violinists and other instrumentalists who depend on their hands are better able to be met. For example, Table 2.1 is a summary of the factors contributing to bodily dysfunction in pianists which Rosen (2002:157) states 'generally occurs not from simple overuse but rather other factors...' in combination, such as those listed in this table. Brandfonbrener (2010:28) also asserts that 'the etiologies of most medical problems of musicians relate to multiple risk factors operating synergistically rather than to a single factor responsible for a given injury.' The point that must be emphasized is that numerous elements contribute to the risk for performance-related pain and injuries.

Table 2.2: Factors contributing to bodily dysfunction in pianists

Factors contributing to bodily dysfunction in pianists
<ul style="list-style-type: none"> ▪ Abuse of the body ▪ Use of improper technique ▪ Occurrence of inappropriate <i>loading</i> of the involved tissues and/or their supporting parts ▪ Physical and emotional stress ▪ Postural mal-alignments ▪ Inadequate rest ▪ Environmental conditions (e.g. cold room) ▪ Undertaking new or complicated repertoire ▪ Extended time and stress at the keyboard spent in preparing for performance ▪ Lack of pacing

(Source: Rosen 2002:157)

Throughout the literature there are discussions about the risk factors associated with musical performance that are presented according to the perspective and experience of the author. References such as the *Performing Arts Medicine*, 3rd edition (2010) include detailed information in each of the arts medicine subspecialties as well as information specific to particular performance areas. Books with a singular pedagogical emphasis e.g. *A Symposium for Pianists and Teachers* (2002) provide specific information about risk factors in that performance area. However, it is acknowledged that despite the differences, 'the medical problems faced by performing artists share many common features among the different areas of performance' (Brandfonbrener 2010:26).

A comparison of the risk factors for musicians as stated by two different sources is contained in Table 2.3. Brandfonbrener is a leading arts medicine practitioner and researcher in the USA; Llobet is a leading arts medicine practitioner and researcher in Spain, Europe; and Odam is an experienced music educator and currently the Head of Research and Staff Development at the Guildhall School of Music and Drama in London. Table 2.3 illustrates two different perspectives on performance-related risk factors. It should be emphasized that that majority of the seven factors in common to both pertain to elements within the direct control of the musician, and in the case of students should be of prime importance to teachers as well. Subsequent discussion of Table 2.3 will highlight these issues.

Table 2.3: Comparison of risk factors for musicians' injuries

Multiple risk factors for musicians' injuries (Brandfonbrener 2010:29)	Situations that place the musician at risk (Llobet & Odam 2007: ch.2)
<ul style="list-style-type: none"> ▪ Instrument ▪ Time spent playing ▪ Sudden increases in playing time ▪ Repertoire ▪ Playing technique ▪ Change of teacher ▪ Playing conditions ▪ Practice technique ▪ Talent ▪ Conditioning ▪ General health ▪ Posture ▪ Individual (hand size, body proportions) ▪ Stress ▪ Gender ▪ Joint laxity ▪ Bad luck! 	<ul style="list-style-type: none"> ▪ Taking more care of your musical instrument than of your own body ▪ Not compensating for asymmetric work ▪ Playing technique ▪ Unsuitable fit between the body and instrument ▪ Failing to consider your overall state of health ▪ Poor environmental conditions ▪ Carrying and holding an instrument ▪ Other daily activities ▪ Psychological aspects ▪ Socioeconomic factors

(Sources: Brandfonbrener 2010:29; Llobet & Odam 2007:ch.2)

A comparison of the risk factors in Table 2.3 reveals seven factors in common:

1. The importance of playing technique (including practice technique)
2. The posture employed when performing, including not compensating for asymmetric work

3. The issue of the fit (physical compatibility) between the instrument and the individual
4. Environmental playing conditions
5. Physical conditioning
6. The musicians general state of health
7. Psychological aspects, including stress

A number of these risk factors also appear in the literature from other sources. For example, Horvath (2002) discusses the importance of technical ease, correct posture, and the need for optimal playing conditions (i.e. air-conditioning not too cold). As has been previously stated, the majority of these risk factors fall within the control of musicians and their teachers. For example; ensuring correct playing and practice technique, utilizing correct posture, checking for the optimal instrument fit, and maintaining physical fitness contributes to good health. Maintaining control over environmental playing conditions is typically possible in practice situations. However, all musicians are subject to the parameters of the physical environment in performance-locations where they frequently have no control over the facility. For example, the type of chair, room temperature, lighting, and stage size which determines the amount of performance space. Similarly, the ability to control factors contributing to stress is subject to variance for individual musicians.

The inclusion of 'talent' in Brandfonbrener's list is of interest to this researcher. Talent is not indicated by Llobet & Odam. Moreover, it is contradicted by Ackermann (2010) and Schippers (Schippers in Llobet & Odam 2007) who both indicate that musical talent is not a precursor to injury. Brandfonbrener's (2010:28) elaboration on the issue of talent may more accurately be described as the 'amount and intensity' of practicing. She states: 'since more practice may at times be a corollary of less talent, young musicians attempting to overachieve are at increased

risk for injuries'. In the literature, the *amount* and *intensity* of practicing does appear to have an integral relationship to the development of many musical injuries, both for students and professionals, but there is no data to support the connection to a musician's perceived or known level of talent with predisposition for injury. Additionally in the experience of Williamon et al (2009:85), 'student fatigue' a potential element in overuse injuries, 'correlate[d] variously with aspects of perfectionism, trait anxiety, health promotion, and self-regulated learning'. The desire to be successful when combined with character traits such as perfectionism and a lack of self-discipline with regulating the amount of performing (e.g. routinely exceeding physical limits when practicing and performing), could also be viewed as contributing factors for overuse injuries.

Also of note in Table 2.3 are the risk factors that are not in common to each list. These include repertoire, sudden increases in playing time, gender, joint laxity, bad luck, and socioeconomic factors. For example, repertoire refers to the danger posed by over ambitious teachers who program music that exceeds the physical capabilities of their students. Anxious to please, young students can unknowingly be led down a path of physiological injury resulting from the misplaced ambitions of teachers. Sudden increases in playing time are typically associated with additional work undertaken in the lead-up to a major performance (e.g. concert or examination). While this factor in itself is a risk, in combination with other risk factors such as tension, fatigue, poor posture, and overly-difficult repertoire, can create a perfect storm of conditions that may result in playing-related pain or injury.

The issue of gender may also be related to factors such as physical conditioning and instrument match. For large and/or heavy instruments this can be an issue since men naturally possess

greater upper body strength than women and many instruments require strength to hold the weight of the instrument (also called static loading) when playing. Similarly, size of hand, an issue for instruments such as piano, cello, and double bass, may also predispose women with small hand-spans to risk. The issue of performer age may also be related, especially for young musicians who have not yet reached the physical maturity to handle a full-size instrument. Joint laxity is identified as a risk factor by Brandfonbrener and Lederman (2002) with regard to instruments requiring greater muscular effort, e.g. piano, cello, double bass, and tracker action organ. Fingers and wrists are particularly vulnerable to excess tension resulting from compensation for the pressure or effort required to press the key or string.

After closer examination of the sources of information for these risk factors, it is likely that the predominant difference is due to the audience for which the information is intended. For example, Brandfonbrener's information is published in a forum most likely to be disseminated among medical practitioners and health professionals in the first instance, while Llobet and Odam's information is contained within a 'manual' designed to be read by musicians and teachers. It is also reasonable to conclude that particular risk factors have also been more prevalent in the clinical and therapeutic experiences of some practitioners and researchers than others.

Avoidability of injury

The literature reveals a recurring theme with regard to the medical conditions arising from musical performance – specifically the issue of *avoidability of injury*. (Refer Table 2.2 for Category II conditions). Rosen (2002:155) states:

... the problems associated with the second category [of medical conditions] are important for the pianist to understand, because most of them are avoidable. These

conditions are primarily neuromusculoskeletal in nature, and include damage (or apparent damage) to the nerves, muscles, tendons, joints, ligaments, and related neurocirculatory system.

Rosen's emphasis of the avoidable nature of pianists' injuries is congruent with the research findings and professional experience of other medical practitioners and health providers in the field of performing arts medicine, as well as somatic educators experienced with the needs of musicians. Ackermann (2010:247) cites overuse or misuse of particular muscle groups as one of the primary causative factors for musicians' injuries. Mark (2003:1) emphasizes the fact that 'injury comes from playing with tension' which is the result of 'inefficient use of the body – poor habits of movement.'

Brandfonbrener (2010:28) refers to three particular risk factors for injuries in student musicians. First are the consequences of 'changing teachers at any level of study' which typically involves the 'introduction of different techniques, new repertoire' and 'changes in practice requirements'. The second risk factor is 'increased practice time for competitions, recitals and auditions'. Students with a singular focus on increasing their practice time may push their physical limits beyond that which is safe or desirable. The issue of repertoire (difficulty and volume) is also relevant. Students focused on a performance career typically need to learn large amounts of challenging repertoire from all genres and periods in a short time. The third risk factor described by Brandfonbrener is an 'abrupt return to playing after a prolonged vacation or illness.' While her reference to this risk factor is specifically applied to student musicians, given the evidence in the literature supporting the degree of injuries in professional musicians, it is also possible to understand how this risk factor may also apply to adults.

Music pedagogues are increasingly emphasizing to their students and colleagues that medical conditions are not inherent to playing an instrument. Rather, they result from the biomechanical approach taken to the instrument by the player. Mark (2003:3) identifies co-contraction, awkward positions, static muscular activity and excessive force as four causes of injury in pianists. He advocates the avoidable nature of playing-related injuries by playing the piano with 'complex coordinated movements of our whole bodies'. This approach is supported by Johnson (2009:11) who states that avoiding pain and injury when playing the violin results from 'how she plays the violin' i.e. with 'structural balance and freedom of movement' resulting from coordinated, whole-body involvement. With instruments such as the piano this is a continual challenge because pianists typically perform on instruments with a diversity of actions. This is an important reason why they must be biomechanically aware.

Physical fitness has also emerged as a factor in injury avoidability. A recent study of students at the Royal College of Music and Royal Northern College of Music in the UK supports the issue of avoidability of injury as it relates to physical fitness. Williamon et al (2009) profiled 91 students for their physical and mental fitness for performance. They reported concerns about 'a trend toward poor fitness' and the correlation with performance-related pain in the students. In their study under 40% of students achieved above average cardiovascular fitness, and 'student fatigue correlate[d] variously with aspects of perfectionism, trait anxiety, health promotion, and self-regulated learning'. Their conclusion: 'given the physicality of musicians' work, such a trend toward poor fitness is concerning' highlights the need for adequate education about the demanding nature of musical performance (Williamon et al 2009:89). For pianists, Berenson (2002a:143) articulates the importance of 'adopting fitness strategies' to meet the life-long performance challenges which require 'strength and endurance'. The issue of physical fitness is

also addressed to musicians generally by Llobet and Odam (2007). The broad range of references to the importance of physical fitness for musicians indicates this is an important issue and should not be undervalued.

The literature shows that 'specific instruments make demands specific to the individual' (Buckbinder 2007:13), and that individual differences may well account for the interplay of variables that make musicians susceptible to injury. While risk factors are not absolute determinants of playing-related injuries, the literature illustrates the need for musicians' at all levels to be educated and proactive in the careful use of their bodies. Without judicious use of the body, risk factors may unfortunately become contributing factors to performance injuries. Ultimately, Brandfonbrener's (2010:31) advice to use the body in a 'mechanically efficient manner' with 'periodic rests' to 'increase efficiency and endurance' is relevant for all musicians. It is also pertinent advice for music teachers who are responsible for imparting correct technical information and encouraging healthy habits and attitudes toward body use in their students.

The role of education

Throughout the literature there are three perspectives to consider with regard to musicians' health and education. They include music teachers and educators, performers, and medical practitioners & health professionals. The importance of educating teachers about health issues and the means by which injury rates can be decreased is a priority for health professionals in the field of music medicine. Manchester's (2006:96) belief that 'we have to start by educating the teachers of the musicians of the future' is supported widely by his medical colleagues, including Brandfonbrener, Sataloff, and Rosen.

The most common and effective approach currently advocated for music teachers and educators, be they studio teachers, ensemble directors or classroom teachers, is 'a collaborative, multidisciplinary approach' for managing musicians' health issues (Palac 2008:20). This is uniformly supported in the literature from numerous medical sources, including veteran voice specialist Robert Sataloff whose position in this regard has been clear for at least a decade:

To really understand performers, physicians must either be performers themselves or work closely with performers, teachers, coaches, trainers, and specific paramedical professionals (Sataloff & Hawkshaw 2000:60).

The reciprocal nature of Sataloff's assertion that physicians need to understand the needs of musicians through collaboration with performers and teachers is affirmed by performers themselves. Lin (Lin in Sataloff, Brandfonbrener & Lederman 2010:vii), a professional violinist, states that musicians need good medical care from 'doctors who understand the demands of performance'. Performers like Graffman (Graffman in Sataloff, Brandfonbrener & Lederman 2010:ix) go one step further and include the need for musicians to take 'personal responsibility' for being informed about the risks associated with music performance. Llobet and Odam (2007) also emphasize the importance of musicians being educated on the various factors and situations that are part of the musicians' experience. While Sataloff, Brandfonbrener and Lederman (2010:ix) state that the acquisition of educational information has 'been difficult for most people to acquire because of the interdisciplinary nature of arts medicine', they also acknowledge that 'teamwork has resulted in a new understanding among all the professions' thereby allowing musicians, educators and health professionals to develop appropriate strategies for success.

The majority of performance-related health problems afflicting musicians are neuromusculoskeletal in nature. There is also further 'evidence that musicians suffer double the amount of musculoskeletal dysfunctions than non-musicians' (Steinmetz 2009:495). Maintaining movement patterns that are biomechanically sound is, therefore, a priority or musicians face the risk of injury (Manchester 2006). Educating musicians about effective movement patterns, however, remains problematic. Although there are an increasing number of institutions of higher learning offering information about effective physical use to music students via courses or workshops, they are unique to the institution and faculty skills. For example, Berklee College of Music offers a Performance Wellness Program for students, while The Juilliard School and New York University offer private lessons in The Alexander Technique (see Table 2.6 for institutions offering BMG instruction). In light of the high statistics of pain and injury from performance, understanding why musicians have not been taught about movement needs to be addressed.

In both medical and educational settings, it is acknowledged that musicians as a population have traditionally been underserved with information about the body in movement. Ackermann (2010:249) states:

Playing a musical instrument represents a highly refined, complex coordination of the neuromusculoskeletal system, and yet formal training on health-related topics, including basic physiology, anatomy, and injury management, is extremely rare in musicians.

Her assertion is supported by Johnson's (2009:10) statement 'many of us violinists simply never saw ourselves as people who move for a living, and therefore we pay very little attention to the quality of our movement'. Pearson (2006:xii) writes: 'every sound that we make is created by complex and subtle movements...we are thus beginning to address a fundamental issue: like actors, dancers, and athletes, we [musicians] move for a living'.

The literature shows that for musicians, the transmission of teaching techniques through the generations is 'substantially based on culturally transmitted "traditional" practices or "methods" that were devised without knowing how bodies are actually made and how they most effectively function' (Thurman cited in Pearson 2006:xii). Vining (2008:1) is also clear about this when he states:

There are also many teaching styles and ideas which have been handed down through generations of trombone teachers and students. Some of these ideas have become so ingrained over time that they are assumed to be effective and accurate and are therefore used without scrutiny (Vining 2008:1)

Caplan (2009:2) adds further clarity to the situation by stating that while oboe pedagogy has included information about movement, 'unfortunately, much of what is taught about movement is misleading or inaccurate'. He concludes that 'misconceptions about how the body actually works in movement are rampant in the music world' (Caplan 2009:2). This assertion is supported by the on-going high rates of playing (movement related) injuries in musicians.

The previously described neuromusculoskeletal problems experienced by musicians are predominantly the result of issues related to posture, instrument position, static and movement dynamics of playing, as well as the ingrained practice habits and routines of musicians (Kampmeier 2000). Discussion of the means by which musicians learn and examination of movement education that will benefit musicians is therefore required.

Educational research - how musicians learn

Lehmann and Davidson (2002:549) assert that 'the level of [musical] performance reached after years of training and practice is an amalgam of different subskills developed over time and

influenced by the individual's biography.' There are a wide variety of musical performance areas (e.g. instrumental, vocal, conducting), and the requisite technical demands for each are unique. It therefore follows that there are differences in approach to musicians' training and performance experiences. At the higher levels of performance a common goal is cultivation of musicians who 'can and want to remain flexible' (Clarke & Davidson 1998 cited in McPherson & Zimmerman 2002:552). This concept of flexibility refers to the ability to be physically and mentally facile sufficient for effective musical communication under all circumstances. The goal of BMG is to provide a secure basis for the mind-body processes that establish physical ease and facilitate musical expression.

Throughout the literature there is general consensus among psychologists that the skills required for areas such as sports, games, language, and science share a number of features in common with musical performance. For example, Lehmann and Davidson (2002) explain the difference between music and a game such as chess in terms of the activity focus. Whereas chess requires a singular cognitive focus, music requires interactions of multiple actions, specifically mental, physical, affective and social cognitions. In their research on music skill acquisition, Lehmann and Davidson (2002:542) outline the function, interaction and evolution of perceptual, motor, and cognitive skills for music performance as follows:

Music making entails perceptual skills (e.g. apprehending structural information as well as social information, including nonverbal cues exchanged between performer and audience), cognitive skills (e.g. memory, decision making, pattern recognition), and of course motor skills.

While it is outside the scope of this study to examine these skills as they apply to music making generally, the application of perceptual, motor and cognitive skills in the integration of BMG with musical performance is relevant and will be discussed in Chapter 7.

Commitment to time is also a factor and the time-frame within which musicians develop performance skills varies. Researchers such as Hays (1989) and Weisberg (1999) have determined that the means by which musicians acquire performance skills is variable, and it generally takes more than ten years of dedicated and focused practice to attain mastery level. Ericsson, Krampe, and Tesch-Römer (1993) cite an investment of more than 10,500 hours practice time for solo violinists to accomplish international level performance standards (equating to 'an average of almost 2 hours per day across a 15-year period'), and 8,000 hours for professional players (McPherson & Zimmerman 2002:327). While a variety of factors may influence the time required for a musician to reach their desired level of performance, it is evident that a considerable time investment is necessary for reaching high levels of proficiency in musical skill acquisition. Understanding how the issue of time contributes to the development of BMG skills will also be examined in this study.

Self-regulated learning

Self-regulated learning provides an ideal framework for understanding how the BMG learning process manifests in student musicians. McPherson and Zimmerman (2002:328) assert that 'to look at teaching and learning from a perspective of self-regulation holds great potential for research in music education, because efficient learning in music requires at least as much self-regulation as any academic subject or other area of motor learning.' Within the domain of educational research, self-regulated learning is a field that has investigated cognitive development as it applies to academic achievement and musical performance. Zimmerman and Schunk (1994:ix) define self-regulated learning as referring 'to students' self-generated thoughts, feelings, and actions, which are systematically oriented toward attainment of their goals.'

Bandura (1991:327) defines self-regulated learning as ‘a useful paradigm from which to study how learners acquire the tools necessary to take control of their own learning and thereby learn effectively.’ Studies of student musicians, particularly at elementary and high school levels, have provided insights into the processes that constitute self-regulation when learning a musical instrument. McPherson and Zimmerman (2002) have likened the need for self-regulation in this context to the level of self-regulation required for academic or motor tasks. Their evidence suggests that students become ‘metacognitively, motivationally, and behaviorally active participants in their own learning process’ in these situations (Zimmerman 1986:308).

Examining the BMG learning process outcomes in this study within the framework of self-regulation criteria is compatible with the learning processes for other areas that have been studied. Moreover, the cyclic nature of feedback in the re-mapping process is congruent with feedback adjustments in rehearsals and performances, where musicians are continually modifying decisions as a result of changes in personal, behavioral and environmental factors (McPherson & Zimmerman 2002). Bandura’s (1986) research indicates that a student’s ability to self-regulate is contingent on the experiences underpinning their learning and development. By extension, more experienced students are better prepared to apply self-regulation strategies to their learning.

Self-regulation is ‘a context-specific set of processes that students draw on as they promote their own learning’ (McPherson & Zimmerman 2002:328). Table 2.4 illustrates how self-regulation and socialization processes influence the six psychological dimensions - motive, method, time, behavior, physical environment, and social factors – in a musical environment.

The socialization processes in column three are examples of ways that self-regulated learning is fostered or taught. The self-regulation processes in column four are examples of behaviors exhibited by self-regulated learners. Application of this model to any learning activity is possible, e.g. by substituting the word 'musical' with 'BMG'. Discussion of the learning outcomes for the students in this study and their relationship to self-regulated learning is contained in Chapter 7. Following is a discussion of the elements comprising each of the six psychological dimensions in self-regulated learning.

Table 2.4: Dimensions of musical self-regulation

Scientific Question	Psychological Dimensions	Socialization Processes	Self-Regulation Processes
Why?	Motive	Vicarious or direct reinforcement by others	Self-set goals, self-reinforcement, and self-efficacy
How?	Method	Task strategies are modeled or guided socially	Self-initiated covert images and verbal strategies
When?	Time	Time use is socially planned and managed	Time use is self-planned and managed
What?	Behavior	Performance is socially monitored and evaluated	Performance is self-monitored and evaluated
Where?	Physical environment	Environments are structured by others	Environments are structured by self
With whom?	Social factors	Help is provided by others	Help is sought personally

(Source: McPherson & Zimmerman 2002:329)

Motive

Motive is the first psychological dimension and is defined by a students' level of self-motivation or ability to persevere during the learning process. McPherson and Zimmerman (2002:329) describe the motive dimension as 'explain[ing] how children come to value their learning, choose to continue learning, and persist with their musical practice.' Students are more enabled to achieve their goals when they develop self-regulatory skills to manage the potential distractions from environmental factors (e.g. 'peer intrusions, a noisy work environment') and personal factors (e.g. 'inappropriate practice strategies, confusion, changing interests and goals') during learning (McPherson & Zimmerman 2002:329).

Students' level and quality of self-motivation is characterized by three factors, specifically goal setting, self-efficacy perceptions, and intrinsic interest. Analysis of professional and novice performers by Hallam (1994, 1997) has demonstrated that a musician's ability to set short- and long-term goals derives from the ability to self-evaluate strengths and weaknesses. A self-regulated learner's response to self-evaluation would be to apply appropriate strategies to enable them to meet their learning needs. McPherson (1989) further 'speculates that asking students to evaluate their own and other's performance not only will help to keep them on task but also develop their capacity to internalize goals and to monitor their own progress' (cited in McPherson & Zimmerman 2002:332).

Self-efficacy is a second aspect of self-motivation. Bandura (1986:391) defines self-efficacy as 'people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance.' Self-efficacy is not a measure of one's skills. Rather, it is a 'belief about what one can do under different sets of conditions with whatever skills one

possesses (Bandura 1997:37). Educational research has shown that students' perceptions of their abilities are predictors of behavioral outcomes. Studies by Bandura (1986), Pajares (1996), and Zimmerman (2000) indicate that in academic settings, students' decisions and consequent behavior are linked to their perceived level of competence. For example, 'students with high self-efficacy are more likely to be more confident, choose more challenging tasks, exert more effort, persist longer, and be less likely to experience debilitating anxiety' (McPherson & Zimmerman 2002:332).

The third aspect of self-motivation pertains to a student's intrinsic interest in the area of study. Research on student instrumentalists by McPherson (2000) and Hallam (1998) indicates a positive correlation between achievement level and commitment and a student's degree of intrinsic motivation. For example, students with a high level of interest in learning a musical instrument are more likely to practice and achieve good results on their instrument, sufficient that they maintain a long-term commitment to playing (McPherson & Zimmerman 2002).

Method

Method is the second psychological dimension in self-regulated learning and is defined by three aspects: developing task-oriented strategies, practicing for yourself versus practicing for the teacher; and mental strategies and self-instruction. Acquisition of task-oriented strategies that contribute to appropriate decisions in music making results from effective development of their skills and knowledge (Hallam 1997). Self-regulated learners who function at the highest levels 'are methodical in the way they approach their learning' (McPherson & Zimmerman 2002:333). Research by Nielsen (1999:275) also indicates that these learners are also capable of 'spontaneously invent[ing] increasingly advanced strategies to improve their performance.'

Accommodating students' interests, goals, and self-perceptions is known to contribute positively to their motivation for learning. For example, providing students with the opportunity to choose what they will work on and how they will approach an activity 'can increase their intrinsic motivation and task involvement' (McPherson & Zimmerman 2002:334). Appropriate selection of strategies in self-instruction decisions is also necessary for maximizing skills. Music performance research by Gabrielsson (1999) reveals that 'successful musicians strategically plan how they will control and monitor their playing when practicing and performing.' The range of strategies employed includes 'varied practice, mental rehearsal, motor exercises, memorization techniques, responding to perceptual feedback, and building a mental representation that can easily be translated into sound' (McPherson & Zimmerman 2002:353).

Time

Efficient planning and management of time is a characteristic of self-regulated learners in both academic and musical settings. Sloboda and Davidson (1996) cited the ability 'to find the right balance between freedom and discipline in their practice' as a factor contributing to success for music students (McPherson & Zimmerman 2002:335). Furthermore, a correlation between instrumental skill development and practice effectiveness has also been noted by researchers. In short, 'musicians...need to be able to pace and manage the use of their time' (McPherson & Zimmerman 2002:336).

Behavior

Behavior, the fourth psychological dimension of self-regulated learning, comprises metacognition, self-evaluation and motivational origins. Self-monitored and self-evaluated

behavior is evident in students who are genuinely self-regulating learners. Metacognition, or 'thinking about thinking', is 'one of the principal means by which students monitor and control their performance' (McPherson & Zimmerman 2002:336). Shuell (1988) identifies two ways that metacognition occurs in students' education. Firstly, determining their level of factual understanding, and secondly, making decisions about their learning process. Research by Hallam (1997, 2000) indicates that at the expert level of performance, musicians' metacognitive skills are highly developed. This enables them to make appropriate choices in response to the varied technical and musical challenges that arise in practice and performance situations. Choices will, of course, be determined by their skillfulness at self-evaluation.

Four standards of self-evaluation, mastery, previous performance, normative, and collaborative criteria, have resulted from Zimmerman's (2000) analysis of educational research. Mastery and previous performance are concerned with evaluating variations in individual performance; normative criteria entail progress comparisons of self with others; and collaborative criteria pertain to group situations.

Mastery criteria in self-evaluation pertain to the ability to satisfactorily progress through a range of goals in a hierarchical order, i.e. from easy to difficult. Evaluating current with previous levels of performance achievement is another form of self-criteria that enables students to determine rate of progress. In fields such as music, where repeated practice is essential for skill development, this is important. Subsequent to self-analysis of one's performance is the process of comparing self with others. Employing normative criteria in self-evaluation is more likely to highlight negative characteristics of students' progress. Self-evaluation using collaborative criteria is appropriate in group situations. For example, in musical ensembles such as an

orchestra, students on different instruments function differently from each other but their playing contributes to the end result of the performance. Applying collaborative criteria in this context allows a string player to evaluate their effectiveness in relation to the ensemble performance rather than in direct comparison to the woodwind players who perform a different role. Review of research on these self-evaluation criteria by Zimmerman (2000a) and Covington and Roberts (1994) 'suggests that mastery criteria enhance motivation and achievement more than normative criteria' (McPherson & Zimmerman 2002:338).

The third element of behavior is motivational orientations. Maehr, Pintrich and Linnenbrink (2002:348) define motivation as 'the study and identification' of 'observable behaviors that reflect engagement in a particular activity.' They identify four 'action patterns: choice and preference, intensity, persistence, and quality' as evidence of 'students' behaviors surrounding a particular activity.' Research by Dweck (1986, 2000) indicates that the influence of students' motivational patterns on their behavior is predictable. For example:

Adaptive mastery-oriented students tend to continue working hard when faced with failure and enjoy putting effort into achieving their goals. These types of learners remain focused on trying to achieve, despite difficulties that might come their way. In contrast, maladaptive helpless-oriented students often fail to establish reasonable goals for themselves, or goals that are within their reach. When they feel that the situation is out of their control and that nothing they can do will help, they tend to avoid further challenges, lower their expectations, experience negative emotions, give up, or perform more poorly in the future (Dweck, 1986, 2000; Dweck & Leggett, 1988; Henderson & Dweck, 1990; O'Neill & McPherson 2002 in McPherson & Zimmerman 2002:338).

Physical environment

The influence of physical environment on learning is significant for all students and particularly in musical performance. For example, a self-regulated learner understands that they cannot practice their musical instrument effectively in an environment that is poorly lit, noisy, and

acoustically unsuitable. Taking steps to control their physical environment is a characteristic of self-regulated learners. A further example of environmental influence comes from the influence of the teacher. McPherson & Zimmerman (2002:338) describe a musical learning environment whereby 'children come to realize the importance of [the] skills every time a teacher demonstrates good posture.' Hence, self-regulated learners will work to apply these skills in their own practice because they understand how this facilitates conditions that lead to a favorable learning environment.

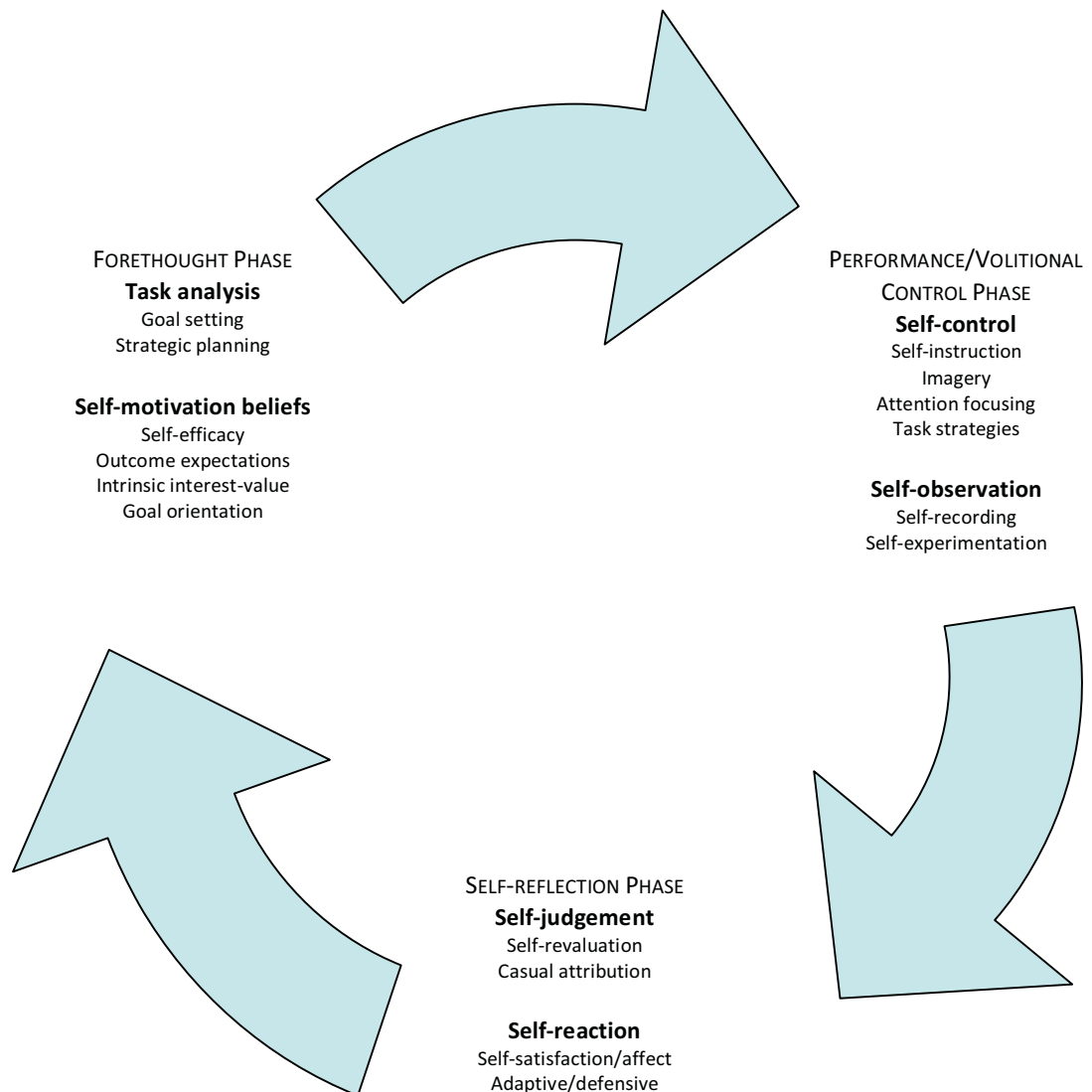
Social factors

The sixth and final psychological dimension of self-regulated learning is social factors. This involves the influence of other people who are viewed as expert or knowledgeable by the student, and therefore able to provide assistance and/or support with learning. Teachers, parents, siblings and peers are examples of people from whom self-regulated learners may solicit help. In addition, they may also seek out other area-appropriate resources (books, recordings, videos) recommended to them. Within the field of music performance, Hays, Minichiello and Wright (2000) suggest that mentoring is a function of effective music teaching. It manifests in teachers who stimulate and guide students' cognitive and technical skills in a rigorous but nurturing environment. Consequently, a music teacher's influence is significant and has consequences for both a student's self-concept and their performance ambitions. Similarly, the influence of family members or peers may play a crucial role in a student's learning process. While research indicates that self-regulated learners tend to seek help from when faced with difficulties, it is not known to what extent this occurs.

Self-regulated learning cycle phases

Application of self-regulatory skills occurs during the three-phase cyclic learning process illustrated in Figure 2.1. Each phase (forethought, performance/volitional control, and self-reflection) feeds into the next, creating an on-going flow of information that informs consequent learning. Within the learning cycle each phase fulfils a different role. The first phase is *forethought* which pertains to the individual thought processes and personal beliefs that occur prior to a task. *Performance/volitional control* is the second phase and contains self-control and self-observation processes that transpire during engagement. These processes influence the learner's concentration and performance during the task. The third phase is *self-reflection*. As the name implies, this phase involves processes that occur at the conclusion of the task. Self-reflection activities consequently shape the learner's reaction to their experience and set the tone for future learning (McPherson & Zimmerman 2002).

Figure 2.1: Self-regulated learning cycle phases



(Source: Zimmerman & Campillo 2001 cited in McPherson & Zimmerman 2002:340)

Exploration of the students' BMG learning outcomes in this study will be undertaken through the framework of self-regulated learning characteristics and their application within the cyclic learning process. There is compatibility between the educational process of BMG and the academic and musical areas within which self-regulated learning has already been studied. Thus

meaningful connections for comprehending students' educational and musical experiences in this study will be possible.

Attitude

Understanding the concept of 'attitude' is central to learning outcomes. Within the literature there are numerous definitions of attitude. Venes (2001:189) defines attitude as 'behavior based on conscious or unconscious mental views developed through cumulative experience.' The *American Heritage Dictionary of the English Language* (2000) specifies 'a state of mind or a feeling; disposition', while the *Merriam-Webster's Medical Dictionary* (2002) lists 'a mental position with regard to a fact or stage' and 'a feeling or emotion toward a fact or state.' In her evaluation of definitions in the literature, Altmann (2008:146) identifies 'three obvious characteristics' in common to all, specifically '(a) a mental state – conscious or unconscious; (b) a value, belief, or feeling; and (c) a predisposition to behavior or action.'

Altmann (2008:146) asserts that these attitude definition 'characteristics fit into three domains: cognitive, affective, and behavioral' which further supports Hayes and Darkenwald's (1990:158) description of attitudes as 'multi-dimensional constructs.' Altmann (2008:145) also lists 'synonyms to the term *attitude*' as including 'orientation, approach, outlook, manner, stance, position, feelings, thoughts, mind-set, way of thinking, and way of behaving. For the purposes of this study, Venes' (2001) definition (cited above) will be applied to the student learning outcomes with regard to BMG.

Personhood

Kitwood (1997:10) through *The concept of personhood* presents three 'guiding themes related to personhood'. These include the uniqueness of each person, subjectivity, and relatedness. Uniqueness is defined as the combination of elements comprising our individual or unique identify, specifically: 'our own history, personality, likes, dislikes, abilities, interests, beliefs, values, commitments' (Kitwood 1997:10). Subjectivity is closely related to uniqueness and pertains to our 'own special way of experiencing events, relationships, change, places, atmospheres, familiarity, newness, surprise – and so on' (Kitwood 1997:10). The emotional components of subjectivity can also vary widely according to the combination of an individual's life experiences. Relatedness 'requires a living relationship with at least one other, where there is a felt bond or tie (Kitwood 1997:11). It pertains to the bonding or connections that develop between people who have a shared experience, e.g. 'family, friendship, occupation, religion, neighbourhood' (Kitwood 1997:11).

Harris (1999), Kitwood (1997), and Springer-Lowewy (2000) concur that a person must possess the following criteria, either singly or in combination: i) awareness; ii) the ability to direct attention and focus actions; iii) the capacity for mindful connections to external entities; and, iv) a sense of self-identity developed over time. For the purposes of this discussion, personhood is defined as an individual's lived experience (Springer-Lowewy 2000). Discussion of the issues surrounding the concept of personhood in this study provides an entry point for examination of the factors contributing to individual outcomes, rather than presuming performance issues were related to elements such as a student's performance area, level of experience, or gender. The concept of personhood thus facilitates a deeper understanding of student learning outcomes.

Somatic education

The term 'somatic' derives from the Greek root 'soma' which literally translates as 'the study of the body' (Johnson 2009:12). Conable (2000:3) defines somatics as 'the study of human movement; the study of the coordination of mind and body in movement'. While it may also be defined as 'body awareness', in the field of education somatics refers to 'the study of the body in movement' and 'the subjective experience of movement' (Caplan 2009:3). In the context of this research, somatics therefore refers to 'any practical study of how the body operates in *movement*' (Johnson 2009:12).

There are several names historically associated with the evolution of somatics. F.M. Alexander, whose work began a century ago, is regarded as the first authority. Other prominent names include Moshe Feldenkrais, Rudolph Laban, Irmgard Bartineff, Joseph Pilates, Alexander Lowen, and Mabel Elsworth Todd (Conable 2003a; Johnson 2009). Each of these people 'made unique and vital discoveries about the functioning of the body in movement' although their reasons for doing so varied (Johnson 2009:12). Their discoveries have also paved the way for more recent developments. For example: Eric Franklin's *Franklin Methode* is based on ideokinesis as defined by Mabel Todd in her book *the Thinking Body* (Franklin 2002); while BMG 'was developed by William and Barbara Conable, two teachers of [the] Alexander Technique' and therefore has its roots in assisting musicians to understand their movement needs (Johnson 2009:12).

Other medically based and therapeutic approaches to body work and movement education have also evolved. For example, testimonials about The Trager Approach, Rolfing Structural

Integration and Hellerwork Structural Integration, have all reported benefits to people seeking relief from bodily tensions (www.trager.com; www.rolf.org; www.hellerwork.com). While musicians as a population are not specifically targeted by these approaches, testimonials reporting benefits for musicians exist on their websites.

For musicians seeking information about the body and the means to secure freedom of movement while performing, there are a variety of methodologies and therapies currently available. Table 2.5 is a chronological summary of the major somatic and bodywork disciplines that will be discussed in this chapter. It should be noted that the highly specialized movement requirements of musicians, either generally or in particular performance areas, are not specifically addressed by all disciplines. Rather, it is incumbent on individuals to assimilate movement principles and reconcile them with the demands of their performance technique. The exceptions to this are The Alexander Technique, the Feldenkrais Method, and BMG – areas with documented connections to the needs of musicians. A discussion of the applications and relevance of the major somatic disciplines for musicians follows.

Table 2.5: Chronological summary of major somatic and bodywork disciplines

Discipline	Founder	Definition
The Alexander Technique	F.M. Alexander (1869-1955)	<i>The Alexander Technique is an objective system of self-study that helps us learn to perceive ourselves more accurately. It is a hands-on method that gives us an experience of improved mind-body connection, and that teaches us the tools of change and self-mastery. (Vineyard 2007: 12)</i>
Ideokinesis	Mabel Elsworth Todd (1880-1956)	<i>Ideokinesis involves sustained mental focus upon 'imagined' actions. A central tenet of the approach suggests that disciplined concentration on precisely formulated imagery will improve the coordination underlying our habits of posture and movement. (http://www.ideokinesis.com/introduction 2010)</i>
The Trager Approach	Milton Trager, M.D. (1908-1997)	<i>The Trager Approach is the innovative approach to movement education, created and developed over a period of 65 years by Milton Trager, M.D. There are two aspects: table work in which you, the client, are passive; and Mentastics in which you are active. Mentastics are simple, active, self induced movements that can be done during your daily activity. They have the same intent as the table work in terms of releasing deep-seated patterns and are designed to help with self-care and relieve stress and tension. (http://www.trager.com 2010)</i>
Rolfing Structural Integration	Ida P. Rolf, Ph.D. (1896-1979)	<i>Rolfing Structural Integration is a form of bodywork that reorganizes the connective tissues, called fascia, that permeate the entire body. Rolfing works on this web-like complex of connective tissues to release, realign and balance the whole body. Essentially, the Rolfing process enables the body to regain the natural integrity of its form, thus enhancing postural efficiency and your freedom of movement. (http://www.rolf.org 2010)</i>
The Feldenkrais Method	Moshe Feldenkrais, D.Sc. (1904-1984)	<i>The Feldenkrais Method is a self-discovery process using movement. Its aim is to produce an individual organized to perform with minimum effort and maximum efficiency...it is an open-ended developmental learning process. (Nelson & Blades-Zeller 2002: 3)</i>
Hellerwork Structural Integration	Joseph Heller (b. 1940)	<i>Hellerwork Structural Integration is a powerful system of somatic education and structural bodywork, based on the inseparability of body, mind, and spirit. Following Ida Rolf's lineage of Structural Integration bodywork, Joseph Heller incorporated movement education/awareness and body-</i>

		<i>centered human development processes creating Hellerwork.</i> (http://www.hellerwork.com 2010)
Body Mapping	William Conable (b. 1942)	<i>Body Mapping is the conscious correction and refining of one's Body Map to produce efficient, graceful, and coordinated movement. Body Mapping, over time, with application, allows any musician to play like a natural.</i> (Conable 2000b:5)
The Franklin-Methode	Eric Franklin (b. 1957)	<i>The Franklin-Methode is about better coordinating the hidden strengths of the body and creating the basis for efficient and gentle movement. Its aim is to not only improve what we have, but to improve what we can become through changing structures, so that we can feel and move more harmoniously right down to single cells.</i> (Franklin 2002: xii)

(Sources: Conable 2000b; Franklin 2002; Nelson & Blades-Zeller 2002; Vineyard 2007; <http://www.hellerwork.com> 2010; <http://www.ideokinesis.com> 2010; <http://www.rolf.org> 2010; <http://www.trager.com> 2010)

The Alexander Technique

Frederick Matthias Alexander (1869-1955) was an Australian-born Shakespearean actor whose career was interrupted by chronic hoarseness and the loss of his voice during performances. Unable to resolve the problem through medical treatments and vocal rest, he turned instead to self-examination of his movements (Gelb 1994; Jones 1997). During the course of nine years of persistent self-observation and experimentation, Alexander discovered three patterns of *habitual Use* while reciting that led to his vocal problems:

...he stiffened his neck, so causing his head to retract (he later called this pulling the head back'); he depressed his larynx unduly; and he sucked in breath with a gasp. In more difficult passages the pattern became exaggerated (Gelb 1994:11).

Once Alexander was aware of the misuse of his body he determined to correct the habitual patterns of movement causing the problem. He continued to observe and experiment until he fully understood that his tension habit was connected to his 'mind's misinterpretation of physical sensations, warping his judgment' (Vineyard 2007:9). When Alexander understood the important connection between physical movements and mental perception he was able to develop two processes to remedy it. He named them *inhibition* and *directing*.

Although he was unable to fully appreciate the neuroscience that confirms his discoveries during his lifetime, Alexander's self-experiments are considered the practical application of early research by scientist Rudolf Magnus (Jones 1997; Vineyard 2007). *Primary Control* was the term Alexander coined for the dynamic relationship between the head and the neck in his body use. It evolved from the combination of his understanding of Magnus' research in vertebrates, i.e. 'the head leads and the body follows' (Magnus quote in Vineyard 2007:11), and his self-observations of the improvements in his vocal functioning resulting from a correct head-spine relationship (Conable 1995; Gelb 1994; Jones 1997).

Alexander's ease of movement was recovered as a result of three important principles or discoveries: primary control, downward pull, and constructive conscious control (Conable 1995). Primary control is defined as 'the inherent and intrinsic mechanism for balance and support in the body' (Conable 1995:1) and results from the correct relationship between the head and the spine. As a result of primary control, upright body posture is effortless due to the activation of the body's postural reflexes. The experience of body movements is consequently buoyant, fluid and supported (Conable 2000b:94). Alexander named the 'pattern of tension throughout the body that compromises the primary control' downward pull (Conable 1995:2). He recognized

that downward pull interfered with his body's ability to maintain the correct relationship between the head and the spine (Conable 1995).

Alexander's third principle or discovery was constructive conscious control or inhibition (Conable 1995; Gelb 1994). Through his experiments, Alexander learned that it was possible to 'consciously cooperate with and facilitate the primary control, and thereby recover grace and poise in movement and ease in sitting or standing' (Conable 1995:2). Inhibition was considered by Alexander to be the 'foundation of his work' (Gelb 1994:66). It is described by Jones (1997:11) as 'a positive process. By refusing to respond to a stimulus in a habitual way you release a set of reflexes that lengthen the body and facilitate movement'.

Alexander developed a hands-on method of teaching the information with his brother, A.R. Alexander (1874-1947). By working with their hands and guiding movement, they were able to facilitate an immediate kinesthetic experience for students. Over time, those students were able to learn the new habits of movement for themselves. Until the 1930's it was only possible to learn The Alexander Technique through direct instruction with one of the Alexander brothers. However, they subsequently commenced a three-year training course for others who wished to teach their technique (Jones 1997).

Gelb (1994) states the three reasons that people currently take Alexander Technique lessons are relief from pain, for improved performance arts and skill development, and personal transformation. The effectiveness of The Alexander Technique in curing a variety of medical conditions, other than the loss of voice experienced by F.M. Alexander, was documented in the early 1900's. For example, Dr. Wilfred Barlow, who was both a physician (rheumatologist) and

teacher of the Technique, emphasized the importance of The Alexander Technique for preventing misuse conditions such as 'rheumatism, backache, arthritis, breathing disorders, hypertension, fatigue, gastro-intestinal conditions, headaches, and certain sexual problems' (Gelb 1994:29). Use of The Alexander Technique in preventing and treating disease was also supported by a cohort of prominent British doctors who testified to this fact in the *British Medical Journal* in 1936 (Gelb 1994). A recent study on chronic back pain, one of the commonest causes of disability in Western societies, published in the *British Medical Journal* in 2008 concluded that 'one to one lessons in the Alexander Technique from registered teachers have long term benefits for patients with chronic back pain' (Little et al 2008:2). The published research on the benefits of The Alexander Technique with regard to health and wellbeing is extensive, and includes areas such as stress reduction, preventive medicine, chronic pain control, postural management with conditions such as scoliosis, and enhanced respiratory function (AmSAT 2003).

Improved skill development for performing artists and athletes is also well documented in the literature. For example, Jay (1998:¶13) states:

The Alexander Technique heightens your awareness of your body so you can better align your head, neck, and back. This frees up your entire neuromuscular system. With improved integration of your nerves and muscles, you become a more finely-tuned instrument.

As the predominance of performance-related problems affecting musicians are neuromuscular in nature, it follows that creating conditions facilitating freedom of use of the neuromuscular system is advantageous for performers. The list of renowned actors and musicians who have benefited from The Alexander Technique includes: Sir Colin Davis, Jeremy Irons, James Earl

Jones, Paul McCartney, Paul Newman, Sting, Robin Williams, and members of the New York Philharmonic Orchestra (AmSAT 2010:¶13).

Taking Alexander Technique lessons for personal transformation relates to 'a growing understanding of the importance of the individual's responsibility for the development of his own awareness' (Gelb 1994:3). Awareness was a core issue for Alexander, who came to understand that taking responsibility for the direction of his body use was a matter of choice, and that he could ultimately cultivate effective habits through better awareness. Stated another way: 'with awareness, our conscious mind can become a tool for change... Our body can become better able to do as we intend' (Vineyard 2007:6).

The Feldenkrais Method

Moshe Feldenkrais (1904-1984) was a Russian-born physicist, martial arts expert (Judo black belt, 2nd degree rank), mechanical engineer, and educator who developed the Feldenkrais Method of somatic education (Reese 2001; www.feldenkrais.com). Like The Alexander Technique, the Feldenkrais Method is 'an advanced sensory motor learning system' which facilitates the development of 'kinesthetic sensitivity' (Nelson & Blades-Zeller 2002:vii). The Method is 'based on principles of physics, biomechanics, and an empirical understanding of learning and human development' (www.feldenkrais.com 2010:¶13). Feldenkrais' motivation was to manage recurring knee problems that could not be cured surgically (Beringer 2010).

Over a twelve year period (approximately 1942 – 1954) Feldenkrais studied with a number of influential people. These included Russian mystic and spiritual teacher George Gurdjieff, somatic educator F.M. Alexander, physician William Bates, and German educator Heinrich Jacoby whose

teaching was based on developing sensitivity and awareness (Reese 2001). The integration of his experiences with these people in combination with own experiments and observations resulted in the synthesis of five key ideas which contributed to the development of the Feldenkrais Method: 1) life as a process; 2) involvement of the whole self as necessary for effective movement; 3) learning as the key activity of humans; 4) the necessity of choice; and 4) the logic of human development' (Nelson & Blades-Zeller 2002:5).

During the process of developing his Method, Feldenkrais challenged the popular scientific thinking that our habits of physical are 'fixed or hard-wired, that each area of the brain has specialized, pre-determined functions, and that every day of our adulthood, our brain loses both neurons and the ability to learn new skills' (Zemach-Bersin in Beringer 2010:xi). The scientific validation for Feldenkrais' method came only after recent discoveries in neuroscience confirmed brain plasticity, thereby supporting his theories and the practical applications of the Feldenkrais Method (Beringer 2010).

Practice of the Feldenkrais Method comprises two aspects. Firstly Awareness Through Movement (ATM) lessons which are conducted in a group setting, and secondly, Functional Integration (FI), an individual, hands-on session with a qualified teacher (Nelson & Blades-Zeller 2002). On the official Feldenkrais website it is described thus:

The Feldenkrais Method is a form of somatic education that uses gentle movement and directed attention to improve movement and enhance human functioning. Through this Method, you can increase your ease and range of motion, improve your flexibility and coordination, and rediscover your innate capacity for graceful, efficient movement (www.feldenkrais.com 2010:¶2).

A number of similarities between The Alexander Technique and the Feldenkrais Method are evident. Firstly, the overall goal of improving the quality of movement for the purpose of more efficient body functions. Secondly, heightening one's attention to attain this goal. And thirdly, hands-on guidance from a teacher to facilitate the process of movement re-training via tactile and kinesthetic communication.

As with The Alexander Technique, the key element for physical change is the development of 'a broader functional awareness' through habits of mind (www.feldenkrais.com 2010:¶3). However, the means by which Feldenkrais achieves this differs slightly with the use of Awareness Through Movement lessons. Awareness Through Movement lessons are conducted in a group, they are verbally directed, and engage people in a range of specific movement explorations that integrate cognitive and sensory functioning. They build gradually from easier movement explorations to more complex movements. The purpose of these lessons is 'to make one aware of his/her habitual neuromuscular patterns and rigidities and to expand options for new ways of moving while increasing sensitivity and improving efficiency' (www.feldenkrais.com 2010:¶4).

Subsequent to his own complete physical recovery, Feldenkrais began to teach his Method to others. He earned his living from teaching the Method From 1954 until 1981 when he retired from publicly teaching due to ill-health (Reese 2001). A wide range of benefits from the Feldenkrais Method have been documented, ranging from performance enhancement for performing artists and athletes, to relief from chronic or acute pain conditions (back, neck, shoulder, hip, legs, knees), and help with medical conditions of the central nervous system (e.g. multiple sclerosis, cerebral palsy, stroke) (www.feldenkrais.com 2010:¶5). Research activities

investigating various aspects of the Method are supported through the Esther Thelen Research and Education Fund (founded in 2005), the Feldenkrais Science Network, and the International Feldenkrais Federation Academy Research Journal, all based in the USA.

Articles explaining the benefits of the Feldenkrais technique for musicians are numerous. Reed (2001:¶1), an injured cellist, incorporated Feldenkrais Method work to successfully heal a repetitive strain injury of her arm. Citing the Method as the ‘greatest contribution to my musical life’ she further states:

In the years of incorporating the Method into my playing and teaching since first using it to heal my arm, I have come to believe that the benefits of Feldenkrais study for the non-injured musician, in the form of heightened musical awareness and skill, even outweigh its more well-known role as an approach to free oneself from pain (Reed 2001:¶1).

The ability of musicians to ‘meet any compositions’ demands’ with ‘a vast repertoire of movements that will give them the freedom to use their bodies with maximum efficiency’ (Vardi 2001:¶2) is a common reason musicians explore the Feldenkrais Method. For musicians, the issues of bodily freedom and physical efficiency resulting from application of the principles taught by the Method are supported by Case (1995), Tarr (2001), and Spire (2001). As with The Alexander Technique, the goal of the Feldenkrais Method is use of the ‘whole self’ for ‘efficient and effective’ movement (Nelson & Blades-Zeller 2002:5).

Ideokinesis

Ideokinesis was pioneered by Mabel Elsworth Todd (1880-1956) in the 1930’s although the discipline was not named as such until the early 1970’s (<http://www.ideokinesis.com/introduction> 2010:¶1). The name ideokinesis comes from the Greek roots ‘ideo’ (idea) and ‘kinesis’ (movement) and it is ‘one of the oldest body-mind

methods originating in the Western world' (Bernard et al 2006:viii). Todd's motivation for the study of human movement was personal. In the early twentieth century (during her twenties) she suffered paralysis resulting from an accident and was given no hope of ever walking again by her physicians. However, using her imagination she did heal herself and believed that she walked 'with even better coordination than before her accident' (Franklin 2002:xi).

The theories Todd developed for improved neuromuscular coordination emerged from her experience in 'teaching bodily economy' over a period of more than 30 years (Todd 2008: xiii). She investigated physics, mechanics, anatomy, physiology and science for evidence to support her empirical theories. In 1929 her teaching syllabus at Teachers College, Columbia University, emphasized 'psycho-physical mechanisms involved in the organic reaction to the problem of resisting gravity in the upright position', or stated more simply, 'mechanical balance is provided for in the organism' (Todd 2008:xiii).

In her book *The Thinking Body* (first published in 1937, reprinted 2008), Todd described the reciprocal nature of the mind and body thus:

Whatever the explanation of how emotion and bodily changes are linked, it is as profoundly true that we are as much affected in our thinking by our bodily attitudes as our bodily attitudes are affected in the reflection of our mental and bodily states (Todd 2008:294).

From her extensive experience healing herself and others, Todd believed in the direct relationship between imagination (mind) and physical coordination (body). This was clearly expressed in her final chapter when she stated 'imagination itself, or the inner image, is a form of physical expression, and the motor response is the reflection of it' (Todd 2008:295).

At the time Todd was developing her theories, the use of imagery was considered highly unusual. However, like so many other pioneers in the field of somatic education, her practical discoveries have subsequently been supported by scientific investigations into the mind-body relationship. The original approach as taught by Todd was through private studio work. In this setting students learned basic anatomy first and subsequently experienced table work which involved 'touch to facilitate concentration on the imagined actions' (www.ideokinesis.com/pioneers/intro_2010:¶1). Today Ideokinesis is incorporated into the training of dancers and gymnasts, and is applied by a range of health professionals including physiotherapists (Franklin 2002).

The Franklin-Method

The Franklin-Method was developed by Eric Franklin (b. 1957) and has its roots in Ideokinesis as taught by Mabel Todd. Franklin's training as a dancer is the reason for this exposure to Todd's work. Using 'imagery for conditioning' is the purpose of the Franklin-Method and its principles have been taught for more than 20 years to dance educators, nurses, school teachers, midwives, osteopaths, and Pilates and Yoga practitioners (Franklin 2002). It is defined by Franklin thus:

The Franklin Method is about better coordinating the hidden strengths of the body and creating the basis for efficient and gentle movement. Its aim is to not only improve what we have, but to improve what we can become through changing structures, so that we can feel and move more harmoniously right down to single cells (Franklin 2002:xii).

As a form of movement education, the Franklin-Method comprises three key elements: 1) imagery; 2) experiential anatomy; and 3) reconditioning movement. An important goal of the teaching is to maintain the essence of complex concepts but to communicate them in language that is readily understood (Franklin 2003). Use of all of the application of imagery involves three components. The first component is the body/mind skill, which is considered key. Like somatic

educators before him, Franklin acknowledges the facility of the mind to adapt to instructions. He also recognizes the power of the mind through visualization. The second application of imagery is developing the mind-body connection experience through imagery, movement, and touch. The third application is the relationship of imagery to *ch'i* which is described by Franklin as 'a form of life energy which pervades everything'. He further states 'imagery stirs awareness and guides energy or *ch'i*' which is necessary for the energetic well-being of the human body (Franklin 2003:xiii).

Franklin's approach to anatomy is practical, hence the term experiential anatomy. His explanation of anatomy are based on human evolution, specifically explaining changes and challenges the body has gone through and the solutions developed over time. He also teaches biomechanical principles and the relationship of internal organs (e.g. viscera) to the neuromusculoskeletal system. The way organs support movements, flexibility and alignment is taught in the Franklin-Method. The third element in the Franklin-Method is reconditioning movement which is achieved through a variety of movements including everyday activities, walking, sitting, standing and stretching (Franklin 2002; Franklin 2003).

An understanding of the important relationship between the mind and the body for effecting change is central in the Franklin-Method. This is a key concept that is shared with all other somatic disciplines. It should be noted that body/mind is Franklin's nomenclature as opposed to mind-body which is used in other somatic disciplines. Franklin also acknowledges the plasticity of the brain and regards his technique as being 'at the forefront of practical neuroplasticity; showing you how to use your brain to improve your body's function' (www.franklin-methode.ch 2008:¶16).

In the area of performance enhancement the Franklin-Method has not focused on the needs of musicians, although the goals of this work are compatible with the attainment of neuromusculoskeletal freedom sought by performers. The website cites a 1995 study published in the *Journal of Neurophysiology* that describes improvements gained in finger movement on the piano as a result of thought processes only (www.franklin-method.com:2010). To date the majority of Franklin-Method testimonials are in the fields of fitness (Pilates), bodywork (physiotherapy and massage), and dance.

The Trager Approach, Rolfing Structural Integration, and Hellerwork Structural Integration are somatic disciplines that share an emphasis on bodywork and typically have a therapeutic origin.

The Trager Approach

Milton Trager (1908-1997) was the founder of the Trager Approach. He believed in his innate 'discovery' of a particular form of therapeutic touch that he described as Psychophysical Integration. Trager's initial work was with people suffering from a variety of medical conditions, including emphysema, asthma, multiple sclerosis, muscular dystrophy, polio, serious back pain, and psychiatric difficulties (Cavanaugh 2010:¶12; www.trager.com/history:2010).

At the age of 47 Trager received his M.D. because he believed that his work could benefit health professionals. He specifically targeted the work of physical therapists due to his belief in the increased success of patients under his care in comparison to the results of the physical therapy practices at the time. The Trager Institute was founded in 1980 and allowed him to develop a

training and certification program in his approach. Today the applications of Trager work continue to be predominantly through therapeutic practitioners such as physical therapists.

There are two aspects to the Trager Approach: tablework and *Mentastics*. Tablework allows a client to be passive and is conducted by a practitioner who moves them in 'ways they naturally move, and with a quality of touch and movement such that the recipient experiences the feeling of moving effortlessly and freely on his/her own' (www.trager.com 2010:¶5). The second aspect, *Mentastics* are described as simple, active, self induced movements 'whose main goal is to increase the patient's self awareness and provide the patient tools to increase his/ability to move and control the pain' (Witt 1986:¶12).

While the literature on the Trager Approach is predominantly focused on therapeutic outcomes, testimonials from two noted singers are featured on the Trager website. Linda Ronstadt claims 'Trager work is an invaluable aid for all singers. It relaxes the throat muscles and positions the larynx for extended range and better breath support. I rely on it' (www.trager.com/testimonials 2010:¶5). Neil Sedaka's testimonial affirms the benefits of *Mentastics*: 'I am always left with a feeling of lightness and freedom of movement' (www.trager.com/testimonials 2010:¶2).

Rolfing Structural Integration

Rolfing Structural Integration, also known as Rolfing, is a system of 'soft tissue manipulation and movement education' developed by Ida Pauline Rolf (1896-1979). After earning her Ph.D. in biochemistry from the College of Physicians and Surgeons of Columbia University in 1920, she advanced her knowledge of the human body through further research in organic chemistry at the Rockefeller Institute. Her motivation to conduct research into healing and physical

manipulation was fueled by a desire to discover solutions to the health problems afflicting herself and her sons (www.rolf.org/about/history 2010).

The focus of fundamental question that guided Rolf's work was,

What conditions must be fulfilled in order for the human body-structure to be organized and integrated in gravity so that the whole person can function in the most optimal and economical way? (www.rolf.org/about/history 2010:¶5).

From her studies of homeopathy, osteopathy, chiropractic and yoga Rolf understood the relationships between physical functioning and anatomical principals as they contributed to correct body alignment. She also knew that one's well-being and ease of bodily function was dependent on proper physical alignment. Rolf concluded that structural imbalance and the effects of gravity on the soft tissues of the body (muscles, fascia, tendons and ligaments) created compensations in physiologic structure. The system of soft tissue manipulation she developed allowed her to successfully address these problems (www.rolf.org/about/history 2010).

There are two key elements to Rolfing Structural Integration as it is practiced today. The first is soft tissue manipulation resulting in deep myofascial release, the original structural integration methodology developed by Rolf. Additional joint mobilization techniques have subsequently been developed by Rolf Institute faculty. The second is Rolf Movement which was developed by Rolf toward the end of her life. During these sessions the functional movements of various body parts is assessed (i.e. breathing, the feet, ankles and knee joints, the hip joints, the arms, and head and neck), and 'movement patterns that promote strain and asymmetry' are identified and addressed with more 'economical solutions' that 'promote greater balance and efficiency in the gravitational field' (www.rolf.org/about/movement 2010:¶2).

The primary benefit of Rolfing Structural Integration is restoration of a person's posture to achieve structural balance. Rolfing is also promoted as a means of resolving tension, alleviating pain and stress, restoring flexibility, and revitalizing energy. Athletes, dancers, children and business professionals are specifically cited on the Rolf Institute of Structural Integration website as benefiting from Rolfing work (www.rolf.org/about 2010:¶4). Research data on the effects of Rolfing are primarily focused on therapeutic outcomes for people with medical conditions (e.g. cerebral palsy and chronic low back pain). While studies focusing on the needs of musicians are not implicated, the data demonstrates that Rolfing 'creates a more efficient use of the muscles' and 'enhances neurological functioning' (www.rolf.org/about 2010:¶6). Within the context of the data on musicians' health and wellness, this would indicate the potential for Rolfing to benefit musicians seeking help for neuromusculoskeletal problems. Rolfing is also regarded as a 'holistic technique' because 'changes in physical structure can impact the whole person, physically, emotionally, and energetically' (www.rolf.org/about/how 2010:¶5). In this regard it shares a common goal with the somatic disciplines discussed thus far.

Hellerwork Structural Integration

Hellerwork Structural Integration is commonly known as Hellerwork. It is 'a bodywork technique used to restore the body to its normal state of alignment by stretching and manipulation of connective tissues known as fascia' (Butler 1996:xi). It was developed by Joseph Heller (b. 1940) who was originally trained in Rolfing Structural Integration. Hellerwork is an outgrowth of 'Ida Rolf's lineage of Structural Integration bodywork' and also utilizes deep tissue release (myofascial release) 'combined with movement education and dialogue of the mind/body connection' (www.hellerwork.com/overview 2010:¶1). Myofascial release is 'the use of pressure

applied by the hands and arms to get a lengthening of muscle and interwoven connective tissue’ (Kilcrease www.hellerwork.com/archives 2010:¶3).

The key elements in the Hellerwork Structural Integration process are deep tissue bodywork which is combined with two additional components – movement education and dialogue. Movement education is amalgamated with the bodywork ‘to enhance fluidity and ease of motion’ resulting in development of ‘a deeper awareness of your body’. (www.hellerwork.com/overview 2010:¶4). The inclusion of guided dialogue facilitates self-awareness of the ‘emotional cultural patterns allowing for choice and change’ (www.hellerwork.com/overview 2010:¶5). Through these processes practitioners guide students to new options physically and emotionally, and they are encouraged to make the connections between movement and body alignment by the restoration of the body’s natural balance from the inside out (www.hellerwork.com/overview 2010:¶2).

Research in the field of Hellerwork has not been extensive, with the majority of work conducted in Rolfing Structural Integration instead. While both Rolfing and Hellerwork share similar goals (improved posture and well-being) and similar approaches (myofascial release), Hellerwork is generally regarded as a gentler approach in the degree of pressure applied by practitioners. A range of educational materials with a predominantly self-help focus exist in the literature. For example, *Conquering Carpal Tunnel Syndrome* by Sharon Butler (1996), which is a comprehensive program of stretching developed for the relief of Carpal Tunnel Syndrome or other repetitive strain injuries. Applications of resources such as this are viable choices for musicians seeking relief from RSI’s or wishing to engage in preventive self-care.

Summary of somatic disciplines discussed

While all of the somatic disciplines discussed in this chapter thus far share a common goal of promoting use of the whole self for the purpose of freedom of movement, the means by which this is achieved varies. In the case of The Alexander Technique, the Feldenkrais Method, and the Franklin-Method, cultivation of mind-body connections is paramount and explicitly taught through heightened sensory awareness, particularly with the tactile and kinesthetic senses. While hands-on work is a component for The Alexander Technique and the Feldenkrais Method it is for purposes of gently guiding students through a kinesthetic awareness experience. This is in direct contrast to the Trager Approach, Rolfing Structural Integration and Hellerwork Structural Integration which all begin with a strong emphasis on deep-tissue bodywork during which the patient or student is by and large passive.

The literature demonstrates that musicians place extraordinary demands on their bodies and as a result the prevalence of neuromusculoskeletal disorders and soft tissue injuries (e.g. RSI's) is higher than for non-musicians. Addressing the specialized movement needs of musicians has become a pedagogical and therapeutic priority for performers, music educators and medical practitioners and health professionals. Research published in the literature indicates a greater percentage of musicians engaging in somatic practices such as The Alexander Technique and the Feldenkrais Method than any of the others already presented, although the goals of all disciplines are supportive of the biomechanical needs of musicians. Although it is outside the scope of this study, it could be speculated that one likely reason is the compatibility of the performance-oriented genesis of both The Alexander Technique and the Feldenkrais Method vs. the therapeutic origins of Trager and Rolfing. In the case of Ideokinesis, the dance origins make

for a more natural connect with performers and athletes engaged in motor-coordination of large muscle groups, unlike musicians who focus on the athletic qualities of the upper body and its smaller, more delicate musculature.

Body Mapping

Body Mapping is one of the most recent disciplines to enter the field of somatics and the only one currently with a primary focus on the movement needs of musicians. Its roots lie in the somatic practices established by F.M. Alexander, founder of The Alexander Technique, a widely practiced method of movement education within the performing arts community over the past 100 years. The underlying premise of BMG is the importance of understanding the neurophysiological connections in the human body that lead to freedom of movement. In addition to cultivating accurate and adequate body maps, the integration of kinesthesia into sensory awareness, and the development of inclusive awareness provide musicians with the skills for embodied performing (Johnson 2009; Malde, Allen & Zeller 2009; Pearson 2006; Vining 2008).

For musicians, effective movement is the key to musical expression and communication. The quality of musical movement is directly affected by issues such as pain, physical alignment, tension and overuse. Failure to address the adequacy and accuracy of the body map, the physical self-representation contained within the brain, results in inefficiency, distortion and injury - a failure of movement quality (Andover Educators 2003; Conable 2003a; Gilmore 2005; Johnson 2009; Mark 2003; Nesmith 1999; Vining 2008). The highly refined, repetitive and specialized movements engaged in by musicians places them in a high-risk category for injuries

resulting from poor quality movement and misalignment (Ackermann 2010; Conable 2003a; Mark 2003; Marxhausen 2003; Smith & Sataloff 2000).

The 'body map,' a term also referred to by neuroscientists as 'body scheme,' 'neuronal representation,' and 'internal representation' contains highly specialized information on the structure, function and size of the various parts of the musculoskeletal system (Conable 2003a; Johnson 2009; Nichols 2004; Pearson 2002). 'It is the internal representation on the cortical surface of our brains that governs all movement' (Harscher 2010:30). Consequently the integrity of musical movements is determined by the accuracy and adequacy of body map information (Conable 2000b; Conable 2003a; Johnson 2009; Malde, Allen & Zeller 2009; Pearson 2006; Vining 2008). Musicians with inaccurate and inadequate body maps will be affected in varying degrees, with performance limitations at the lesser end of the spectrum and crippling injuries in the worst case scenarios (Harscher 2010; Mark 2003; Nesmith 2001; Smith & Sataloff 2000). Music medicine is a viable option in a minority of cases and is typically successful in the treatment of medical conditions (Conable 2003a; Likar 2003; Mark 2003).

Unfortunately, the majority of playing-related injuries sustained by musicians are movement related and non-medical. Hence the difficulties for musicians seeking traditional medical remedies (Conable 2003a; Mark 2003; Smith & Sataloff 2000). For example, Winspur and Warrington (2010:229) state: 'experience shows us that only 4% of musicians' hand and arm problems are of a surgical nature.' The success of treatments where musicians' are re-trained in their body usage, which also allows for improved technique in performance, is gaining in credibility and popularity within both the musical and medical communities (Likar 2003; Mills 2003; Nesmith 2001; Smith & Sataloff 2000). Adopting a team approach with collaboration

between physician, teacher, performer and other health practitioners for the treatment of musicians is also currently recommended by the leading arts medicine physicians.

Poor technique must be identified and corrected, or recurrent problems are likely even if the present situation resolves. A healthcare provider knowledgeable in musculoskeletal function and a music teacher, working together, are more likely to identify potential problems in technique than either working alone (Brandfonbrener 2010:213).

BMG is also the newest area in the field of somatics claiming success in the re-training and treatment of musicians' injuries and performance limitations (Andover Educators 2003; Conable 2003a; Johnson 2009; Likar 2003; Mark 2003; Nesmith 1999; Vining 2008). Although the current literature establishes the importance of BMG for musicians and explains the means by which the principles should be applied, there is no research data available to substantiate these claims. Anecdotal reports of repeated success, particularly through the work of Andover Educators (certified teachers and trainees) exist in the form of testimonials only. A number of recent publications by Caplan (2009), Harscher (2010), Johnson (2009), Malde, Allen & Zeller (2009) Pearson (2006), and Vining (2008), explain the author's personal struggles with injury or performance limitations and the role BMG played in the effective remediation of their complaints. For example, both Vining and Harscher were victims of focal dystonia, a condition described as 'terrifying' by musicians due to the mysterious and debilitating symptoms (e.g. loss of embouchure; 'unexplained weakness of hand and loss of finger coordination'), and consequent loss of performance facility (Harscher 2010:30; Wick cited in Vining 2008:xiii). Johnson described her struggle as a 'search for answers to address the restrictions I experienced as a violinist' (Johnson 2009:1), while Pearson (2006:1) identified herself 'as a flutist who has traveled the road from discomfort, injury, and frustration to comfortable, free, and fluid playing'. Caplan (2009:ix) also states the positive nature of his experiences with teaching BMG to a wide range of musicians thus:

It has been supremely gratifying to witness the powerful changes these students made as they grew to better understand how the body creates music. This understanding brought about significant improvements in performance, increased personal confidence, and in many cases, relief from pain or injury.

In a similar vein, Malde (2009:xi) also cites BMG as facilitating her ability to assess problems that interfered with her ability to sing with ease. She states: 'Body Mapping helped me correct some misconceptions and revolutionized my ability to pay attention to the signals my body was sending me'.

The number of people studying BMG has grown in the last two decades. For example, the increase in people seeking certification to teach BMG between 2003 and 2010 grew from 28 certified teachers in 2003 to 52 in 2010 (A. Likar 2010, pers. comm., October 28; K. Wilson 2010, pers. comm., September 21). Additionally, a number of USA Universities have incorporated BMG into their music curriculum as either a course of study or a major component in a course of study. Private or studio music teachers at all levels are also integrating BMG with their musical instruction. Table 2.6 summarizes the tertiary institutions in the USA and Canada that currently offer some form of BMG instruction; either as a discrete course or a major component of a course, or incorporated with studio instruction or a performance area.

Table 2.6: Summary of Body Mapping (BMG) instruction in USA and Canadian universities

Institution (alpha by name)	BMG course taught or BMG as a major component of a course	BMG incorporated with studio instruction or performance area (e.g. opera, ensemble)
Anderson University Anderson, South Carolina	■	■
Bradley University Peoria, Illinois	■	■
Central Michigan University Mount Pleasant, Michigan	■	■
Clayton State University Morrow, Georgia		■
Denison University Granville, Ohio	■	■
Memorial University of Newfoundland St. John's, Newfoundland, Canada	■	
Michigan State University East Lansing, Michigan	■	■
Montclair State University Upper Montclair, New Jersey	■	■
Portland State University Portland, Oregon	■	■
Susquehanna University Selinsgrove, Pennsylvania	■	■
University of Nevada Las Vegas Las Vegas, Nevada	■	■
University of North Carolina at Greensboro Greensboro, North Carolina	■	
University of Colorado Boulder, Colorado	■	■
University of Northern Colorado Greeley, Colorado	■	■
University of South Carolina Columbia, South Carolina	■	■
Willamette University Salem, Oregon	■	■

(Sources: L. Christie 2010, pers. comm., 7 October; S. Copeland 2010, pers. comm., 30 September; B. Draina 2010, pers. comm., 1 October; C. Enman 2010, pers. comm., 30 September; D. Francis 2010, pers. comm., 30 September; K. Hooper 2010, pers. comm., 30 September; J. Johnson 2010, pers. comm., 30 September; L. Marsh 2010, pers. comm., 1 October; D. Nesmith 2010, pers. comm., 30 September; M. Slotter 2010, pers. comm., 30 September; J. Palac 2010, pers. comm., 4 October; K. Zeller 2010, pers. comm., 30 September)

Why Body Mapping is important for musicians

Movement is the means by which the instrumentalist plays, the singer sings, and the conductor evokes musical responses from the choir or orchestra. Movement is the basis for all forms and styles of musical expression and as a result it can be said that musicians literally move for a living (Buchanan 2007; Conable 2000b; Pearson 2006; Vining 2008). Conable (2003a:4) articulates the importance of movement by declaring that 'musicians' movements are highly refined and extremely demanding'. This is supported by the experience of professional musicians. For example, Horvath (2002:25) calculated that a cellist playing the final movement of Mahler's *Symphony No. 5* is required to execute a total of '6,400 left-hand finger movements' (i.e. 800 measures of predominantly eighth notes). Manchester (2006:106) states that 'a Liszt [piano] etude can demand 1800 repetitions per minute'. In the forward for the third edition of *Performing Arts Medicine*, violinist Cho-Liang (Jimmy) Lin writes 'the mechanics of being a violinist need to be intricate, delicate, and precisely coordinated' (Lin in Sataloff, Brandfonbrener & Lederman 2010:vii). Ericsson et al confirms: 'it has been estimated that it takes approximately 10,000 hours of deliberate practice to achieve mastery on a musical instrument' (Ericsson et al quoted in Ackermann 2010:247). In the case of professionals, musical movements are undertaken for significantly longer periods of time in comparison to movements executed by professional athletes and dancers, with musicians typically performing into their later years (Conable 2003a; Johnson 2009; Pearson 2006). Examples of a number of performers who played professionally until very late in their lives include: pianist, Artur Schnabel (age 95); violinist, Nathan Milstein (age 87); cellist/conductor, Pablo Casals (age 96); and pianist, Mieczyslaw Horowitz (age 99) (Lederman 2010:54).

The literature confirms that effective, musical movement is hindered by pain, injury or technical limitations caused by misalignment or misuse of the body (Mark 2003; Pearson 2002; Rosen 2002). Manchester (2006:105) asseverates, 'unless the body maintains movement patterns that are biomechanically sound, the musician is at risk of injury'. Pain, injury and limitation are the reasons Conable (2000) and Johnson (2009) advocate BMG as an important adjunct to the traditional technical and musical training for musicians.

BMG is promoted and taught through the professional teaching network, Andover Educators. The organization's original mission statement articulated their objective as being 'a network of teachers saving, securing, and enhancing musical careers with accurate information about the body in movement' (www.bodymap.org 2003:¶5). However, as a result of organizational restructuring, including the formation of Andover Educators as a non-profit organization, their mission statement has also been revised to 'Teaching the Art of Movement in Music' (www.bodymap.org 2010:¶1). Andover Educators is a growing body that currently comprises 52 certified educators and 30 trainees throughout the USA, Canada, Finland, Korea, Japan and South Africa (A. Likar 2010, pers. comm., October 28; K. Wilson 2010, pers. comm., September 21).

Through the statistics in the literature and the therapeutic experience of medical professionals it has been previously established that performance-related injuries afflicting musicians are high. This fact is supported by the experience of somatic educators too (Andover Educators 2003; Harscher 2010; Likar 2003; Pearson 2006). Likar (2003), the current President of Andover Educators, claims that many musicians in the USA are suffering from pain and limitation in their performing, and some are at the point of losing their career. She also suggests that BMG

provides a solution for many of these musicians by giving them relevant information for the retraining of their bodies in movement.

According to Likar (2003) and Mark (2003), music medicine is appropriate in a minority of cases and for musicians who have medical conditions. For example, conditions like arthritis or a trauma such as a fracture (Mark 2003). However, when body misuse by musicians is the underlying cause of their problems, this situation needs to be addressed with appropriate information about the body in movement (Conable 2003a; Johnson 2009; Likar 2003; Mark 2003). While the literature to date indicates the possibility of success for musicians who integrate BMG principles into their performance, research evaluating the outcomes of BMG on musical performance and development is now required to provide additional clarity and support for these claims.

Somatics and Body Mapping

Somatics is the study of the coordination of the mind and body in movement (Caplan 2009:3; Conable 2000b:4; Conable 2003:1; Nesmith 2001:11). Conable (2003a) credits F. Matthias Alexander, Moshe Feldenkrais, Mabel Todd and Irmgard Bartinieff as the original pioneers in the field of somatics. She further asserts that today's pioneers are the neurophysiologists who study the link between the brain and the creation of movement. The fact that some of the scientists engaged in this research are also amateur musicians is an added advantage for understanding the movement issues specific to musicians (Conable 2003a).

Conable's (2003a) vision for music training is to place it on a secure somatic foundation in order that relevant information will prevent injury and promote facility. The importance of this is

reinforced by the publication of a range of BMG focused books covering the needs of specific performance areas such as piano, flute, trombone, voice, oboe, and violin (Caplan 2009; Johnson 2009; Malde 2009; Mark 2003; Pearson 2006; Vining 2008). Other resources explaining the benefits of BMG for non-musicians include the book *What Every Dancer Needs to Know About the Body* (Gilmore 2005), and the DVD *Move Well, Avoid Injury: What Everyone Needs to Know About the Body* (Conable 2009).

Body Mapping is a self-inquiry educational method for correcting ones body map developed by Conable and Conable in the 1970's, and is currently being further developed by Andover Educators (Johnson 2009). It is defined as 'the conscious correcting and refining of one's body map to produce efficient, graceful, coordinated and effective movement' (Conable 2000b:5). The underlying principle is that 'the integrity of any movement depends upon the integrity of the body map that governs it' (Conable quoted in Vining 2008:4). Hence, if the body map is accurate the resulting movement is effective and free. If the body map is inaccurate or inadequate, movement is inefficient and potentially injury-producing (Caplan 2009; Conable 2000b; Conable 2003a; Johnson 2009; Mark 2003; Pearson 2006; Vining 2008).

In the early 1990's the Conables became aware of the scientific work on the body map (B. Conable 2003, pers. comm., March 14). As a result of the scientific community's interest in the applications of this work for musical performance, scientists seek to continue to understand how their discoveries will improve movement, and musicians (teachers and performers) will benefit by enjoying careers free of pain and technical limitations (Conable 2003a). In Conable's experience, the major reason musicians currently seek out BMG is for injury-related reasons. In

the future she believes BMG will provide musicians information primarily for promoting facility (Conable 2003a).

Body Mapping principles

Body Mapping is based on four main principles identified as 1) cultivating an accurate and adequate body map, 2) training movement, 3) training the relevant senses, and 4) training attention. The basis of BMG work is ensuring sufficient and correct information is contained in an individual's body map as it relates to their movement for the purposes of a specialized activity, such as musical performance. Clarity about the three elements comprising the body map, structure, function, and size, is therefore crucial in the process of attaining an accurate and adequate body map (Caplan 2009; Johnson 2009; Pearson 2002). Structure refers to human anatomy, predominantly the musculoskeletal system although the nervous system is also important; function refers to physiology, the way anatomical structures interact to create movement; and size refers to the specific dimensions of the various muscles and bones involved in the mapping process (Conable 2003a; Johnson 2009; Malde, Allen & Zeller 2009; Mark 2003).

There are various types of common mapping errors resulting in distortions of the body map. Mapping errors have a detrimental effect on movement and will result in movement that is either awkward or potentially injury-producing (Caplan; Conable 2003a; Pearson; Vining 2008). Errors in the size of body map elements are among the most widespread mapping inaccuracies. W. Conable (Conable 1995) cites numerous sources as the cause of sizing errors, including mis-mapping as a result of the adolescent growth spurts and subsequently underestimating the dimensions of a body part. For example, his experience has shown that in the mapping of the spine, people who understand its true size will experience an increased sense of strength and

stability in their vertebral column. Another common sizing mis-mapping is evident in people who habitually stoop or compress their bodies to fit their psychological self-concept that they are in fact shorter in height than their actual physiological dimensions (Conable 1995).

Structural mis-mapping includes the inaccurate location of joints. For example, a violinist who thinks that her elbow joint is two inches higher on her arm than it really is would have difficulty bending her bow arm at the real elbow joint, and would not be able to obtain a free and fully developed sound from his/her instrument (Conable 1995). Another common mis-mapping concerns the wrist, such as musicians who indicate 'the bumps at the end of the forearm bones' as the location of their wrist (Johnson 2009: 107). Yet another structural mis-mapping is identifying the kneecap as the knee (Johnson 2009).

Functional misconceptions in the body map are also prevalent. One common mis-mapping is in the arm structure, and the relationship of the hand to the forearm. This mis-mapping is the underlying case of many severe problems, including repetitive strain injuries and tendonitis. W. Conable outlines this mis-mapping and its physical manifestation by describing the interaction of the major bones in the lower arm:

When the forearm is rotated, the ulna is stable, while the radius rotates around it. This creates an axis of rotation approximately in line with the little finger. Few people realize this, but instead try to stabilize the radius and rotate the ulna on a putative axis in line with the thumb, the first finger, or the middle finger (Conable 1995:131).

In Johnson's experience, one of the most common mis-mappings of the wrist in violinists 'is to map it like a hinge'. She further states 'this dictates that wrist movement is restricted to just one joint rather than distributed across all three joints' (Johnson 2009:107). Another example of a functional mis-mapping of the wrist includes 'violinists' who 'have not mapped their wrists at all'

and view 'the hand as a solid palm coming all the way down to butt right into the ends of the non-yielding forearm bones, leading to severe limitations in wrist mobility' (Johnson 2009:107). Natural strength, stability, and ease of movement result from an aligned hand position.

Vagueness, blankness, or absence of a part of the body in the body map is the last type of mapping error identified by W. Conable (1995). He asserts these gaps in the body map information may be the result of any of the following four situations: ignorance of body information; imitation of poor habits of movement; withdrawing from an injury and never re-establishing contact with the injured part; and, physical or psychological abuse which leads the sufferer to disown or distort part of the body. Suppression of traumatic experiences, also referred to as 'freeze' in the 'fight, flight, freeze' reaction, is responsible for mental, physical and emotional paralysis in human beings. In some people the frozen energy builds up over time and paralyzes or inhibits their ability to absorb and learn (Shur 2003). In cases such as this, appropriate emotional support and treatment outside of the BMG field is an appropriate adjunct to the somatic work (Conable 1995).

Training musicians in the relevant senses is also important. Students of BMG are trained to understand that there are six senses; sight, sound, touch, taste, smell, and kinesthesia. The lack of recognition for kinesthesia as a sense is also explained and corrected (Caplan 2009; Pearson 2006; Vining 2008). Kinesthesia means 'perception of movement' and information from this sense is constantly available to us along with information from our other senses (Gilmore 2005:4). With the exception of taste and smell, musicians must be trained to connect sound, kinesthesia, sight and touch in their awareness. The absence of kinesthesia in the training of the senses accounts for much of the ignorance of the relationship of this sense to the others, in

particular the kinesthetic-aural connection (Conable 2000b; Conable 2003a; Pearson 2006). In many cases, the complete absence of kinesthetic awareness requires significant re-training. Musicians who have accurately mapped the function of their sense receptors for the relevant senses (ears, muscles and connective tissue, eyes, and skin) are able to access complete sensory awareness in their playing (Caplan 2009; Conable 2000b; Conable 2003a; Johnson 2009; Vining 2008).

BMG teaches musicians to connect their senses to movement and cultivate inclusive attention as they systematically explore the relevant anatomical structures and physiological information of the body. The major skeletal system structures mapped are the spine (the core of the body) and the six major places of balance; the Atlas-Occipital joint, lumbar spine, pelvis, knees, ankles and arms. In-depth information about the structures and movement of breathing is also taught and is of particular importance for singers and instrumentalists who rely on the breath for performing. The cultivation of an excellent breathing technique depends on three specific conditions described by Conable (2000a) as freedom from bodily tension, a lively, on-going body awareness, and an accurate body map of the structures and movement of breathing. Conable (2003a:4) also emphasizes the 'importance of training movement as movement, not abstractly or by inference.' How we attend to movement is a significant part of this somatic training, and the point that the integrity of the body maps governs the quality of musical movement is strongly emphasized (Johnson 2009; Mark 2003; Pearson 2006).

Training attention incorporates the ability to be more sensitive, discerning and responsive to body movement in the musical context. Conable (2003a) uses the analogy of playing in tune to teach musicians how to apply the sensitivity-discernment-responsiveness cycle to their

movement and body awareness. In Figure 2.1 the key elements (sensory awareness, sensitivity, discernment, and responsiveness) are initially presented in the auditory context which is familiar and readily understood by musicians. The introduction of the kinesthetic sense and its relationship to musical movement is paralleled in the language and experience of musicians, thereby enhancing their comprehension of these concepts and how they are experienced (Johnson 2009).

Figure 2.2: Comparison of auditory and kinesthetic sensory awareness

Sense	Sensitivity	Discernment	Responsiveness
Auditory	I hear the note I'm playing	I sense the note is sharp	I bring the note back in tune
Kinesthetic	I feel my body as I play	I sense I'm off balance	I bring myself back on balance

(Source: Conable 2003a)

Attention is the scientific term used by Andover Educators on the recommendation of T. Richard Nichols, science advisor for Andover Educators and neurophysiologist at Georgia Institute of Technology. Synonymous with *attention* is *awareness*, *consciousness*, *mindfulness* - terms that all describe the completeness of sensory information and experience necessary for musicians (Conable 2003a). Inclusive awareness is taught by teachers of BMG. It is described as 'the skill of perceiving self and the world simultaneously' (Malde, Allen & Zeller 2009:7). Inclusion of the kinesthetic sense in this form of awareness is also required (Caplan 2009; Johnson 2009; Malde, Allen & Zeller 2009; Vining 2008).

The importance of cultivating inclusive awareness for the purpose of maintaining complete sensory and physical awareness, and the ability to discern movement quality when performing is described by Pearson (2006:13) who states:

Inclusive attention stimulates the reflexes of primary control, or the “righting reflex,” giving you more core support and allowing external muscles to relax. It also reduces performance anxiety by providing specific ways to keep muscles free, enhance support, and breathe fully. An inclusive attention is one of the best tools a musician can use to improve playing and access primary control.

Cultivating inclusive awareness is achieved through various means; however use of a technique called *Constructive Rest* is considered an effective way to begin training attention. (Johnson 2009). The importance of constructive rest is emphasized by Vining (2008:11) who states: ‘constructive rest cultivates awareness, and awareness is the only means to change’. The most comprehensive information on constructive rest in the BMG literature is provided by Vining (2008:11) who devotes an entire chapter to it. He distinguishes constructive rest from ‘plain old rest’ by five goals:

1. To cultivate a whole and integrated body awareness. This is the most important step because the other four steps depend upon it
2. To come to the greatest degree of muscular freedom you can find in the moment
3. To work on the integrity of your breathing
4. To develop an accurate and adequate body map
5. To put yourself in a right relationship with space

Practice of constructive rest is recommended on a daily basis and typically involves lying down in a semi-supine position (Johnson 2009; Vining 2008). A newly released audio guide for constructive rest by Nesmith (2010) is a multi-volume resource enhancing the practice of the five

goals mentioned above. Key principles of The Alexander Technique and relevant BMG information are woven throughout the guided constructive rest sessions.

Body Mapping and preventing injury

Preventing injury and promoting facility are the two primary reasons cited for the importance of BMG for musicians (Conable 2003a). Nesmith (2001:11) believes the 'incredible demands' placed on professional musicians are the result of constant performances of masterworks in combination with teaching and very few days for restoring the important physical, mental and emotional resources. Nesmith's (2001:11) claim 'as we go out of balance, we become susceptible to pain and injury' is supported by Christie (2003), Likar (2003), Mark (2003), and Pearson (2006).

The wide-ranging list of performance-related injuries sustained by musicians has been discussed in this chapter. Additionally, the following list of performance-related conditions have also been encountered by Conable and other certified Andover Educators: thoracic outlet syndrome; tendonitis; carpal tunnel syndrome; repetitive strain injuries; focal dystonia; chronic headaches; lower back pain; upper back pain; pain and stiffness in the shoulders, neck and/or wrists; loss of vocal function; hearing loss; lip dysfunction; ganglion cysts; rotator cuff tendonitis; trigger finger; temporo-mandibular joints disorder; weakness in the hands; and numbness in the arms and hands (Conable 2003a; Harscher 2010; Johnson 2009; Mark 2003; Vining 2008).

Mark (2003) specifically addresses the problem of the prevalence of pain or injury in pianists. He cites three causes of piano-playing pain: a medical condition or illness (such as arthritis); medical trauma (such as a sprain or fracture); and inefficient use of the body or poor habits of movement

(Mark 2003). This is supported in the literature by Fink (2002), Rosen (2002) and Savage (2002). As has been previously discussed, medical conditions, illness and trauma injuries are most appropriately treated by medical specialists, whereas pain and injury resulting from poor movement habits are more appropriately addressed with movement re-training. Teachers of BMG address the problem of playing with excessive muscular work or tension because it is a known cause of injury for musicians who engage in highly repetitive motions (Nesmith 2001; Pearson 2002; Smith & Sataloff 2000).

While Andover Educators are teachers and not medical professionals, as a result of their training and experience they understand the consequences of physical mis-use. For example, Mark (2003) identifies the major causes of discomfort and injury in pianists as co-contraction, awkward positions, static muscular activity, and excessive force. He further notes that these specific problems can occur alone or in combination and contribute significantly to injuries such as tendonitis, carpal tunnel syndrome and dystonia. These conclusions are consistent with the previously discussed findings in the section on musicians' health.

Body Mapping and promoting facility

Promoting facility is the second of the two primary reasons the study of BMG is advocated for musicians. Conable (2003a) claims that musicians frequently attain higher levels of technical mastery as a result of re-mapping and re-training, resulting in improved biomechanical use of the body. This is supported by practitioners outside the field of BMG such as Ackermann (2010) and Elkiss (2002). Nesmith (2001:11) claims 'playing like a natural' is possible when the body map is corrected and movement improves. Creating ideal conditions for maximizing technical facility occurs when a musician is balanced or poised and can access a complete range of

physical, cognitive, and emotional responses at any given time. Applying the concept of inclusive attention is paramount for embodied performing which manifests as fluid, supported movements resulting in full, rich, free sound (Caplan 2009; Johnson 2009; Malde, Allen & Zeller 2009; Pearson 2006; Vining 2008).

Integrating Body Mapping with other disciplines

Body Mapping is not a substitute for musical instruction. It 'is not technique, but it is the basis for technique, the fertile ground out of which good technique can grow' (Conable in Malde, Allen & Zeller 2009:viii). Johnson (2009) explains that the purpose of her book is to integrate BMG principles with violin technique. This is also the intention of Caplan (2009), Malde, Allen & Zeller (2009), Mark (2003), Pearson (2006) and Vining (2008) in their respective books, which function partially as textbooks and also as workbooks.

Integration of BMG concepts with principles of The Alexander Technique is presented for dancers in Gilmore (2005). It is also the case that a number of Andover Educators (certified teachers and trainees) incorporate BMG as part of the core curriculum for Alexander Technique courses at their institutions. Such is the case at Denison University in Granville, Ohio, the University of North Carolina at Greensboro, and the University of South Carolina (S. Copeland 2010, pers. Comm., 30 September; L. Christie 2010, pers. comm., 30 September; D. Nesmith 2010, pers. comm.). Some Andover Educators are also trained in other somatic and bodywork areas, such as The Alexander Technique, the Feldenkrais Method, Pilates, yoga, etc. All Andover Educators have an awareness of the basic principles of The Alexander Technique, such as primary control and downward pull (Conable 1995; Conable 2000b; Conable 2003f; Pearson 2006). Clarification of the differences between the Alexander Technique and BMG is explained in

the *Hour Six Training Manual* (Conable 2003f). Johnson (2009: 2) also clarifies the differences between The Alexander Technique and BMG thus:

... hands-on work is not used at all to teach Body Mapping unless the teacher is also a trained AT teacher or unless the music teacher has always naturally used hands-on guidance in teaching music, as some do. Body Mapping is also informed by other disciplines beside the Alexander Technique, such as anatomy and neurophysiology, and so relies heavily on the use of anatomical models and images in order to instruct.

It is Conable's contention that both disciplines can be used in conjunction with each other, although it is the teacher's responsibility to use their judgment as to which discipline will be of greater benefit in any given situation. While it is highly likely that some Alexander Technique principles will be taught from the BMG perspective, Conable insists it is important to assist students in a BMG course to clearly understand the difference between disciplines. Both methods strive for natural, free, movement, but the means for achieving this differs (Conable 2003f).

Conclusions

Addressing the issue of the training of musicians is a critical item on the agendas of performers, teachers and arts medicine practitioners. Consensus that education is the most effective means of initially addressing this issue has been reached. Further, awareness of the risks associated with musical performance must be met with viable methodologies that facilitate the cultivation of performance techniques assuring sustainable careers.

The willingness of musicians to investigate somatic disciplines as an adjunct to their training has been demonstrated. The somatic disciplines discussed in this chapter share the common goal of improved posture and enhanced neuromusculoskeletal functioning. For musicians who place

extraordinary demands on their bodies in performance, this equates with ease of motion, enhanced performance capabilities, and prevention of playing-related pain and injury.

The potential effectiveness of somatic disciplines results from a number of elements. In the first instance the innate plasticity of the human brain which allows for the modification of sensory-motor skills throughout ones lifetime. Although the means by which changes in neuronal representation of movements is achieved, all somatic education disciplines place emphasis on the individual's responsibility for developing improved sensory awareness via kinesthetic feedback and cognitive understandings. By contrast, bodywork disciplines emphasize manipulation of soft tissue (myofascial release) for realignment in the first instance.

Viewed within the context of the history of Western musical performance and pedagogical traditions, BMG is still in its infancy. It is 37 years since William Conable made his initial discoveries and began to formulate his understanding of the body map as it applies to musical performance. It is 13 years since Barbara Conable founded Andover Educators for the purpose of promoting and educating the musical world about the benefits of BMG. The existing literature provides detailed information on BMG principles and the potential benefits for musicians who embody these principles in their performing. Current publications focusing on the particular needs of piano, flute, trombone, voice, oboe, and violin have been published as extensions of Conable's (2000) original book *What Every Musician Needs to Know About the Body*.

To date, however, there has been limited research, and formal documentation, on the outcomes of this work. The benefits derived from BMG exist as testimonials or anecdotal references shared among the network of teachers who comprise Andover Educators. The growing belief by

performers, educators and health professionals in the importance of education and awareness (also two key elements of BMG) support the need for investigations into the effectiveness of this educational approach. For example, quantifiably determining the impact of BMG on the prevention of pain and injury, or qualitatively documenting improvements in technical facility would serve to strengthen the role BMG has to play in the education and production of musicians who demonstrate the ability to be truly free in their music-making. The following chapter describes the study methodology and positions the Instructor-Researcher in the research.

Chapter 3: Research Methodology & Positioning the Instructor-Researcher in the Study

Learning to do qualitative research changes the way you think and reason and solve problems. It teaches you to be more curious about things you don't understand and then provides a way that you can go about understanding them in a more meaningful way.

(Minichiello & Kottler 2010:288)

Introduction

This chapter is divided into two sections. It describes the methodological approach for the research and positions the Instructor-Researcher (I-R) within the study. The first section begins by presenting the research framework. This includes discussing the research context, providing an interpretive framework to guide the research, reasons for selecting a qualitative methodology, the rationale for choosing action research, and the choice of thematic analysis. Details about the study design including sampling, data collection tools and methods, triangulating ideas, ethical considerations, data analysis procedures, and face validity are also presented. The first section concludes with a brief discussion about the methodological context of the study and an overview of the participants. The second section is concerned with locating the I-R in the study and includes information about my qualifications, musical training, performance experience, skills and qualities brought to the research, and Body Mapping (BMG) interests.

Research framework

Body Mapping research context

While some educators and musicians have reported success with BMG, within the experience of teachers of BMG in the Andover Educators network there is variability in instructional results. One of the challenges is the fact that BMG is taught in a wide variety of formats. This is due to the different educational settings which affect the amount of time for teaching content and working in practical application activities. For example, instruction may be delivered in a short time-frame such as a one-hour conference interest session or a two-hour workshop presentation. Full-day or weekend workshops are commonplace throughout the academic year, and full-week intensive courses are typically presented during the summer months. Full semester courses (such as the class in this study) are also taught at a number of institutions and are usually presented in the context of an academic program of study. The issue of variability in instructional results is important since we are often uncertain why some musicians are more successful than others at achieving positive results from BMG information

A final matter is the issue of information dependability. Accounts of success with BMG instruction are limited to anecdotal reports from individuals and the Andover Educator's network via their professional-exchange list-serve and Biennial Conferences. The value of studying BMG is in the 'great potential of research to inform us' (Neuman 1997:xiii). In this area which is now established but relatively young in comparison to other disciplines, research will provide a basis for documenting BMG applications and results. It will also enable teachers of BMG to understand how they can better educate their students by stimulating ongoing discussions about teaching methods and learning outcomes. Research enables us to learn from

the experiences of others and thereby reflect on our professional practice (Neuman 1997; Rice & Ezzy 2002).

An interpretive framework to guide the research

The research questions outlined in Chapter 1 are guided by a theoretical framework that places emphasis on the interpretive meaning people give to their experiences, and how this in turn affects how they convey their realities with a phenomenon like BMG. In an interpretive framework, the assumption is that an individual is an agent capable of self reflecting. Self-reflection may then be the catalyst for change. How students ascribed meaning to their BMG experience is therefore, the focus of this study.

‘Theories shape how people explain what they observe’ (Ezzy 2002:3). Through theory the researcher is able to make sense of events and happenings by describing and analyzing them. Analysis enables the researcher to develop a clearer understanding and explanation for ‘why, when, where, what, and how events or happenings occur’ (Ezzy 2002:18). Stringer (2004:26) asserts that ‘the term interpretive research’ is ‘increasingly applied to qualitative investigations.’ Understanding the different ways that individuals construe the meaning of situations, events, or experiences is at the heart of qualitative research. Stringer (2004) emphasizes that understanding in this sense means illuminating and clarifying others’ thoughts and feelings so we are capable of comprehending experiences from their perspective.

Denzin (1989:26) contends that ‘meaningful interpretations of human experience can only come from those persons who have thoroughly immersed themselves in the phenomenon they wish to interpret and understand.’ This view-point informs the role of the I-R in this study. The

advantage of the I-R's experience with BMG, personally and in the teaching of others, is a first-hand perspective and context for the interpretation of participants' insights into the BMG process. Thus 'the goal of interpretation is to build true, authentic understandings of the phenomena under investigation' (Denzin 1989:123).

The interpretative process advocated by Denzin (1989) and Stringer (2004) has its roots in symbolic interactionism, a social-psychological approach which 'sees meaning as arising in the process of interaction between people' (Blumer 1969:4). Patton (2002:112) confirms that 'it is a perspective that places great emphasis on the importance of meaning and interpretation as essential human processes'. Further, human interactions allow people to generate 'shared meanings' which consequently 'become their reality.' While this study does not employ symbolic interactionism as a framework, it does recognize the value and importance of the interpretive process. Thus, 'interpretation becomes a matter of handling meanings' (Blumer 1969:5).

The interpretive framework in this BMG study allows the I-R to examine connections between theory and analysis via the question 'do subjective experiences (perceptions) rate as importantly as physiological (actual) experiences?' This is because BMG is a concept that has both cognitive and physiological components. Evaluation of the data via an interpretive framework allows investigation into the ways those components are interpreted and used by students. It also permits examination of the connections they made in terms of the physical improvements they believed they saw, such as more efficient breathing resulting in an improved tone quality, or more finely attuned motor coordination that facilitated more expressive playing. The interpretive framework allows the I-R to understand how the students evaluated themselves within the context of their observations, thus redefining how their body use allowed them to

become better musicians. The subjective insights gained from this experience can potentially open up new insights into how their physical body can be linked to music learning and musical performance.

Another possibility lies in the students' connection between BMG and their own learning process. For example, the experience of being involved in this study meant students' have been self-reflective about their mind-body connections. Writing the journals was also a self-reflective process, requiring them to make connections between the experience of what they learned about BMG, and how it repositioned their understanding of themselves and their capacity for musical performance.

The connection between BMG information and physiological awareness may be understood by explaining how students' experiences with BMG produced meaning. For example, in the course of this study many students made changes to movements in everyday life activities (e.g. seated balance, walking) as well as music-specific movements such as arm movement. Specific examples include arm use when bowing the violin, conducting, playing the piano, or holding the flute. Sometimes they acknowledged the changes themselves; other times it was reinforced by the observations and comments of others (I-R, peers, studio teacher). By listening to and describing the experiences of individuals there can be truths of how awareness of the learning process was developed. In this study, outcomes facilitated by the interpretive framework will enable the I-R to develop pedagogical strategies more attuned to the realities of students' lives', thereby fulfilling the purpose of participatory action research (Stringer 2004:27). Thus, the study positions knowledge as being created via subjective experience, and how such subjective

experiences can have impacts on musical expression, technical development, performance ability, self-awareness, and self-empowerment for ongoing self-improvement.

Qualitative research

‘Research is systematic and rigorous inquiry or investigation that enables people to understand the nature of problematic events or phenomena’ (Stringer 1999:5). Stringer further describes three characteristics of research:

- *A problem* to be investigated
- *A process of inquiry*
- *Explanations* that enable individuals to understand the nature of the problem

This study was conducted using qualitative methods due to their suitability for the area of enquiry and the nature of the research question - requiring ‘an in-depth understanding of meaning’ from the perspective of the participants (student musicians) in an area (BMG) where there is little known research (Minichiello et al 1999:38). Denzin and Lincoln’s (2000:3) definition of qualitative research supports the nature and intent of this study when they assert ‘qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the means people bring to them’. Documenting and understanding the human experience of the informants, therefore, was an important consideration for research that would be theory-building rather than hypothesis-testing.

The data yielded in this study delved into the realm of individual musicians’ thoughts, opinions, feelings, and perceptions using a range of interconnected materials – journals, in-depth interviews, classroom materials, and Instructor-Researcher (I-R) observations. Use of a ‘combination of multiple methodological practices, empirical materials, perspectives and observers in a single study is best understood as a strategy that adds rigor, breadth, complexity,

richness, and depth to any inquiry', particularly where the data yielded is subjective in nature (Flick 1998:231 in Denzin & Lincoln 2000). As BMG is not taught according to a pre-determined formula, it was crucial the study retain the capacity for fluidity and flexibility in design as the teaching-learning process unfolded. Student ability in a learning situation such as this varies greatly, according to the way they perceive and process information (McCarthy 1980:3). While the dissemination for core BMG content was uniformly delivered with lecture and I-R demonstration, the means by which individual students were coached and critiqued on their understanding of BMG principles, and their ability to assimilate them into musical performance, varied and could not be predicted ahead of time. This was a compelling reason for working within a qualitative framework well suited to the education context.

Janesick (2000:394), who is recognized as a leader in qualitative research asserts:

Becoming immersed in a study requires passion: passion for people, passion for communication, and passion for understanding people. This is the contribution of qualitative research, and it can only enhance education and human services practice.

Her zeal for people-centered investigations and her confidence in the power of qualitative research to improve professional practice is shared by many researchers (Denzin & Lincoln 2000; Minichiello & Kottler 2010). Moreover, the belief that 'there is no fixed way of thinking about the world and that different people can experience the same events but think about them or interpret them very differently' (Minichiello & Kottler 2010:16) is another central theme of qualitative research. At the heart of this research study is the question: *why do musicians respond differently to the same BMG instruction?* It was therefore essential to use a research methodology that allowed the I-R to document individual differences (responses and perspectives) to a common educational experience.

Thematic analysis

Two important elements influenced the research framework for this study. First, it was designed to suit the study question and the circumstances of the study environment. And second, rather than making the data conform to a specific theoretical framework that could potentially inhibit the analytical process, the I-R employed a method of data analysis that would illuminate the participants' experiences.

Thematic analysis is a methodological practice that involves the systematic identification and organization of themes and concepts as they emerge from within the data. It utilizes similar analytic and coding processes to grounded theory. However, unlike grounded theory which 'refers to studies in which data collection and data analysis are conducted concurrently alongside theoretical sampling and other techniques distinctive of grounded theory', thematic analysis applies to 'the analysis of data that have already been entirely collected' (Ezzy 2002:87) and does not engage in the process of recursive questioning and data collection.

The open, axial, and selective coding processes (which will be discussed in greater detail later in this chapter) enabled the I-R to identify a range of themes and categories within the data and how they related to the central theme of the study. The nature of this analysis was initially and predominantly inductive. From the I-R's perspective this was important for avoiding predetermined concepts or themes in the study outcomes as suggested by Ezzy (2002).

Action research

In recent years action research has become firmly established as a method of qualitative research inquiry within a number of fields including health, social sciences, public service,

business, and education. McNiff (2002:7) states that it was in the 'teaching profession where it originally came to prominence'. She also asserts:

Action research has significant potential for human betterment...Studying our practice and its underpinning assumptions enable us to develop a creative understanding of ourselves and our own processes of learning and growth (McNiff 2002:59).

While there are different forms of action research (e.g. critical action research, practical action research, participatory action research), they all share the common characteristics of research that is context driven, practical and systematic (Grbich in Minichiello et al 2004; Greenwood & Levin 2000).

Practical action research affords educators the opportunity to address areas of concern concurrently with the ability to place themselves within the process of inquiry, and employ self-reflective practices that improve professional practice. This is supported by Mills' (2003:20) assertion that practical action research 'takes a more applied and contextualized approach to action research' with the mutual goal 'to improve the lives of students and teachers'. A further benefit of action research is the inductive nature of the data analysis and the opportunity for study results to emerge from within the various data sources. While Lytle (1997 cited in Mills 2003:2) describes action research as 'wonderfully uncomfortable', Mills (2003:2) portrays this methodology as a 'journey of investigation' for which 'there is no way of knowing in advance where we will end up.'

In relation to this study, the notion of action research as 'self-reflective practice' is consistent with the fundamental teaching practice of BMG which is a self-enquiry educational method (McNiff & Whitehead 2002:5). Action research is a 'holistic' and 'humanistic' approach to

research wherein the personal experiences of participants is valued (Owens, Stein & Chenoweth 1999). This is congruent with the teaching approach for BMG, which begins with determining what musicians already know about their movement and subsequently seeks to clarify the somatic information governing an individual's body use.

Finally, there is no single way to teach BMG to musicians owing to the varied nature of the technical demands and requisite skills in each performance area. My own teaching experience has demonstrated that the spiral concept of learning applies effectively to students who re-visit concepts over time, and continually build on the accuracy and their depth of understanding with each successive experience. Critical evaluation and self-reflection are integral to improving musical performance, the practical outcome of BMG skills that support musical technique.

Employing a methodology wherein the researcher was also the teacher was of paramount importance for this study. A key characteristic of action research in the educational context is the function of the researcher (teacher-practitioner) who plays a central role in both the teaching and the observation-research processes.

The selection of a qualitative research framework using an action research methodology was an appropriate choice for this study for a number of reasons. These include the educational context, the need for a methodology that would locate the instructor within the study, the I-R's ability to gain access to information contributing to the participant's perceptions of BMG that would enhance her professional practice, and the researcher's desire to contribute information of benefit for other practitioners and students in the field of BMG. Through the process of focusing on the reality of what is actually happening in the teaching-learning process, and the

resulting critical self-reflection, the study outcomes will provide data for improved educational practice (Denzin & Lincoln 2000; Mills 2003).

Research study design

Sampling

Participants in this study were undergraduate music students and music faculty at a University in the United States of America where the I-R was a full-time tenure-track faculty member. The University is a state institution with a total student population of 17,000 students. The School of Music comprised 400 students, predominantly undergraduates studying degrees in music education, music performance (instrumental and vocal), theory-composition, and music therapy. The student population was largely drawn from in-state students, with a smaller number of out-of-state and international students. The student participants were a convenience volunteer sample drawn from class members enrolled in a three-credit elective course taught by the I-R during the Spring Semester (mid-January to early May).

During the recruiting phase in January, student participants were provided with written information at a briefing about the study (see Appendix I for copy of *Information Sheet for Participants* and Appendix II for *Study Consent Form*). This briefing was conducted at the conclusion of the first class meeting with permission from the University. In addition to written information about the study, the I-R also answered questions asked by the students, emphasized the voluntary and confidential nature of their involvement in the study, and the fact that they were free to withdraw at any time should that become necessary. Some students sought clarification about the time commitment and work involved with study participation. Students

had one week to decide and confirm their participation by completing and signing the *Study Consent Form*.

Students were free to decide who they would approach on the music faculty to be their faculty participant. It was important that students were comfortable with their faculty member because of the nature of validation required for the research data. In most cases the faculty member was the student's studio teacher. For three students who did not have a studio teacher they approached an ensemble director, former studio teacher, or a teacher who was familiar with their work through performance practicum. In each case faculty members were initially approached by the students with written information, and the I-R subsequently followed up in person to clarify their understanding about the study aims and answer any questions. Faculty members were also informed of the voluntary and confidential nature of the research by the I-R.

From of a total class enrolment of 20 undergraduate students, 13 initially elected to join the study. The student participants comprised five males and eight females, although one male participant withdrew from the study half-way through due to time constraints, resulting in a total of 12 students who completed the study (four male and eight female). The gender balance within the School of Music at the time of the study was approximately 55% female and 45% male.

The performance areas represented were (in alphabetical order) bassoon, conducting, euphonium, flute, organ, piano (two students), violin and voice (four students). Eleven of the student participants were undergraduate music majors and one participant was an undergraduate art and design major with a strong interest and background in musical

performance. The distribution of undergraduate year levels revealed five sophomores (2nd year students), four juniors (3rd year students), and three seniors (4th year students). Ten music faculty members participated in the study with one faculty member agreeing to comment on progress of three student participants, while the remaining nine had one student each in the study. The gender distribution was equal, with five male and five female, and four were full-time tenure track faculty while six were visiting specialists (part-time or adjunct teachers). Table 3.1 shows the study participants by alias, their *results group* (RG) designation, performance area, year level and their faculty member (also an alias).

Table 3.1: Research study participant summary

Student Participant	Results Group	Performance Area	Year Level	Faculty Member
Susan	Good	Voice	Senior	Owen
Sonya	Good	Violin	Junior	Kyle
Natalie	Good	Flute	Sophomore	Patricia
Adelaide	Good	Piano	Sophomore	Rosslyn
Amy	Good	Bassoon	Junior	Tanya
Howard	Good	Organ	Senior	Harold
Tyler	Reasonable	Conducting	Senior	Hamish
Ingrid +	Reasonable	Voice	Sophomore	Owen
Andrew	Reasonable	Euphonium	Junior	Colleen
Alison +	Minimal	Piano	Sophomore	Owen
Rachel	Minimal	Voice	Junior	Dorothy
Vance	Minimal	Voice	Sophomore	Lawrence

+ No faculty data available

Ethical considerations

Participants' involvement in this study was voluntary and without remuneration. All participants had the right to discontinue their involvement at any time without adverse consequences. Only one male participant withdrew from the study, and he was asked to document this in writing for the sake of accountability. He cited personal time constraints. While the context for this study was a three-credit elective course and the circumstances provided a valuable opportunity for the I-R to gain insights into a particular field of study, student participants were assured that they were under no pressure or obligation to participate, and neither was any individual in the class disadvantaged for not participating.

The right to privacy, anonymity and confidentiality was respected for each of the 22 informants through the use of an alias assigned by the researcher. Ethics approval was sought and granted through the two institutions involved which were the University of New England (overseeing the PhD candidature of the I-R), and the American university where the study was conducted. This study was approved by the Human Research Ethics Committee of the University of New England (Approval No. HE04/179) for the duration of the study, and was granted exempt status by the I-R's University Institutional Review Board, IRB No. 05-028. (See Appendix III)

All student and faculty participants signed an informed *Study Consent Form* to participate in this BMG research study. This included their consent to record interviews (all participants) and video-tape performances and in-class practical sessions (student participants only). All participants retained a signed copy of the *Study Consent Form* for their records.

Data Collection

Tools and time-frame

The tools used for data collection were a combination of study-specific methods (journal and in-depth interviews) and documents and information obtained from the BMG class (*Background Information Questionnaire, Agenda Helper, video-taped performances, and I-R field notes*). These methods were consistent with Mills' statement 'data collection associated with action research is largely an idiosyncratic approach fueled by the desire to understand one's practice and to collect data that is appropriate and accessible' (Mills 2003:51). Mills further states that for the success of the study it is critical to make action research a natural part of the teaching process (Mills 2003). 'Natural' in this context means derived from or part of the conventional teaching approach, rather than something that is especially contrived for the sake of the study. Greenwood and Levin (2000:97) describe the inquiry process in action research as connected to 'actions in a given context' which 'emphasizes the role of human inquirers as acting subjects in a holistic situation.' This research study was conducted in the I-R's college-level course and the methods of data collection were specifically chosen for their suitability and manageability in this specific class setting.

Self-reflective journals and in-depth interviews were the two main methods of data collection employed to identify the different functions that BMG played in students' perceptions of their musical performance and development. Additionally, all students video-taped their in-class performances during the semester so they had a point of reference for their practical progress over time. The video-tapes were viewed and critiqued by the students as part of their self-analysis in the learning-process. The I-R also kept copies of field notes made during classroom

interactions with the students, specifically performance critique notes made during practical rotations and the final assessment presentations.

Course documents such as the *Background Information Questionnaire* (see Appendix VII) and *Agenda Helper* (see Appendix IV) were also used, as well as copies of emails/letters and other course documents given to the researcher by students for use in the study. For example, one student asked to include pictures she drew for her final class presentation in her study file. The *Background Information Questionnaire* was completed on the first day of class and comprised open-ended questions designed to give the I-R an understanding of the student's previous experiences, possible playing-related health issues, and motivation for taking the course. In-depth interviews were the only method of data collection used with the faculty participants for reasons that will be discussed later in this chapter.

The time-frame for data collection was determined by the duration of the semester (15 weeks), and the access the researcher had to informants during that time and at the conclusion of the academic year. Since a number of student participants were graduating and moving out-of-state, and some faculty were leaving for professional engagements overseas, the window of opportunity for the in-depth interviews was comparatively small, i.e. four weeks after the conclusion of the semester. The reflective journals written by the students were submitted over the 15 weeks with some students continuing to send updates on their progress over the summer months of their own volition.

Students video-taped themselves performing in class three times during the study. This occurred at the very beginning of the semester prior to any BMG teaching; at the mid-point of

the course after all BMG concepts were taught and students were beginning to apply the information to their performing; and at the conclusion of the semester when the students presented their final in-class performance-presentation. The purpose of the video-taping was for students to analyze their progress as part of the process of self-inquiry. The video-tapes were also available for the faculty participants to view if requested.

Journals

Janesick (2000:392) states 'the act of journal writing is a rigorous documentary tool.' Mills (2003) and Anderson, Herr, and Nihlen (1994) also cite journals as a valuable qualitative research tool because they are a means by which researchers gain access to the informants' changing thoughts, new ideas, progression of learning, record of events, and feelings. In this study, self-reflective journals were maintained by student participants to record evidence of their development, their thinking, and feelings about their progress over the course duration.

Participants were asked to focus on their development at three specific stages of the course: 1) the beginning of the semester prior to the introduction of the BMG theoretical information; 2) midway through the semester when all of the theoretical content had been taught; and 3) towards the end of the semester when they were engaged in practical skill development focused on integrating the BMG information with their musical performing. Beyond this, the content, format, and style of the journals were left open to individual taste and style in order that participants would feel comfortable expressing themselves freely.

For administrative and expediency purposes, all journals were submitted electronically via email to the I-R. Many participants chose to write a weekly journal that summarized their progress.

However, there was variation among the student participants. Some students wrote entries numerous times within in a week; others wrote only after a particularly insightful practice session or revelation; some students made annotations about background music and their mood at the time of writing and how that related to their progress; some students wrote extended prose; and others wrote in short form. Often the journals included questions which the researcher was able to respond to on an individual basis. From the outset of the study, the content of the journals revealed that the participants had a high level of trust and confidence in the I-R. The content of many journal entries was rich with information explaining complex and sensitive emotional, musical, and intellectual struggles, and in a few cases the journal entries contained personal information that went far beyond the scope of the study.

Students were asked to submit their journals on a weekly basis, which many did, although the regularity did vary for some participants. For example, issues relating to health, attendance, and other life stresses sometimes prevented participants from sending in their journal on a given week. In addition to giving the I-R a clear picture of individual progress throughout the course of study, data in the journals also generated specific information incorporated into the questions for each student's in-depth interview.

In-depth interviews

In-depth interviewing was selected because of its suitability as a method for gaining a breadth of subtle and detailed information about the meanings and interpretations that participants ascribed to their life experience (Minichiello et al 2000; Fontana & Frey 2000). Interview information also served as the 'methodological core' against which other study data (journal

entries and observations) were used as the basis of information and themes for discussion in the in-depth interviews (Agar 1980 cited in Mills 2003:169).

For the purposes of this study, a form of semi-structured in-depth interview with recursive questioning was conducted with all study participants at the end of the semester. Interviews were conducted in an informal, conversational style, beginning with a basic schedule of questions common to each participant, and quickly evolving into more open-ended questions unique to each participant and their experience. (Refer Appendix V for an example of a *Student Interview Schedule*). All of the student interviews were held in the researcher's campus office for the sake of convenience and lasted from 30 – 45 minutes.

Faculty interviews were held in a range of venues, including participant homes, the researcher's home, participant offices, and even a New York City restaurant, and ranged in time from 30 minutes to approximately two hours. Two faculty interviews were conducted via telephone due to extenuating circumstances that prevented a face-to-face interview situation. All of the interviews were recorded by two small Sony recording devices (so as to be unobtrusive during the conversation) with full knowledge by the participants. The second recording device was a back-up. (Refer Appendix VI for an example of a *Faculty Interview Schedule*).

The interview preparation took place over the course of the semester. The specific questions developed for each participant were devised by the researcher in response to information provided via the self-reflective journals and classroom interactions (including performances). Individual interview questions were designed to clarify or deepen the researcher's understanding of the participants' insights and experiences. In addition to the discussion

generated from information presented in the abovementioned data sources, significant information was obtained from each participant during the course of the interview conversation. All student interviews were completed and fully transcribed prior to the faculty interviews.

For faculty participants, the interview questions focused on their observations of any changes or development in their student's musical development or performance during the semester. Information provided by the students in their journals and in-depth interview that specifically referenced their teacher, and/or a particular learning or musical situation that required amplification was also discussed. Some of the topics discussed included their familiarity with somatic disciplines and BMG, level of comfort with their students exploring other areas of information, the nature of their student-teacher relationship, and the extent to which their student discussed BMG course information with them. As with the student in-depth interviews, a recursive style of questioning was employed to maintain the natural flow of information in the conversation. This included probes to explore the reasons for answers either generally or in response to student development. For example, Dorothy was asked to give more details about her experiences with The Alexander Technique, and Owen was asked to explain how he responded to Susan's discussion about pelvic floor involvement in breathing and support.

Course documents and information

All students in the BMG course were required to complete the *Background Information Questionnaire* (see Appendix VII) and submit to the I-R by the conclusion of the second class. The questions asked were designed to give the Instructor a clear idea of an individual student's motivations for taking the course, their expectations, and any relevant personal, musical or

physical information that would need to be kept in mind with regard to the BMG course content. All responses were kept confidential.

The *Agenda Helper* (see Appendix IV) was an eight-page diagnostic tool that was distributed to all members of the class, not just study participants. It was completed twice. Firstly at the conclusion of the presentation of the theoretical information and prior to individual coaching sessions (semester mid-point), and again at the end of the semester after the final performance-presentations had concluded. The *Agenda Helper* was an eight-page document comprising a comprehensive list of specific questions designed to probe students' understanding of course concepts and level of skill application. Used correctly, the *Agenda Helper* was a valuable analytic tool for confirming comprehension of concepts, pinpointing areas working well, and identifying issues requiring attention.

Use of videotapes by musicians to record and evaluate performance and growth is commonplace. In a performance-oriented course of this nature, use of a video camera as a teaching tool is standard practice. The ability of video to capture non-verbal and verbal information makes it an extremely valuable tool, particularly for an area such as musical performance where visual and auditory information is equally important. 'Video is as near to reality as it is possible to get' (McNiff, Lomax & Whitehead 2003:127). This is due to the ability of video to capture people in action, show context, and the subtleties of non-verbal communication. It can also be played again and again for closer scrutiny, which also assists in the analysis of change. It can also show a truer account of a performance. For example, a performer's perceptions of their playing or singing can easily be distorted by performance anxiety that colors their impressions of the situation too negatively. By contrast, the exuberance

of a new-found discovery could potentially be exaggerated with an overly positive caste. Videotape is an effective means for capturing real life action and allowing researchers to look back on the data and evaluate the content, skills and attitudes demonstrated (Mills 2003).

All students in the BMG course were required to video-tape themselves in performance during the semester and analyze their progress. This was regardless of whether or not they were participating in the research project. Objective analysis as part of the process of self-inquiry was an important facet of the learning experience. An additional possible use of the video-tapes was viewing by the faculty participants if required (e.g. for a point of reference if they believed it was necessary).

Refer to Appendix VIII for the specific course information taught, including the BMG content and sequence of topics presented within the semester.

Crystallization – triangulating ideas and personal meaning

The use of multiple sources of data in action research is widely accepted and encouraged to strengthen the validity of the information obtained (Mills 2003; McNiff, Lomax & Whitehead 2003; Wolcott 1990). In the 1970's Denzin designated the use of a variety of data sources in a qualitative study as *data triangulation*. The postmodernist perspective advocated by Richardson is for *crystallization*, a means by which we obtain a clearer view for examining qualitative research designs and their components owing to the integration of various disciplines (Janesick 2000; Richardson 2000).

I propose that the central imaginary for “validity” for postmodernist texts is not the triangle – a rigid, fixed, two-dimensional object. Rather, the central imaginary is the crystal, which combines symmetry and substance with an infinite variety of shapes, substances, transmutations, multidimensionalities, and angles of approach. Crystals

grow, change, alter, but are not amorphous. Crystals are prisms that reflect externalities and refract within themselves, creating different colors, patterns, and arrays, casting off in different directions. What we see depends upon our angle of repose (Richardson 2000:934).

In her discussion of crystallization, Janesick argues for a 'return to a discourse on the personal, on what it means to be alive. We need to capture the lived experience of individuals and their stories, much like the choreographer who crafts a dance' (Janesick 2000:394). Mindful of the fact that this study was conducted in a postmodern educational environment with performing artists evaluating and integrating musical and somatic (mind-body) information, crystallization is a more appropriate perspective for examining the data in this research study which is provided via student journals, in-depth interviews, class documents and materials, and the researcher's field notes. An example of crystallization was the I-R's ability to examine the interaction of the various elements and experiences contributing to Susan's process. For example, her self-reflections and self-assessments at the beginning of the course were subject to different external elements than later in the semester. Thus the I-R had clearer context for the various perspectives from which her data could be interpreted.

The inclusion of faculty and their observations of student progress were necessary for validating the students' perceptions of the impact of BMG on their musical performance and development. This important third dimension was designed to bring balance and clarity to the information gleaned from the student participants and the I-R herself. It was an attempt to strike a balance between the opportunity to study students 'in their natural settings' and 'learn from them about what they are thinking' (Minichiello & Kottler 2010:12), and compare that information with professional musicians and teachers whose opinions and perceptions would temper any possible exaggeration (either positive or negative) on the part of the student participants.

Refer to Appendix VIII for the specific course information taught, including the BMG content and sequence of topics presented within the semester.

Data Analysis

Uncovering the meaning in participants' experiences is the focus of data analysis. Strauss and Corbin define data analysis as 'the interplay between researchers and data' (Strauss & Corbin 1998:13). This raises issues about induction and deduction. In the literature, concepts of induction and deduction as applied to qualitative research are discussed according to the theoretical and methodological constructs of research designs. In this study it was the I-R's intention to initially approach the data inductively in order to allow the study themes to emerge from within the data without preconceptions. The priority was keeping an open mind for the ways the students' described their experiences. However, during the process of interpreting the data there was an element of deductive analysis in play. Strauss and Corbin address the issue of balancing induction and deduction as follows:

Although statements of relationship or hypotheses do evolve from data...whenever we conceptualize data or develop hypotheses, we are interpreting to some degree. To us, an interpretation is a form of deduction. We are deducing what is going on based on data but also based on our reading of that data along with our assumptions about the nature of life, the literature that we carry in our heads, and the discussions that we have with colleagues...In fact, there is an interplay between induction and deduction (as in all science) (Strauss & Corbin 1998:136).

Assessing the interaction between induction and deduction is an integral part of the analytic process. Strauss and Corbin's (1998:294) position on this issue is further clarified by the statement 'because no researcher enters into the process with a completely blank and empty mind, interpretations are the researcher's abstractions of what is in the data.' Ezzy describes this approach to coding as 'sophisticated' because the 'approach to coding' during grounded theory

and thematic analysis 'mixes both inductive and deductive methods.' He further explains that 'codes do not emerge from the data uninfluenced by preexisting theory...the process of theory building involves an ongoing dialogue between data and theory' (Ezzy 2002:93).

Understanding the balance between induction and deduction in the analytical process is important. This I-R acknowledges the potential for fallibility in the interpretation of the data and the influence of her experiences with the study informants. However, this should not detract from the study outcomes. Rather, it is integral to the teaching-learning process which is central in this study. Further, it is supported by the context of practical action research which recognizes the importance of the I-R as a participant in the research process. And finally, through the constant checking and cross-checking of data in the thematic analysis process, as well as the validation of information supplied by independent music faculty study participants, the student research data was subjected to a rigorous analytical process that sought to maintain clarity in the I-R's interpretations.

Analysis of the student participant data began in the first week when the I-R received their *Background Information Questionnaire* (course document – see Appendix VII) at the end of the second class. Submission of weekly journal entries to the I-R also began at the end of the first week of the course, and continued on a weekly basis for the duration of the study. Ezzy's statement: 'data analysis in most qualitative research begins during data collection' (Ezzy 2002:60) supports this situation. He further contends 'this practice is consistent with the theory of data analysis...that emphasized the dialectical, or hermeneutic, relationship between theory and data' (Ezzy 2002:60).

During the first stages of data analysis the I-R read the student journals as they were submitted and noted two main benefits to the information. First, the I-R became more familiar with the individual students' understanding of the BMG information, how they were handling the learning process, and was able to respond directly to them if necessary, e.g. to answer a question, clarify a misunderstanding, or affirm a break-through. Secondly, themes began to emerge that were important for both individual and collective student experiences, such as tension, frustration, pain, awareness, improvement, and balance. The journals provided key narratives and insights into the thinking and experiences of the students over the course of the semester. While they provided the I-R with feedback that assisted in the teaching-learning process in the present moment, the journals also provided important information for the formulation of specific issues that were to be addressed in the end-of-study in-depth interviews. For example, in her journal Adelaide raised the issue of discovering that the changes in her upper-body use had resulted in movement requiring the purchase of shirts one size larger. Rather than adapting her movement to clothing-imposed restrictions, she now needed clothing that permitted whole-arm movement. This led to discussion about specific changes, her awareness, and rate of progress in the interview.

In-depth interviews yielded information regarding the totality of the students' experience, in particular reflections on the context for their study experiences. Hindsight facilitated the acquisition of information and the cultivation of skills.

Open Coding

The principles of open, axial and selective coding for thematic analysis follow grounded theory. For this study the I-R followed the coding procedures described by Strauss and Corbin (1998).

'Coding is the heart and soul of *whole-text-analysis*. Coding forces the researcher to make judgments about the means of contiguous blocks of text' (Ryan & Bernard in Denzin & Lincoln 2000:780). The first stage of thematic analysis is open coding where data are analyzed into concepts or themes from within the data. 'Open coding brings themes to the surface from deep inside the data' (Neuman: 2003:443). This process requires detailed examination of the data through line-by-line analysis of text; analyzing whole sentences or paragraphs for meaning; and also reading entire sections (e.g. a complete journal entry) to understand the context of the information.

Strauss and Corbin define concepts as 'the building blocks of theory' (Strauss & Corbin 1998:101) and as the I-R identified concepts they were abbreviated and annotated in the data. The data were coded 'for meanings, feelings and actions' (Ezzy 2002:93). Examples of concepts included 'anxiety', 'enjoyment', 'experimentation', 'improvement', 'pain', 'break-throughs', and 'balance'. Table 3.2 shows the open coding of study concepts and their associated abbreviations used in analyzing the data.

Table 3.2: The open coding of concepts and associated abbreviations used in analyzing the data

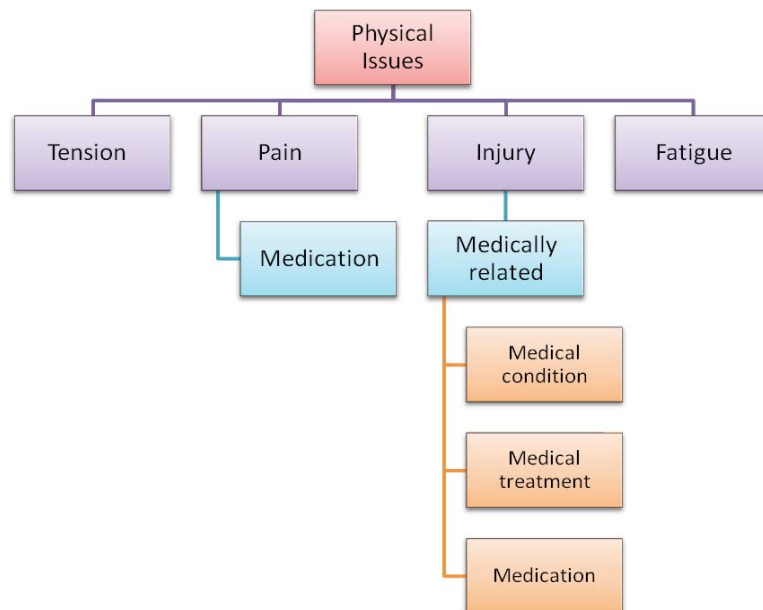
Accom Accomplishment (satisfaction)	Conn Connection/s	Feel Feeling/s (emotions)
Achv Achievement	Cons Rst Constructive Rest	Feld Feldenkrais
AT Alexander Technique	Discom Discomfort	Free Freedom
Ang Anger	Discv Discovery	Frust Frustration
Anx Anxiety (worry)	Doubt Doubts & Skepticism	Goals Goals (technical, musical, physical)
Appn Application - ability to apply knowledge	Easier "Easier"	Good use Good use (physically/bodily)
Aprh Apprehensive	Emot St Emotional State	Grat Gratitude
Assim Assimilation	Enj Enjoyment	Hab Mnd Habits-of-Mind
Atnt Attention	Enth Enthusiasm	Honst Honesty
Att Attitude	Env Cl Environment of Classroom	Hope Hope
Avd Avoidance	Env Envy - jealousy	Imp Improvement
Aware Awareness	Exc Excited	Infl Influence/s (from past)
Bal Balance	Exp Expectations	Info Assim Information Assimilation
Benef Benefits (of BMG &/or study)	Exper Experience (personal w/BMG)	Inj Injury
Brain Brain & Thought Processes	Exp Experimentation	Instr RM Instructor as Role-Model
Brk thr Break-through (Progress w/skill development)	Ext fact External factors	Instr Inter Instructor-Interaction
Challeng Challenges	Fail Failure	Instr Skl Instructor-Researcher Skills
Change Changes	Fatg Fatigue	Integn Integration (of BMG)
Conf Confidence	Fear Fear	Inter Interest
Confus Confusion	Feed Feedback	Jour Journey (includes perceived ability)
Knowl Knowledge (theoretical)	Perf Anx Performance Anxiety	Slf perc Self-perception
Mpng Myth Mapping Myths	Perf Ch Performance-specific Changes	Sns Hum Sense-of-humor
Med Cond Medical Condition	Post Posture	Share Sharing information
Med Treat Medical Treatment	Potent Potential (of BMG)	Strug Struggling
Medicn Medication	Prob Problems (technical, musical, physical)	Succ Success (Achievements)
Mnd set Mind set	Proc Process	Synth Synthesis (of info)
Mndfl Mindful/ness	Prog-Improv Progress –	Tchr Sup Teacher support

	Improvements	
Mus Expr Musical Expression	Quest Questioning	Tech Technical Changes
Mus Exprve Musically Expressive – enhanced ability	Relev Relevance for Musicians	Tens Tension
Non Mus Non-musical Activities	Re-map prio Re-mapping Priorities	Time Time
Obsvn Observations of others	Re-map proc Re-mapping process	Undst Understanding
Obsv-self Observations of self	Reslv Resolve (determination)	Use Use
Open Openness	Risk tkng Risk-taking	Vid Video-tape
Opinion Opinion of BMG	Slf anal Self-analysis	Visz Visualization
Optim Optimism	Slf consc Self-conscious	Weak Weaknesses
Ovrwhlm Overwhelmed	Slf diag Self-diagnosis	Shaded themes pertain to case study data
Pai Pain	Slf doub Self-doubt	
Patnc Patience	Slf est Self-esteem	
Prctp Perception	Slf inq Self-inquiry	
Pfct Perfection	Slf mut Self-mutilation (emotionally)	

Axial Coding

Axial coding is the process of exploration of the codes identified in open coding and examining ‘the relationships between codes’ (Ezzy 2002:93) to determine how they may be linked or connected. ‘During axial coding, a researcher asks about causes and consequences, conditions and interaction, strategies and process, and looks for categories or concepts that cluster together’ (Neuman 2003:444). Strauss and Corbin’s approach to ‘uncover relationships among categories’ is done by looking for ‘answers to questions such as why or how come, where, when, how and with what results’ (Strauss & Corbin (1998:127). Figure 3.1 is an example of the I-R’s initial exploration of the way certain study codes connected to the concept of ‘physical issues.’ It maps how certain concepts could be related including the overlap of some themes. For example, ‘medication’ could be connected to both ‘pain’ and ‘injury’.

Figure 3.1: Physical issues

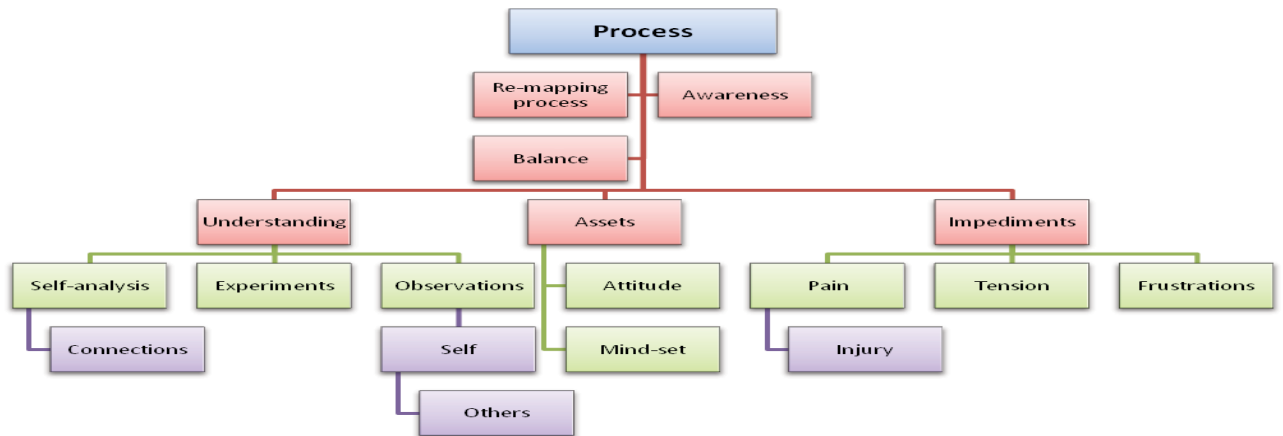


Axial coding allows the researcher to form more precise and complete explanations about study phenomena which contribute to understanding the relationship between *process* and *structure*.

Combining structure with process helps analysts to get at some of the complexity that is so much a part of life. Process and structure are inextricably linked, and unless one understands the nature of their relationship (both to each other and to the phenomenon in question), it is difficult to truly grasp what is going on...One must study both structure and process to capture the dynamic and evolving nature of events (Strauss & Corbin 1998:127).

Developing mini-frameworks to show the emerging connections between broader ranges of phenomena was also undertaken. Figure 3.2 is an example of this process, and while only partial and incomplete at this stage, the emergence of significant study themes such as 're-mapping process', 'awareness', and 'balance' was already apparent.

Figure 3.2: Mini-framework partial and incomplete



Selective Coding

Selective or ‘theoretical coding’ (Glaser 1978 in Ezzy 2002:92) is the final stage in thematic analysis when the ‘identification of the core category or story around which the analysis focuses’ becomes evident (Ezzy 2002:92). Strauss and Corbin (1998:147) describe six criteria for choosing a central category.

1. ‘It must be central’ so that all other major categories in the study are connected to it.
2. Its appearance in the data must be sufficiently frequent that the majority of study cases lead to it.
3. ‘There is no forcing of data’, which means that the explanation for the evolution of this concept is ‘logical and consistent’.
4. ‘The name or phrase used to describe the central category should be sufficiently abstract that it can be used to do research in other substantive areas’.
5. The theory associated with the concept ‘grows in depth and explanatory power’ through the process of analysis and integration with other concepts.

6. 'The concept is able to explain variation as well as the main point made by the data'.

Process was the central theme that emerged from the data for this study. Table 3.3 illustrates the selective and axial coding of the data and shows the way concepts are interrelated. For example, the sub-category *balance* is a key element of the *physical* dimension of re-mapping which is a major component of *process*. *Balance* also interacts with the other axial categories of *challenges*, *problems*, *discovery* and *changes*.

Table 3.3: The selective and axial coding of the data

Core Coding	Secondary Coding	Axial Coding (sub-categories)
PROCESS	COGNITIVE Understanding & Awareness	<ul style="list-style-type: none"> ▪ Information assimilation ▪ Self-analysis ▪ Experimentation ▪ Observations of others ▪ Observations of self ▪ Habits-of-mind (questioning, synthesis, analysis, evaluation) ▪ Connections (studio teacher, other)
	PHYSICAL Re-mapping process	<ul style="list-style-type: none"> ▪ Balance ▪ Challenges ▪ Problems (tension, pain, injury) ▪ Discovery ▪ Changes (time)
	EMOTIONAL State-of-mind	<ul style="list-style-type: none"> ▪ Attitude (positive, excited, frustrations) ▪ Mind-set (expectations, confidence, progress-improvements) ▪ Journey (perceptions, consistency) ▪ Success (achievements)

Face validity – the *results groups*

Face validity refers to a researcher's subjective assessment of a concept. Kemmis and McTaggart (2000:591) describe the application of face validity in terms of 'whether the evidence they collect makes sense to them, in their context'. Assessments of face validity are therefore decided by what seems reasonable, relevant, and to the researcher within the framework of their study. In this study, the *RG* designations were based on the I-R's personal experience of the participants' outcomes. The titles for each *RG* - *good*, *reasonable*, and *minimal* - were developed using language that was of practical significance because it described the students' overall degree of success with applying BMG information to their performance area (Fink 1995; Kemmis & McTaggart 2000). A further measure confirming their *RG* placement was cross-referencing the student's level of achievement in their final performance-presentation at the end of the course.

Faculty data

Faculty data was provided through an in-depth interview conducted after all student data was collected. The interview schedule was constructed in two parts: background or foundation questions common to all faculty members; and individualized questions specific to their student. (Refer Appendix VI for an example of a *Faculty Interview Schedule*). The initial questions were designed to ascertain several formative aspects of the process. For example, their level of comfort with student exposure to outside information that had the potential to influence their technical and musical development; their experience with somatic disciplines; their familiarity with BMG; and to verify whether or not their student discussed BMG course information and/or experiences during the semester.

The second part of the interview schedule contained specific questions related to their student's study experiences, including interview topics, journal content and performance experiences. These exchanges were also useful in ascertaining if the teacher had noticed changes in their student's performing, and to what extent they agreed with the changes or process elements identified by their student. Additionally, the I-R cited specific statements made by the students with regard to changes in technique and performance outcomes, and asked the faculty members to address them directly. Consequently data analysis of the faculty participants was a process of cross-referencing and validating the claims made by the students with regard to their progress during the study.

Data presentation: case studies

The presentation of data for the Chapter 4 case studies was considered around the questions: *What did or didn't work for these students?* and *Why?* In the opening coding of study data above (see Table 3.2), the shaded concepts were specific to the three students in the case studies. Developing thematic relationships around the data pertaining to them alone under the central theme of process was done via the following models. Figure 3.3 presents the factors contributing to success and Figure 3.4 illustrates the factors inhibiting success for the three case study students.

Figure 3.3: Factors contributing to success (case studies)

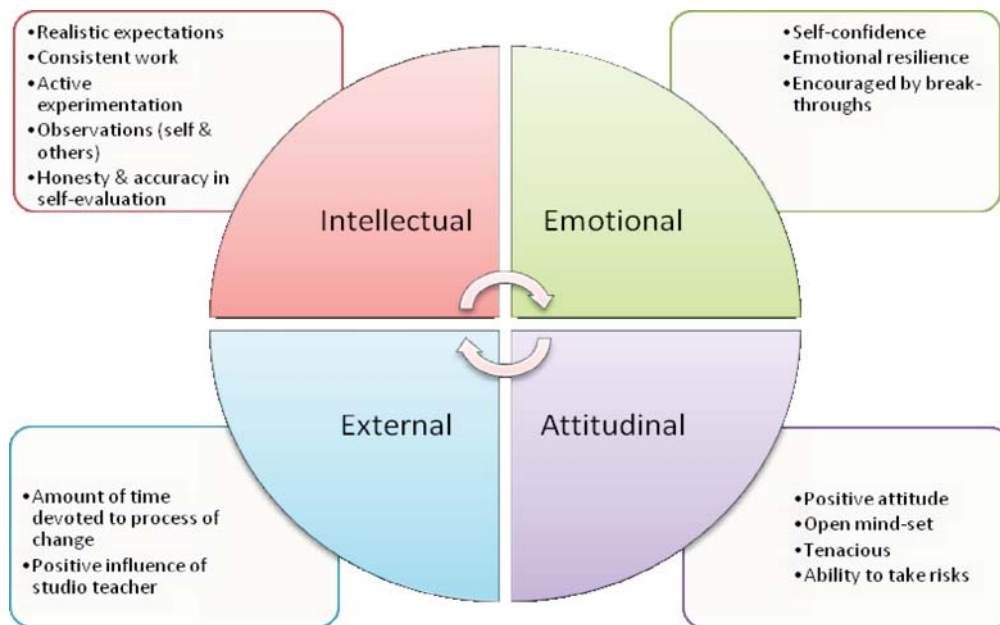
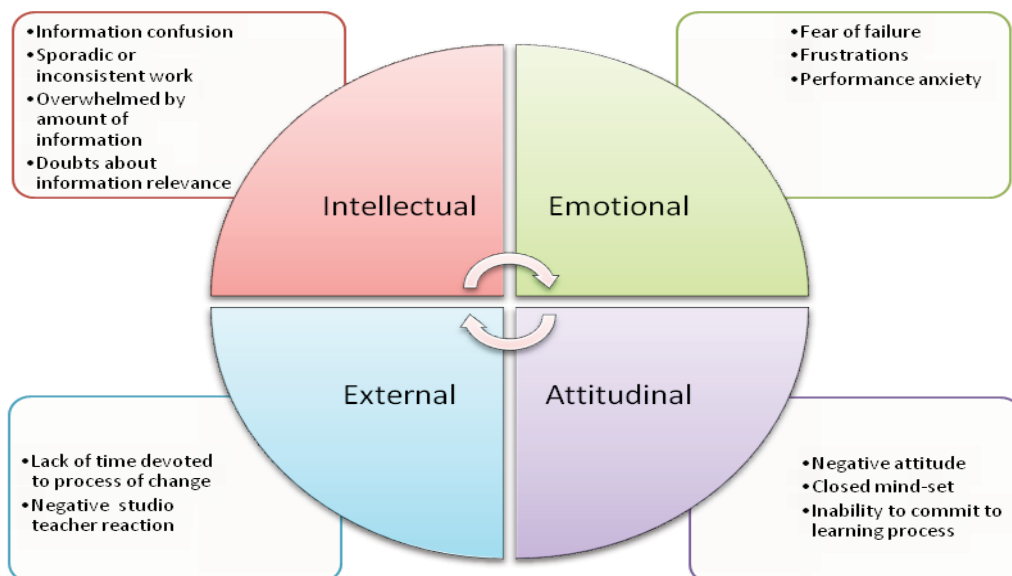


Figure 3.4: Factors inhibiting success (case studies)



Data presentation: *results groups* typology

Jay and Johnson (2002) describe a typology as providing a framework for discussion and action of a concept or phenomenon. In their study on reflective practice for teacher education, a

typology of reflection was developed through which three dimensions of reflective thought could be profiled. In a different context, Robinson and Bennett (1995:557) identified a typology as 'useful for developing broader measures of identification' and thus 'enabling empirical test of our theories'. This broader measure functioned two ways in their research: i) identifying connections between behaviors; and, ii) making connections between contrasting elements that addressed similar issues.

Holstein and Gubrium (1994:263) describe the development of *typifications* which 'make it possible to account for experience, rendering things and occurrences recognizable as being of a particular type of realm.' In other words, the development of information or results into defined categories is possible within a particular body of knowledge. Holstein and Gubrium (1994:263) classify typifications as 'indeterminate, adaptable, and modifiable'. This suggests that the content of typologies are constantly evolving as a result of new information and interpretations of that information.

Within the data of this study, three categories of student experience emerged. The typology developed by the I-R was in the paradigm of performance results. Hence the terminology *results groups*. To facilitate a comparative analysis of the students' experiences, the data analysis in Chapter 5 examines how they interacted with BMG, presented within the *RG* typology. In addition to expanding on the themes presented in the Chapter 4 case studies, use of the *RG* typology provides a basis for future investigations such as testing the criteria and student placement within each *RG*. In this study, use of the *RG* typology provides a basis for comparison of student results within the student cohort. It also opens the way for discussion about the

means by which students can progress from one *RG* to another, e.g. from the *minimal RG* to the *reasonable RG*.

Data presentation: themes across the cohort

The data presented in Chapter 6 is focused around three questions: i) how did the participants perceive their engagement and relationship with BMG?; ii) what was the role and influence of the studio teacher?; and iii) what were the student learning outcomes with regard to their personhood, musical technique, themselves as performing artists, and other areas of their life affected?. Whereas Chapter 5 focused on the ways the students interacted with BMG, Chapter 6 examines themes that explain how BMG did or didn't work, and specific learning outcomes. Thus while *RG* typology is a consistent reference point in explanations of data presented, individual student experience remains the main focus.

Why not a case study design?

One of the critical decisions for a researcher is determining the most suitable form of study data analysis and presentation. In evaluating the options for this BMG study, the I-R elected a multi-faceted approach. In doing so, different dimensions of the students' experiences were illuminated by the data. For example, the case studies in Chapter 4 provide an in-depth look at the experiences of three students who achieved very different results. However, within the cohort of 12 students, the case study approach limited the number of participants that could be evaluated and was therefore unsuitable for presenting all of the participants' data. Moreover, it would not have allowed the I-R to utilize the *RG* typologies and analyze the impact of the varying themes that emerged around the research questions. The decision to examine the students' experiences through the *RG* typologies (Ch. 5) and the central questions to their BMG learning

process (Ch. 6) allowed a larger sample of participants to verify the main themes that emerged from this study.

Methodological context

This study did not attempt to gather a representative sample of musicians who had experienced BMG. Rather, it took a close look at 12 undergraduate student musicians who undertook a 15-week course of study based on BMG and evaluated their experiences. The students were at different stages of musical, personal, and intellectual development, and represented a diverse range of instrumental and vocal areas. Commensurate with the research practices of this nature, this study used a convenience sample in order to evaluate the effect of a pedagogical tool in an educational context.

Study limitations are acknowledged and include the sample size which was a group of students from one university class who were not a random sample. An additional limitation was the fact that not all students in class participated in the study. In-depth discussion of study limitations will be presented in Chapter 7.

One of the strengths of this study was the I-R's relationship with the student participants and her understanding of them as whole individuals and as well as students. Each of the students was an undergraduate in good academic standing, with a number who were also honors students and some who were completing double majors. Both of these factors indicate a student with strong academic credentials. Moreover, all of the study participants maintained a Grade Point Average (GPA) of 3.0 or higher (maximum 4.0) which was an indicator of their diligence, academic success, and commitment to their studies. In the experience of the I-R, some of the positive

qualities the students brought to the study included: i) their high level of self-motivation for success either in music careers or exploring the parameter of their baccalaureate degree; ii) that they were keen to pursue best practice with regard to their performance area; and iii) their ability to be self-reflective. These qualities were characteristic of student participants.

Positioning the Instructor-Researcher in the study

The impetus for this research study came from my desire as a researcher, music educator, and performer, to better understand and document the reasons for the success experienced by a diverse community of musicians. These include students, professionals, and amateur musicians whom I have taught BMG in a wide variety of educational settings and teaching programs. BMG teaching formats have included an intensive week-long course; a component in undergraduate and graduate choral conducting courses; integrated into warm-up exercises in choir rehearsals with college music majors, high school students, and community choristers; and in one-day BMG workshops. I have also witnessed the positive effects of BMG instruction on musicians through the teaching of Barbara Conable (founding president of Andover Educators) and other certified teachers of BMG. My intentions are clearly supported by Minichiello and Kottler (2010:280) who explain:

We arrive at a particular research question, not just because of professional interest, but often because of very personal motives. Often the things we choose to study are of great interest to us because of our own background and experiences.

As a music educator and conductor I have over 24 years of music teaching and conducting experience at secondary school and university levels, as well as large scale community choirs and ensembles. I am interested in the means by which people acquire information and understanding and how they can effectively apply it to their music-making. Since 2003 I have

taught BMG in a variety of formats and settings for in-service training courses for musicians and educators engaged in performance practice. Since 2005 I have been teaching BMG annually as a 3-credit elective course at the university level every spring semester.

My personal journey with BMG began in 1998 as I sought to understand a troubling physical condition that periodically appeared during performances while I was conducting. After the successful resolution of this problem I became aware of numerous other benefits of applying BMG to my own conducting and vocal technique, and continued to develop through my understanding and practice. Excited by my progress and with the encouragement of colleagues, I subsequently incorporated BMG information into the choral conducting classes I was teaching at the tertiary level. The results were positive and subsequently other faculty asked me to teach BMG information to students in their classes. As my own knowledge base deepened and I began to understand the potential of this information to positively transform musicians' performance experiences, I wanted to formally document the process. I also wanted to contribute to our understanding of BMG as a pedagogical tool and how it can improve musical practice.

My first opportunity to teach BMG as the core unit in a semester-long course format came with my appointment to the music faculty at an American university. In the spring semester (second semester) each academic year I teach a 3-credit performance enhancement course to undergraduate and graduate students with BMG as the major focus. The class numbers are typically 20 to 24 students. There are two major challenges in teaching of this nature: cognitive understanding and practical application. Firstly, students need an accurate understanding of BMG principals and concepts, and human anatomy and physiology. Secondly, students need to apply this information to their own musical performing, i.e. convert theoretical understanding

into practical application when singing, playing an instrument, or conducting. Ingrained habits of physical use are the result of motor skills acquired and refined with frequent repetition over a long period of time.

Acquiring good habits of use is necessary in order to improve technical abilities and preventing playing-related pain and injuries. When body use is ineffective there is a negative result on the musical sound. For example, a posture where the head is chronically pulled 'down' or 'forward' causes neck muscles to tense and generates compensations throughout the body. The physiological consequences are explained by Mark (2003:41) when he states 'some neck muscles attach to parts of the arm structure, and therefore, tense neck muscles inhibit the use of arms.' Hence, the influence of neck tension on finger dexterity is established and the relationship between the qualities of movement that generate musical sounds is determined. Ineffective body use can be corrected but it requires change. Change is accomplished by re-mapping the movement, and it is this very ability to successfully understand, manage and effect change that is at the heart of the BMG experience.

From my own journey with BMG, I understand that some concepts take longer to grasp than others, and when re-mapping is required you cannot place a finite time-frame on change that leads to improvement. Progress is as unique as the individual and is affected by many different factors. As a pedagogue, I am also aware of the importance of creating the conditions that allow students to grow in their own time, which includes reminding them that practical skills in an applied area such as music are never attained instantly.

... obviously I'm the teacher and wanting it to be successful for everybody. And realizing that every individual person has to come to it in their own time... you're planting seeds and then you have to be patient and step back and let them grow. And I know that

there's some things, many things, that won't actually take root until long after this class is done. (*Instructor-Researcher to Vance in his Interview*).

My goal is to teach movement principles that can be understood by musicians in a variety of performance situations and to enhance the pedagogical concepts taught in the private voice or instrumental studio. Throughout the course of the study I reiterated to the participants that it was neither my job nor my intention to teach specific musical technique, e.g. voice or piano technique. BMG is about principals of movement that cultivate ease of movement.

I'm not interested in teaching techniques specific to any instrument or voice, but what I am interest in is teaching principles of movement that can be applied in disciplines according to the individual's needs (Instructor-Researcher to Vance during his interview).

I am a strong advocate for BMG and the potential benefits for musicians. However, not everyone responds similarly to this self-inquiry educational technique. This question of individuality of experience is also a source of discussion among pedagogues of BMG. Thus I am strongly motivated to inform my professional practice by more clearly understanding the factors contributing to and detracting from the effective understanding and application of BMG information in varying musical contexts.

Conclusion

This chapter described the research orientation and methods utilized to obtain and analyze information about the impact of BMG on student musicians' perceptions of their performance and development. Chapter 4 presents data via three case studies. It gives an in-depth look into the learning experience of three students in each of the *RG's*. Chapters 5 and 6 contain analysis of study data for all 12 student participants and feedback from the 10 faculty members. Collectively these chapters present the breadth of study themes that emerged from the students' experiences. Chapter 5 presents detailed information about the three study *RG's*, and

discusses the ways the students interacted with BMG presented through the typography of the *RG's*. Chapter 6 examines data across the student cohort. The ways that students perceived their engagement and relationship with BMG are presented as common themes, individual differences, and results group trends. The role and influence of studio teachers is also explained. Chapter 6 also presents a range of student learning outcomes resulting from the BMG learning process.

Chapter 4: Seeing the learning experience through the eyes of Susan, Tyler and Vance

*The singer uses his body both to sustain life and to cultivate his art.
He can never escape from himself, for his physical life either furthers or hinders his artistic life.*
(Ehmann 1968:2)

Introduction

This chapter presents data analysis of three research study participants (Susan, Tyler and Vance) in the form of case studies. Each case study provides an in-depth examination of the student and their Body Mapping (BMG) learning experience. The participant's profile was built around information supplied on the *Background Information Questionnaire* (see Appendix VII) in response to a range of questions. These included previous experience with somatic education, any performing-related injuries, their experience of technical skill limitations, any known physical, musical or personal issues, and concerns with performance anxiety. Participants were also asked to state their personal and musical strengths, their reason/s for choosing this course of study, and their primary goal for the class.

The case study insights into the BMG learning experience for each of these students were framed around exploration of what did and did not work for each of them, and the reasons why. The influence or importance of specific themes or issues was also investigated, specifically attitude, mind-set, time commitment, physical injuries, and the influence of their studio teacher. Individual differences in their relationship with BMG were also examined.

Introducing the case study participants: Susan, Tyler and Vance

Susan, Tyler and Vance were selected for the case studies because of the richness and diversity of the data they provided, and how this reflected the depth and detail of their BMG experience. They were also typical of the study participants within the three RGs, with each student having very different outcomes. Susan was 'the big success story' and made excellent progress due to her diligent efforts to integrate BMG into her singing. Tyler was no less enthusiastic than Susan but enjoyed moderate success consistent with the time and effort he invested in the learning process. By contrast, Vance derived minimal benefit from exposure to BMG instruction because he chose to disengage himself from the learning process at the point where skill development became necessary, although he retained a lively interest in the progress of his peers. The factors that influenced their experiences and overall success with BMG varied as a result of intellectual, emotional, attitudinal and external factors.

Factors contributing to success for Susan, Tyler and Vance

The themes that emerged from the case study data may be grouped according to four categories: intellectual, emotional, attitudinal, and external factors. The factors that contributed to intellectual success were identified as having realistic expectations of self and the information and how it could work; working consistently throughout the semester, beginning with assimilating the content, reflecting on the relevance of the information through the process of self-inquiry and evaluation, and experimenting with information to facilitate skill development; active experimentation and the ability to learn from the results be they successful or otherwise; observation of others, including the instructor, peers and other musicians and the ability to learn from their successes and failures; and honesty in self evaluation and understanding of body use, and how the BMG information applied.

The emotional elements were self-confidence, especially the belief in self and ability to work through challenges; emotional resilience, particularly with the ability to manage or overcome frustrations; and finding encouragement from the breakthroughs of self and others during the process of change. Four attitudinal characteristics contributed to participant success, namely a positive attitude, an open mind-set, tenacity especially in the face of challenges, and the ability to take risks. In the external factors the two main elements identified were the amount of time devoted to the process of change, and the positive influence of studio teacher support when they reinforced student discoveries and connections between BMG information and musical technique. Table 4.1 summarizes the factors contributing to success for Susan, Tyler and Vance.

Table 4.1: Factors contributing to success

Factors contributing to success			
Intellectual	Emotional	Attitudinal	External
<ul style="list-style-type: none"> ▪ Realistic expectations ▪ Consistent work ▪ Active experimentation ▪ Observations ▪ Honesty & accuracy in self-evaluation 	<ul style="list-style-type: none"> ▪ Self-confidence ▪ Emotional resilience ▪ Encouraged by breakthroughs 	<ul style="list-style-type: none"> ▪ Positive attitude ▪ Open mind-set ▪ Tenacity ▪ Ability to take risks 	<ul style="list-style-type: none"> ▪ Amount of time devoted to process of change ▪ Positive influence of studio teacher

Factors inhibiting success for Susan, Tyler and Vance

These case studies also presented a range of elements inhibiting or limiting student success with BMG. In the category of intellectual challenges there was confusion with information,

specifically especially how to assimilate it into physical experience or body use; doubts about the relevance of some information; being overwhelmed by the amount of information presented; and sporadic or inconsistent work during the semester. The emotional elements cited by the informants were fear of failure; recurring frustration with the inability to either apply information or experience change (which was sometimes exacerbated when other people were having success); and performance anxiety specifically triggered by the fear of being judged. The attitudinal factors limiting success were a negative attitude; a closed mind-set; and the inability to commit to the learning process. The external factors that appeared in the data were lack of time, specifically due to other more pressing commitments that detracted from the ability to remain focused; and studio teacher support, either completely absent or overtly negative. Table 4.2 summarizes the factors inhibiting success for Susan, Tyler and Vance.

Table 4.2: Factors inhibiting success

Factors inhibiting success			
Intellectual	Emotional	Attitudinal	External
<ul style="list-style-type: none"> ▪ Information confusion ▪ Doubts about information relevance ▪ Overwhelmed by amount of information ▪ Sporadic or inconsistent work 	<ul style="list-style-type: none"> ▪ Fear of failure ▪ Frustrations ▪ Performance anxiety 	<ul style="list-style-type: none"> ▪ Negative attitude ▪ Closed mind-set ▪ Inability to commit to the learning process 	<ul style="list-style-type: none"> ▪ Lack of time ▪ Absence of support or negative studio teacher reaction

Case Study 1: Susan - The big success story

Susan's profile

Susan was a 22 year old undergraduate voice performance major (soprano) in her senior year of study. Four of her six years of voice training were at the college level with the same studio teacher, who also participated in this research study. She had no previous in-depth or formal experience with somatic education methods. However, she was familiar with some of the basic concepts of BMG that were introduced to choir members during rehearsal warm-ups (e.g. good alignment being conducive to effective singing, and information about the structures and movement of breathing). Susan was a member of both choirs for three semesters prior to the study, and this clearly piqued her interest in BMG as indicated by her response to the question 'Why did you choose to take this course this semester?': '...I want to get as much knowledge of body mapping [sic] as I can before I leave... Take advantages [sic] of the available resources! (Susan, *Background Information Questionnaire*).

The only technical skill Susan identified as problematic on the *Background Information Questionnaire* was 'a mental block issue w/pianissimo/piano high notes.' She also wrote about losing her voice 'at the end of last semester' in response to the question 'Have you ever suffered music playing-related injuries?' Her answer to the question of personal and musical strengths gave a hint of her sense of humor and willingness to try new and different things.

I am respected (I think); I am intelligent; I have high standards; I am loud; I have a unique instrument; I am a good actress; I take direction well; I love music and I love experimenting. (Susan, Background Information Questionnaire)

The *Background Information Questionnaire* question 'Can you identify any particular physical, musical, or personal (emotional, psychological) issue/s the instructor should be aware of or

consider when working with you during this course?' elicited the following response from Susan.

I have just recently found a therapist that I connect with and have begun treatment. Right now I feel like I can't make music – I just sing, I guess. I don't know – I feel very unhappy singing right now. (Susan, Background Information Questionnaire)

The issue of her negativity to herself and her singing was something Susan openly discussed in her journal entries, with her studio teacher, and with the Instructor-Researcher (I-R). She was struggling to reconcile a number of things within herself, including 'moments of insecurity' and a newly identified pattern of self destructive behavior that emerges in the week before a performance or audition situation. While managing emotional or psychological problems of this nature falls outside the realm of BMG instruction, it was information that the I-R needed to be aware of because it can influence a student's attitude, especially when dealing with new information. In Susan's case this proved to not be a problem.

The specific goals Susan came to the class to address were 'hating myself before I sing' and 'understand my body issues/and how/if they relate to my being overweight' (Susan, *Background Information Questionnaire*). Although the first of these goals was not relevant to BMG information, the second goal potentially was if by 'body issues' she meant issues of a neuromusculoskeletal nature. During the course of the study the content of her journal entries made it clear that this was, in fact, what Susan meant.

Susan's dissatisfaction with herself and her singing at the beginning of the study were potential concerns for the I-R because it can be difficult to gauge the extent of the influence of emotional and psychological issues on a student's academic and musical development. In the I-R's experience, student with 'issues' are commonplace in college-level music classrooms, and this

situation was therefore not remarkable. Moreover, Susan's dissatisfaction with herself and her voice did not impact her attitude to the class, and she entered it with an open mind and a willingness to learn. Her respect for the instructor and curiosity about BMG set the stage for Susan's success in this class.

Susan's journey

Throughout the duration of the study Susan remained committed to the learning process. Her journal entries were detailed and revealed significant aspects of Susan's relationship with BMG, including her varying emotional states, struggles, successes, her honest self-assessment, and her ability to retain a sense of humor. Susan was also consistent with the submission of her journals, and frequently wrote in response to specific musical events, e.g. rehearsals, studio lesson, performances.

Examination of Susan's first two journal entries was illuminating because they illustrated how open she was to learning, and how quickly she began to think about the BMG concepts and make connections between specific movement phenomena (e.g. gathering-and-lengthening when breathing). The subject of gathering-and-lengthening, why it is important for singing, and how it applied to her, was a significant learning point for Susan early in the study. The following journal entries were written within 24 hours of each other (the first entry on Jan 29th and the second on Jan 30th). At this early stage in the course Susan had received three classes of BMG content covering the foundation principals and the core of the body (spine). Despite frustrations with her own physical state (neck and shoulder tension), Susan's innate curiosity and open mind set paved the way for early success in the learning experience.

Journal: Jan 29th, 2005
Mood: confused

Music: Why Do They Shut Me Out of Heaven – Copland (in my head)

This is my first entry in my body mapping [sic] journal. In class on Friday we talked about gathering and lengthening. It was a real eye opener for me. I had no idea that that even happened. I know that I have problems with my shoulders and neck tensing up when I perform solo (sometimes when I am finished with a performance, my left shoulder is raised three or four inches) but with the knowledge of what my body is supposed to be doing, I am even more worried. My neck and shoulders are too tense for me to even be able to allow my head and neck to move like that with the rest of my body. I try to consciously [sic] think about it, but it is very hard for me to release the tension that I carry there. I massage the area, I take deep breaths, I “shake it out”, I do everything I can think of – but my shoulders stay tight. When I go to the chiropractor, I do traction. I lay on a table with a weight pulling my head back, by the end of my ten minute session, the weight [sic] is barely pulling because I have released my body seven or eight different times. It’s really discouraging. I feel like no matter how hard I focus on it – it doesn’t get better. (Susan, journal)

This journal entry revealed a number of key things about Susan’s physical, mental and emotional state at the beginning of the study. First, her intellectual curiosity was activated by the gathering-and-lengthening movement in breathing. (Gathering-and-lengthening is a reflexive movement that is an important part of support for the voice and is inhibited by body tension). She immediately followed this revelation with discussion of the specific physical problem she had identified, i.e. tension in her shoulders and neck, and the extent of this problem in her performing. The gathering-and-lengthening demonstration by the I-R illustrated the negative impact of body tension on this movement. While Susan immediately understood the importance of gathering-and-lengthening for her technique she was unable to do it herself owing to her present physical state. Susan was also trying a variety of methods to relieve her neck and shoulder tension, including ‘shake it out, deep breaths, massage, and chiropractic treatments.’

Susan’s concluding statements about being discouraged and not seeing improvement no matter how hard she tried confirmed four things for the I-R. First, that Susan already had a certain level

of self-awareness. This was evidenced by her understanding of her current physical state, i.e. that she had a physical tension problem. Second, Susan was thinking about BMG information and had already begun to understand important concepts as they applied to singing. For example, the influence of body tension on reflexive movements such as gathering-and-lengthening. Susan clearly understood the flow-on effect of tension on breathing, and what this means for singers, i.e. it adversely affects the voice quality, ability to breathe effectively, and support the sound. Third, Susan was already engaged in the process of self-inquiry. She was already questioning how she could use this new knowledge and was concerned about her body's inability to function correctly as a result of the tension. Four, Susan was open to trying new ideas. She acknowledged that despite her best efforts, nothing she was currently doing was resolving the tension problem.

Journal: Jan 30th, 2005. Ana Roja's Recital

Mood: contemplative

Music: the cuatro rodrigo songs

During Ana's recital tonight all of the G&L (gathering and lengthening) stuff I've been thinking about took a real form. I talked to Dr. Stuart about it before/after/during the recital. Her head was floating on her body. Her neck moved so freely. Her shoulders were low and easy. She moved when she sang and made it such an intimate experience – and yet she was still a performer on stage. As I sit here at my keyboard on my sit bones with my arms and wrists at 90 degree angles – I still have to consciously [sic] put my shoulders down, and stretch my neck out. They are so tense. Always. Tonight when she sang, I literally saw her grow on the high notes. It was amazing. Inspiring, and amazing. And a really good example. (Susan, journal)

Susan's observations of singer Ana Roja's body use, specifically the freedom with which she moved and the evidence of gathering-and-lengthening as she sang, were accurate and astute. Her excitement is obvious, and this was a positive first step in building her understanding of BMG as it applies to voice performance.

The good relationship she enjoyed with her studio teacher was also acknowledged for the first time. Susan's ability to discuss concepts with her teacher openly was a feature of her journal entries throughout the study and was discussed further in her interview. She readily admitted that his acceptance of her 'discoveries' and interest in discussing how a BMG concept could apply to voice technique was a positive factor that contributed to her overall success during the semester. This was further illustrated in the following extract from her interview when she was talking about her breakthrough in understanding correct head balance and Temporomandibular Joint (TMJ) mapping with him in a voice lesson.

... before it was a tongue thing but it wasn't a tongue thing this time, it was odd. And I said, Oh, if I did this (showing jaw movement)... it just falls open. And he goes, Yes, of course it does. And he says, 'tell me what you were doing before,' and just talk to him about... And there was just a really positive, immediate effect. It was a right away kind of thing (snaps her fingers). (Susan, interview).

Rather than seeing BMG as something potentially problematic, as was the case with some other participants, Susan saw value in the opportunity for integrating the information with what was being taught in the voice studio. The relationship with her studio teacher facilitated this situation for her.

You had reiterated things that he had said to me. Constantly I never had a mixed message going on there... it was just constantly echoing things that he had told me. In a solid way, definitely a very positive thing. (Susan, interview)

The trajectory of Susan's journey with BMG reveals a complex and varied web of emotional, mental and physical challenges. These were all well documented by her journal entries and subsequently discussed in her interview. Her progress can be defined by three distinct but connected stages of evolution:

- I. The beginning (mid-January/February) when she was thinking, observing, first experimenting, often frustrated and sometimes discouraged.

- II. The mid-point (March) after the theoretical content had been taught and she was experimenting with application and skill development, and seeing some results and changes.
- III. The end (April) when she was seeing solid changes and making decisions for herself about how to apply BMG successfully.

This quote from Susan's interview speaks to the frustration she experienced at the beginning of the process.

When I got the Agenda Helper I felt I could check off three things... When I got it I was, I can't do anything. After getting all that information I'm learning, I was like - crap, how am I walking? That's how I felt. I felt so discouraged at the beginning. I felt like a giant mess, and when you asked us to draw a picture of our spine I just wanted to draw a giant knot because that's what it felt like. I felt like I was such a mess and there was no point of even being there. (Susan, interview)

Susan's ability to experiment and keep an open mind was an asset, and within seven weeks she was seeing changes that encouraged her to keep working. It is also noteworthy that a lighter performance load at this point in the semester allowed her the time she needed to experiment with new ideas. Making major changes to technique immediately prior to a performance is not generally recommended, so Susan was able to benefit from this kind of open time' to continue with her self-inquiry and experimentation.

But it wasn't until March that I felt I could actually make any sort of change. After the orchestra concert, I felt that I had definitely implemented some of the things that I needed to implement so then by March I felt I was solid and I felt like I was able to make conscious changes as opposed to things that were happening earlier on...I was able to experiment with lots of different things for the month of March because I didn't have very much performing to do because we were heavy into those rehearsals and so a lot of it was on my own and I felt like I was able to play with things and play with sounds and the way that different positions affected me, and I felt like I was able to really learn a lot in the month, and I felt like I began making real solid changes in April. I was making real solid decisions about the way things were going to continue (Susan, interview).

The description of Susan's experience with BMG throughout the semester was similar to the experiences documented by the other study participants who the I-R considered successful.

These included:

- I. Initially feeling overwhelmed with the quantity of information and doing a lot of thinking to digest content.
- II. Early movement experiments yielding mixed results.
- III. Frequent feelings of frustration, especially early in the semester; sometimes discouraged by failures.
- IV. Despite frustrations, maintaining a commitment to growth and engaging in frequent reflection and experimentation as part of the self-inquiry learning process.
- V. Observing the quality of movement and resultant quality of sound in other musicians and relating to own issues.
- VI. Continuing to experiment with self.
- VII. Maintaining commitment to seeing change gradually.
- VIII. Seeing some positive results and building on them.
- IX. Gradually feeling changes become more solid.
- X. Eventually being able to make decisions about how to apply information successfully.

Despite the challenges that accompany change, the ability to maintain a commitment to the learning process with consistent work and an open mind were hallmarks of the successful students. In the case of performance majors, this is a noteworthy characteristic because their chosen career will require them to be continually exposed to direction and criticism. Professional musicians are routinely placed 'under the microscope,' and student performers

need to develop skills in emotional and mental resilience to handle the consistent and intense scrutiny that comes with the territory of performance.

Observation of others helps develop connections in self-awareness and body use and is an integral part of the BMG learning experience. Once the theoretical content had been presented, students participated in practical performance rotations (sometimes called master classes in participants' journals and conversations). During these sessions individual members of the class would identify an area of focus and then perform to demonstrate their progress. Informal observations of people outside the class, as well as in concert situations, were encouraged. Developing powers of observation is also linked to the ability to cultivate awareness of use. Frequently, students in the class would have a break-through moment with a problematic or challenging concept as a result of seeing the issue manifest in someone else. This quote from Susan's late February journal also raises the issue of awareness, and her sensitivity to the fact that she was aware of issues even though they were challenging for her.

I've started watching other people and the point at which their neck/shoulder area tenses up. Its [sic] not just me, maybe I am just freaking out because I am more aware. (Susan, journal)

The open-mindedness and positive attitude of students seemed to be a factor in their success. This became evident in two ways. Firstly, the expectations for success students placed upon themselves coming into the course; and secondly, how they received and assimilated new and sometimes challenging information. In Susan's case, she came to the class without a specific agenda, quite the opposite of some students who were recovering from injuries and were seeking assistance with their recovery. While specific expectations of the BMG information were not part of her agenda, Susan did believe that this would be a beneficial experience for her.

I knew a little bit about it and I knew it could only benefit me. And I knew I probably had things going on that I wasn't aware of. (Susan, interview)

Susan's experiences with BMG changed her approach to performance during the course of the semester. When asked the question 'has BMG changed the way you approach a performance?' her response was an enthusiastic 'A hundred times, a hundred times ten' (Susan, interview). While her pre-performance routine always involved some breathing work, she extended the scope and structure of this to include physical stretches that heightened her body awareness. She also introduced leg movements to keep the 'whole body' connection rather than narrowing her focus on the upper body.

I approached it (performance) just with the idea of having my instrument ready to go way ahead of time, and that way I can do whatever I want when I'm on the stage. Anything that I want to do is going to happen because... it's like a car, I'm well oiled, I'm ready to go. (Susan, interview)

Susan was one of six study participants who derived a range of significant benefits from integrating BMG into her music-making. The specific changes and/or improvements Susan made to her voice technique and musical performance by the end of the study can be summarized as follows:

- I. Correct head-neck relationship and release of neck leading to correct head position
- II. Release of jaw tension and correct TMJ mapping
- III. Warmer vocal tone
- IV. Easier production of high notes
- V. Vibrato more even
- VI. Reduced shoulder tension – arms loose and easy
- VII. Upper body not 'frozen'
- VIII. Improved breathing, especially support from gathering-and-lengthening, and pelvic floor

- IX. Awareness of legs
- X. Benefits of constructive rest

Susan's approach to her technical development included the ability to understand specific physiological functions. From her perspective, this made it easier for her to sing. In the following excerpt from her journal, Susan's success in this regard is stated and also connected to her ability to achieve good intonation.

I know how my body wants to function, and I can let it do that now – and everything is easier. I am a better singer. A great singer, who sings much more in tune 😊 (Susan, journal)

Use of the smiley face emoticon also reinforced her happiness with the situation and satisfaction with her progress.

From the outset, Susan made it clear to the I-R that she was grappling with confidence and self-esteem issues in relation to her singing. While these issues were not a primary focus of the BMG instruction, in the I-R's experience it was not uncommon for students to experience positive changes in their self-confidence as BMG skills developed. In her journal Susan wrote 'And I seriously think that bodymapping [sic] has had a lot to do with how I feel about myself. I am taking new and bigger strides in my music, and I love it (Susan, journal entry March 9). An important connection between successfully integrating BMG and improvements in her performing emerged for Susan during the course of this study.

Summary of Susan's experience

Susan could be described as a highly motivated, self-directed, and self-disciplined undergraduate music performance student. The elements she identified as significantly contributing

to her success included maintaining a positive attitude and an open mind; a commitment and willingness to embrace the ongoing process of change despite frustrations and set-backs; positive studio teacher support; consistently investing time and effort in skill development (including observation of self and others); and fostering self-awareness. While individual experiences with BMG were unique, many of these general characteristics were also evident in the experience of other successful study participants.

The goal of BMG is to produce musicians who are physically and artistically free. This means different things to different people. Susan's ultimate reason for subscribing to BMG was 'openness' which she described in her interview as follows:

Open. Because open is where I need to be with everything. I need to be open emotionally, open physically, my throat needs to be open, my mouth needs to be open, my arms need to be open, my mind needs to be open to be able to effectively be the artist I want to be and this is just one more way to make it easier. One more way to take me to another level and it's just...really changed and made easier, the way I need to approach things in a really, really positive way and I'm just I'm really thankful that it happened this semester.
(Susan, interview)

This statement from Susan clarifies two things. Firstly, the importance of her ability to be physically, mentally and emotionally open during performance, and secondly, that BMG facilitated changes in her approach to performance that enabled her to make positive progress and experience greater ease in the process.

Case Study 2: Tyler - A work in progress

Tyler's profile

Tyler was a 22 year old undergraduate composition major in his senior year of study. His applied instrument was trumpet, but he was also interested in conducting and had taken one year of private lessons in orchestral conducting. It is also worth noting that his conducting teacher was

an advocate for BMG instruction and Tyler designated conducting as his practical area for the study. He also sang in the bass-baritone section of one of the choirs under the direction of the I-R.

Tyler enrolled in the course to follow up on information he had learned in a one-day BMG workshop presented by the I-R in the previous semester. The one-day workshop comprised an overview of the principals of BMG as well as key information pertaining to core balance, use of arms and legs, and breathing. Participants engaged in some practical activities and were encouraged to continue experimenting with the information in their everyday activities as well as in their area of musical performance.

On the *Background Information Questionnaire* Tyler indicated he had never suffered any music playing-related injuries, but did believe his technical skills on the trumpet had been limited. He also did not identify any physical, musical or personal (emotional, psychological) issues that the I-R should be aware of during the semester. For the question of performance anxiety he responded 'occasionally' for solo trumpet performances. The symptoms of his performance anxiety were physical and described as 'simple jitters and lip twitching, (which becomes a serious problem given the instrument)' (Tyler, *Background Information Questionnaire*).

Tyler's successful track-record with his studies and music-making resulted from diligent and disciplined work in combination with his musical and intellectual talent. Tyler's self-assessment of his personal and musical strengths was: 'I respond well to toughness and challenge. I work hard and am organized. I can learn and assimilate quickly' (Tyler, *Background Information Questionnaire*).

Tyler entered the class with a specific agenda that was supported by his conducting teacher's emphasis of free body use coupled with his personal interest in understanding the potential benefits of studying BMG. Tyler's description of his goals for the course revealed a positive attitude and open mind-set coming into the semester, as well as his expectations for the ways in which BMG would be applicable to his development as a conductor.

To gain greater awareness of myself while I perform; to be physically efficient and healthy as a conductor; I hope to refine my work ethic to be even more efficient, and I want to become more open and connected to the music as a conductor (Tyler, Background Information Questionnaire).

Tyler's journey

Tyler was one of two student participants from the cohort of 12 who entered the study with previous experience in BMG through the one-day workshop held on campus the previous semester. This workshop was predominantly theoretical with some practical activities which he described as 'limited exposure.' Tyler was also introduced to some BMG concepts in choral warm-ups, but his choir participation was not as extensive as Susan and Vance's, and he therefore had fewer opportunities in this regard. Tyler brought a 'strong desire and interest' for a clear understanding about BMG and the potential of the information to benefit his conducting. He believed he had the most difficulty assimilating the initial course work on core balance (the spine and the places of balance) into his body use.

I think the first things we did were the hardest, really...the whole foundation things [sic], the spine, the neck, the relationship (head-neck), the balance and that kind of thing, I think that was the... it might have just been that is was the first area that we focused on but that was kind of the thing that took the longest (Tyler, interview).

Tyler was not discouraged by this, and his understanding of the need for adequate time and practice for the cultivation and development of skills was also something he repeatedly

recognized in his journal entries and interview. His determination and tenacity contributed to his successful attitude in the learning process which he thought was arduous at times. 'I don't get discouraged easy. It's a challenge obviously, when you realize that it's right (BMG information), then you rise to the challenge' (Tyler, interview).

The I-R did identify some confusion with regard to Tyler's understanding of the concept of core balance in his second journal entry. Rather than discussing physical balance which was the point of the class at that stage of the course, Tyler's focus was on 'inner balance' (emotional) and 'life balance' and the effect on his conducting. In the early stages of Tyler's journal writing and reflective practice it was apparent that he understood the importance and benefits of developing his skills of observation and self-awareness. This is essential for better understanding the relationship between the quality of body movement and its effect on musical sound, and is critical for success with BMG. In his third journal Tyler cited conducting 'with no tension' and the ability to 'be fully aware of the parts of my body always' as primary goals. He also acknowledged the role of the conductor to expressively convey emotions without 'sending out a sense of tension' to the players (Tyler, journal #3). Toward the end of the semester, he attended an orchestral concert that had a dramatic effect on him owing to the awkward movement and resultant sound. Most importantly, he identified strongly with the need for 'reduced tension' in the conductor's technical facility and an open emotional connection – his primary goals for the semester.

I recently witnessed a concert which reminded me of all (or most of) the things a conductor can do when he's completely free and completely in control of his movements. Tonight I had an equally important lesson, a lesson in what NOT to do. Tonight I saw... conduct... I've never liked her conducting, but tonight I finally realized why: without making generalizations about Brits, there is a major stick somewhere where it shouldn't be. Even her appearance for her press photo in the program is tense, forced, and held...Her stiff shoulders, jerky movements, immobile legs and feet and tense midsection

provided all the fodder for 'pointy' cues, lack of expression, inability to shape a line, and a restriction in breathing...She stood, quite literally, as the exaggerated example of the things I do incorrectly or poorly, and I was able to see them more clearly because of it. Not only was she a poor conductor, but a poor stage presence, and an entity no one paid attention to (Tyler, journal). (Conductor's name and orchestra name withheld).

Tyler also identified a number of other technical and musical issues for correction during the course of the study. For example, non-productive movement such as swaying on the podium was discovered; so too the tension-producing tendency to pull his head downward into his chest, labeled 'downward pull' (Conable 1995:13). Cultivating awareness of these detrimental movement habits was well understood by Tyler as a first step to correcting them. This journal entry from early April describes the break-through he had in this understanding.

...I stayed in bed and listened to some piece I never heard before... I started conducting in my mind – that is, I was not laying [sic] in bed swinging my arms, but I was experiencing (consciously) all the things physically which I do while conducting without actually doing them. And then it happened—I felt the urge to lower my head, to kind of tuck it into my neck, even though I was horizontal. I didn't do it, obviously; I didn't DO anything, but it reminded me of Alexander's experiment wherein he brought himself to the edge of action without actually performing the action and observed his response. It didn't show me the way yet, but at least I know when I'm doing it, and actually can sense when I'm about to do it, and not do it in the future. Hopefully (Tyler, journal).

Awareness and observation of his body use also contributed to Tyler's discovery of a performance limitation that was documented in his April 12 journal. He noted lightheadedness during a performance when singing or conducting which he attributed to poor breathing technique or tension. By the end of the semester, Tyler had solved the problem to his satisfaction and in his May 2 journal he documented a successful choir concert by writing:

On a strictly physical level, almost none of the ill effects I experienced during [REDACTED] happened last night (e.g. sudden feeling like about to pass out caused by low body tension suddenly releasing). I did notice I was gripping the folder quite desperately, but only with my fingers and not my whole hand (or arm). It may have been to dissipate the tension which usually creeps into my legs... I did experience great things artistically, though. I truly felt that I was executing some of the most spontaneous music making I had done in a long while. (Tyler, journal)

Like Susan, Tyler demonstrated a willingness to experiment with BMG information and movement. One specific example was Tyler's experiment in conducting without a baton. In the process of re-mapping his fingers and hands Tyler developed awareness that his right hand ('stick hand') was not as expressive as his left hand. It should be noted that Tyler was not concerned about this conducting teacher's reaction to this experiment. Some instrumental conductors have very strong opinions about using the baton while others are more liberal in their attitude and will conduct with or without it.

... from a practical concrete level, I might be chucking the stick which is a major thing, even though it may seem little... this is an experiment with me, it's not like saying, I'm off the stick for life, I'm giving it a shot because although my left hand is expressive, the problems that I was facing... the technical problems, was the fact that my right hand wanted to do things and because it was holding the stick when it wanted to do things, all it did was make the things not evident enough and make the stick confusing. So, I'm experimenting now, one of the main reasons why I got rid of it was simply to use both as a paintbrush...and seeing how I can be expressive with both hands, and then seeing how it could become great with both or either (Tyler, interview).

An important benefit of BMG instruction in Tyler's experience was the way it changed his approach to performance and enabled him to maintain better focus and control of the sound. Unlike instrumentalists and singers, conductors do not have the opportunity to authentically practice with their instrument (i.e. the choir or orchestra), until they are in actually in a rehearsal or a performance. This presents a variety of challenges for conductors, and is especially difficult for young conductors who do not have much podium experience. It was a frustrating situation for Tyler, and became a recurring theme during the study in his journal entries in particular.

A combination of elements came together to allow Tyler to experience particular success with this problem in his senior composition recital which he conducted. Even though the players

were 'under rehearsed' Tyler explained that he experienced better focus, was able to maintain control of the sound and the players, was more responsive to problems in situ, and therefore able to take action to remedy problems that once would have gone unnoticed or uncorrected. This issue was discussed further in his interview, and the following is his enthusiastic response to the question 'Has BMG changed your approach to the way you perform?'

Yes - no question, absolutely no question about it... Everything that I've done on some level, since the workshop, certainly through this semester, on the fly either during a lesson or during a performance, I would be conscious of...when I'm correcting something that's wrong which I felt is a success because I felt before I wouldn't have even noticed it was wrong... (Tyler, interview).

Another major factor contributing to Tyler's success in assimilating and applying the BMG information during the course of the study was his consistently focused mind-set. Tyler set goals and committed himself to exploration and experimentation to further his understanding. By his own admission, his ability to maintain the intensity of his focus varied through the semester according to the demands of his study and performance schedule. In the final analysis he did not believe he had given BMG the complete attention it deserved. This was due to an overseas trip that took him away for a time during the middle of the semester and interrupted his work. Nevertheless, his ability to re-focus on the important short-term goals and keep things manageable was in evidence when he wrote 'My project for the end of class is going to focus mainly on things I will work on intensely between now and then, knowing what I know now' (Tyler, journal).

The ability to make connections between BMG information and other areas was a factor contributing to success for a number of students in the study. In Tyler's case he specified the connection between 'physical training' and 'mental acuity' and how these elements were

'interrelated issues' that allowed him to make 'more connections.' BMG is not meant to stand in isolation, as a separate field of study. Teachers of BMG intend the information to be integrated with other disciplines or activities where people can benefit from enhanced movement quality. The principles can be successfully integrated with any physical activity according to the interest and skills of the individual. In his interview, Tyler stated:

You get out of it what you put into it. It's all connected. It's connected through physical training, it's connected to mental acuity. These are all interrelated issues. When I was learning Body Mapping and what I got out of it was... not to diminish it's importance, but it joined all the other things that I had running through and made more connections (Tyler, interview).

During his interview, discussion about the reasons why Tyler had chosen to integrate BMG information into his conducting was raised by the I-R. Tyler's response was positive and he cited 'the technical facility, the speed, the way we've been learning pieces... the way I'm assimilating pieces and the ability to convey the emotion and the simple emotional connection' (Tyler, interview). His response conveyed a range of elements critical to effective conducting.

According to Tyler, three factors inhibited his overall success with BMG during the course of the study. These included having insufficient time to integrate the amount of information from a theoretical understanding into practical use; his own impatience with himself; and too many 'other things' going on in his life that required his attention and took away his focus from the BMG. The study occurred during his final semester of study and Tyler had additional activities on his agenda, such as graduate school auditions and preparations for his senior conducting recital, which divided his attention more than he had anticipated.

This I-R would also add a fourth element inhibiting Tyler's overall success, i.e. pertaining to the accuracy and understanding of the information presented. In Tyler's case there was evidence

that his understanding of concepts was not as accurate as he thought it was. This became evident to the I-R in the way Tyler completed the *Agenda Helper* document that he brought to his coaching session, i.e. with specific items he checked as 'yes' when the I-R's observations of his understanding through his body use and explanation of concepts was actually 'no.' However, there can be no denying the fact that Tyler did experience some success in integrating BMG with his conducting, and this was evident in his final performance-presentation at the end of the semester by way of his expressive conducting gesture.

Tyler's expectations of his abilities with the application of BMG were to achieve mastery sufficient that it 'should eventually become something that you don't have to focus on to do.' While he acknowledged that this was 'maybe...not the semester's goal' (meaning the purpose of the class) and reiterated '...but I think it was my goal,' his self-assessment was that 'I've gotten to the point where I notice when I'm doing things poorly which is a good thing.' While he also acknowledged his ability to make changes that would prevent certain habits of use 'happening much more frequently than I would have liked' was as yet incomplete and the 'result of simply not having enough time to work with myself and work with the texts,' Tyler also stated 'I do plan to continue with it' (Tyler, interview).

Tyler's ambition for maintaining BMG in his future beyond his undergraduate college course was also noteworthy. Tyler could best be described as a talented musician dedicated to exploring all aspects of his art, and it was exciting for the I-R to note that he was motivated to continue building on his initial BMG progress beyond the study. This was demonstrated by the following two extracts, from his interview and a post-study email received five months after the study concluded.

My personal challenge is not going to be now. It might be two years from now which is why I would be interested in that thing (another research study) in the future too. Is it still useful? How do you remember it? How do you use it? That's what I'm looking for. But I'm not ignoring the now (Tyler, interview).

If you're still accepting updates from the Body Mapping class students, I discovered something recently and thought I'd let you know. I think I've made progress with my 'walking' problem...it seems... that I was doing two things, both contributing to pain in my right leg and knee. First, I noticed my left foot, while walking, would hit the ground with the ankle free, at a small angle (30?) to the ground. There was little impact felt; whereas my right foot often had a locked ankle and the heel impacted the ground at a 45 or more angle (a-la-wooden soldiers). I don't know why there's more tension in the right leg than the left, but there definitely is a difference, and it seems to be connected to the problem, because when I make a conscious effort to imitate the left leg's form in the right, walking seems easier (but I have to REALLY concentrate)...I'm not conducting with the frequency I did at... at least for now. I still grapple with the tension and 'opening up' issues I started to address in the class, but what I'd love is a situation where I'm frequently and regularly in some public's eye, so that I can truly put into practice all this behind the scenes work (Tyler, post-study email).

Tyler's ongoing BMG work was gratifying for the I-R and is included in this case study as evidence of his commitment to progressing beyond the scope of the research study. It also partly addressed a comment Taylor made in his interview: '...I don't know how effective it would be without led instruction' (Tyler, interview). In his post-study email Tyler's descriptions of his progress showed that he was able to work effectively with BMG outside of the course-structure.

Tyler's final journal entries showed his desire to reflect on the class experience and place it into a context he could use in his future music career. On April 24 he sent two journal entries that expressed the wide-ranging benefits he had experienced as a result of BMG instruction and the class.

It's so hard to describe what I've experience through this study, but it's that X factor. It's the ability to know what the performers will play before they play it; to not lead, and not follow, but 'be' the music. It's also given so much perspective in my personal life. I talk to people in a different manner than I ever did before, or seldom did before, and it's much more effective and positive (Tyler, journal).

This is what I have rediscovered through this self-study; I didn't start to try to be a better conductor, I sought more emotional openness and connectivity to people and the music, and the ease in a practical art like performance naturally follows, but as a byproduct of the larger success (Tyler, journal).

It was interesting to note Tyler's identification of 'more effective and positive' changes in his personal life and his sense of approaching those interactions with a 'different manner.' When explored further in his interview Tyler explained that this referred to increased self-confidence in interpersonal interactions, both on and off the podium. In the past Tyler had struggled with the ability to clearly convey feelings and emotions through non-verbal means, and during the course of the semester it was his experience that the BMG work enabled him to effectively address this deficit.

Summary of Tyler's experience

Although Tyler's overall success with BMG during the course of the study was not as impressive as Susan's experience, it was nonetheless noteworthy for the improvements he made in cultivating more physical flexibility which contributed positively to his conducting technique. Reduced tension allowed him more effective communication, especially with his face, and he was better able to engage emotionally and expressively. Cultivation of awareness of use was also a crucial element in Tyler's success and the reason he was able to identify and begin correcting the downward pull of his head. Because every performer has their own personal perceptions and reactions to an experience, Tyler's belief in his ability to 'be the music' and the improvements in his ability to communicate with people in conversation were also legitimate points.

As the semester unfolded it became clear that Tyler discovered more issues to address than those initially stated on his *Background Information Questionnaire*. Although he was by no

means completely confident with his body use by the end of the semester he certainly had succeeded with his wish 'to gain greater awareness of myself in performance' and to move in more 'physically efficient' ways (Tyler, *Background Information Questionnaire*). He also began to enjoy some success in becoming 'more open and connected to the music' as stated in this journal excerpt: 'I'm noticing I'm more informed, more spontaneous, and can more readily do what I want to physically or artistically' (Tyler, journal).

Toward the end of the semester which was the conclusion of Tyler's undergraduate studies, the I-R noted that his journals assumed a more reflective tone. Tyler had consistently demonstrated his capacity to analyze his progress during the course of the study, and while he stated that he had not given the BMG his fullest attention, he was pleased with the outcomes of the work he had done. The following excerpt from one of his final journal entries illustrates his satisfaction with the quality of his music making in combination with his BMG skills.

I did experience great things artistically, though. I truly felt that I was executing some of the most spontaneous music making I had done in a long while (Tyler, journal).

The I-R appreciated Tyler's honesty and candor, and his future ambitions which included a desire for further BMG study. From the I-R's perspective Tyler was aptly identified as 'a work in progress.' Her description was supported by his interview comment, '*I'm at the doorway of seeing results... I've assimilated what I could and I'm going to study more... And I think it's all useful*'.

Case Study 3: Vance - The conflicted optimist who couldn't commit...

Vance's profile

Vance was a 20 year-old undergraduate sophomore double majoring in voice performance (baritone) and communications/public relations. At the time of the study he had received a total of four years voice training. However, only one-and-a-half years of instruction were at the college level with his current voice teacher who also participated in the study. Vance had no formal somatic training prior to this class, however he was exposed to some basic BMG information (e.g. correct alignment when sitting and standing, and information about breathing), during warm-ups in the choirs. Vance was a member of both choirs which were conducted by the I-R.

On the *Background Information Questionnaire* Vance indicated he had never suffered from performing-relating injuries or performance anxiety 'beyond what's normal.' However he did identify specific technical limitations, including inhibited focus and resonance, resulting from problems with his tonsils and constricted nasal passages. Vance had undergone surgery (tonsillectomy and polypectomy) three weeks prior to the beginning of the research study to help resolve the problems physically. Learning how to manage his voice post-surgery was an issue for him during the course of the study. 'It felt like a completely different apparatus' was his comment about the post-surgical singing experience (Vance, interview).

The issue of his confidence and identity as a singer was a recurring theme during the study. On the *Background Information Questionnaire* Vance described himself as a 'very average singer.' The I-R noted this was an unusual statement for an aspiring performer to make, and interpreted

the comment as slightly negative rather than false modesty. This also seemed to signal a lack of confidence that Vance had in his singing ability as well as unresolved questions about his commitment to a career in performance.

On the first day of class Vance wrote, 'I question whether I'm a singer or not because I hate personal drama!' His first journal began with a paragraph that revealed more of his personal anxieties in this regard.

I am not as seasoned a performer as many of my colleagues here... In fact, I consider myself a "late bloomer" in many respects. I didn't sing in a choir until I was 16, and it wasn't until a year later that I had the courage to sing my first church solo. From there I started studying privately with a wonderful teacher and mentor. Through high school, the thought of studying music in college didn't really cross my mind. And then, I started auditioning for music programs. I never would have thought that I'd end up a vocal performance major. Although I'm also a Communication/PR major, I have kept music at the forefront of my future plans. It seems that I just can't let it go, even if it feels at times that I'd like to (Vance, journal).

The I-R noted Vance's struggle to reconcile his love of music and singing with his lack of confidence in his ability, and how he would meet the demands of a performance career. In her experience this was not an uncommon dialogue for students studying voice performance.

In terms of personal and musical strengths, Vance described himself as honest, friendly, level-headed and musical. His reasons for taking the BMG course were practical and intellectual curiosity as demonstrated by the *Background Information Questionnaire* responses 'it fits into my schedule' and 'I really want to learn the intricacies of the sometimes allusive [sic] 'body mapping' techniques.' The I-R was able to gain a clearer understanding of Vance's reasons for taking the class in the following excerpt from his first journal.

I'm looking forward to discovering the minutiae of Body Mapping and understanding it well enough to have the poise of our instructor. Honestly, that's why I joined in the first

place. I thought, "If she can do what she does with a baby strapped to her midsection, then there must be something to this!" (Vance, journal).

As this journal excerpt illustrates, Vance's motivations were a combination of special interest and eagerness for BMG's potential effectiveness as a result of his observations of the I-R's poised body use, even while pregnant.

Vance cited two specific goals for the course, both related to the stage: a general feeling of comfort with his acting abilities, and the ability to connect his voice and body physically to his on-stage movements.

I want to feel more comfortable on the stage in terms of my ability as an actor. I want to make a more visceral, basic connection with my body between my voice and my movement on stage (Vance, Background Information Questionnaire).

While the first of these goals was not expressed in specific terms that connected with the intention of the BMG instruction, the second certainly was within the purview of the course.

Vance's journey

Vance's enthusiasm for and curiosity about the course content was evident in his early class participation and some of the comments written in his first journal entry (submitted at the end of the second week of the course). At this time he still expressed doubts about his ability to become a professional performer. This was demonstrated by a self-deprecating statement about his habitual focus on technical problems and inadequate practice techniques, and how they were limitations to professional musicianship. A further self-description as a 'late bloomer' followed. However, with regard to BMG, he acknowledged some initial success with understanding the concept of balance when he stated:

... this kind of training...relates very directly to all of my practicing and performing, and I've already become more cognizant of my body's balance when I'm standing and singing. I feel that even with the tiniest amount of Body Mapping that I've been exposed to in

Professor Buchanan's choral ensembles, I've had the opportunity to think more about my body and its music making abilities (Vance, journal).

He acknowledged the enjoyment of learning from the 'interactive' practical class moments, and the powerful role-model presented by the instructor. Vance's mind-set at the beginning of the study was a blend of cautious optimism and enthusiasm about the possibilities for BMG and how he could benefit from them, but this was also tempered with self-doubts about his vocal abilities and career choice.

The tone of Vance's second journal (written one week after the first) showed a distinct change in his mind-set. The overall tenor was confusion, and he was clearly overwhelmed by the BMG information and unsure how to process it. On the one hand he was cognizant of the concepts presented and saw value in them, but he was unable to focus his thinking in a way that would allow him to make progress that would provide a foundation for success.

I have this overwhelming feeling that there are many things wrong with my singing and my balance. I hear people talking about their problems and subsequent breakthroughs and successes. I feel like I don't even know what I'm supposed to be working on. With every topic that is discussed in class, I think, "Oh, that's something I could be working on." Something tells me that will be impossible as the semester goes on! (Vance, journal).

It should be noted that at this early point in the course, the teaching of BMG content was presented in a 'whole – part – whole' sequence. Specifically, students were presented information designed to facilitate a complete cycle of awareness and understanding about the body as a whole entity and the parts comprising it. The course material started with the foundation principals of BMG to provide a context for understanding how the information should be applied. Following this, students were taught how to achieve 'mechanical advantage' (Mark 2003:18) through understanding of anatomy and physiology of the spine (core balance)

and the six major places of balance (atlanto-occipital joint, lumbar spine, knees, ankles, and arm structure). Detailed explanation of specific body structures and how they function (e.g. arms, breathing, and legs) were taught after core balance and always related back to core balance. Finally, the course content focused on reestablishing the importance of the parts within the concept of whole by returning back to core balance and whole body use. Frequent practical activities and experiments were undertaken to facilitate the assimilation process, i.e. convert theoretical concepts and principals into body use or movement.

A considerable amount of BMG information was presented initially and the students were required to assess how it applied to them personally and their area of performance. The relevance of the information presented also varied from individual to individual. For example, violinists needed to understand details about the wrists and hands in the arm structure with far greater detail than the singers. However, the singers needed a deeper understanding of the intricacies of breathing than the violinists.

The I-R encouraged the students to keep their expectations manageable and realistic by selecting one or two areas important to them, rather than trying to attack everything that was presented. It takes time to assimilate new information – in the same way that skill acquisition for playing an instrument or learning to sing takes time - and they received frequent reminders about the importance of “process” and the means by which this is managed.

The *Agenda Helper* (see Appendix III), a diagnostic tool, was introduced at the end of the fourth week of the course so students could check their understanding and focus their thinking as the class transitioned into the practical rotations. The *Agenda Helper* was designed to assist students

evaluate their understanding of the BMG course information. It also highlighted problematic issues, either specific items or within larger content areas, and allowed student to identify areas or issues requiring attention. For students with multiple concerns, the I-R assisted with suggestions for prioritizing their focus moving forward.

Although Vance was feeling overwhelmed early in the course, in his second journal he noted that he was going to try and focus on the most important things and actively work on them. He also made a connection to Abraham Maslow's four sequential levels of skill development (as discussed in the following journal extract) and how this related to his understanding of BMG. This was encouraging as it demonstrated he was actively working to put the information into a context he could understand. Some success with the balance of knees was noted.

My one thought is to take the most pressing things in my mind and try to actively work on them. Although, I say "actively" and I'm not so sure that's what I mean. I'm finding that some things are coming completely subconsciously. Although, I say "subconsciously" and I guess I must be thinking about it first. We study in communication classes a four-stage model of Abraham Maslow, which places the development of skills into four sequential levels:

- *Unconscious incompetence*
- *Conscious incompetence*
- *Conscious competence*
- *Unconscious competence*

Right now I guess I've moved into the "conscious incompetence" level with most of my problems. I know that I'm doing something wrong, but I don't know what. With certain things though, I do feel like I'm moving into the realm of competence. For instance, I often times stand in a lesson or in chorale (or the grocery store) and try to bring my knees into balance. I think maybe I'll have to make a record of these tiny things my mind is doing to help my body:

**2/12/05 – Consciously brings knees to balance almost every time I stand up (Vance, journal).*

In the fifth week of the study, Vance's third journal revealed a major problem, specifically the issue of a faculty advisor for the study. The role of faculty advisor was to assist with

triangulation of the data and it needed to be someone with whom the student had regular contact. Students had the option of asking their studio teacher, a major ensemble director, or another faculty member in their applied area that they worked with, e.g. coaching or practicum. A majority of students were taking lessons and were naturally inclined to ask their studio teacher to participate.

Vance's problem was his studio teacher's disapproval; specifically his teacher's negative opinion of somatic education and Vance's fears about his teacher's adverse reaction to him taking the class and participating in the study. From the language of the journal entry it was clear that this was a major source of concern for Vance, especially because he held both his voice teacher and the I-R in the highest regard. His preference was to be able to share the BMG class experience with his teacher, but his fears about a negative reaction were real.

What do I do about my faculty advisor? With regard to the research study I'm participating in, I have no idea how I'm going to manage to find a faculty advisor to "triangulate" the data. My want would be for my private teacher, Lawrence Gesler, to join the study. However, he doesn't even know I'm taking the class. I have no idea what his reaction would be to my asking him to join a research study involving "Body Mapping." I can't say quite why my gut is telling me that he would not be overly enthusiastic. I think I know him fairly well after three semesters of lessons. I've heard his reactions to many singing-related activities; I've heard his concurrences with other professors' doubts about somatic teaching and its place in a University setting. Maybe it's not so far-fetched that I think he'll be skeptical. I think the fact that I've waited so long to tell him and still can't quite muster up the nerve means I'm worried about something. I could easily ask [REDACTED], whom I know has enthusiastically agreed to participate in the study. However, I'd rather my teacher experience this with me. I just don't know what to do (Vance, journal).

At this stage in the study most students had already secured their faculty advisor's participation. Except for two other students who were not taking lessons (a singer and a pianist), nobody else had a problem soliciting faculty support. Vance had agonized over this decision for some weeks and he also came to the I-R to speak about it in person. He was advised that if he really wanted

his studio teacher to be part of the study, then he should speak honestly with him and explain why he wanted to take the BMG class. Furthermore, it was important to understand that his teacher would eventually find out about the class, even if he did not continue with the study (participation was optional). It was considered best if Vance spoke honestly to his teacher about his reasons for taking the class. The I-R also re-emphasized that it was his choice whether or not to continue with the class and study participation, and it was particularly important to the I-R that he did not feel torn between his teachers.

Vance's first major BMG breakthrough, seated balance, was documented in his third journal when he explained the sensation of tension release in his entire body while seated on a Swiss ball. He discussed his habitual body alignment when standing, some issues I had discussed with him about posture, and he was thinking about the way this related to singing. The enthusiasm and excitement about this progress was clearly articulated.

On February 22nd Vance submitted his fourth journal which detailed his discussion with his studio teacher about the class and the study, his personal reaction to his teacher's comments, and his mind-set moving forward. While Vance's fears about his teacher's skepticism and negativity were confirmed, his teacher did agree to be part of the study. In his journal entry Vance expressed gratitude about his teacher's honesty and how he would manage the situation. He also acknowledged that he was ultimately responsible for making the choices that affect his education and life decisions, and that it was through a teaching moment in the BMG class that he came to this realization.

I trust with all of my heart the instruction of my professors, but I realize that as a competent and concerned musician, I am ultimately the one to make decisions about what is right for me. This is by far the most important thing I've learned this year in any

class. It's something I'll think about far beyond the Spring semester of 2005. Thank you so much (Vance, journal).

This was Vance's final journal entry and signified the beginning of his disengagement from the study until the final interview which he willingly completed. Although he did not submit journals, Vance continued to attend classes and participated in the practical activities, but his commitment to the journey of self-inquiry that is integral to successfully integrating BMG was suspended. It therefore came as a complete shock when his first answer to the in-depth interview question 'what's your overall impression of it (BMG) as information for musicians?' was positive:

I think it's wonderful and it's very helpful... after having done an entire semester, which I think is...the minimum amount of time to be studying this kind of stuff... as far as it's applicability for musicians, it's invaluable (Vance, interview).

Vance attended his private coaching session with the I-R in early March, at which time he identified two areas of body use that were effective/accurate: leg movement in everyday life and during performance, and inhalation during breathing. The areas he cited as requiring attention were shoulder tension, sensory perception of self during performance, exhalation (problem with using too much air too quickly), and release of general muscle tension to promote awareness of gathering and lengthening during breathing. During the coaching which lasted 25 minutes, Vance gave no indication that he was dissatisfied with his progress or unduly frustrated, any more than was normal in the I-R's experience for a student at the mid-point of the semester. The point of the coaching was to help students to define the most important areas of body use to focus on moving forward into the practical rotations (master classes) that began immediately after the spring break in mid-March.

Although he was 'silent' through the journals during March and April, Vance did not totally withdraw himself from the educational process and by the end of the semester he had begun to work through the major issue that seemed to impede his progress, i.e. discomfort and feeling intimidated by the process of being evaluated on body use in performance. This issue came to prominence with his practical rotation experience, but was not discussed in depth with him until his interview.

A significant point in Vance's experience was his negative reaction to the practical rotation experience. During the interview he described the sensations of 'freezing' and 'blinking out', 'feeling judged', and 'feeling pressured' that he had to produce a good result. From the I-R's perspective, this was an example of performance anxiety resulting from inadequate preparation and insufficient information. Although Vance chose to participate in the practical rotation session, it must be noted that by this stage in the semester he had discontinued his weekly journals, so it was difficult for the I-R to gauge the extent of his interest and engagement in the course. In retrospect it was apparent that he was still interested in learning about BMG even though he was frustrated by the situation with his studio voice teacher and the class.

At the time of his practical rotation, Vance's BMG skill development was not as well formed as many of his peers, and when he was unable to produce the results he saw in other students, the experience became overwhelming. It is also possible that he underestimated the pressure he placed on himself to produce results that he admired in his peers. Vance also was unclear in his understanding about the difference between vocal technique, musical preparation and BMG skills. While the goal of this pedagogy is to seamlessly integrate BMG with musical performance, this is not something that is expected to occur so quickly in a student's experience, particularly

their first time in a practical rotation. Hence the recipe for disaster that was Vance's rotation experience.

I would say that the practical rotation session was a good example of my experience in trying to implement it (Body Mapping) because a week earlier... I gave my Master Class for voice, my Master Class for performing. It was from the same piece and that's why I wanted to do it because I felt like I'd gotten to a good point with the song itself, and it was an easy song, and I felt that I had a grasp on it emotionally, and so that's why I felt that I performed it well, and that's why I wanted to do it in our practical session. And then I just completely froze and kind of blanked in a sense. And in thinking about why, I think it was because I wasn't thinking about body mapping so much over there (meaning voice Master Class); or I was and I didn't feel pressured that I had to do it...It was just... I was letting what I had learned come through a little more and not trying to think about it so much. But then in a class where the focus is primarily about the way you're using your body, I felt more inhibited, I closed down because I felt I was more...evaluated...And that mindset was counterproductive and something that I tried to get over a little bit and I think I have, but if I had to do the same thing today, I'm not sure that it would be all that different. I still think I would feel inhibited being judged for my progress and being judged for my balance... (Vance, interview).

Although devastating at the time, Vance's practical rotation experience did not completely destroy his belief in the information or his willingness to participate in class. Although his own practical experience was not positive, ongoing observation of the way BMG manifested in others was still a powerful influence, and he specifically acknowledged learning from and enjoying the experiences of a number of his colleagues during their practical rotation sessions.

Oh, yeah. I mean who had an amazing breakthrough is Robert, obviously. He probably comes to mind because he did the most amazing work...Howard did great stuff and it's so funny because he took a piece, a hymn that he had never even played something that did not have prescribed technical things that he was thinking about and didn't have his old habits ingrained, and, you know, he was able to play that so beautifully, without any kind of tension in his body and that was wonderful and then...who else made great strides? I mean Natalie's recital on Saturday was wonderful...I'm so proud of her (Vance, interview).

The power of observation in Vance's experience of BMG included the I-R as a role-model, as illustrated by the following extract from Vance's interview.

I'm not meaning to flatter you, but I think as an instructor you have a very good grasp of this stuff and I think that is very good example, because even before I knew you were, you know, when body mapping was just a term to me and had absolutely no meaning in my life, you know, last year when you first started here and I first started here, I still, I didn't know that body mapping was the cause of it, but I knew that you look very relaxed is the word I would have used to describe it, but what it actually is is just this dynamic kind of sense about you, and... I think that's a great example. Like I say, I'm not trying to flatter you (Vance, interview).

During the BMG certification process, instructors are evaluated on their fluid and accurate body use, as well as the ability to effectively teach the information. Vance used the words 'relaxed' and 'dynamic sense' to describe positive attributes of the instructor's movement that manifested as a result of her BMG mastery.

In an attempt to gain greater understanding of the reasons for Vance's state of mind in the middle of the semester, the point in the study where he described himself as 'shut down,' the subject of potential conflict between BMG instruction and studio voice teaching was also discussed in the interview. Vance's initial concerns in this regard were well-founded given his studio teacher's clearly articulated prejudice against the relevance of somatic education. Indeed, Vance's experience in reconciling the two areas was in fact positive and he explained that although the focus was different, ultimately he felt that both areas were leading to the same outcome, i.e. musical mastery.

I think it gels. I think it gels very nicely. I think, obviously, in my lessons he's not spending the time that we spent talking about gathering and lengthening of the spine. That's not where we're focused but it's not (that) they conflict, you know? So I think it's a different priority but I think it's all going in the same place... I don't think you told me a single thing that he would stand up in the back of the room and say "no, no, no, no. That's not right... Don't be teaching students this." I don't think you presented a piece of information that conflicts with anything he's ever taught (Vance, interview).

Vance also acknowledged the influence of other things on his state of mind during the semester, specifically 'emotional things,' although he declined to give more detailed information when questioned. So it remained unclear what the 'other things' really were. By the end of the semester in late April, Vance had come full circle and was prepared to acknowledge the effect that his state-of-mind had on his progress.

You know, I feel like even given... the kind of emotional things I had to work through with my voice, and given the fact that I know that I'm working through inhibitions, I'm still in a very good place... this whole process is going to take time and, you know, I'm feeling much better about it than I did. Even a few weeks ago, that I feel like I'm moving into a much better place here, in my mind, than I was (Vance, interview).

From these comments the I-R was inclined to believe that Vance's progress with regard to his state of mind was influenced by factors other than his frustration with the BMG information, and that perhaps his inability to manage the demands of the course resulted from external factors rather than the BMG information alone.

Vance was able to reflect on the things that were and were not working for him with regard to BMG. He described his knowledge of the theoretical concepts as 'proficient' and his application in performance as 'variable.' The specific areas in which Vance made progress were: understanding of breathing more solidified; changing his pre-performance routine to include stretching and getting aligned before singing; developing improved awareness of body alignment when standing or working (waiting tables); and awareness of leg mobility, specifically the knees in balance. The most valuable elements in the teaching process for Vance were the opportunity to observe the progress of other students, i.e. the successes that led to positive changes as well as their failures and frustrations, and the classroom environment which he described as 'trusting' and 'safe.' Reflecting on the semester overall, Vance described it as a 'breakthrough

semester in a lot of ways' but was unable to pinpoint exactly why this was the case. He seemed to be aware of a number of things interacting, including the BMG instruction when he stated:

I'm having trouble picking apart the semester in different... and what influenced me where. Because it feels like its [sic] been such a breakthrough semester in a lot of ways. But I felt like I had plateaued [sic] and I felt that I was stopped and now feel like, feel poised to move forward in a kind of really good way. So, in thinking about exactly what, what caused me to make that connection, I would say this class must have had some kind of impact...(Vance, interview).

The in-depth interview provided an opportunity to explore Vance's journey further, specifically his attitude and mind-set and how they contributed to his learning during March and April when he did not submit any journals. The following interview excerpt describes Vance's state-of-mind during the mid-point of the study which was also the most difficult time for him.

In the middle of the semester...I kind of shut down... that was my lowest point... and I was very down about it. I was thinking to myself, I wanted to just come and talk to you and say "this is not working for me and this is not helping me and there was no way that it could," and I was very down about it (Vance, interview).

Vance's sentiments revealed a major shift in his attitude to the class. In place of his initial optimism there was a sense of despair, frustration and disappointment. It must be noted that while Vance readily approached the I-R about his concerns with his studio teacher early in the study, he did not subsequently approach her to discuss any other study-related concerns. However, during the interview he was able to reflect on his journey and share some insights into his situation.

By his own admission, there were three main factors that impeded Vince's progress. He felt that he needed more time to assimilate the information; his concern about being judged on his progress, particularly in the practical class session; and his inability to switch focus during performance and incorporate all the elements needed. For example, from awareness of body

use to the music, and the emotional state of the character portrayed. He explained he could only be aware of what he was doing with one thing at a time. From the I-R's perspective there were additional issues observed. Firstly, a lack of intellectual focus which manifested in his approach to the information; secondly, an absence of commitment to change and a lack of tenacity, including the ability to stay the distance when new territory was difficult to negotiate; and finally, a lack of emotional resilience and self-confidence which was necessary to handle the scrutiny that inevitably comes with the territory of performance evaluation. Vance's ongoing struggle with his identity as a performer was also a clue to his lack of self-confidence.

Summary of Vance's experience

Vance's journey with BMG during the course of the study was characterized by inconsistency in the way he approached the learning process and how he responded to other issues and challenges in his life. Although he initially entered the class with a positive attitude, his ability to commit to the various course elements was limited by his lack of focus. This was particularly evident in the lack of practical experimentation that was crucial for integrating the BMG information into practical skills. While Vance was able to observe progress in his peers, he was unable or unwilling to work through the re-mapping process to enable him greater success.

During his final interview, Vance explained his inability to successfully integrate BMG with his singing as the result of the way he thinks when he is performing.

...I think about too many things at once. I can take them apart separately, and I can think about my body and the way it's performing in one instance... but I feel like there's too much to focus on, between my technique and what I should be doing, and what communication I should be making, and then once you add that in top of all this training we've been doing, it was like too much (Vance, interview).

Vance's comments to the I-R revealed a student who was unable to achieve or maintain focus in his mental awareness. Specifically, he was caught in a cycle of extreme 'concentration' whereby he was only able to attend to one thing at a time. This issue is a key element in BMG and was addressed in the first class of the semester. It was also reiterated throughout the semester, particularly during the practical rotations. From the I-R's perspective, Vance's failure to comprehend this key concept was an impediment to his progress on many levels, but most particularly in performance where multiple elements must be attended to simultaneously. Because Vance did not have an intellectual understanding of the importance of focus he was subsequently unable to cultivate the skills for developing inclusive awareness that would have benefited his re-mapping and his performing.

On the subject of feeling pressured to be successful, which the I-R explored with Vance during his interview, he stated: 'I did feel pressured that I had to make some kind of major change in myself because of this work... and that's not true' (Vance, interview). From the I-R's perspective it was apparent that Vance's self-imposed pressure to succeed was an impediment to his learning process. This was also a characteristic that he shared in common with one other student in the study from the same RG.

While Vance's success with BMG during the semester was minimal, he nonetheless exited the study with his confidence in tact and his optimism for future possibilities restored, as evidenced by this interview statement.

...I feel thus far it hasn't had that much of an impact on my performing...and my expressiveness as a musician, but I feel like it really could. Especially, seeing what other people have done with it and how much it's helped their musical sound and their perception of music, I know it's possible (Vance, interview).

An event concerning Vance's use of BMG subsequent to the study is also worthy of mention. Twelve months later, Vance approached the I-R to explain his successful use of BMG information in private voice lessons he was giving to high school students. During the conversation, he specifically described how he achieved better results correcting his voice students' posture through BMG than other explanations he had tried. By sharing this information, Vance revealed a different level of engagement with BMG than he had demonstrated during the study. From the way he described his own teaching experience, it was evident he had developed confidence in his ability to apply the information as he needed to communicate to his students with explanations and demonstrations.

Conclusion

Over the course of the semester, Susan, Tyler and Vance all had different reactions to the same BMG information as it was presented by the I-R. The early common ground shared by all three was their curiosity for the potential of BMG information to benefit them in performance and their respect for the instructor. However, the trajectory of their individual experiences quickly changed as they began to assimilate the content and begin the process of re-mapping and developing skills in the application of information to their individual body use.

All three participants struggled with the process of self-inquiry and change throughout the semester, but with differing degrees and with different reactions. In Susan's case she had the ability to honestly and realistically acknowledge her situation and continued to experiment until she understood. She worked consistently and maintained an open mind and positive attitude despite her frustrations. Susan possessed a level of self-confidence that may also have been

reinforced and supported by the positive and dynamic relationship she openly acknowledged she shared with her studio voice teacher.

Tyler had a positive attitude and an open mind, but he came into the class with high expectations for himself and specific goals that he wished to address, i.e. lack of tension and body awareness. Like Susan, Tyler's relationship with his studio teacher was positive and supportive of his BMG studies. Tyler was also an avid observer of others, and learned a great deal about effective and ineffective movement and its influence on musical sound by seeing the results manifest on the podium in other conductors. Tyler was conscientious about his commitment to the study and maintained regular contact with the I-R through his journals, with only a break for his trip to Russia in March. Although Tyler enjoyed a range of benefits from the BMG instructions, by his own admission he did not get as far as he would have liked owing to his need to divide his time between the class and other priorities.

Vance's experience during the study was variable owing to his wavering commitment to the course work. Although he began the semester with a positive outlook, he quickly became frustrated and overwhelmed by the information and his lack of ability to see the benefits that he was clearly observing in his peers in himself. The issue of his studio teacher's negativity toward the class was also a major source of conflict that caused him considerable anxiety. Despite Vance's frustrations in skill acquisition, he was reasonably confident in his cognitive grasp of the course content, and remained active in class discussions and critiquing during the practical rotations even though he was not wholeheartedly committed to the process of self-enquiry at this stage. Ultimately Vance left the class with a sense of optimism about the possibilities for

BMG based upon his observations of the numerous successful break-throughs that his classmates experienced.

A comprehensive examination of the themes that emerged for all study participants will be discussed in Chapters 5 and 6.

Chapter 5: Using a Typology to Describe Students' Perceptions and Interactions with Body Mapping: Insights into the Learning Process

... most outcomes flow from actions.

Hence, how one behaves largely determines the outcomes one experiences.

(Bandura 1986:392)

Introduction

The experience of Body Mapping (BMG) is unique because it is a self-inquiry somatic education method that provides musicians with the means to accurately evaluate and re-map body movement to meet the demands of their particular performance area. Chapters 5 and 6 explore the factors that shaped the BMG learning process of the 12 students in this study. Interview data from the 10 faculty participants is also cross-referenced with students' experiences. The data presented in this chapter examines a number of factors pertaining to the *results groups* (RG's), including criteria for their composition, and discussion about the various ways the students interacted with BMG. Discussion of these factors is done through the *RG* typology. How the participants perceived their engagement and relationship with BMG, the role and influence of the studio teacher, and what the students gained or learned about their personhood, musical technique, themselves as performing artists, and other areas influenced is located in Chapter 6.

In this study, the *RG* designations were determined by evaluating each student's degree of success as they applied BMG to their designated performance area. Students in the *good RG* achieved consistently successful results; students in the *reasonable RG* experienced varying degrees of success; and students in the *minimal RG* had either generally inconsistent or

unsuccessful results in the application of BMG to their performing. The study also factored in students' level of comfort with their knowledge and understanding of BMG principles. There was a clear distinction between the students' theoretical competence and confidence and their success with practical application, particularly in the group with reasonable and minimal results. The final results determined that the majority of participants believed that BMG was of significant value as a discipline and tool for musicians.

Experimentation, observations, consistency of work, habits of mind, attitude, use of the *Agenda Helper*, and self-reflective journal entries were the factors that influenced how the students interacted with the crucial process of self-inquiry. (These factors are highlighted in bold in this introduction for ease of presentation). Discussion of these factors is derived from all data sources. **Experimentation** was an important way that students initially interacted with BMG, specifically in the form of movement experiments relating to their anatomy, physiology, and performance area as well as everyday movements. **Observations** of self and others determined movement quality and the relationship of the body map to movement. The students who **worked consistently** on their re-mapping priorities yielded better results than those who approached it sporadically. Effective **habits of mind**, such as thinking analytically, synthesizing information, and accurate evaluation, matched a students' level of success. Students' prevailing **attitude** was a major factor in student progress; this included the interplay of emotional and cognitive elements. For example, emotional resilience, i.e. the ability to interpret feedback objectively and move forward after unsatisfying results, was an attitudinal characteristic shared by the more successful students.

Also revealing in the student outcomes was their use of the *Agenda Helper*. Student approach to self-assessment changed from the first to the second time they completed the *Agenda Helper*. Some students discovered that initial understandings were in fact incorrect, while others found confirmation of their level of understanding to be consistent. Self-reflective **journal entries** were an important part of the study process because they enabled a direct connection between the Instructor-Researcher (I-R) and each participant. The format was at the discretion of each student. A total of 12 journal entries each were required, although some exceeded this number while others fell short. A number of students also continued to correspond with the (I-R) about study related issues in the summer months after the study concluded. Journal entries were a valuable source of information in both the teaching phase of the study as well as the later data analysis.

The following section explains how the study *RG's* were constructed, including demographic information about each participant. The remainder of this chapter focuses on discussion about the students' learning process with particular emphasis on the ways they interacted with BMG and their perceptions of the various elements that shaped their experience. The data in this chapter is presented from the typological perspective of the *RG's*.

Results Groups

How results groups were decided

Figure 5.1 illustrates the rationale flow for determining the *RG* placement for each student in the study. The universal factor used by the I-R for determining which *RG* a student was assigned was the degree of success they demonstrated and experienced in applying BMG information into effective movement for musical performance during the course of this study. This was decided

through a combination of factors. These included student self-assessment (via journal entries, completion of the *Agenda Helper*, in-class practical performance experiences, other performance experiences, and the final performance-presentation in class); the I-R's observations of the student in practical situations as well as analysis of their journal entries and *Agenda Helper*; and feedback from their faculty member for the study (e.g. studio teacher or ensemble director).

Figure 5.1: Rationale flow for determining *results group* placement

Student self-assessment + Instructor-Researcher assessment = Degree of success with BMG and performance		
<u>Student self-assessment:</u> <ul style="list-style-type: none"> ▪ Journal entries ▪ <i>Agenda Helper</i> ▪ In-class practical experiences ▪ Other performance experiences (e.g. concerts, opera, ensembles) ▪ Final performance-presentation (in-class) 	<u>Instructor-Researcher assessment:</u> <ul style="list-style-type: none"> ▪ Observations in practical situations (in- and out-of-class) ▪ Analysis of journal entries ▪ Analysis of <i>Agenda Helper</i> ▪ Faculty study participant feedback (e.g. studio teacher or ensemble director) 	Degree of success student demonstrated and experienced in applying Body Mapping into effective movement for musical performance <u>Results group placement:</u> <ul style="list-style-type: none"> ▪ 'good results' ▪ 'reasonable results' ▪ 'minimal results'

A student's practical success in performance was the foremost concern of this study, i.e. *good* results for students who were successful, *reasonable* results for students who were moderately or somewhat successful, and *minimal* results for students who were not successful developing their skills in application of information. It should be noted that all of the participants stated they experienced some degree of change in varying aspects of their body use, and all participants described some degree of success with the various movement experiments during

the study. Table 5.1 summarizes the student participant *RG* allocations: Susan, Sonya, Natalie, Adelaide, Amy, and Howard comprised the *good RG*; Tyler, Ingrid, and Andrew comprised the *reasonable RG*; and Alison, Rachel, and Vance comprised the *minimal RG*.

Table 5.1: Participant *results group* allocations

Good results group – ‘successful’

Informant Alias	Area	Year Level
Susan *	Voice	Senior
Sonya	Violin	Junior
Natalie	Flute	Sophomore
Adelaide	Piano	Sophomore
Amy	Bassoon	Junior
Howard	Organ	Senior

Reasonable results group – ‘moderately/somewhat successful’

Informant Alias	Area	Year Level
Tyler *	Conducting	Senior
Ingrid +	Voice	Sophomore
Andrew	Euphonium	Junior

Minimal results group – ‘not successful’

Informant Alias	Area	Year Level
Alison +	Piano	Sophomore
Rachel	Voice	Junior
Vance *	Voice	Sophomore

* Indicates they were used as a case study in Chapter 4

+ Indicates there was no faculty data supplied

Note - Sophomore = 2nd year student; Junior = 3rd year student; Senior = 4th year student

Body Mapping as a discipline and tool for musicians: student impressions

Despite the variation in practical results, during the end-of-study interviews all of the students agreed that BMG information was important, valuable, and relevant for musicians. The following

three interview responses typify the group sentiment and are from participants in each of the RG's. Sonya, a violinist in the *good* RG viewed BMG information as 'extremely relevant' because musicians earn their living from the quality of their sound which is largely determined by understanding their bodies and knowing how they should move.

Well it is extremely relevant because of the whole 'moving for a living thing.' And if you can move for a living you better know what is moving where, how it works and how you can make it work and what it can and can't do. It was useful information to kind of pick up and implement (Sonya, interview).

Andrew, a euphonium player in the *reasonable* RG and one of a number of study participants who had suffered playing-related pain stated:

I think it's extremely important. I think it's pretty bad that I didn't know anything about it up to this point and I've been playing, doing music for about 12 years, and going 11 years without knowing really what I was doing. And I think that's not good...because it led to several problems for me and everyone else in the class (Andrew, interview).

Rachel, a singer in the *minimal* RG indicated that 'BMG is really important' even though she personally was unable to achieve the results she desired.

Since all musicians, I think, use their bodies, Body Mapping is really important... as a singer it's very important, it's the whole body. So Body Mapping is very relevant to musicians (Rachel, interview).

Level of comfort with knowledge and understanding of Body Mapping principles

Since it was vital for the I-R to understand the extent to which all of the participants understood the theoretical principals governing adequate and accurate movement, each of them was asked to self-assess their level of comfort with perceived knowledge and understanding of BMG principles. Despite the wide variation in practical skill abilities, there was consistency within the study cohort with the level of confidence understanding BMG concepts, as illustrated in Table 5.2.

Table 5.2: Student participant self-assessment for level of comfort with knowledge and understanding of Body Mapping principles

Results Group	Student Participant	Response to Interview Question
<i>Good</i>	Susan	'I'm pretty comfortable'
	Sonya	'I'm pretty comfortable'
	Natalie	'Very comfortable'
	Adelaide	'I'm pretty much comfortable'
	Amy	'I'm pretty comfortable'
	Howard	'I've got a pretty decent grasp'
<i>Reasonable</i>	Tyler	'I feel pretty comfortable'
	Ingrid	'Relatively comfortable'
	Andrew	'I understand it pretty well'
<i>Minimal</i>	Alison	'I'm good with it'
	Rachel	'I'm very comfortable in the knowledge'
	Vance	'I'm pretty proficient'

Ability to integrate Body Mapping information into own usage

The final step in the learning process was the ability to integrate the theoretical information into practical skills for effective body use, specifically with their musical performance area. There were clear distinctions in the experience of the participants. Overall student self-assessments of their ability in this area were lower than their responses for the acquisition of BMG information, since it takes more time to successfully develop a practical skill than it does to grasp a theoretical concept. In cases where students were overly self-critical there was a tendency to down-play their results. Conversely, students who were overly confident tended to rate themselves higher than the I-R did.

The majority of participants were generally realistic and honest in the self-evaluation of their skill application. In the *good RG* the students rated their usage as ‘pretty successful’, ‘fairly comfortable’, ‘half way’, ‘very confident’, ‘6 ¾ [out of 10]’, and ‘I can do a lot more [than at the beginning of the semester].’ Responses in the *reasonable RG* were the most varied. Andrew gave a quantifiable response ‘5 or 6 on a 10-point scale,’ while Tyler and Ingrid were more descriptive when they said ‘I’m still in the process of assimilating as much as I can into what I do... I think I’ve gotten a good start at it...’ (Tyler, interview) and ‘I think not as comfortable as with the theoretical’ (Ingrid, interview). In the *minimal RG* the student responses were ‘it varies’, ‘pretty comfortable’, and ‘it’s very hard to get it done.’

Body Mapping as a tool for enhancing musical expression

All six students in the *good RG* had strong, affirmative responses to the question, ‘Has BMG enhanced your ability for musical expression?’ A good example was Natalie who reported how she was freed to think musically because of the improvements in her physical balance and overall confidence.

Yes. Without a doubt... I think it’s made me more confident as a musician. I think when I used to play just thinking about everything else and my posture and my neck and my shoulders, that when I know I’m in balance I can think of the musicality of the pieces and not worry about the little things. So I think it has helped a tremendous amount... I think I am more involved. I think I’ve become more musical with the pieces that I’ve been working on (Natalie, interview).

Natalie’s studio teacher supported her positive self-assessment with the comment ‘that’s fair and clear’ (Patricia, interview).

In the *reasonable RG* all three students were also positive that BMG had enhanced their ability for musical expression. Tyler discussed improvements to his technical ability which facilitated

his emotional expression. Andrew explained how he had confidence in his ability to use his body correctly and without injury to achieve his expressive goals and play a full dynamic range. Ingrid cited a recent choral singing experience where she experienced ease of expression resulting from the absence of tension, something she had previously struggled with a great deal.

...it definitely helped in that I can sing more easily, there's not as much tension so... automatically it's just easier to do the things I want to do especially expressively... I sang 'Crucifixus' and I was surprised actually at how easy it was just for me to let go and be able to sing...(Ingrid, interview).

In the *minimal RG*, all three students reported they had not had sufficient practical experience with BMG to feel that it enhanced their musical expression. However, Vance did comment favorably on the potential he saw for his own singing in view of the improvements he had witnessed in a number of his peers when he said '...I feel like it really could. Especially, seeing what other people have done with it and how much it's helped their musical sound and their perception of music, I know it's possible' (Vance, interview).

Results group composition

Good results group

This group comprised six students who successfully integrated BMG information into their body use during the course of the study and included Susan (voice), Sonya (violin), Natalie (flute), Adelaide (piano), Amy (bassoon) and Howard (organ).

Table 5.3: Good results group demographic data

Informant Alias	Instrument	Demographic Information
Susan	Voice	22-year old female voice performance major in her senior year of study; sang in both choirs
Sonya	Violin	20-year old female instrumental performance major in her junior year of study
Natalie	Flute	20-year old female pursuing a double major in instrumental performance and music education; in her sophomore year of study; playing-related pain
Adelaide	Piano	19-year old female pursuing a double major in theory-composition and music education; in her sophomore year of study; sang in both choirs
Amy	Bassoon	20-year old female music education major in her junior year of study; currently studying bassoon for her applied instrument; previously played violin for 9 years; injured while playing violin; playing-related pain
Howard	Organ	21-year old male instrumental performance major in his senior year of study; also studying a minor in computer science; sang in one choir

Susan: Susan's experience was described in detail in the Chapter 4 case studies. She made excellent progress due to consistent, diligent, and dedicated efforts to integrating BMG into her singing. Her journal entries were detailed and revealed many insights into the learning process as she experimented with her body use and refined her self-awareness.

Sonya: Sonya also made excellent progress. She came to the class with a clear agenda for improvement. Specifically, she wanted to learn how to use her body more effectively and

prevent playing-related pain and injury as a result of recent wrist pain while playing the violin. Her roommate Amy (also in this study) was an injured violinist and this was an additional motivation for Sonya to investigate BMG. Sonya shared many of the positive characteristics for learning success as previously ascribed to Susan.

Natalie: Natalie did not list any major playing-related pain or injuries on the *Background Information Questionnaire* but in her journals she described how she experienced severe hand, wrist, and back pain when playing. These issues were focal points for her throughout the course, particularly in the early part of the semester. Like Susan and Sonya, Natalie continually experimented with the application of BMG concepts in her everyday and musical life and documented her progress in detailed journal entries. The musical focus of her semester was a flute recital where she demonstrated significant progress in her performance skills as a result of the information learned in the course. This was also confirmed by her studio teacher.

Adelaide: Adelaide came to understand many of the key BMG concepts well on both a theoretical and practical level, and the path of her understanding and progress was clearly documented in her journal entries. The trajectory of her experience was very similar to Susan, Sonya and Natalie. She began experimenting and actively questioning early in the semester; experienced numerous frustrations but was not deterred by them; and began to build on her successes by the mid-point of the semester. Adelaide ended the study with the stated future agenda 'still to work on freedom in the neck and adapting seated balance to all sorts of chairs' (Adelaide, journal).

Amy: Although studying the bassoon at the time of the study, Amy was an accomplished violinist. She had suffered a playing-related injury on the violin 12 months prior to the BMG course that left her with a painful left shoulder injury. At the beginning of the study Amy stated she was also suffering from bursitis in the shoulder, muscle spasms in her back and the fingers of her left hand were prone to cramps when playing an instrument or typing on the computer. She was undergoing medical treatment for her injury but despite physical therapy and a wide range of medications was still suffering severe pain. Amy came to the class as a last resort to see if there were non-medical ways to help her recover: 'I was tired of doctors being unsure. I am tired of taking medicine. I want to find out how to correct the problems I have developed in another way' (Amy, *Background Information Questionnaire* email).

Howard: Howard's stated primary goal for the course was 'to identify and alleviate inhibitions in the way I learn and perform' (Howard, *Background Information Questionnaire*). In his in-depth interview he indicated that he came into the course without a specific agenda when he stated '...I came into the course with no clear idea of what I could possibly get out of it.' In this regard Howard was in a minority of study participants. He initially misunderstood the concept of BMG and was operating under the false assumption it was something that would automatically transfer into your body from just reading about it. He did not initially comprehend the need for movement experiments in the mapping process and consequent skill development in the learning process as other successful students in the class did. However, once he did understand what he had to do and how to manage the information he achieved good results quickly.

Reasonable results group

Tyler (conductor), Ingrid (voice), and Andrew (euphonium) comprised the *reasonable RG* because they were moderately successful at applying the BMG information into their physical use when performing.

Table 5.4: *Reasonable results group* demographic data

Informant Alias	Instrument	Demographic Information
Tyler	Conducting	22-year old male composition major in his senior year of study; previously played trumpet; currently studying orchestral conducting; sang in one choir
Ingrid	Voice	20-year old female sophomore art and design major; active in community theatre productions and church music; sang in one choir
Andrew	Euphonium	20-year old male composition major in his junior year of study; not currently taking studio lessons; issues with a physical injury; playing-related pain

Tyler: Tyler’s experience was described in detail in the Chapter 4 case studies. He derived moderate success consistent with the time and effort he invested in the learning process which was the only limiting factor on his progress from the perspective of the I-R. His improvements resulted from accurate observations of movement limitations and active experimentation with new concepts.

Ingrid: Ingrid was the only non-music major in the research study. Unlike most members of the class who had no previous experience with any somatic disciplines, she did have some exposure

to Feldenkrais work through her aunt who was a practitioner. Ingrid had received voice lessons from a variety of teachers for five-six years and was currently studying with a teacher external to the university. In the classroom environment Ingrid tended to be an introvert, and although alert and present, did not readily share her thoughts with her peers. Her journal entries were, however, an important connection for the I-R because they gave valuable feedback about Ingrid's thinking and progress that would otherwise have been obscured from view. Overcoming debilitating tension was the motivating reason behind Ingrid's decision to take the course. This was evident when she stated:

I have a very small breathing capacity. I also deal with a lot of tension. These together have affected me so that it has been very uncomfortable and even painful to use my voice. I have been to see a doctor and more than one Otolaryngologist (ENT) and none of them have found anything wrong (Ingrid, *Background Information Questionnaire*).

There was no faculty interview to cross-reference Ingrid's experience because she did not follow-up with the teacher who had agreed to be her faculty member during the study.

Andrew: Although Andrew had played the euphonium in school bands since the 5th grade (11 years), he had only received private instruction for four years, two of them at University. Andrew had no previous experience with any somatic disciplines prior to the class. He also listed a range of physical problems that were affecting his playing, including wrist problems (both wrists) when playing the euphonium, back spasms, a misaligned pelvis, limited mobility in his right shoulder, and loss of feeling in his left arm for three weeks in the previous semester due to an accident where he was hit on the neck and immediately lost feeling in his arm. He was currently having treatment at a chiropractic centre for his back, pelvis and shoulder, and had also done some physical therapy for his wrists in the previous summer. Andrew also had a history of muscle development problems throughout his life that had affected his back and neck

in particular. He mentioned an unconfirmed diagnosis of Myofascial Pain Syndrome during the course of the study. Despite these physical challenges, Andrew achieved moderate success with the integration of BMG information into his playing.

Minimal results group

This group comprised three students who were not successful at consistently applying the BMG information into their physical use; Vance (voice), Alison (piano), and Rachel (voice). While their ability to integrate theoretical concepts was good and each felt secure in their understanding of BMG principles, they were unable to successfully take the next step of integrating the theory into practice.

Table 5.5: *Minimal results group* demographic data

Informant Alias	Instrument	Demographic Information
Alison	Piano	19-year old female music education major in sophomore year of study; not currently taking studio lessons in voice (her degree applied area); designated piano as her performance area for the study; sang in both choirs
Rachel	Voice	21-year old female musical theater major in her junior year of study; also studied dance for 12 years; injury from dance class; received post-study Fibromyalgia diagnosis
Vance	Voice	20-year old male in sophomore year studying a double major in voice performance and communications/public relations

Alison: Of all the study participants Alison was the most complex psychologically. She was a highly intelligent student who had a good understanding of the course content but was unable to function in practical performance situations, in a group or individual setting, and had difficulty communicating in the in-depth interview. By contrast, her journal entries and emails were prolific and contained many details that explained her learning process and the other elements that negatively impacted her study experience. There was no faculty interview to cross-reference Alison's experience because she did not follow-up with the teacher who had agreed to be her faculty member for the study.

Rachel: Prior to the study Rachel stated she had some previous somatic experience, i.e. BMG via a seminar with instructors from another institution, and some Alexander Technique and Dalcroze through her university dance instructor. Rachel was another student who came to the class suffering from a debilitating injury, in her case from a dance class. She was undergoing physical therapy treatments during the course of the study but reported they were not effective. Rachel worked hard to understand the BMG information during the semester and from a theoretical standpoint she was very successful, as reflected in her journal entries and critique comments in class. Her final performance presentation was a good example of her ability to successfully explain concepts and correctly diagnose movement and postural problems in her own use.

Rachel's attitude was positive and she was a diligent student, but she was unable to fully experience success in the practical application of BMG, for example, finding balance. However, her ability to successfully integrate the information into fluid body use was impeded by a range of constant physical problems including extreme muscle pain and joint stiffness that she

assumed was the result of her dance injury. Rachel's journal entries made continual references to 'lots of pain' and because this is not normal for a person without a medical condition the I-R spoke with Rachel about the need for medical advice. In mid-June, five weeks after the study had concluded, Rachel received a diagnosis of Fibromyalgia. Fibromyalgia is a serious medical condition that impedes an individual's ability to move with ease and without pain. It is described by Rosen (2002b:169) thus:

A widespread disease of muscle, of unknown cause but presumed to be of primary, central origin. That is to say, the muscle pain in this disease is due to physiological events that are occurring in the brain and spinal cord, and not in the actual muscle itself.

Reflecting on Rachel's experiences during the semester and with the benefit of this medical diagnosis, it is clear that she was at a disadvantage because her physical capacity was significantly compromised. BMG is a form of education. It is never intended to substitute for medical intervention which was the most appropriate course of action in Rachel's case.

Vance: Vance's experience was described in detail in the Chapter 4 case studies. While his mindset at the beginning was a blend of cautious optimism and enthusiasm tempered with self-doubts about his vocal abilities and career choice in performance, he was unable to commit himself to the learning process and disengaged himself at the point where skill development was the focus of the course. Despite his lack of personal investment he continued to participate in the class and stated that he enjoyed learning from observing the progress of his peers.

How did the students interact with Body Mapping?

BMG is a self-inquiry process. It requires students to consciously refine their understanding of their body map and make corrections if necessary. Conable (2000b:5) explains:

In BMG, one learns to gain access to one's own Body Map through self-observation and self-inquiry. One carefully examines what one believes to be true about his or her own body by comparing it to accurate information provided by kinesthetic experience, mirrors, books, picture, and teachers. One thereby learns to recognize the source of inefficient or harmful movement and how to replace it with movement that is efficient, elegant, direct and powerful based on the truth about one's structure, function, and size.

For example, in the process of self-inquiry and self-observation, singers identify how the structures of their body function when they sing. This process allows them to reconcile the quality of their sound with how it felt to produce that sound (Malde, Allen & Zeller 2009). In the presentation of the course the I-R suggested a variety of techniques to assist the students with their BMG of each area: core balance (standing and seated); arm structure; breathing; and legs.

These included:

- I. Read about BMG. Review the class notes and study the text books.
- II. Study anatomical pictures (class notes and handouts, text books and wall charts) and 3-D models.
- III. Draw pictures of the areas you are mapping.
- IV. Observe yourself. Use the mirror, take photos, watch video of yourself. Have a friend in the class observe and give you feedback too.
- V. Ask yourself questions. Ask yourself more questions.
- VI. Experiment with your movement. Start with everyday activities first (e.g. sitting in class or the car) and then move to music-specific movements.

- VII. Keep an open mind. Remain objective in your observations and experiments. Be kind to yourself. Be patient. Remember that change takes time - the longer a habit has been ingrained the harder it is to change it, so also be realistic in your expectations of your progress.
- VIII. Talk about it. Talking through the process can help to clarify your thinking. Share your experiences in class, discuss with the I-R, talk with your performance peers, explain to your studio teacher.
- IX. Journal regularly. Keep a notebook with you so you can make annotations quickly and easily if things happen when you're in a practice session or other class setting. Document your failures and frustrations as well as your successes and discoveries. Use your journal information to put your experiences in context and perspective.
- X. Make a commitment to yourself. Set aside dedicated BMG time every day - it can be as little as 10 or 15 minutes. Use this time to focus on your progress, e.g. thinking about concepts, experimenting, observing, and reflecting.

The I-R discussed the results of the *Agenda Helper* (see Appendix IV) with each participant at their coaching and again in the in-depth interview.

Experimentation

Active experimentation is an important aspect of the self-inquiry process and proved to be a key element in the students' ability to transfer BMG knowledge into practical skills. The most successful experimentation was engaged in immediately after new theoretical concepts were taught, and was actively undertaken on a regular basis. Some students described combining experimentation with other elements, such as visualization. Many made connections between their own movement experiments and observations of themselves and others.

Good RG

In the *good RG* experimentation and visualization began immediately for Sonya. Although she did not have previous experience with anatomy or physiology she was curious about it. Sonya made time to apply her understanding of the information to her practical playing skills and everyday body use each week. In her interview Sonya stated that she would follow up in the practice room after class each day while the information was fresh in her mind.

I guess my schedule helped because it was still fresh in my mind when I would go into the practice room that day. And I would devote that too, since it was fresh in mind – to experimenting with it and looking at it (Sonya, interview).

In her journal entries, Sonya described experiments with body use and what she learned from them. One of her major experiments was with the shoulder rest set-up on her violin and how that affected her alignment, body tension, tone quality, and freedom to play. At the beginning of the study Sonya identified a problem with ‘squeezing’ her violin to keep it on her shoulder. This resulted in pain and tension in her shoulder. In her journal Sonya discussed her experiments with violin shoulder rest adjustments and her ongoing challenge to find balance and ease of movement.

...I tried my old shoulder rest... and right away I didn't have to raise my shoulder nearly as much as I did with the other one. Now I'm using the old one and experimenting with adjusting its height. It's still hard to find shoulder and A-O joint balance and keep it with the instrument attached to me, though (Sonya, journal).

Active experimentation was an ongoing feature of Sonya's interaction with BMG. The following week she described the results of her ongoing shoulder rest experiments.

There are a few detailed issues I've been dealing with. Firstly, I noticed that, in order to truly get the violin positioned where I want it without raising my shoulder, I must find something (such as cloth) to wedge between it and my shoulder. However, when I do this, it tilts the violin too much and makes it much more difficult to play on the E string. When I tried to remedy this by adding height on the other side of the shoulder rest, it became too high altogether. I must find a way to compromise the balance of my shoulder with the maneuverability on the E string (Sonya, journal).

This journal entry also illuminates powers of observation, another important element in the way students interacted with BMG. In all cases, the effectiveness of student experimentation was closely linked to accuracy of their observation skills. How observation was used by other students in this RG will be discussed in the next section. Sonya's ability to bring her shoulder rest experiments to an effective conclusion was significantly influenced by her skills in observation. She ultimately derived success because she was able to accurately comprehend and apply the cause-and-effect of the shoulder rest changes on her body alignment and ability to play with freedom.

Natalie, Susan, Adelaide and Amy also began experimenting with application of information in their body use immediately, just as Sonya did. Their journal entries described experiments with a variety of every-day body use situations, e.g. sitting in class or carrying a backpack, to experiments with their instruments. Amy actively engaged in thinking and experimenting from the beginning of the semester and her journal entries contained numerous observations about her progress. For example, in journal eight she described the types of questions she asked herself as she experimented with seated balance, including how her back was positioned, the engagement of her pelvic rockers, and if she was experiencing freedom or not.

In the past week alone, I am noticing that I sit incorrectly not balanced. I am paying much more attention to that now. The way my back is, should I use my pelvic rockers more? Asking myself questions and so on, like do I feel free? I experiment in trying to get balanced, finding my A-O joint. I do feel free, my arms do tingle! It's such a nice feeling (Amy, journal).

Howard was the only student in this RG who did not actively experiment in the early stages of the semester because he had a different conception of how the course should be approached. Instead of practical experiments, he initially focused on studying the text book. A discussion

about this aspect of Howard's learning process is contained in the section in this chapter on what students said about their learning process/engagement.

Reasonable RG

Experimentation with integration of theoretical concepts into practical use was also undertaken by Ingrid, Andrew and Tyler, although not to the extent of the students in the *good RG*. In the *reasonable RG*, Ingrid seemed to be more active with movement experiments than Tyler or Andrew. Ingrid's experiments with body use in everyday life and singing commenced at the beginning of the semester and were discussed in her journal entries. In her interview she talked about her ability to recognize small differences or changes and how important that was for her as she built her understanding: 'So, as soon as I started learning things I could see how they would make a difference and when I tried them out they did make a difference, even if they were small' (Ingrid, interview). In her fourth journal entry, she described how she was experimenting with seated balance in everyday life activities.

As far as balance goes, I've been working on it a lot especially in the car and while sitting in classes. It seemed to take extra energy at first, like I had to support myself. But when I really tried to relax and let my sit bones take the brunt of the weight, I'm finding it easier and more comfortable. I'm even finding that I prefer it. Letting the appropriate bones take the weight, I think I can feel the reduced stress on the otherwise substituted bones. Especially since when I am sitting trying to support myself with my legs, I can feel the pain start to build right where the underside of my legs meets the edge of the chair (Ingrid, journal).

Ingrid's journal entry describes the changing sensations she experienced as she experimented with correct and incorrect weight distribution. Although her intention to 'relax' was inaccurate and should have been thought of more correctly in terms of 'release' onto the pelvic rockers (sit bones), she was able to accurately identify the ease and comfort brought about by the changes

in weight distribution. Her remarks demonstrate how the cyclic relationship or combination of self-observation and experimentation assist in the development of understanding.

Tyler's journal entries described his observations of self and others more than documenting his movement experiments, although he did discuss some aspects of his movement with the I-R, e.g. standing balance and walking. It was difficult to determine the extent of Andrew's interactions with BMG via movement experiments. He rarely described them in his journals and in his interview he focused more on his ongoing health issues and how that prevented him from making the progress he desired.

Minimal RG

In the *minimal RG* Alison and Rachel documented their experiences with experimentation more thoroughly than Vance. During the first part of the semester Alison experimented with concepts when they were introduced in the course as demonstrated by her comment, 'I would try to do it every day after we did something new...I wasn't successful always, but sometimes it was successful' (Alison, Interview). In her fifth journal entry, she described her ongoing experiments with seated balance, specifically on the piano bench, and the realization that her awareness of balance varied from when she was practicing sitting to when she was engaged in performance and not remaining aware. Alison's journal evidences the interconnectedness of different elements. In this case, experimentation, self-observation, and the habits of mind that facilitate the ability to remain focused or attentive on body use when playing.

Well, the key to my life at this moment seems to be the piano bench. That – and my inability to sit on it properly. I think that while I'm just practicing, or actually practicing sitting properly on it, I'm aware of what I'm doing, but it took me playing at a mass this weekend for me to realize that I'm doing when I'm not thinking about sitting properly (Alison, journal).

Rachel experimented with her body use and spent most of the first part of the semester working on her posture when seated and standing. As with many students in the study, observation skills were closely connected to the movement experiments. Rachel also asked the I-R to take photos of her standing and seated on a Swiss ball at the beginning of the semester with the intention of using these photos as a guide for her postural starting point. However, as her health issues took over during the semester she did not follow through with the photographic documentation of her experimentation. Consistent experimentation was not a feature of Vance's learning experience owing to his disengagement early in the study. The only documented evidence of experimentation was his brief experience with seated balance on 'a big bouncy ball' (Swiss ball) and his surprise '...at how wonderful it felt' (Vance, journal).

Observations

Accurate observations of the quality of movement in self and others were a key element for cultivating and developing skilful self-inquiry. Within the context of this study, observation was the ability to accurately discern the interaction of body map information (structure, function and size) with movement quality. For self-observation, students were directed to use mirrors, take photos, and videos of their performances. Comments from class peers were also solicited and they were also encouraged to develop awareness for quality of movement by observing other people in action. Observations of movement quality demonstrations by the I-R were specifically identified as valuable learning experiences.

Observations of classroom peers and other performers was extremely valuable. For example, during the practical sessions in-class students observed effective and poor movement and the

resultant musical sound. Most students in the study commented on their ability to evaluate the quality of movement or body use in other people more quickly than demonstrating themselves. For some students, the experience of seeing another student struggle with or conquer a particular problem would facilitate a pivotal learning experience because it resonated with a similar issue they were experiencing.

Good RG

All of the students in the *good RG* had vital learning experiences by observing other people in action. For example, Susan's description of the effect that gathering and lengthening spinal movement had on singer Ana Roja's vocal sound was a critically important learning moment for her very early in the semester. Adelaide utilized the mirror for observations of herself but noted how beneficial it was for her to see changes in others first, especially at the beginning of the semester when her concept mastery was still new.

When it is suggested to us in class to try experimenting with different positions, I find it most useful to watch other people and see what it really looks like. I have certainly been spending much more time in front of the mirror than I had anticipated (Adelaide, Journal).

During the practical rotations (in-class coaching) section of the course, Adelaide reiterated the benefit of being able to observe changes in other people: 'The in-class coaching of students has been very helpful so far. It makes a big impression when you can see the process of change in another person' (Adelaide, journal).

Observation of herself on video and the I-R in class was a powerful learning experience for Amy. During the interview, she described how watching the tape clarified a specific mapping issue (location of her sit bones), something that she did not originally perceive accurately.

I thought I knew what I was doing. I thought this [indicates sit bones] was here [indicates higher location]. I thought I knew but I didn't know until the video and from there everything just took off because I watched it play out (Amy, interview).

Amy described this experience in her journal. She explained how she benefited from observing the I-R's demonstrations of the difference between what Amy was doing with what she *should* have been doing to achieve seated balance.

I was excited! I had finally fixed my problem! Well one of them! I learned a lot about my seated balance. You made me more aware of my body when I am sitting. And where I should think where the movement comes from. A lot of information that I have learned finally clicked; once I saw you demonstrate what I was doing when I sat and played my bassoon. I had thought I was using my pelvic rockers (well, I thought wrong), but I realized that they are further down than I had originally thought... Once I sat on my pelvic rockers correctly, it was easier to figure out what lumbar balance is. When I stopped pushing my back forward and extending my torso, I had more of an understanding of where my spine is (Amy, journal).

This journal entry was rich with information about Amy's learning experience and the way discoveries and breakthroughs were linked to her ability to accurately assess information about other elements of her body use. The I-R anecdotally referred to this as the 'domino effect'. For example, often a student was able to get clarity on one key issue that would facilitate the immediate understanding or accurate awareness of other connected mapping issues. Such was the case with the correct mapping of Amy's sit bones. The consequent effect this had on weight delivery in her seated balance enabled her to experience balance of her torso over the lumbar spine and correctly map the location of the spine.

In his interview, Howard explained how watching his video was a vital part of his learning process because it helped clarify his misunderstandings about how theoretical knowledge applied to his body use. Observation of himself in his practical rotation session allowed him to make sense of the theoretical and practical connection and ultimately set him on a path to success.

Right about the point that I started watching my video... I tried to identify where the places were in the joints and the bones... knowing where the muscles in the arms and the hands were was interesting. I wasn't entirely sure about how to actually go about applying it... And obviously the video showed me that it wasn't true (Howard, interview).

Self-observation was a routine part of Sonya's learning experience and contributed to her ability to identify areas of improvement as well as issues that required attention. In this journal excerpt Sonya's progress with balance is explained, particularly the problem of finding seated balance without using the back of a chair when playing.

I've now been having less trouble finding balance while sitting and standing. When I practice, I'm much more aware of what my legs are doing and always keeping my joints loose and moving. Sitting, I'm still having trouble finding balance when I'm not using the back of the chair – maybe I haven't quite yet grasped the concept of "balance" vs [sic] "relaxation" (Sonya, journal).

Natalie also engaged in self-observation and from the content of her journal entries it was clear that this was an important part of her learning process. For example, in her third journal she discussed confusion with and concerns about her legs resulting from the class presentation on this area. This journal excerpt illustrates Natalie's ability to analyze her use of legs. It highlights her inability to regulate balance and maintain freedom of movement when playing. It is also typical of the type of self-observation that occurred early in the learning process.

I really enjoyed talking about the legs. I have notice [sic] when I practice that I move too much (I think) or I don't move at all. I feel like sometimes I am so stiff and don't move at all, that sometimes they hurt. I have to remind myself to not be stiff, but not to be bend [sic] (Natalie, journal).

Reasonable RG

All three students in the *reasonable RG* were engaged in observations of themselves and others throughout the semester. At first Ingrid described how she had inaccurately mapped breathing and how this contributed to insufficient breath in her singing.

While we were talking about gathering and lengthening, I realized that I didn't understand it at all. Later, after observing myself, I discovered that not only had I no grasp of the concept, but in my own breathing the process was reversed!... Needless to say, I've had problems with trying to get enough breath (Ingrid, journal).

In addition to cause-and-effect observations of his own body use, Tyler was aware of the effect of body use on musical sound, e.g. how a guest conductor's tense and jerky conducting gesture restricted breathing and inhibited musical phrasing. Andrew also observed effective and ineffective movement in himself. In his interview he commented on seated balance and how success in that regard during a concert made it easier for him to play in the high register of his instrument. However, he did note that his results were inconsistent and that there were occasions when he felt that he could come back to balance contrasting with other times when it was 'not always easy to find' (Tyler, interview).

Minimal RG

While the three students in the *minimal RG* were engaged in self-observations initially, they tended to comment more favorably on the positive results they observed in other members of the class. For Vance, self-observation only happened early in the semester when he was still fully engaged in the learning process. In his journal he commented about the sensation of correct seated balance on the Swiss ball and how he was 'surprised at how wonderful it felt.' During his interview, Vance made particular mention of 'the most amazing work' accomplished by one of his colleagues (not a study participant), as well as Natalie's work in her flute recital and Howard's achievements with regard to the organ. These observations were made during the in-class practical rotations in the latter part of the semester.

Rachel and Alison developed BMG concepts through observations of self and others. Rachel documented this process in her second journal entry where she recognized she was unaware of her body use when performing, and how she observed effective and ineffective patterns of movement in some of her peers. Rachel continued self-observations and in her fifth journal entry discussed increasing awareness of her physical use when performing and the need for a visual aid such as a mirror, to show exactly what she was doing when she wrote, 'I have been noticing more and more how askew my perception of my body is when I perform. I only notice it if I am told by someone...or if I'm singing right in front of a mirror.' Distorted and inadequate sensory perception is a by-product of physical tension and misalignment, and students of BMG are taught about the importance of using visual aids such as mirrors, videos, and photographs in the re-mapping process.

Consistent work

Acquisition of motor skills requires consistent work over time. The students who were continually thinking about BMG and consistently working with the information derived positive outcomes. The ability to stay focused on specific re-mapping issues and follow through until the desired level of improvement was also evident in the students with the most successful outcomes.

Good RG

Students in the *good RG* were consistent and curious, and were positively motivated by their initial discoveries which paved the way for subsequent successes. Natalie enjoyed learning the practical anatomy and applied it directly to her physical experience e.g. pain in her back, discomfort in her wrist, and her lack of awareness of her legs/lower body involvement in her

playing. She was methodical in her approach. For example, Natalie prioritized the issue of standing balance first and stayed focused on that until she achieved sufficient success. Then she directed her attention to making other improvements such as alignment of arms, release in shoulders, access to legs/feet and reducing wrist pain.

I finally found Balance... At first I felt very stiff and then I realized I could move around and still have balance. I felt so free and there was no tension. I can't remember the last time that I felt that free and loose. It was such an amazing feeling (Natalie, journal).

Consistent application was key to the success experienced by Susan, Adelaide, and Sonya. From the beginning of the semester Sonya was continually thinking about the theoretical content (anatomy and physiology) and related this information to her body map understanding. Her ability to accurately observe her body use during individual practice sessions and in orchestra rehearsals was good. Her self-analysis remained consistently thorough and accurate in each journal entry throughout the study.

Learning about my spine was something that I didn't expect from this course. It's a lot [sic] of fun and I find myself thinking a lot [sic] about how my spine is positioned at any moment; I'll be sitting in orchestra imagining my head and neck vertebrae balancing perfectly and lining up with my lumbar, or in the practice room I'll be observing my reflection and the height of my shoulders and position of my upper body when holding the instrument. It's very introspective, and I'm glad that I'm able to re-think, correctly, just what bone connects to where and how (Sonya, journal).

Susan's consistent approach to BMG enabled her to achieve a number of re-mapping goals that she integrated into her vocal technique. This specifically included correcting her head-neck relationship and re-balancing her head; releasing jaw tension through correct Temporomandibular Joint (TMJ) mapping; developing a warmer vocal tone; easier production of high notes; vibrato more even; reduced shoulder tension; improved breathing (especially support from gathering-and-lengthening of the spine and movement of the pelvic floor); and awareness of her legs. Like Susan, Adelaide was able to remap tension in her face and jaw

although in Adelaide's case this was the result of an incorrect map of her TMJ's. Adelaide also remapped the alignment of her hand and forearm, the complete arm structure, core balance, and breathing. As with Susan and Sonya's experience, Adelaide worked consistently on her re-mapping goals and assimilation of the information into her performing.

Although Amy worked consistently on re-mapping goals throughout the semester, at times the I-R noted that she misunderstood connections or causal relationship between concepts and issues. For example, in her 10th journal she expressed concerns about the quality of her breathing on a day when she also noted she was unable to find balance too. On this occasion she failed to make the connection that effective balance is a prerequisite for experiencing breathing to its fullest extent. Nevertheless, Amy did work consistently throughout the course of the study on her re-mapping goals and as a result was able to improve her core balance (particularly seated), find significant relief from playing-related pain, achieve better air flow, and more confidence in her playing.

At the beginning of the study, Howard's approach was the least consistent of the six students in the *good RG*. Two factors contributed to this lack of consistency. Firstly, his misconception that BMG was merely acquisition of information, and secondly, his inability to make submission deadlines with the journal entries. He also missed a couple of classes early in the semester due to conflicts with his church job (e.g. playing for funerals). However, once he understood what the process involved and how the course information should be managed, Howard's skills improved. Interestingly, in the latter part of the semester he worked consistently.

Reasonable RG

In the *reasonable RG*, Tyler was the most consistent in his approach to the process of re-mapping and throughout the study his journal entries revealed the extent of his work. For example, in a final journal entry Tyler commented on two specific improvements in his physical use when singing. These included lack of lightheadedness and less arm tension. In her interview, Ingrid stated that she was 'constantly thinking about it [BMG] and trying' to apply it to her movement, particularly in everyday activities. However, her journal entries revealed that by the mid-point of the semester she felt hampered by the extent of her habitual patterns of tension and she was not working consistently on re-mapping. Andrew also worked hard initially but was frustrated by habitual patterns of tension that he could identify but not overcome. While he worked consistently for improvement, the rate at which he was able to progress was slower than he desired.

Minimal RG

Within the *minimal RG* the students were uneven in their approach to BMG. Vance's sporadic approach to the learning process was detailed in Chapter 4. Both Rachel and Alison began the semester enthusiastically and the content of their journal entries revealed the extent of their commitment to the course work. However both students reached a point where they were unable or unwilling to consistently engage in the process of re-mapping. In both cases there appeared to be a link to other factors such as psychological pressure, mind set, and physical limitations. These elements are discussed in more detail in the upcoming sections on Habits of Mind and Attitude.

Habits of Mind

Consistent work alone did not account for BMG success. The interaction of all elements (experimentation, observations, attitude, etc.) played a role in students' experiences. Cultivation of skills in analysis, synthesis, and evaluation were evident in the students with effective habits of mind. Accurate assessments of movement quality were also important. Constant probing and questioning facilitated their ability to make connections between BMG information and a range of related areas, such as anatomy, physiology, specific musical techniques, and everyday body use.

Good RG

The students in the *good RG* were able to synthesize and analyze their experiences. This resulted in accurate and honest evaluations of their progress. It allowed them to make other connections with BMG information to strengthen its relevance or applicability. For example, students demonstrated their understanding of anatomy, new comprehension of musical techniques, and reliance on course materials such as textbooks and other classroom resources. Unlike Sonya, Adelaide had previously studied courses in biology, anatomy and physiology in her high school education, and these connections enabled her to make accurate observations of her self-analysis as well as her analysis of others. Amy also sought to improve her analysis. In one instance, she explained how the connection between her A-O joint and lumbar balance was central to achieving the buoyant feeling associated with correct balance.

This past weekend I think I have balance when I stand. Which would be a first without you helping me. I do get that free feeling. I feel lighter. I think I have made a connection between the A-O joint and lumbar balance (Amy, journal).

Sonya's ability to accurately assess her understanding was illustrated in the following early journal entry where she provided detailed information about a range of physical challenges she faced while trying to achieve balance. These included the position of her legs and the resulting sensations, the accuracy of her instrument placement and difficulty reconciling information from her teacher with what she felt in her body. She also correctly identified the need for a 'healthy place' for her neck and shoulder while playing as her main priority.

My legs I'm not so sure about – I've got my feet lined up and pointed forward and my knees bent the slightest bit, but I feel like there's pressure on my lower back and ankles and knees when I do this – my feet also start to feel like I've been standing on them for hours shortly after I start to stand like this. I don't feel relaxed in my lower body when trying to be balanced. Also, I think there's a huge problem with my shoulders (the left one, anyway) when it comes to holding my instrument – my teacher tells me I must hold my shoulder forward and up and support the instrument not with tension, but with energy. However, this is hardly a place of balance for me, and I have to (obviously) stay there for large amounts of time. I feel tension and soreness in my neck when I hold my instrument, and my upper left arm muscles get tired very easily when I start to play (surprisingly, later on if I've been playing for awhile those muscles don't seem to mind so much – maybe it's because I'm more warmed up, or maybe they just accept and adjust to the discomfort). At any rate, finding a healthy place for my shoulder and neck to be while I play is obviously one of the biggest challenges here (Sonya, journal).

While this journal entry was early in the semester and asked more questions than it gave answers, it demonstrates Sonya's ability to honestly evaluate her usage, and synthesize the cause-and-effect of her instrument placement on her physical freedom. Making accurate connections between issues of musical technique and how they related to physiological truths is another key aspect of successful BMG.

Howard read the text book *What Every Pianist Needs to Know About the Body* (Mark 2003) in addition to the prescribed class texts. While he had a good understanding of the theoretical context of BMG work, Howard began to understand that distorted sensory perception was an issue for him in the process of re-mapping his sensory-motor relationship. Musicians rely heavily

on accurate sensory perception because the integrity of the connections between their kinesthesia, sound, sight and touch allow them to draw a direct relationship between the quality of movement and the production of musical sound. The realization that their sensory perception is faulty can often be a shock for students. In Howard's case, he made an accurate assessment of his issues and worked to correct them.

Also from my experience throughout the course, trying to identify my own inadequacies and problems, I found that there is a tremendous difference between thinking you know something and actually having a clear understanding and applying it to yourself... Something I thought I was perceiving was not at all what it actually was (Howard, interview).

Natalie cultivated constructive habits of mind. She enjoyed learning practical anatomy and successfully related this information to her body use when playing the flute. For example, in her fifth journal Natalie stated: 'I have realized that my tingling feeling in my fingers are coming from my neck. I have so much tension their [sic] and it is very painful'. Natalie also worked hard to understand why she experienced tension or pain associated with playing, and over time developed the ability to maintain awareness of her use so she was able to play with greater ease. In her journal she wrote 'I have perceived alot [sic] more things lately such as my movement, when I am tense and free.'

Reasonable RG

Within the *reasonable RG* there was variation in the ways the students approached the synthesis and analysis of experiences and how this affected their ability to make accurate and honest evaluations of their progress. Analytical thinking, sometimes referred to as *critical thinking* is defined as 'the ability to scrutinize and break down facts and thoughts into their strengths and weaknesses' and 'developing the capacity to think in a thoughtful, discerning way, to solve

problems, analyze data, and recall and use information' (Pathways to Higher Education; <http://www.pathways.cu.edu.eg>; July 13, 2010). In the field of BMG, the ability to apply analytical thinking skills is highly desirable during the re-mapping process.

In the cases of both Tyler and Ingrid, their journal entries revealed analytical thinking. Ingrid, for example, was clear in her articulation of problems and changes to her understanding of breathing. Once she realized the inaccuracies she had with breathing and began re-mapping the movement, Ingrid discovered the influence of continually tensed stomach muscles resulting from a misunderstood instruction in gymnastics during her childhood.

Having a strong, alert center will make all actions that much more solid. However I took it, I think, a little too far. I began keeping tense all the time, not only during practice.... as I now look back, I can remember the tension spreading to my cheek and neck area, but at the time I didn't know enough to stop trying so hard. I just thought it was the pain of keeping in shape and therefore normal (Ingrid, journal).

This was an important breakthrough for Ingrid. Understanding an underlying reason why she had so much body tension was an important first step in being able to address the issue. The issue of change and how to handle it was addressed numerous times and in varying ways during the course in an attempt to meet the variety of needs of the students in the class. One significant point in this regard was the need for students to work systematically through a hierarchy of concepts and to focus on one element of change at a time. For example; correcting the head-neck relationship and accurately mapping the A-O joint first, or working toward mastery of core balance as a prerequisite for experiencing balanced breathing to the fullest extent. The tendency for students to get overwhelmed by the volume of new information and the potential for its application was continually addressed to keep them focused on their own learning goals.

Tyler demonstrated the ability to effectively apply analytical thinking skills to himself as well as others during the re-mapping process. For example, he accurately identified faulty movement patterns in another conductor's gesture and in the process was able to identify similar problems in his own gesture in his ninth journal. He was also able to analyze the negative effects of the conductor's movement on the orchestral players and the music.

Minimal RG

The habits of mind of the students in this study were as varied as the individual students. In the *minimal RG*, the issue of psychological pressures was more evident with Alison than for any other student. The specific issues affecting Alison's performance included needing to be successful, a complicated and stressful relationship with her voice and studio teaching situation, and problems with how she was relating to the I-R. While Alison was not the only student who placed high expectations upon herself, she seemed to be most vulnerable to frustrations generated from her perceived lack of progress and her fear of failure in the eyes of the I-R. From past experience with Alison, the I-R knew she was more comfortable communicating in writing than verbally. It was therefore not surprising to receive an email from Alison entitled 'more than a few thoughts...' a day after her in-depth interview. The email covered a range of issues relating to the course and the interview, including answers to interview questions that Alison could not articulate at the time.

This class as a whole has affected me so much in many different ways. Of course it opened my eyes to a whole new world of stuff that I have yet to conquer in my life, and therefore a whole new level of frustration for me. As in all situations, I brought on all the frustration on my own. It was on occasion because someone else achieved something before me, or achieved something that I wasn't even close to getting. God the embarrassment of this – but I'll say it anyway...most of the time I was frustrated with myself for not getting something or achieving something that I knew meant a lot to you. I never said anything or commented on someone in the class in case I wasn't right because I couldn't let you see that (Alison, email).

Although Alison acknowledged the class had opened up new possibilities to her, she also stated that her experience had brought about a new level of frustration. This resulted from the enormous pressure she was placing on herself to be successful for herself. Academically she was a high achiever and this also crossed over into the study. Unfortunately Alison did not bring this issue to the attention of the I-R until after the study had concluded. Analysis of Alison's journals and in-class interactions did not reveal a major problem to the I-R. The only occasion when the I-R witnessed Alison struggling was her in-class practical rotation session when she was working on seated balance at the piano bench. From the I-R's perspective, Alison's work in this session was indicative of a student working through the integration of theoretical concepts into practical skills. From Alison's perspective it was a difficult and unsuccessful experience because she failed to achieve mastery of the desired skill. In this case seated balance. The post-study email enabled the I-R to put Alison's lack of success with the practical application of BMG into a context that finally made sense. Unfortunately, it was too late for the I-R to remedy the situation.

In Rachel's case the undiagnosed Fibromyalgia negatively influenced her habits of mind. Initially she interacted with BMG enthusiastically because she believed it would help her. However, as the semester progressed and physical pain took a toll on her ability to function emotionally, mentally and physically, Rachel became frustrated with her lack of progress. It was particularly difficult for her to accept that she was capable of understanding the information intellectually but unable to integrate the information adequately into her own use. In her interview Rachel said: 'I know what needs to be done. But it's very hard to get it done'. Despite the set-backs however, Rachel continued to have a positive attitude toward the class and her final in-class

presentation materials demonstrated a high level of intellectual understanding and accurate self-evaluation of her body use.

Attitude

Dawson (1992:473) defines attitude as 'a disposition towards or against a specified phenomenon, person or thing.' Altmann's (2008:146) research indicates that the varying definitions of attitude share three characteristics. These are '(a) a mental state – conscious or unconscious; (b) a value, belief, or feeling; and (c) a predisposition to behavior or action.' She also cites three domains, cognitive, affective and behavioral, within which attitude characteristics align.

Attitude can change with experience and typically manifests through a range of emotional, behavioral and cognitive responses. Attitudinal responses are ultimately governed by individuals' beliefs about an issue. For example, what is thought to be desirable from their perspective (Minichiello et al 2004). In this study, attitude is defined as the feelings described or expressed by the participants with regard to BMG and the various aspects comprising it. These include re-mapping and developing self-awareness. Students' behavior and thoughts about BMG, via journal entries in particular, were also indicators of their attitude to the learning process.

Students with a positive attitude toward the BMG learning experiences were more self confident which in turn empowered their growth and skill development. They were more resilient when faced with challenges and managed to stay focused on their goals despite setbacks. Students who described success or breakthroughs with certain issues reported increased positive feelings toward BMG, even though they knew there was still more progress to be made. By contrast, the

I-R also noted negativity in the attitude of students who did not experience their desired success with certain aspects of the learning process.

Good RG

In the Chapter 4 case study discussion, Susan's success was partly attributed to her positive attitude and open mind. She was resilient when facing challenges or problems and was motivated by her successes, however small, to maintain her focus. In this excerpt from her eighth journal Susan wrote positively and enthusiastically about her progress and state-of-mind. She indicates the 'mental stuff' that had been part of her challenge and she acknowledged pride in her progress.

I am really excited about what I can do and understand now. I'm quite proud of myself. I know that there is a lot of mental stuff involved in this and I feel like since I had my little breakthrough about what is wrong with me, I have been able to allow myself to do some things for myself, and clean up some of the mess I made with my classes, etc. I feel not only on top of things, but ahead (Susan, journal).

Adoption of a positive attitude and an open mind was seen in the experience of many of the students in the *good RG*. For example, Natalie readily admitted to experiencing frustration with achieving standing balance and explained how she emotionally reacted to the frustration in her interview. However, she kept working on it because she recognized that there was a reason that she was not yet able to do it, and in time she would be ready. She was realistic and resilient.

I know that I'm very hard on myself, I've always been. I would sit in the practice room and just cry and cry because I wouldn't be able to get it and then I would get even more worked up and even more frustrated so usually I would just leave the practice room and... I tried for so long. I knew I just wasn't ready for it yet...(Natalie, interview).

Amy was motivated by the positive experiences and results of her fellow students in the class and was quite pragmatic about the learning process. She was able to wait for concepts to 'click' without getting overly frustrated or discouraged, although she did acknowledge some moments

of frustration. At no point in the semester did she give up or disengage from the learning process.

Adelaide's attitude to the learning process was generally positive, and the tone of her journal writing was consistent with her personality which was grounded and matter-of-fact. She was not prone to emotional outbursts either in the classroom or her journal entries. Her writing maintained objectivity too. For example, when describing her search for balance over the lumbar spine, which was proving to be elusive, she was objective about the experience and there was a sense that she would continue the effort even though it was not a major breakthrough. Adelaide explained this in her journal when she wrote, 'It happened! For a moment, perhaps only a minute, I really felt like I was balanced! Then it went away and I haven't found it since then. So... we'll see what happens.'

Sonya also consistently recognized her successes and built on them. Her journal entries frequently reflected her optimism and enthusiasm for the learning process and like Adelaide, she was not prone to overly dramatic emotional outbursts, positive or negative. In nearly every journal entry Sonya would record one success for the week. For example, the 'virtually effortless' movement of her body when leading with the head in entry #2, or the ease with which she was finding balance at her A-O joint and shoulders in entry #3. In entry #5 she shared her enthusiasm more widely as she wrote how she refined the re-mapping of her thorax over her lumbar spine and achieved ease of balance when standing and walking:

Well, am I glad we figured out why my lower back's always hurting! Apparently I'm always pulled slightly sharp, and that was causing the strain. I was so happy to tell everybody that I 'learned to walk again' and spent the next hour and a half after our lessons walking backwards and forwards down the hallways... (Sonya, journal).

Howard's attitude to the BMG information and activities associated with the class evolved over the semester. In the early weeks of the course he was not fully engaged in the learning process, but toward the end of February, approximately week six, the I-R observed a change in his attitude. At this time Howard became more engaged in class (e.g. asking questions), he began to submit his journals regularly, and he started to make progress that was reinforced with constructive information in his journals. Once Howard's attitude shifted into a more positive mode and he accepted that he had work to do, he began to make progress that ultimately led to his very successful outcomes at the conclusion of the semester.

Reasonable RG

While all students in this research study began the semester with a positive attitude and an open mind toward the information, in the reasonable and *minimal RG's* the students were less resilient to the challenges faced when integrating information into practical skills, especially performance skills. At various stages in the semester, and particularly around the weeks six through eight when the BMG course content had been taught and the focus was on development of practical skills, all of the students in the study described frustration with their progress.

The difference in attitude between the *good, reasonable, and minimal RGs* was the individual students' ability to be resilient and stay focused on the goal. This meant accepting their current situation and continuing to work for change at their own pace. Andrew, for example, acknowledged the frustrations he felt because of the difficulty he had changing his problematic, habitual movement patterns. However, he also recognized the need for patience when cultivating change.

...it bothers me extremely that I have such difficulty [keeping more ideal positioning]. I know bad habits are hard to break, but it gets to the point where I get so aggravated by my (perceived) ineptitude that I would assume I'm doing more harm than good. I'll be working on patience for next week too (Andrew, journal).

Ingrid was another student in the study who suffered from chronic tension and it became the overriding theme of her experience. Her body tension was so extreme and deeply embedded in her being that it was difficult for her to achieve sufficient release to make the progress she desired within the time-frame of the course. Based on the I-R's experience with this issue and many years of teaching this information, it is reasonable to assume that with a longer period of time, Ingrid would have enjoyed greater success integrating BMG in everyday movement as well as her singing.

I've been pretty frustrated lately with everything in general...and by that I mean balance around my core because everything else is based on that. I have almost constant tension in my neck and sometimes in my lower back. Since I am in more pain than usual, I try harder to correct myself but in trying 'harder' I just cause more tension. It's a vicious cycle and I know I should stop and relax but I don't 'have enough time.' And anyway, deep down I'm not sure if I can do it. I'm sorry Professor Buchanan, if this is very self defeating of me. But this is the way I get sometimes so I feel it necessary that I include in my journal (Ingrid, journal).

The tone of this journal entry is consistent with the experience of other students in the course. It arrived at a point in their journey, often the mid-point of the semester, when intellectual understanding outstrips skill development. In Ingrid's case she was resilient, and despite hitting this low point came back in the following weeks with new observations indicating she was still committed to the process of change. In her journal she wrote 'my ability to control the use of myself changes daily...today I felt very aware of where my head is in relation to my neck which is progress.'

Minimal RG

As discussed in the Chapter 4 case studies, Vance was the only study participant to completely disengage from the process of self-inquiry. While students in the successful and *reasonable RG's* were resilient and motivated by successes and breakthroughs in their use, the students in this group tended to be much harder on themselves with regard to their progress. For example, in her interview Alison stated: 'I was frustrated with everyone because... now I'm realizing that people had bigger problems than I had and so they could have bigger breakthroughs than me. But from the beginning I was really pissed off when people would get something if I couldn't get it...' Alison's need to compare herself with her peers rather than focusing on her own progress placed her under additional pressure which had a negative effect on her attitude.

Despite the severe pain and associated frustrations with her lack of progress, Rachel remained positive about the possibilities.

I've been getting very frustrated with my body mapping [sic] recently...I feel like I am learning so much in class, but there is nowhere to practice what I am learning... Though I know this process will take much longer than I expect, I am trying to have patience with my body and with the new techniques I am learning... As of right now, I am discontent with the results I am getting and I feel that I have hit a brick wall, vocally and physically (Rachel, journal).

However, Rachel did not allow her frustrations to define her. Soon after her in-class session she made a breakthrough in her understanding of her physical alignment and her stage presence. With the I-R's encouragement, Rachel began to realize the importance of seeking a second opinion for source of her constant physical pain which the I-R suspected was not entirely due to her old dance injury.

I want to thank-you [sic] for your guidance the other day in class...I am truly grateful [sic] for your patience and compassion in regards to my "case". ;) I am an extremely impatient

person... But I made a huge breakthrough the other day and you were a part of it. I just wanted to extend my gratitude (Rachel, journal).

Use of the *Agenda Helper*

The *Agenda Helper* was an asset for the majority of study participants because it challenged their thinking about BMG concepts. It also focused attention on re-mapping priorities, reinforced areas they were already competent in or managing well, and highlighted problem areas requiring attention. The study data revealed that none of the informants found themselves at odds with the *Agenda Helper* results. In fact, the self-assessments they had made during the first few weeks of the course were confirmed by their responses on this diagnostic tool. The *Agenda Helper* was completed twice during the study. Firstly at the mid-point of the semester after all the theoretical information had been taught, and secondly at the conclusion of the study.

Good RG

All of the students in the *good RG* used the *Agenda Helper* to identify problem areas and monitor their progress. Some students reported that their answers changed the second time they completed it because of improvements in use and awareness. In other cases students indicated that their answers were more accurate because their understanding of the questions was clearer. Accurate answers did not necessarily mean improvements in body use.

Howard used the *Agenda Helper* to articulate the body usage issues he desired to change. These included accurate perception of self and movement, balance and breathing. Balance, arms, shoulders and feet were the areas Natalie identified as requiring improvement from her *Agenda Helper*. Amy had difficulty completing the arm structure section of the *Agenda Helper* the first

time because she was absent from class the day that information was taught. She also found that she was still confused about the complete process of breathing at the end of the semester.

Adelaide cited the *Agenda Helper* as 'a wonderful asset for helping me organize my thoughts and prioritize my goals... I was also encouraged to see the things I have been having success with and not feel totally lost and disoriented' (Adelaide, journal). Sonya and Susan both used the *Agenda Helper* effectively to evaluate their understanding and progress over the course of the semester. Susan was challenged by her initial results and in her interview stated 'When I got the *Agenda Helper* I felt I could check off three things... When I got it I was, I can't do anything...I felt so discouraged at the beginning' (Susan, interview). However, after her initial frustrations with the *Agenda Helper* she was able to use it to prioritize her issues which were mostly in the upper body, i.e. shoulders, neck and head. Legs were also eventually added to her list.

Reasonable RG

The students in the *reasonable RG* completed the *Agenda Helper* twice as instructed. Both Tyler and Andrew took an in-depth approach by answering every question and in some areas amplified their response with an explanation. Andrew allowed the *Agenda Helper* to direct his thinking toward areas requiring attention, specifically balance (seated and standing), the alignment of hand and forearm, head and neck alignment, and back tension. As Andrew's understanding of concepts clarified during the course of the study he realized he had previously misunderstood some areas. In his interview he talked about his reaction to completing the *Agenda Helper* for the second time.

It was weird because when I went and looked at it again I realized a lot of things I was wrong about anyway. I thought I had balance, I legitimately thought I knew what it was

about, but I had no idea. There were things that I thought I had that I was wrong about (Andrew, interview).

Andrew's experience with this tool was not unique. Other students indicated that they changed their mind about specific responses on the *Agenda Helper* over the course of the semester as they came to a deeper or clearer understanding of a concept. However, in the majority of cases they were able to check 'yes' to more of the questions than they had done previously. While Ingrid talked about the *Agenda Helper* in her journal entries and the interview, she did not submit it to the I-R at the conclusion of the semester. In the interview, Ingrid said the *Agenda Helper* helped her to focus her thinking and 'sort things out' and she noticed an improvement in the number of issues requiring attention from the first to the second time she completed it. Core balance and breathing were the main issues Ingrid identified for herself in the early weeks of the study, and these issues were also highlighted by the *Agenda Helper*.

Minimal RG

Use of the *Agenda Helper* by students in the *minimal RG* was more uneven. In most cases they only completed it once rather than twice as instructed. While all three students in this *RG* completed it for their mid-semester coaching with the I-R, Alison was the only student who submitted her *Agenda Helper* at the conclusion of the study. The majority of Alison's responses were checked indicating a positive response to the item. For example, I clearly perceive when I am tense. However, a number of items were left unchecked, indicating she did not have mastery of this skill or concept, e.g. If I begin to use excess effort when I play and sing I can readily return to appropriate effort. Analysis of Alison's *Agenda Helper* revealed three things about her. Firstly, she had a reasonable understanding of the basic principles and course content; secondly, she was aware of specific areas that she could not yet put into practice; and finally, there were some

areas she misunderstood. However, from the I-R's observations of her movement she had incorrectly checked some answers.

Journal entries

The structure of the journal entries varied according to the individual students and their writing style. The parameters given by the I-R were that entries had to be self-reflective and focus on the student's BMG learning experience during the week prior to submission. Journal entries were the most important tool for keeping track of individual progress during the study. In many cases, the I-R facilitated student understanding or clarified a learning experience as a result of journal information. It was through these entries that the I-R was also able to identify trends in student understanding based on their descriptions of course topics.

Good RG

In the *good RG* most of the students were diligent about their journaling and submitted regular weekly reports. Howard, however, was the exception in this group. He submitted only six of the required 12 and the first entry was not received until five weeks into the semester. I-R responses to certain journal questions or problems occurred over email. The I-R also used journal content to inform the teaching if it was evident that a particular topic was misunderstood by a number of students or needed further clarification. Journal entries made it easier to monitor associated health issues of certain students. For example, Natalie, Amy and Sonya frequently reported on the status of their playing-related pain.

Amy was a prolific journal writer and she submitted 15 entries, three in excess of the required 12. Most of her journaling was about her BMG experience although there were many entries

that revealed extensive personal information beyond the scope of the course and this study. Susan also submitted more than 12 entries, however hers reflected a more continuous process. Susan's journal was kept on a private online website and she regularly added daily entries to her weekly submission. She also included information about the time of day, her mood, and the music she was listening to as she wrote. These details enhanced the context of her journal entries.

Both Sonya and Adelaide submitted their 12 journals on a regular weekly basis. Adelaide was facile in her synthesis of BMG concepts and her ability to pose questions. Sonya's journaling was the most focused, comprehensive and analytical of the students in this group. She was articulate about her successes and challenges. Her entries were detailed, honest, reflective, and showed evidence of synthesized information and active problem-solving. As a result of the clarity in her descriptions and self-analysis, the I-R was able to offer appropriate feedback to facilitate her progress. For example, Sonya's pursuit of standing balance as explained in journals three, four and five. In these journals she describes her habit of pulling her shoulders back and concentrating weight along the anterior part of the lumbar spine (termed going 'sharp' off the lumbar by teachers of BMG), and how she was eventually able to come to balance once she had identified this problem.

Reasonable RG

The quantity and quality of journal entries in the *reasonable RG* varied. Tyler was a prolific journal writer. He submitted the required set of journal entries and continued to send additional emails to the I-R with updates on his progress. At times his entries tended to go off on tangents rather than discussing the course information that should have been the focus of his writing.

However, on the whole Tyler's journals revealed insights into his learning and facilitated his work during the course. Ingrid submitted 10 of the required 12 journal entries. She was articulate and analytical in her writing. These qualities were not always obvious in her in-class interactions due to Ingrid's introverted personality. Andrew's journal entries were the most varied in length and quality in this *RG*. He submitted only half of the requested 12 journal entries during the course of the semester. Initially his writing was very brief and lacking in details. However, as the semester unfolded he progressively revealed more insights into his experience.

Minimal RG

The approach to journaling in the *minimal RG* was extremely varied. Alison submitted all 12 journal entries on a regular, weekly basis. Her journals were detailed and, as with Ingrid, allowed better insights than she was comfortable expressing in interpersonal situations. Rachel submitted seven of the required 12 journal entries. Additionally her submission of entries was sporadic with the first four being sent at the beginning of the semester. The fifth and sixth were sent in close proximity at the mid-point, and the final entry occurred after the study had concluded. One additional email about her medical diagnosis was received in mid-June on the same day as the final journal entry. Vance submitted only a third of his journal entries, four of the 12. All of Vance's journal entries were written during the month of February, early in the semester, and while small in number, provided clear information about his experiences and thinking during the early stages of the teaching-learning process.

In addition to the 12 study participants, there were eight other students in the class who did not participate in the study. These students were not required to submit journals. However,

because the I-R found the journal information so beneficial for the study participants, journaling has now been incorporated in subsequent classes taught at this university.

Conclusion

This chapter has examined how the students' BMG experience evolved. It analyzed a range of factors relevant to the three *RG's* and discussed the different ways students' interacted with BMG. The data analysis discussion continues in Chapter 6 and is centered around three questions: i) how did the participants perceived their engagement and relationship with BMG?; ii) what was the role and influence of the studio teacher?; and, iii) as a result of interacting and engaging with the learning process, what did the students learn about their personhood, musical technique, themselves as performing artists, and other life areas influenced?

Chapter 6: Themes about the Students' Learning Process

*Everyone has the ability...to optimize the function of their bodies and minds...
it is accomplished by changing the way they pay attention.*

(Fehmi & Robbins 2007:2)

Introduction

The themes around which the students' Body Mapping (BMG) experience evolved are the focus of this chapter. Data are presented through discussion of the ways the participants perceived their engagement and relationship with BMG and the role and influence of the faculty member. What the students gained or learned about their personhood, musical technique, and themselves as performing artists is also described. The data is presented via discussion of themes across the cohort in contrast to the typological approach in Chapter 5.

When examining the issue of how BMG did or did not work, six common themes emerged as a result of the students' perceptions of their learning process. (They are highlighted in bold in this introduction for ease of discussion). **Frustration** was predominant and manifested as a result of many different situations; from physical tension, frustrations with self over emotional reactions, impatience in experiencing change, and frustrations comparing their progress (or perceived lack of progress) with others in the class. **Breakthroughs** were also cited as significant milestones for the students as they systematically built on new discoveries or achievements to improve their skills, or observed the results of a breakthrough on a peer's progress. The crucial element of cultivating **self-awareness** was particularly challenging for students. For many there was a strong connection between accurate self-awareness and successful experimentation.

Student **expectations** of themselves and the information were also explored. Since cultivating new motor-skills or making changes to ingrained movement patterns requires time, students with unrealistic expectations of themselves experienced frustrations and disappointments over their perceived lack of progress. As described in Chapter 3, the *Agenda Helper* was one tool available for the students to guide them in the setting of an accurate and realistic **re-mapping agenda**. The final common theme was the issue of **time**. Most students described the pressure of insufficient time to work on their re-mapping owing to their busy academic and performance schedules. However, a number of the students were successful at managing their time and made re-mapping a priority in their schedule.

A small number of students entered the study with playing-related injuries or other physical problems that affected their progress. Student comprehension of course content and the ability to change during the re-mapping process also revealed individual differences. The role and influence of the faculty member was another factor that varied widely for the students. Four types of teacher influence emerged, namely i) positive teacher support; ii) minimal teacher support; iii) no interaction with BMG; and iv) a negative or contradictory teacher reaction.

How the participants perceived their engagement with and relationship to Body

Mapping

A number of themes emerged in common with many of the students as they engaged in the BMG learning process. Frustration occurred in a variety of situations, including resolving physical tension, the process of change, and emotional reactions to certain situations. In some cases there was a link between frustration and self-trust or frustration and self-awareness.

Breakthroughs (i.e. assimilation of BMG information into physical use), were also frequently discussed. Students who experienced breakthroughs used them to build momentum and confidence with their practical skills. Most students benefited from observing the impact of breakthroughs in other study participants. Some students found their lack of breakthroughs to be a source of frustration. The timing of breakthroughs varied and it became evident that there was a connection between students who were actively experimenting and the number of breakthroughs they experienced.

Cultivating skills in self-awareness was challenging for many students. Lack of self-awareness was a limitation for some students because they were unable to accurately sense what they were actually doing. Others used the fact of their underdeveloped self-awareness as motivation for growth in the re-mapping process. The majority of study participants had positive expectations of the course, specifically for the potential of how BMG could help them. A common challenge for many of the participants was having enough time to engage. Many students realized that developing their skill proficiency required considerable time, both to assimilate information and to change old habits. Hence, many through their journals and interviews expressed their desire for more time to achieve their goals.

Frustration

All of the students in the research study grappled with the issue of frustration though their reactions to it varied. Adelaide's experience was typical. Her frustrations included trying to implement the BMG information and not feeling sufficiently confident in her abilities to trust her judgment of the results. One of her biggest frustrations was the integration of intellectual information into practical use and not being sufficiently confident with her ability to negotiate

the changes, i.e. not trusting her perception to be right. Reflecting on this issue during her interview Adelaide stated:

I just didn't trust myself enough to try and correct things. Like when we were talking about feet, where they're pointing and how they're operating, I felt so bad. I felt so dorky like, how can I walk around like that? Now I go the other way... it took a while to let me trust myself... that's scary, your body changes (Adelaide, interview).

Recovering accurate sensory perception was a major factor in the re-mapping process. As students gained confidence and their understanding became increasingly accurate, they found that frustration was reduced. For example, many students discovered they had to rely on what they saw in a mirror over the physical sensations that felt normal to them. For Rachel, frustration was a major theme in her journals, specifically when she was not making the progress she believed she deserved. However, she came to understand that her undiagnosed medical problem was a major impediment to her progress. Like Sonya, Amy described herself as frustrated and impatient initially due to feeling overwhelmed by the information.

Like many of her peers, Sonya experienced frustrations and problems trying to sort through the BMG information and assimilate it into her body use, but did not regard these issues as roadblocks to her progress. She continued to articulate her frustrations in her weekly journal entries and this allowed her to arrive at a better understanding of the information.

Natalie maintained her work ethic in the face of her frustrations. Intellectually she understood she wasn't ready to transform the information into physical movement. Frustration with life stresses and physical problems such as illness or injury was also a factor for some of the students. This applied to Andrew, Amy and Rachel. Each student responded differently to their situation. Amy came to the class with a diagnosed injury and her goal was to seek help with her

physical recovery. Rachel also came to the class with a dance-related injury but during the course of the semester it became evident that she had more serious underlying health problems. Although Andrew acknowledged a range of life-long physical issues, he was able to obtain reasonable results in his playing even though they were not as great as he had hoped.

In her interview, Ingrid described frustration with herself and her emotional reactions to her inability to accomplish things. She associated feelings of inadequacy and hopelessness with the frustrations.

So many frustrations. And most of them had to do with feeling like I should do this already. And not being able to...a feeling of inadequacy. Like nothing I ever do could be enough. It's most like hopelessness too... I think I flunked out a couple of times during the semester with the class, thinking, I could either help this change me and keep doing it even after the class is over... or I could just learn what it could be like and then move on. Sometimes I was tempted just to let it go and move on (Ingrid, interview).

When questioned further as to why she did not 'let it go and move on' her response revealed a deeper investment in the importance she placed on understanding the information when she stated, 'it would be like missing something, something huge. Like after a while I just couldn't let it go' (Rachel, interview).

Frustration with herself, particularly over integration of information into practical skills, was a major issue for Alison in relation to her peers. This was a shared frustration with many other students. Unlike the students in the *good RG* who worked through their frustrations, Alison's failure to see the same results in herself as those she witnessed in other people became an impediment to her progress. Howard was the only participant who said he did not experience any frustrations in implementing the BMG information because he was not actively experimenting in the first few weeks like his peers. In his interview he explained that he

believed the information would work for him when he was ready, so he did not have the same sense of urgency in assimilating the concepts.

Breakthroughs

Breakthroughs were the successes experienced by students when they finally understood a concept and were able to apply it for the first time. Observation of the effective movement of the I-R and peers in the class was a significant and encouraging part of the learning experience. In his final journal entry Andrew described his positive reaction to watching the breakthroughs of his peers as experienced in the final performance-presentations at the conclusion of the course when he wrote:

Having seen some of the final presentations, I'm starting to feel great about having been in this class. I have not felt some of the benefits these people have, but I know that if I keep at it, I'll come to them some day. The progress I have seen is indeed inspiring, and there's no doubt in my mind that it will encourage me to continue my pursuit of a free self (Andrew, journal).

Natalie's breakthroughs with balance and reduced tension allowed her to experience pain-free playing which in turn enhanced her confidence. Her progress on the flute encouraged her peers. Howard's final performance-presentation allowed him to demonstrate his new-found success with seated balance on the organ bench and the resulting effect this had on his arm use when playing. Both Natalie and Howard's breakthroughs had a positive effect on Vance's progress. This confirmed Vance's belief in the power of BMG information to make positive changes even though he did not personally have this kind of experience.

For many students, breakthroughs occurred first with posture or movements from everyday life situations. For example, standing in front of a mirror, sitting in class, driving the car, or walking on campus. Transferring the concepts of correct posture when seated or standing to their

instrument or performance space was then subsequently made easier. Some students cited correct seated balance as a significant achievement. For example, in her journal Alison stated 'I think seated balance was my most important accomplishment', while Amy explained 'once I sat on my pelvic rockers correctly, it was easier to figure out what lumbar balance is...' (Amy, journal). Ingrid also noticed that she initially experienced improvement in her body use in everyday life activities such as seated balance when sitting in class.

Breakthroughs were often described in journal entries. At first, Rachel realized she was 'not being aware of my posture during rehearsals, classes and when performing (Rachel, journal). This discovery of her lack of awareness was a recurring theme in Rachel's early entries. In her journal Susan explained how her 'little break through [sic]' around her habit of mental self-sabotage was the catalyst for enabling her to feel confident with the status of her progress in classes generally as well as BMG work. Sonya also described the transformation in her playing at the mid-point of the semester resulting from her breakthrough with shoulder-rest set-up when she stated in her interview 'there was a huge difference when I changed my shoulder rest...that was the biggest leap for me because all of a sudden my shoulder could just kind of hang out...'.

Tyler's breakthrough with his head and neck movement when conducting came while he was lying in bed, listening to music. He described the experience of consciously thinking through 'all the things physically which I do while conducting without actually doing them' and discovering that the neck movement he had been working to change on the podium was habitual, even when he was lying in a horizontal position as evident by his journal statement, 'I felt the urge to lower my head, to kind of tuck it into my neck...'. In a humorous vein, Adelaide's post-study email to the I-R contained statements such as: 'BMG sure can come in handy when you are

taking care of a house (bending over bathtubs, sinks, laundry, and cooking) – those activities can leave you in really terrible positions’. These comments illustrated how Adelaide was successfully continuing to apply the information in non-musical situations.

Self-awareness

Self-awareness is characterized by the ability to pay careful attention to body use and analyze its effectiveness. This is a critical skill for accurate re-mapping. For musicians, effective self-awareness results from cultivating dynamic connections between mental, physical, emotional and musical elements. Journal entries of the *good RG* evidenced this kind of self-awareness, especially in relation to their body use and progress. While some students were more naturally predisposed to self-awareness from the outset, all of them were coached on the importance of developing these skills. This was done through integration of the kinesthetic, auditory, visual and tactile senses, and the cultivation of habits of mind that hone attention to self and surroundings. Most of the students in the *good RG* understood the importance of cultivating self-awareness and were diligent in their application. Very few of them believed they were naturally self-aware and that this was a habit that needed to be cultivated. Susan and Sonya showed the most self-awareness at the beginning of the study. Sonya’s sense of her self-awareness was evident in her first journal entry.

I’m very self-aware when I play and even when I’m not playing sometimes... I notice when I’m tense alot [sic] and am always thinking about how my body is working when I’m playing.

In this case, Sonya’s self-awareness allowed her to identify body tension and how it translated into effective movement. Acknowledging she was self-aware while playing was also beneficial because musicians who are unable to focus on information other than the music itself are at a

disadvantage when it comes to analysis of their movement quality. For some musicians, awareness of anything other than the music is not possible.

At various stages of the semester students commented on their re-mapping progress and how it related to skill acquisition. The following journal entry exemplifies a student who was cultivating self-awareness by monitoring her own body use, observing other people, and reconciling the two when she stated:

I am working on seated balance. I am more aware of the way I sit and how it affects my body. Watching people perform in class has made me more aware of what is going on with the way I move and sit (Amy, journal).

Adelaide's journal entries documented her success cultivating body use awareness when playing the piano. In the early stages of experimentation, Adelaide revealed two things about her body use awareness. Firstly that she was less aware of herself when playing the instrument than doing other activities; and secondly, that improper body use was responsible for some of her problems and limitations when playing. Nine weeks later, Adelaide described her experience of monitoring movement quality in a recital. These journal entries illustrate her progress.

The place that I am least aware of my Use is at the piano... I am only now beginning to be aware of problems and limitations at my instrument due to improper misuse (Adelaide, journal #2).

It was very encouraging while at a recent recital I was just sitting there playing and was aware of how my motions didn't seem forced or superficial, but originated from my body's various natural rhythms and had a purpose resulting in an organic sound (Adelaide, journal #10).

Students were continually reminded about the importance of cultivating accurate self-awareness, regardless of whether they were in a musical context or everyday situation. Natalie's self-awareness allowed her to track the source of her finger tingling (neck tension), and

recognize her lack of lower body awareness when performing, specifically the position of her knees.

...I have realized that my tingling feeling in my fingers are [sic] coming from my neck. I have too much tension there, and it is very painful... Also knee locking, I am not quite aware how my knees are when I am practicing... (Natalie, journal).

By the end of the semester Natalie had successfully re-mapped her body alignment. In her final performance-presentation she was able to demonstrate to the class 'before and after' posture and the effects each had on her flute playing. Continual self-awareness was the key element that enabled Natalie to change tense movements into free movements.

In her in-depth interview, Susan explained how self-awareness originated with her mind and extended into the other areas from there.

...my body is a machine... bones and muscles and blood – and what I do with it, the way I process the things that come out of it is something that I deal with very early on. And so we start with the mind, it's an awareness of that, it's an understanding of that. And you go to the body and it's just preparing yourself and preparing what you're going to do and being aware of that specific day, if your back is feeling tight or if you fell down some stairs, or it's just being very aware at that particular time, what your needs are and dealing with them before you even come near the music...and then I'm free to attack my music however I want to.

Self-awareness emerged less frequently in the data of the students in the *reasonable* and *minimal* groups, but was still in evidence. For example, in her first journal entry, Ingrid provided detailed information about her long-term struggle with tension and how it had limited her singing. Ingrid was unusual in the fact that before she had started to study and understand BMG concepts, she was aware of the effect excessive body tension was having on her ability to sing. However, she did not have the skills to make the necessary changes to eliminate it.

I have had limiting tension in my singing for so long, it's hard to remember a time when the tension wasn't there. It's odd to me that I have known that my problem is tension for

almost as long as it has been an issue, and I still have not been able to correct it. At different times under different voice teachers, I felt myself aware (during lessons) of small changes, small improvements where I felt I was able to use my voice a little more freely, but nothing really seemed to help overall. In fact, it seemed the more I sang...the harder it became (Ingrid, journal).

Body tension is an impediment to physical awareness and the process of recovering self-awareness via accurate sensory feedback is an important goal of BMG. Tension was a recurring issue for a number of students. Ingrid and Andrew in particular explained repeated frustrations with their inability to release tension in journal entries. Some of the students from the *reasonable* and *minimal RG's* equated self-awareness and success. Alison, for example, talked positively about improvements in the way she felt and her ability to make adjustments when necessary in everyday life movement.

I feel like I'm really starting to feel the positive affects [sic] of everything I'm learning coming out in my everyday life. My step is lighter and everything just seems to be "lighter." I'm conscious of what I'm doing in most scenarios, and am able to adjust myself to better positions if I am off (Alison, journal).

Alison was able to be self-aware in some aspects of her everyday body use, but in musical performance situations the pressure to be successful dominated her thinking, which ultimately impeded her ability to play well. Further discussion on the relationship between self-awareness, body tension and frustrations and their impact on the progress students made during the study is contained in the upcoming section on factors inhibiting success.

Cultivating accurate sensory information is an essential part of developing self-awareness. In everyday activities, Sonya explained the differences between the way correct posture (standing balance) felt and looked when standing and walking in contrast to her previous perceptions.

...I notice that the balanced position feels alot [sic] more forward-leaning than I'm used to. I'm also noticing a difference when I walk too – while it feels like I'm leaning forward

like someone walking into strong wind, when I walk past a window I'm reminded that I'm still upright. I notice the strain being eased a little when I walk (Sonya, journal).

It was sometimes hard for Sonya to know exactly what element of change was making the most difference. For example, her teacher commented on Sonya's increased comfort level while playing her violin with a different shoulder rest. This change had been adopted from the BMG information to correct physical alignment problems. However, her teacher attributed the improved quality of her playing to the instrument recently being repaired. Sonya, on the other hand, believed it resulted from improved movement quality coupled with a better instrument set-up and physical placement. The set-up facilitated greater physical ease in her instrument position.

Adelaide's increased self-awareness resulted in several discoveries that were relevant to her everyday life as well as musical performance skills (piano and choral singing). Toward the end of the study, she described the significant change in her self-perception of body size resulting from freer movement. It is not uncommon for students who have recovered movement through re-mapping to require their clothing to accommodate the greater range.

I've grown! I have always been very conscious of how clothes feel on me, but I also would adapt my movements to any restrictions, rather than adapt my clothes to my movements. Over the last few weeks I have begun to feel like my thorax is huge! Now I haven't had an excessive weight or growth spurt, but I think it's because I have a more adequate and accurate map of myself. So in reaction to this brain growth, my most recent shopping trip resulted in shirts that were a complete size larger! Now my gathering and lengthening no longer feels restricted, and it feels so much more natural to move my arms as a whole (all the way from the S.C joint) (Adelaide, journal).

Many study participants attributed increased self-awareness as a result of watching video recordings of themselves, particularly in the context of in-class workshops. For example, in her journal Adelaide claimed that watching the video of herself was 'the most informing experience

of the semester' with regard to accurate perception of herself. Howard also stated that watching his video was a key part of his learning experience because it clarified for him what was and wasn't accurate in his sensory perceptions.

Expectations

The students came to the class with open minds and some with specific goals for improvement. Many students expected that BMG would be beneficial for them in some way. In journal entries many of the participants wrote about their 'excitement' (Natalie) and 'interest' (Sonya) and 'looking forward' (Vance) to being able to use 'new knowledge to improve technically and musically' (Rachel). Some students admitted to being 'a little nervous' (Andrew) or 'not expecting much' initially (Alison), while others sought to overcome specific physical issues such as 'tension' (Sonya, Ingrid, Susan, Tyler) or address playing-related pain and injuries (Amy, Sonya, Natalie). Some students expressed curiosity (Howard, Susan, Vance). The most interesting question posed by a student was contained in Adelaide's first journal when she made the statement 'Why do I feel so disconnected from my body?' This positioned Adelaide as being an ideal candidate for the BMG experience.

The case studies revealed that realistic expectations of the process contributed to the success of Susan's (*good RG*) and to some extent Tyler's (*reasonable RG*) experience. By contrast, the participants who placed themselves under pressure to be instantly successful limited their development. The I-R encouraged a realistic approach and monitored the students' progress accordingly. In particular, students were encouraged to focus on one issue at a time rather than attempting to make multiple changes simultaneously.

Alison put herself under enormous pressure to be successful from the beginning of the semester.

Overall this week, it seems as though I should be happy with the accomplishments that I've made, and for me, understanding the information, is as great an accomplishment at this point. However, while I accept that and I am pleased with what I have figured out, I can't help but be disappointed with what I haven't figured out. I think that is something that will take me a little more time to get over. I'm not used to taking on something that I can't quickly find the answer to (Alison, journal).

Many of the other students shared Alison's high standards and admitted to being 'perfectionists' in their approach (e.g. Amy, Sonya, and Natalie). However, Alison ran into difficulties because she was unrealistic with her expectations of herself. While she celebrated some early successes in her understanding and skill acquisition, she became increasingly discontent with her progress, especially in comparison to other students' successes. A pervading fear of failure and worry about how the I-R perceived her was also revealed to be underwriting Alison's participation, however she did not admit to this until after the study concluded. In a post-interview email to the I-R where she explained a range of issues (including why she chose piano over voice), Alison stated that she placed herself under so much psychological pressure that she would not volunteer comments in class because she was worried about failing in the eyes of the I-R. Alison concluded the email by apologizing 'for not approaching this with an open mind and the ability to put myself out there. I really am ashamed of the path I took...' (Alison, post-study correspondence). The timing of this information meant the I-R was unable to facilitate an improvement in Alison's process.

Setting an agenda

All students were required to state their primary goal for taking the course on the *Background Information Questionnaire* which was completed on the first day of the study. These comments revealed the specific intentions students had in taking the performance enhancement course. In many cases the students' goals were clear, realistic and in accord with the purpose of the course. However, it was evident that the agenda for some students was not aligned or unrelated to the course content. Moreover, some students did not have a clear sense of purpose for taking the course even though they clearly wanted to get something from participating in it.

Sonya came to the class with the intention of learning how to use her body more effectively and to prevent playing-related pain and injury.

Find a way to play with minimal pain and risk of injury and integrate my mind and body for concentration purposes... I need a reality check... and I need to find a method of playing that minimizes pain and injury (Sonya, Background Information Questionnaire and email addendum).

Adelaide's primary goals for the course were threefold and included improvements in the quality of her sound, enhancing her mental focus while playing, and clarifying her perception of the audience's response to her music-making. The first two goals were well aligned with the BMG course information while the third was more about rapport with an audience.

To play with more convincing and appropriate sound. To improve my level of concentration while performing. Meaning, not to be detached, but rather paying attention to the music I perform and adjust it as I go on. To understand what the audience is perceiving as I present (Adelaide Background Information Questionnaire).

Amy's goals derived from her desire to overcome physical problems, specifically neck and shoulder tension and her playing related injury. She indicated a willingness to learn if BMG had

the potential to play a role in her recovery. Amy had attended a one-day BMG workshop led by the I-R in the previous semester and this was a motivating force in her decision to take the full-semester course. While she was currently playing a new instrument (bassoon), Amy had a strong desire to play the violin again. The tone of Amy's writing also reveals a measure of desperation and hopelessness about her recovery prospects and ability to play pain free in the future.

I wish to learn how to relieve my neck and shoulder tension. I want to know if I can fix my injuries by the knowledge I have learned in class. I want to play my violin again. Or at least get on track to being injury free. It's been a year now. I am being [sic] to feel that I am never going to get better. That I will always have pain, and discomfort playing. Just to find some hope of playing pain free (Amy, Background Information Questionnaire email).

Natalie articulated two goals for the course: to 'be aware of my body and how it works; get over performance anxiety' (Natalie, *Background Information Questionnaire*). Interest in understanding body movement was a common goal for many participants. A number of students also indicated performance anxiety as an issue they wished to address. While BMG information itself does not cover this problem directly, students who successfully re-map movement and become more physically grounded often experienced a reduction in their level of performance anxiety.

Howard's primary goal for the course was 'to identify and alleviate inhibitions in the way I learn and perform' (*Background Information Questionnaire*). An organist and choral musician, Howard was very tense physically which translated into a blank expression when performing, particularly singing. Susan's stated goals were described in Chapter 4. They centered on the experience of self-hate leading up to a singing event and questioning if there was a connection to her body image and weight issues. Neither goal was relevant to BMG, and by the time of her first journal

entry Susan had appropriately shifted her thinking to understanding specific physical concepts and how they applied to her vocal technique.

The study results revealed that all six students who achieved *good* results set a clear agenda and goals for their progress early in the semester as one among many determinants of their success. Students in the *reasonable* and *minimal RG's* also stated clear and appropriate goals. For example, on her *Background Information Questionnaire* Alison wrote 'to gain knowledge about BMG and to apply it to my playing and everyday life', a goal consistent with Ingrid's statement 'to understand why certain problems arise with my voice and performance in general, and to start learning how to improve them.' Andrew's goals for the course related to his ability to improve his physical and musical capabilities: 'to get on the right track to furthering my musical endurance from a physical standpoint; increase my musical capabilities through the means discussed in class.' Like Natalie, Rachel's goals related specifically to the issue of performance anxiety:

To achieve a better understanding of how people experience problems in different ways and how to overcome these fears. Personally, I shake when I get nervous in performances and I want to address this problem.

Students' agendas were successful when they could reconcile their goals with a number of other factors, such as realistic expectations of themselves, the information and how it could work, consistent work, a positive attitude, an open mind, and emotional resilience. Once the course got underway, some students modified their goals and re-directed their thinking as their understanding of the course content deepened. Completion of the *Agenda Helper* at the mid-point of the semester assisted in self-assessment of information accuracy and depth. However, it

was the movement experiments introduced in each area of course content that provided the most immediate information for students in their early self-inquiry process.

Time issues

Time emerged as a theme in four ways. These included: i) shortage of time to work with the BMG information in the context of the course; ii) feeling that it was taking more time to get results than was desirable; iii) understanding that the process of change (forming new habits) requires time for the cultivation of sensory awareness; and, iv) general shortage of time to devote to the BMG course in the context of students' degree programs.

Sonya was unique because she did not react negatively to the issue of time. She was honest in her self-analysis and perceptions of her progress, and understood that the BMG process studied during the course of the semester was not the end-point. She was clear that making a commitment to change was a lifelong issue. Andrew acknowledged different aspects of time issues such as the time it takes to make solid changes and comparing yourself to other people who are making progress when you are not as far along. In his interview he indicated that he chose not to let frustration overwhelm him because he understood that he needed to be realistic about the amount of time required to make effective change. This was evident when he stated in his interview:

This is the sort of thing that takes years. It is frustrating, especially when you go into the master classes and you see, oh God, some of these people have already made progress. Or like when we went into the final presentations and in three weeks the progress that someone like Howard made. And you'd say, 'oh man, why don't I have that?' But I know it takes a long time to have the patience to go through it. So it wasn't frustration to the point where it caused problems.

Ingrid contradicted herself in response to the question of time pressure. Initially she said she did not believe that time was a limiting factor because she was 'constantly thinking about' BMG. However, in her interview Ingrid also stated 'I always felt like I needed more time or could've used more time'. Rachel also cited lack of time as the main reason for her inability to successfully apply BMG information. She explained how she believed that to be completely successful she needed to be 'nitpicky' and without sufficient time to devote to the learning process she was unable to achieve the desired results.

Well, mainly because my semester has been really crazy, I don't have the time for one, to be so nitpicky about it, I guess. I don't know if you have to be nitpicky but that's how I work. I need to focus on one thing, unfortunately I'm doing a lot of things. I become scatterbrained and I haven't really devoted much time to it. Other than working on it in actual performance...and rehearsals (Rachel, interview).

Rachel's comment about her semester being 'crazy' also needs to be evaluated within the context of her Fibromyalgia that was still undiagnosed at the time of her interview. Until her diagnosis came through, Rachel was struggling to understand why she was having so many problems with her body. She incorrectly assumed her pain was the result of things she was doing wrong, when in fact it was an ongoing medical condition.

Time as a factor inhibiting progress and assimilating information was raised by both Vance and Tyler. Vance indicated that he would have liked more time to assimilate information and Tyler stated that he could have been more successful if he had had more time to work on his BMG. He cited 'outside sources' such as 'deadlines and way too much to do and my mind being in a thousand places at once' (Tyler, interview). Other participants including Adelaide and Sonya did not raise *time* as an issue.

Injury and/or physical issues

Four students came to the study with problems related to physical issues such as playing related pain and injury. Amy had been suffering from a playing-related injury on the violin for 12 months that was unresolved despite numerous medical treatments and a variety of complimentary therapies, including physical therapy, occupational therapy and chiropractic treatments. At the beginning of the study Amy indicated she was currently struggling with pain in the left shoulder, muscle spasms, neck pain and pain in the back of her left hand. She had taken a range of medications under doctor supervision and was still taking a prescribed muscle relaxer in addition to ibuprofen when needed.

Natalie identified wrist and back pain when she played the flute, and problems with hurting and tired hands when playing after long periods of time. Andrew listed wrist problems when playing the Euphonium, a history of muscle development problems in his back and neck, back spasms, a misaligned pelvis, limited mobility in his right shoulder, and an unconfirmed diagnosis of Myofascial Pain Syndrome. In addition to her undiagnosed fibromyalgia, Rachel had incurred a lower back injury during a modern dance class from the previous semester from which she was still recovering. The medical diagnosis was a torn ligament in her lower lumbar region and she had received physical therapy to treat it.

Individual physical issues motivated each student differently. Amy took the BMG course because she wanted help with postural problems which had been identified previously as contributing to her injury. She was also frustrated with the ongoing physical pain from her injury and the need for medications.

There has to be a way to get better. I don't want to be like this forever. And I feel/know that this class will help me get better somehow. I don't know what to do, the doctors have been hopeless. I hope the tools that I learn in this class will help me very much (Amy, Background Information Questionnaire).

Amy's previous experience with the one-day BMG course piqued her interest and gave her initial insights into how postural problems can influence performance. The prospect of self-empowerment through knowledge was a strong motivation for Amy and kept her focused on the re-mapping process throughout the study. Despite her physical challenges, she was able to experience significant improvements to her body alignment (posture) when seated and standing which she also successfully transferred to her playing.

Natalie's wrist and hand pain was less severe than other playing-related issues experienced by some of her peers, although she said it would take as little as 25 minutes to begin feeling it. After eight weeks of work re-mapping her alignment Natalie stated in her journal 'the pain in my wrist comes and goes, but it's less frequent as it was a month ago. Now it usually takes over an hour before I start feeling pain.' By the end of the semester Natalie's posture was transformed when she played the flute and she was able to experience freedom from pain in her playing. Unlike Amy and Rachel, Natalie's pain issues did not impede her ability to re-map, rather she used them as an indicator of her progress.

Andrew's lifelong struggle with muscle development problems and the possible Myofascial Pain Syndrome condition were significant challenges in his freedom of movement, although he personally did not see these obstacles as an 'excuse.' Without a clearer understanding of his complete medical history, it was difficult to distinguish between medically-related problems and movement-related issues. Nevertheless, Andrew tried to make changes in his body use from the

beginning of the semester. In his interview he said 'I was able to start trying to make changes. It took a long time to be there.' He indicated that working on his head-neck alignment was a long-term project 'that is just going to be a project until I'm 80! That's fine with me... I have had [success] but it doesn't last' (Andrew, interview).

Rachel's intention at the beginning of the semester was to address her standing posture. She believed her singing technique would be improved with correct body alignment. This effort was reinforced by her studio teacher and she routinely addressed posture in her lessons. Rachel also expressed her desire to integrate a variety of experiences for her benefit including class work, physical therapy, and practical/performance skills.

Through the semester of this Body Mapping class I hope to gain a much better understanding of the effects the body has on the voice and how through a combination of myself [sic] awareness, physical therapy, and class workshopping, I can develop a much improved singing technique with proper alignment (Rachel, journal).

Early in the semester Rachel documented some positive postural changes. She attributed her success to the combination of her physical therapy work and experimentation with the BMG information. However, as the semester progressed Rachel suffered from more pain than was reasonable for her back injury. Her journal references contained key indications of 'lots of pain' in areas of her body other than her back. Despite Rachel's successful understanding of theoretical concepts and her ability to accurately identify effective movement in other people, the pain was overwhelming for her and she was unable to stay mentally and emotionally focused on her goals. Even with her significant frustrations, she still left the study believing in the importance and relevance of BMG for musicians.

Course content

While many of the study participants described feeling overwhelmed by the amount of theoretical information and were uncertain how to physically integrate it at some point in the semester, most were able to break it down into manageable sections, work systematically through the places of balance, and keep notes of the movement experiments to track process. Some students adopted other approaches to facilitate their process. For example, Andrew and Adelaide both were able to make connections to previous studies in anatomy, and Howard read other BMG books outside the prescribed class textbooks.

Some students talked about their experiences with their studio teachers. For example, Susan made connections to voice pedagogy concepts by regularly discussing her discoveries with her voice teacher. A number of students stated that talking about BMG with other people (e.g. roommates, family and friends) outside the class was also helpful. Sonya was the only participant to regularly schedule BMG and violin practice immediately after class (Tuesday and Friday) every week. In her interview Sonya explained ‘...it would still be fresh in my mind so I would experiment with whatever I learned today...with each class I would be able to build on that and ingrain more concretely the things that I learned previously. Sonya’s process was effective and she was one of the most successful students over the course of the study.

The role and influence of the faculty member

BMG should not be confused with instrumental or vocal pedagogy. It is a unique educational technique that teaches movement principles, and allows people to benefit from mechanical advantage with their body use when engaged in specialized activities such as musical performance. It is integral to the BMG learning process that student musicians understand the

demands of their performance area and reconcile them with their individual physical skills and abilities.

Each student was asked to identify an on-campus faculty member (studio teacher or ensemble director) who would serve as an independent voice to validate the data collected by the I-R regarding the students' musical performance and technical developments. In most cases students approached their studio teacher, but not all participants were able to do this owing to their circumstances. For example, some participants no longer took studio lessons on campus, or had elected a performance area for which they did not receive private lessons. Most students had their studio teacher as their faculty member. All faculty participants received information about BMG and the study from the I-R at the beginning of the semester. Table 6.1 summarizes the student participants, *RG's*, areas of performance, year level, and faculty member. It should be noted that Ingrid and Alison did not follow up with their faculty member so there is no data from him regarding their progress. An * next to a faculty name indicates a studio teacher relationship.

Table 6.1: Summary of faculty member names with student participant information

Student Participant	Results Group	Performance Area	Year Level	Faculty Member
Susan	Good	Voice	Senior	Owen*
Sonya	Good	Violin	Junior	Kyle*
Natalie	Good	Flute	Sophomore	Patricia*
Adelaide	Good	Piano	Sophomore	Rosslyn*
Amy	Good	Bassoon	Junior	Tanya*
Howard	Good	Organ	Senior	Harold*
Tyler	Reasonable	Conducting	Senior	Hamish*
Ingrid +	Reasonable	Voice	Sophomore	Owen
Andrew	Reasonable	Euphonium	Junior	Colleen
Alison +	Minimal	Piano	Sophomore	Owen
Rachel	Minimal	Voice	Junior	Dorothy*
Vance	Minimal	Voice	Sophomore	Lawrence*

+ No faculty data available

*student's studio teacher

The students who had studio lessons as part of their degree program received one hour of individual instruction weekly with their applied (studio) teacher. Studio teachers are usually influential people in a music student's life for a variety of reasons. They have weekly individual learning time with their students over a number of years (often for the duration of a degree program) by contrast with academic faculty who see students in larger groups for shorter periods of time such as a semester. Studio teachers usually work on artistic and technical concepts that need to be personalized according to the individual students needs. Students can also find themselves in potentially emotionally vulnerable situations when technical and artistic issues are addressed. It is commonplace for students to be recruited or attracted to a college

degree program by a studio teacher or ensemble director. Consequently students may feel an indebtedness or loyalty to them.

The role of the faculty member was to validate the data regarding the students' musical performance and technical developments. During the course of the study another issue regarding their role emerged, in particular the influence of their perceptions of BMG on the students' experience. Of the 12 participants, six had faculty members who responded positively to the BMG information; two had teachers who were neutral - this usually meant being supportive but not actively engaged in discussions about BMG; three had teachers who either had no interest in BMG or did not communicate with their teachers with regard to it; and one had negative experiences with his faculty member with regard to BMG. There was a clear correlation between students in the successful *RG* whose faculty members actively supported BMG. Similarly, the influence of the least successful student's studio teacher was equally significant.

Positive teacher support

The faculty members who actively supported their student's progress shared a number of important characteristics. Without exception they stated that they were very comfortable with their students exploring other avenues that could influence their technical and musical development as musicians, and in all cases they strongly encouraged it. Some stated they believed that broadening their training was essential.

I think that the solution to a problem is not always on the level of the problem itself... different people need different approaches to solving both physical and musical problems, and if you are one dimensional in your approach you are never going to be either as efficient or as thoughtful in becoming holistically sound in your technique and in your approach (Hamish, interview).

Hamish, Tyler's teacher, addressed the multiple dimensions required for developing musical skills and the need for different approaches to meet individual needs. Additionally, supportive teachers were well-versed about the connections between mind, body and spirit in the development of complete musicianship, and they were mindful that the students were in a formative period of their development. Those faculty members often had favorable experiences or contact with other disciplines complimentary to musical development. These included The Alexander Technique, the Taubman method for pianists, Feldenkrais, Pilates, and Trager work via other students or in the course of their career. Previous contact with these disciplines fostered an understanding of the interconnectedness of musical performance with physical experiences (including limitations imposed by tension) and openness to information. One faculty member made the statement:

'...if you can't do it physically I don't think you are going to be able to do it musically. You're always going to be limited by the physical aspects. That's why I'm such a strong believer in anything that helps us get beyond...' (Rosslyn, interview).

While the BMG information was new to Rosslyn as it was for all faculty members in this study, she recognized its potential because she had experienced the benefits of improved physical facility resulting from study of The Alexander Technique.

A characteristic of studio teachers who were supportive of BMG was a positive relationship with their student. For example, Owen acknowledged an open and trusting relationship with Susan and believed she was equally comfortable sharing things as well as disagreeing with him. Harold talked about his approach with Howard which was encouraging him to experiment on his own and then report back. Most faculty members stated that while BMG methods were different from their approach in the studio, it was still compatible because it allowed them to make

musical connections from a different perspective. Harold's interview statement confirmed this when he said 'I think probably what we're after, both in my teaching and in what BMG might be after, we're after the same thing. We might be speaking different languages to achieve it, but we're after the same end.' Hamish also stated that he too benefited from the pedagogical approach of the BMG in his teaching of Tyler. He believed that the BMG instruction supported his teaching approach and allowed Tyler to achieve greater awareness because the vocabulary used in both BMG and conducting lessons was 'synergistic.'

I feel like the approach that you had through Body Mapping was helping me. It was helping him [Tyler] think about things in a different sort of way and it was opening him up to some of the things that I had been trying... and then I could take that and apply it to some of the things that we were working on and we started to, finally toward the end, get to that improving sort of place where things were moving (Hamish, interview).

Minimal teacher support

Two faculty members, Tanya and Dorothy, were minimally involved with the BMG information and their students. Although she had no direct experience with any somatic disciplines, Tanya indicated that she had professional colleagues who had studied The Alexander Technique and she believed it had positively influenced her colleague's playing: 'she is a very wonderful relaxed player and I think it's [Alexander Technique] really influenced her playing a lot' (Tanya, interview). Dorothy, on the other hand, had favorable personal experiences with The Alexander Technique through several basic courses she had taken and was also familiar with Feldenkrais work. She indicated that a former student had benefited from it and further stated 'I find that they all overlap terrifically. They are all trying to do the same thing' (Dorothy, interview). Both teachers were 'very comfortable' with their students exploring other areas of information that could potentially influence their technical and/or musical development. Tanya commented she

was pleased that her student, Amy, had been involved with BMG in view of her hindering physical conditions.

I think actually it [Body Mapping] is the greatest thing she could have done... because she was having so much pain. She was really suffering... Maybe she's learned to put things in balance that allowed her to not be pulling and straining (Tanya, interview).

Amy was a comparative beginner on the bassoon and Tanya was very aware of the physical tension she experienced when playing. Tanya was supportive of Amy's decision to pursue information that could assist her physically and musically. Dorothy commented that the BMG course content complimented what she was doing in the voice studio and it saved her time. Other faculty members made similar comments in this vein too, particularly with regard to the benefits of work with posture and breathing.

With what you teach, I'm very happy with it. It doesn't conflict in any way against anything that I teach and it saves me time. I do not have time to do everything with the students that I would like to do (Dorothy, interview).

No teacher interaction

The three students who had no teacher interaction (Andrew, Alison and Ingrid) were the only study participants who were not enrolled in private lessons. In Andrew's case he had completed his degree requirements in this regard; Alison was currently not studying voice due to problems she had experienced the previous semester; and Ingrid was a non-music major and therefore ineligible to receive studio lessons on campus. Both Alison and Ingrid approached Owen to be their faculty member for the study, which he agreed to do, but neither student followed up with him during the study. This was addressed in their interviews, but neither student provided a response. Consequently there is no faculty data for either student. Andrew's faculty member, Colleen, was his former studio teacher and current ensemble director. Her interactions with Andrew during the study were only as a member of the band, and due to this she had no

opportunity to listen to him play solo during the semester. Although she knew only a little about BMG, Colleen's attitude to it was positive and she was supportive of students exploring other areas of information '...because I want them to get all they can from as many places as they can and use what works for them' (Colleen, interview).

Negative teacher reaction

The reaction that Vance's studio teacher, Lawrence, had to BMG was somewhat contradictory. At the beginning of the semester Vance approached the I-R with concerns about Lawrence's reaction to BMG. Based on previous conversations with his studio teacher about 'singing-related activities,' and his teacher's overt negativity toward them, Vance's instincts led him to believe that his teacher would not be in favor of his study participation. Vance indicated that he wanted his teacher to share the BMG experience with him, but was unsure how this was possible.

Given Vance's reservations about his studio teacher the I-R proceeded cautiously. Vance had studied with this teacher for three semesters and wished to remain in his studio until he graduated. The I-R emphasized a number of points for Vance to review with his studio teacher. These focused on i) the fact that BMG does not replace voice instruction; ii) BMG does not intentionally conflict with the pedagogy taught in the studio; iii) there is no problem with students or teachers being skeptical about BMG; and, iv) BMG assumes that students benefit from learning how to process information from a variety of sources and integrate it in meaningful ways.

When Vance did speak with his studio teacher about the research study his fears were confirmed.

I predicted his reaction almost exactly. He is very skeptical of somatic studies (he mentioned the Alexander technique in addition to Body Mapping and doesn't see the place of a class in somatic training for singers over the course of an entire semester. Nevertheless, he agreed to be a part of the study, but with an obligatory warning that he was 'possibly not my best choice' for the study (Vance, journal).

While Vance was upset that 'the perceived differences in teaching style cannot be reconciled' he eventually decided that he should not be concerned about the opinions of either the I-R or his studio teacher in this regard. Vance's participation in the class and the research study was minimal by comparison to his peers. Although he retained an interest in learning the basic information and observing the progress of his colleagues, he did not commit himself completely to the learning process. In his interview he talked about being 'scared' to share the BMG information with his studio teacher 'because I knew his pre-conceived notions.' Yet, reflecting on his experiences over the semester he eventually believed that there was no cause for conflict between one pedagogical approach and the other.

During Lawrence's in-depth interview, the I-R addressed the issue of his comfort level with his students exploring other areas of information. His response was cautious, and he stated that it depended on whether the information was 'positive or negative' because 'that would create two different answers' (Lawrence, interview). In the end Lawrence said he thought BMG could be a 'helpful' experience, but he also cited negative beliefs about The Alexander Technique that tainted his view of somatic pedagogy and its relationship to voice instruction. This was made clear by his interview statement 'I feel that some Alexander people manipulate the information so they are trying to convey that Alexander must be in the pot of what must be learned to sing. And I don't agree with that.' With regard to Vance's BMG experiences, Lawrence stated 'I told him, well, if this is going to help you become more aware of the workings of your body, it's a

good thing.’ Unfortunately, Vance did not understand that his faculty member was not entirely against the BMG method from their conversation. In the end, Vance avoided having to reconcile BMG with his studio work by pulling back from his study and class involvement.

While none of the faculty participants had previous experience with BMG themselves, the majority understood the intent of the information and were enthusiastic about the possibilities BMG instruction offered their students in terms of improved physical movement and potentially enhanced performance skills. In this study the role of the teacher was an essential element for student success. Instructor support manifest in several ways, including positive attitudes toward BMG information, their interest in discussing the students’ experiences, and the quality of communication between teacher and student in the studio.

Student learning outcomes

This section identifies specific changes experienced by students as a result of interacting and engaging with the BMG learning process. Shared experiences and individual differences are also discussed. Results are presented across the cohort in response to the questions ‘what did the students gain or learn about: i) their personhood?; ii) their musical technique?; iii) themselves as performing artists?; and, iv) other areas impacted by BMG?’.

What did the students learn about their personhood?

As previously stated in the literature review, personhood is defined as an individual’s lived experience in the context of this study (Springer-Lowewy 2000). Each of the students was dealing with different issues, and through the course of the research a deeper understanding of their individual differences and common experiences emerged. As a result of interacting and

engaging with the BMG learning process, a common experience for many students in the *good RG* was greater self-confidence. Natalie, Susan and Amy wrote about this in their journals, and it was evident in their in-class and interview interactions with the I-R. Increased personal happiness was a positive outcome for Natalie and Amy. In her interview Amy said she was personally happier, calmer and more confident as a result of the progress she had made with BMG and the improvements in her playing: ‘...everything just fell into place.’ Amy’s studio teacher Tanya confirmed this positive self-assessment. Greater self-confidence was a major factor for Susan too. She began the semester ‘hating myself before I sing’ (Susan, *Background Information Questionnaire*) and concluded it with ‘I feel very comfortable and confident with where I am right now...’(Susan, interview).

Sonya discovered a passion for sharing the information, which she readily did with family members, friends and other musicians. (Sonya has subsequently shifted her professional focus from music performance and after graduation trained as an Alexander Technique practitioner. She still plays the violin). Two different elements of effective learning comprised Adelaide’s lived experience with BMG. First, she was reminded of the importance of keeping an open mind as a result of the development of her self-awareness and the resulting changes in her agenda.

I noticed that my agenda changed over the course of the semester, but I am content with that now. I wasn’t even fully aware of some of my problems until they were pointed out. Hopefully I will have learned a life lesson here, don’t set out to find only what you perceive you need...keep your mind open to learn other things too (Adelaide, journal).

Secondly, in her interview Adelaide spoke about the importance of active listening for effective learning: ‘to be able to learn I have to listen as well.’ This revelation resulted from analysis of her video when she realized that she had ‘not truly heard 10%’ of what the I-R had said to her (Adelaide, journal).

Like Sonya, Amy stated that she enjoyed talking about her BMG experiences with a wide range of people, including her physical therapist, bassoon teacher, 'people in the class' and 'my family members and people at home' (Amy, interview). In one of her final journals she expressed a desire to pass BMG information along to students she would teach in the future. Amy also used her journals to reveal a lot of personal information in addition to course-related topics. For example, her second journal focused on the strong, negative emotions she had experienced resulting from her injury and the consequences for her performing over the last 12 months. At the beginning of the semester she was frustrated and angry with her situation. However, by the end of the course she was optimistic about the future and positive about her recovery as a result of her experiences with BMG. The following journal extracts, taken from opposite ends of the semester, illustrate the progression in Amy's state of mind and how she regarded herself when she stated:

I want to smile...I hate being in pain, I hate having to fight the day with migraines, and shoulder pain, and my fingers won't move. I hate it, I am angry. It can be very hard and painful to walk through the music building and hear violin players play what I used to play... It is the worst feeling in the world... I am an emotional wreck [sic]. I feel like an empty shell of what I used to be... (Amy, journal #2).

...with this class, I have hope... The things I have learned in your class, have help [sic] me in my music and my everyday life. Things do get better, it just takes time... (Amy, journal #13).

The most important personal benefit for Howard was coming to terms with himself physically. As a result of BMG, he felt more comfortable with himself, especially in the company of other people when he was the focus of their attention, such as conducting the church choir. Howard's change in his self-perception was significant, as this interview excerpt shows:

...I have always been uncomfortable around myself. I've never really known what my dimensions were. I always see pictures of myself and I would be shocked, 'oh I look like

that?' Or I see myself in the mirror and be completely disinterested, and even listening to my own voice, I would be kind of appalled, 'do I really sound like that?' It is going to be a nice change to get used to my physical existence.

Ingrid discovered that pride was an impediment to her progress. In her final journal entry she stated:

I definitely want to only learn things on my own. That's probably what I've been running into during the end of this semester. In the beginning I knew that I had no knowledge of body mapping [sic] and so I could only learn. This was a great time for me. I usually absorb information quickly and I can utilize those facts in good time as well, as long as I am willing. However, towards the end of the semester, I ran into a roadblock that has long been an obstacle for me: pride. From past experience with myself... once I reach a certain saturation point in knowledge and a level of competency in technique, I think I should and do know everything I need. This, obviously, is not true, but I judge myself from then on in with this rationale. With this outlook, I will defy anyone who tries to help or teach me. I cannot accept help because it will mean that I was wrong in the first place. I have been desperately trying to deal with this recently for obvious reasons... (Ingrid, journal).

Ingrid initially showed great promise because of her intellectual grasp of the concepts. However, once she reached her physical barriers and could not affect the changes she desired, her momentum slowed significantly. The tone of her journal entries changed from optimism to frustration and finally resignation. In the end, Ingrid's ability to analyze her learning process was an asset and would facilitate BMG work in the future if she chose to pursue it.

Andrew discovered two things with regard to his personhood. First, he recognized that he needed more time to cultivate new habits of use in order to play his instrument, and secondly that he is now more committed to taking care of himself as a person and musician. In his interview Andrew gave the following reasons for choosing to integrate BMG into his performing:

It's [music] something I want to keep doing and I should do it right. I've had, certainly, some injuries resulting from it or from other things...that have caused problems and I didn't really like that. So...avoiding injuries and just be able to do everything better (Andrew, interview).

Protecting himself from injuries and maximizing his performance potential when singing and playing was important to Andrew because of his life-time commitment to music.

Tyler's lived experience with BMG resulted in a number of interconnected factors that he described in one of his final journal entries. He talked about 'a reawakening to the emotional connection I have to music, which I feel at times has been lost in a sea of deadlines, practical rehearsals, performance disappointments, and other intrusions of life.' He explained how his perspective had been enhanced through 'more effective and positive' communication with people in performance and off-stage. For Tyler the BMG experience, while not fully formed, still allowed him to be more physically grounded, gesturally expressive and more musically communicative.

In the *minimal RG* Alison revealed a number of unwelcome and difficult issues that surfaced during the course of the study. An articulate writer but lacking confidence in interpersonal communication situations, the most negative response from any study participant was written in Alison's 11th journal. Her entry addressed a range of issues, including her low self-esteem, envy of other people's successes, and an unrealistically harsh assessment of her experience. While she claimed there were 'no results' this was not actually true. She did see positive results but they were not as numerous or large-scale as other peoples.

I've really felt so inadequate in this course and with this study. I feel like I'm not producing any results that are worth anything. I haven't accomplished or changed anything spectacular. Who knows if my changes are really even worth anything? I know that part of my problem is that I'm afraid to find out what's wrong and afraid to ask how to fix things. That's just who I am at this point in my life, and under these circumstances. But it just kills me to see people making such breakthroughs and knowing that I'm in almost the same place as when I started. I want to be happy for them and in a sense reassure myself that the system does work, but it is just so hard to deal with no results (Alison, journal).

Alison's tendency to put herself under enormous pressure to be successful was an impediment to growth. She frequently over-analyzed situations or issues, which prevented her from taking the risks that precipitate learning or change. In her first journal entry Alison acknowledged that 'getting past my brain is the hardest task for me to accomplish' and by the end of the semester she was still frustrated by her inability to get past this mental block in her thinking. Being paralyzed by her need for perfection fed her fear of failure which, in the end, was how Alison viewed her experience.

Rachel's experience reinforced that tenacity and determination, two of her strongest attributes, would allow her to grow and succeed. Despite the debilitating physical pain and resulting toll it took on her physical and emotional being, Rachel stayed connected to the learning experience until the end of the semester. With the post-study Fibromyalgia diagnosis in place Rachel now has a focus for healing her body. Vance's lack of self-confidence and inability to fully identify himself as a performer was the result of his interactions with the learning process. While he was not fully invested in the study experience, he did continue to participate in class discussions and through observations of his peers. He recognized the potential for BMG to enhance musical performance.

The influence of Body Mapping on the participants' musical technique

A range of improvements to their musical technique was cited by the participants. In her vocal technique Susan specified easier production of high notes, more even vibrato, loose and easy arms as a result of reduced shoulder tension, improved upper body mobility (not 'frozen'), improved breath control especially support from the gathering-and-lengthening of the spine and movement of the pelvic floor, and awareness of her legs. Owen, her studio teacher, confirmed

this assessment and emphasized that breathing was the technical element most successfully developed by Susan.

Sonya made four specific changes to her violin technique that contributed to improved tone quality and appropriate use of energy. These included seated posture including balance of head, breathing, bowing, and shoulder-rest set-up. Developing the ability to 'let go' rather than 'forcing' the sound was particularly exciting for Sonya and in her journal she described the results of more efficient energy use as 'the sound is naturally fuller and the phrasing is much more fluid and natural now.' Her teacher Kyle confirmed more effective and improved work resulting from the BMG. He made particular mention of the improvement in her tone quality and posture (head balance), and stated 'there is absolutely no question about the definite improvements in her playing' (Kyle, interview).

The changes in Adelaide's piano technique resulted from mapping a whole arm structure and breathing. Her ability to handle faster tempi and control dynamics over a wider spectrum was facilitated by appropriately using the whole arm with correct seated balance. Adelaide also worked with re-mapping her breathing in both piano playing and singing in the choir, and discovered that correct breathing 'keeps me from getting locked up.' Rosslyn, Adelaide's teacher, saw numerous connections emerging between Adelaide's understanding of BMG concepts and how they applied to piano technique and performance. She was particularly pleased with how her movement quality benefited her sound. Rosslyn identified large musical gestures, phrasing and analysis as Adelaide's most successful areas of development and cited the two physical reasons for this as balance in her body and lack of tension. Both of these issues were addressed by Adelaide through BMG.

Natalie's musical technique on the flute improved. Beginning with major changes to her alignment and how she held the flute, Natalie discovered she could be more expressive and musical without worrying about her posture. With improved breathing she was able to produce better tone. At the end of the semester Natalie was able to play a demanding solo recital without any pain in her wrists or hands. Her teacher Patricia confirmed that Natalie's playing was more confident, more expressive, less forced and the intonation was much improved.

Amy believed that BMG had enhanced her technical facility on the bassoon and that her ability to be musically expressive derived from changes to her seated alignment that gave her access to freer movement. She was particularly pleased with the freedom she had achieved at the A-O joint and the result this had on her air flow. This also affected phrasing which was made easier, and improved instrument tone. Her bassoon teacher, Tanya, confirmed that she had observed the improvements in Amy's body use while playing, and commented positively on Amy's ability to correct her tension issues and hand position problems.

Howard was most excited about the improvements in his organ playing resulting from breathing. Once he understood the importance of coordinated breathing he was able to use it to phrase more musically on his instrument. Correct seated balance was also identified as a benefit for free leg movement and body coordination. His ability to use BMG information to assist with dynamic shifts and other expressive moments was not yet part of his technique, however he believed it was possible with more experience. His success with standing balance while singing was confirmed during the spring concert:

If the proof is in the pudding, then last night's choir concert was gourmet tapioca topped with hand-whipped cream and a cherry (at least as far as my standing-balance was concerned). I didn't feel the slightest bit fatigued, anxious or tense in any way; even my arms holding the folder didn't seem over-exerted (Howard, journal).

Howard's organ teacher, Harold, also noticed a number of positive changes in organ technique which he attributed to Howard's work with BMG. Harold stated that Howard was connecting his body movement to his sensory perception and musical intention, had improved his breathing, corrected his seated posture, and manifested less tension in his body.

The four conducting technique changes Tyler identified were: i) more physical flexibility resulting from reduced tension and improved alignment; ii) more effective communication physically and emotionally; iii) enhanced awareness of problematic habitual movement; and iv) better control of hands. Hamish, his conducting teacher, noted some minimal improvement in Tyler's standing balance, a better sense of connection between his arms and body, improvement in the control of his hands (specifically his fingers and arms), and the beginnings of some emotional connection. While Hamish affirmed Tyler's progress with emotional connection, he emphasized that it was still a work in progress.

Breathing and articulation were the specific vocal technique changes identified by Ingrid. Re-mapping the structures and function of breathing was a major issue for Ingrid and while not yet completely accurate, she believed she had experienced some improvement. Articulation was also easier as a result of reduced tension in her jaw that was facilitated by re-mapping her Temporomandibular joints (TMJ's). Although Ingrid did not follow up with Owen, she stated in her interview that she had found 'it was a lot easier' to sing in her voice lessons this semester.

Andrew was unable to identify any consistently successful results with changes in his musical technique other than holding his euphonium without excessive force. Colleen, his band director and faculty member, did not have individual interactions with Andrew this semester. However, she did comment that she had noticed he looked more relaxed overall, and his seated posture had improved from the tense posture she was accustomed to him using. Alison did not make any changes to her piano technique and did not follow up with Owen who was her faculty member for the study.

Rachel stated that she did not make any major technical changes in her vocal technique with the BMG information due to lack of time and because she did not fully understand breathing yet. However, she believed that she had integrated BMG pedagogy with her singing 'very slightly.' Her voice teacher, Dorothy, commented that it was difficult to see any postural changes in Rachel owing to the body limitations she experienced from the pain. Releasing jaw tension was an issue Rachel approached during the study via TMJ re-mapping. Dorothy confirmed that Rachel had released some jaw tension and that this was an issue that she had also been working with her on in the studio.

Vance believed that BMG enabled him to have improved postural awareness when standing and sitting, that he was more aware of the importance of leg mobility, had a better understanding of breathing, and had changed his pre-performance routine to include stretching and alignment before singing. However, his comfort with integrating BMG into his vocal technique was 'variable' or not yet accomplished. Lawrence, his studio teacher, was unable to discern any specific impact of BMG on Vance's vocal technique because he did not discuss the class content

with him. In his interview Lawrence stated that much of the change in Vance's technique this semester was 'highlighted by his post-surgical work.'

The participants' self-perceptions as performing artists

As a result of engaging with the learning process for BMG Susan believed she was a 'better singer,' and that her ability to sing was made easier because she knows how her body needs to function. Her teacher confirmed that within a month of the course he started to notice changes in the way Susan was synthesizing and applying information as she performed, especially in the context of a major solo performance.

Sonya experienced the improved ability to cope with performance pressure. Her final solo violin examination (jury) for the semester was a case in point, where she was under pressure because of other end-of-semester stresses and had a 'crappy warm up' prior. Sonya was enthusiastic about her ability to stay 'centered and grounded' because the BMG provided her with a 'logical framework' within which to work (Sonya, interview).

Adelaide indicated that she had begun to make changes in her approach to musical performance in the previous semester with a conscious decision to take personal responsibility for herself as a musician and an artist. She regarded BMG as the second step: '...once you are the artist you have a lot to take care of and a lot to be responsible for and a lot to find out about. And BMG plugged very nicely into that as a second step. It is helping me in my performance' (Adelaide, interview).

Natalie's flute recital was her major solo performing experience for the semester and increased her awareness of how BMG had influenced her as a performing artist. In her interview Natalie

explained that she did Constructive Rest (a technique taught in BMG for recovering wholeness of experience and awareness) prior to her recital, which in turn facilitated her calm approach to the performance and onstage focus. In performance she observed that she was more confident and comfortable in her playing because she had freer movement. Her studio teacher's comment about Natalie's recital performance confirmed Natalie's self-assessment when she said 'I must say she looked very comfortable on stage and happy there in a way that I hadn't expected her to be' (Patricia, interview).

Amy's performance experience with the bassoon was still comparatively new in contrast with her years of experience playing the violin, however performance anxiety was still an issue that concerned her. Based on her experiences with BMG Amy believed that her ability to shift her mental focus between the music and her body awareness in performance was enhanced, and her performance anxiety issues also eased to some degree. Her bassoon teacher confirmed that Amy was calmer and more grounded in her playing than previously.

Howard identified two changes in himself as a performing artist. The most significant change was in the rehearsal process. The second change was his ability to 'let go' and allow the music to flow as opposed to forcing it or having anxiety impede his playing. His organ teacher commented favorably on the freshness in Howard's approach to his performing, noting the importance of his introduction to BMG in his senior year because of its potential to lay a significant foundation for his future career.

On the conducting podium Tyler believed his ability to be more expressive and communicative was a significant improvement resulting from his interactions with BMG. In her interview, Ingrid

stated that her approach to performance was clearer because BMG information was concrete, practical information. Understanding her vocal production was therefore 'less mysterious.' Like Natalie and Amy, Ingrid found that her performance anxiety issues had improved as a result of incorporating BMG information. Andrew also shared the experience of feeling more comfortable approaching performance situations. He believed he had more strategies for dealing with the variables associated with live performance as a result of the course.

While piano was her practical skill area for the study, Alison did not regard herself as a performer in the same way the performance majors did. She indicated that under different circumstances she would have chosen voice as her instrument for the study, but she was still struggling with issues about voice lessons and was not currently studying with a teacher. Rachel believed that BMG, specifically the work on awareness, enhanced her ability to embody her character in the opera production when she stated '...in the opera it was very easy for me to...find that character and I was able to embody that character, which carried into BMG in a sense, because I was aware of my body and was aware of what I was doing' (Rachel, interview). Vance also performed in the opera and incorporated stretching and alignment work taught in class into his pre-performance routine.

Other areas influenced by Body Mapping

Habitual postural patterns are frequently transferred to performance by musicians. For example, students were frequently less anxious about working on posture when seated in a classroom setting than they were when sitting to play.

During the study a number of students identified other areas of their life that were influenced by BMG. Susan said she changed the way she sits and uses the computer; Sonya cited activities such as walking, standing and sitting in class; Natalie said she paid more attention to herself when sitting in class and walking on campus, and felt generally happier with herself; and Howard mentioned sitting when talking with friends as a time that he would work on his alignment awareness. Both Sonya and Amy stated that they were now able to get through ensemble rehearsals without painkillers, and Amy had reduced the number of muscle relaxers she needed to take because she had less pain. Amy also worked on the alignment of her feet in the morning and her seated balance in class. Both Sonya and Amy expressed an interest in teaching BMG to future music students. Amy was a music education major and believed that incorporating it into her teaching would provide an important foundation for preventing injuries in her students.

Of all the students in the study, Adelaide had the most interesting connections with BMG in non-musical areas. In her ninth journal she talked about the benefits for biking and horseback riding. In this excerpt Adelaide explains how two specific mapping areas were clarified for her, specifically pelvic rockers and the complete leg structure (hip joints, knees and ankles). She also came to an accurate understanding of the difference between the concepts 'relaxed vs. balanced.' Students of BMG are instructed in the specificity of language and the importance of using accurate or correct terminology when working toward effective body use. For example, in response to an excess of body tension when performing, many teachers will instruct the student to 'relax.' The response to this instruction will typically be a loss of energy and a sense of physical collapse in the body alignment, or mounting frustration with the inability to effectively reduce tension. In the field of BMG, 'relax' is considered an ineffective and inappropriate direction. Rather, students are taught to cultivate 'balance' which gives them access to the

freest possible physical alignment allowing them movement in any direction with ease. In Adelaide's journal entry she explains how she came to this understanding during her horseback riding.

Biking with a new body map has saved time and energy, and spared me from recurring pain. Biking has also provided an excellent source of feedback and helped me understand several Body Mapping concepts... pelvic rockers... legs as a whole... relaxed vs. balanced... Horseback riding for me, seems to be the place where having an accurate and adequate body map comes alive! I have studied riding and training since I was quite young, but never did things become so clear since I started this class... The most important lesson riding has taught me about in body mapping is movement as a whole. The mantra of 'hips knees and ankles' that teachers would shout out to me for years caused me to create a body map of two parts of a body: the top and the bottom. The top had to stay as straight and still as possible, while the bottom did all the work. The riders that I admired the most were always those who looked so poised. Now I know that they were working as one unit and thus had better success with the horse (Adelaide, journal).

Adelaide's ability to transfer the movement concepts to non-musical movement was valuable for reinforcing her understanding, and facilitated the integration of information into her performing. Talking to people, specifically the ability to clearly articulate and be understood in conversation was also a challenge for Adelaide until she remapped her TMJs and discovered the effect that had on her ability to move her articulators (mouth, teeth and tongue). The re-mapping allowed her to release significant jaw tension that no longer impeded her ability to speak clearly. This transformation was noticed by her teachers and the members of the class, as well as her family. It was interesting to see the newfound animation Adelaide brought to conversations, and in her end of semester presentation she explained to the class how she had let people think she was shy and quiet because she had given up trying to speak with them because '...when I was younger I was really frustrated because people just couldn't understand me so I stopped bothering to try' (Adelaide, interview).

Tyler talked about making connections with BMG concepts when he was doing yoga and walking on campus. The everyday life activities Ingrid incorporated were typing on the computer, walking on campus wearing her backpack, and sitting in class. Andrew believed that constructive rest had assisted him with better quality sleep on some occasions, insomnia being a recurring problem for him. Alison identified standing in everyday life situations (during conversations and in a museum), and wrist alignment on the computer for the non-musical areas that she worked on. Rachel also tried to integrate BMG into her everyday life activities such as standing and sitting, but found her back pain overwhelming. And while Vance was not ready to commit himself to integration into his singing, he did notice that he had improved body usage when he was standing (at work or the museum) and waiting tables.

Conclusion

A range of specific student learning outcomes were identified. A number of students described a deeper understanding of self, increased self-confidence, more attuned motor skills, and more effective communication as a result of their experiences with BMG. This was in addition to the impact of BMG on their musical technique and themselves as performing artists, areas that were cross-referenced by the I-R with their faculty participant. Several students discussed positive changes in other areas of their life such as walking, carrying a backpack, horseback riding, running, or sitting at a computer.

After reviewing the data in Chapters 5 and 6, consistency and realistic expectations were the two most important determinants of success in this study. The six students considered most successful by the I-R worked consistently over the 15 weeks of the study. For example, regular submission of journals enabled the I-R to monitor student progress and maintain a supportive

role with appropriate feedback when necessary including advice, encouragement, constructive criticism, and corrections to misunderstandings. Successful students worked through problems and obstacles rather than yielding to them and accepting immediate defeat. They were realistic in their expectations of themselves and the course work, their ability to assimilate information, and how they managed the process of change. For example, they understood that skill development evolves over time and were comfortable with and accepting of the long-range goals of the teaching rather than expecting instant change. In each case, they maintained a positive and dynamic relationship with their studio teacher, and in the case of four of the six, the studio teacher was openly enthusiastic about BMG work and how it could be integrated into their performing. Implications for educators, musicians and health practitioners arising from the results of these findings are discussed in Chapter 7.

Chapter 7: Discussion and Conclusions

Taken together, the facts about performance movement suggest that it is necessary for musicians to be able to use the full potentiality of their movements in their preparation and performance to make their music optimally communicable.

(Lehmann & Davidson 2002:554)

Introduction

This chapter focuses on the results as they pertain to musical and educational outcomes around the issue of effective music-making as it impacts musicians, educators, and healthcare practitioners. The results demonstrate the application of Body Mapping (BMG) technique can lead to improvements in musical expression, technical development, performance ability, self-awareness, increased confidence, and self-empowerment. The practice of BMG develops an intellectual and practical understanding of the relationship between movement and sound. It also identifies how BMG teaching elements and the students' learning process correlate to self-regulated learning theory.

Summarizing the different functions BMG played in the student musicians' perceptions of their musical development and performance is achieved via the *results groups (RG's)* typography, and is analyzed through questions regarding the students' ability for musical expression, technical development, musical performance ability, and development of self-awareness. The chapter reviews the study limitations and proposes possible future research initiatives. The latter includes ideas for collaborations in the related areas of education, musicians' health, and neuroscience. In conclusion, the chapter describes the impact of this study on the I-R's professional practice, with additional recommendations for teachers of BMG.

Contribution to knowledge of Body Mapping

Body Mapping Functions

Body Mapping played a multi-faceted role in the students' perceptions of their musical development and performance. Journal entries supplied ongoing insights into the students' learning process, while the in-depth interviews provided a forum for reflection at the end of the study. BMG influenced students' perceptions of their musical development and performance in four key areas: i) ability for musical expression; ii) technical development and training; iii) musical performance ability; and iv) self-awareness. The figures presented in the following sections show individual student responses within their *RG*.

Ability for musical expression

A person's ability to be musically expressive is dependent on a number of elements. These include technical skills, musical imagination and ideas, and the ability to convey the conventions of expression through phrasing, and changes of dynamics, tempi, and timbre (tone color). Figure 7.1 summarizes the students' perceptions of the influence of BMG on their ability to be musically expressive. The nine students who strongly believed BMG had enhanced their ability for musical expression comprised the *good* and *reasonable RG*'s. Common responses included the ease of movement that facilitated expressive outcomes (e.g. dynamics, phrasing, emotional information), and the ability to focus more easily on elements that contributed to musical expression. Also notable was a greater sense of confidence with the ability to be musically expressive.

The successful students' responses were consistent with musical results experienced and described by Caplan (2009), Harscher (2010), and Malde (Malde, Allen and Zeller 2009). Harscher (2010) articulates an expanded technical facility in his playing derived from re-mapping the shoulder blades and hands. Malde's (2009) integration of BMG with her vocal technique produced more consistent technical results and increased her ability to execute technically demanding passages. Participants' improved technical facility attributed to biomechanical ease was congruent with the experiences of BMG teacher-performers. Caplan's (2009:92) description of a student's playing included expressive elements such as a 'forward-moving phrase with a rich, resonant sound.' This resulted from free arm movement when playing the oboe and was achieved by re-mapping the arms.

By contrast, the perceptions of the students in the *minimal RG* were generally negative in relation to enhanced musical expression at this stage of their development. As discussed in Chapter 5, within this *RG* the student's responses were individualized. For example, while Alison and Vance were both negative, Vance's response hinted at the possibility it would in the future. In Rachel's case she believed BMG had improved her expressivity from an acting standpoint only and she cited her experience with the opera as an example.

Figure 7.1: Body Mapping and ability for musical expression

Informant	Function/s BMG played
Good results group	
Susan 'yes definitely'	Feeling free; grounded; more expressive arm gestures; better sound (warmer & more rounded); ability to focus on what's important
Sonya 'oh definitely'	Confident in ability to mentally relax and focus on playing; knowing where to go within herself to find what she wants to express
Natalie 'yes without a doubt'	More confident as a musician; able to think of musicality and not worry about little things; more involved when playing; more musical
Adelaide 'yes'	Knowing how to use my body as an instrument in a really nice way
Amy 'yes'	Able to move and keep a nice tone; phrasing easier; more involved when playing;
Howard 'yes – very much so'	Connecting breath with phrasing when playing; finding it more natural to be dynamic (move)
Reasonable results group	
Tyler 'it is presently'	Physical apparatus facilitates my emotional connection
Ingrid 'yes'	Not as much tension so I can sing more easily; automatically easier to do what I want expressively (e.g. dynamics)
Andrew 'yes'	Being expressive in correct (healthy) ways; confident with dynamic range
Minimal results group	
Alison 'I don't think so yet'	
Rachel 'yes and no'	Able to embody my opera character from an acting standpoint
Vance 'I think it will'	I do see its [BMG] possibilities, both in myself and in others, it's not something I experience every time... not yet

(Sources: student interviews)

Technical development and training

A musician's technical development is achieved over a long period of time and is influenced by a range of elements. This has been documented in research by Ericsson (cited in Ackermann 2010) and Ericsson, Krampe, and Tesch-Römer (1993) which places the acquisition of professional-level musical performance mastery at 8,000 to 10,500 hours of practice. A person's age will also determine physical maturity, which has consequences for strength and coordination on an instrument (e.g. piano and cello), or their physiological development which is crucial in the case of singers. During their lifetime, the majority of musicians will spend more hours developing and refining their technique and musicianship than actually performing in public. For student musicians, the ability to understand the connections between technique and performance skills is paramount. Figure 7.2 summarizes the responses regarding changes in technique as a result of BMG.

The most common theme across the participants was a better understanding of breathing. This insight was cited across a range of performance areas including singing, violin, piano, bassoon, and conducting. This underscored belief for the consequences of effective breathing in performance areas where breath was not previously considered to be of technical importance (e.g. violin, piano and conducting). BMG contributed to better coordination, flexibility, enhanced arm movement and improved articulation. These outcomes were consistent with results indicated by Caplan (2009), Johnson (2009), and Vining (2008). For example, Caplan (2009:21) describes the inability to breathe easily and inflexibility of embouchure in oboe playing as consequences of excessive muscular tension in the neck and poor alignment. However, musicians who cultivate balance in their playing may remedy these problems and experience a

‘reactive tongue, buoyant arms and free fingers.’ Similarly, Vining (2008) describes improvements in breathing function and resultant tone with trombone technique resulting from effective coordination and engagement of breathing structures. Johnson (2009:133) acknowledges that violinists do not require as refined a body map as singers, wind and brass players, however, she emphasizes the importance of accurately mapped breathing to enable ‘balance around the core and freedom for the arms.’

In the *minimal RG*, Rachel and Vance were able to identify areas they were working on, and Alison indicated awareness of what she should change. This confirmed their conceptual understanding but inability to apply it in practice. Nonetheless, metacognitive skills as described by Hallam (1997, 2000) were evident in their learning process. For example, the way Rachel and Vance described progress with their breathing technique indicated recognition of strengths and weaknesses. All of them expressed awareness of what they knew was and was not working technically.

Figure 7.2: Body Mapping and technical development and training

Informant	Function/s BMG played
Good results group	
Susan	Released jaw; vibrato more even; free neck; keeping arms loose; upper body not frozen; better breath support
Sonya	Understanding breathing and how it relates to violin playing, especially bowing;
Natalie	Improved tone; significantly better breathing; some articulation improvements
Adelaide	Whole arm movement enhances speed, dynamics (especially playing louder); better breathing that keeps me from getting locked up
Amy	Improved intonation; better air flow;
Howard	Free legs (better coordination) from good balance; trying to be more relaxed (in attitude); slowing down and being patient when practicing; achieving subtle differences in articulation
Reasonable results group	
Tyler	More flexible; letting me realize where the physical limitations are (e.g. fingers, breathing)
Ingrid	Understanding breathing correctly and finding improvements in ability to 'let go' when singing
Andrew	Holding instrument and seated balance but unable to do it consistently yet; articulations and breathing are alright
Minimal results group	
Alison	I wouldn't say that I've change my technique... but I'm aware of what I should change
Rachel	Opening up the voice more (chest voice); still struggling with noisy breaths
Vance	Sound is less inhibited when balanced and moving correctly; more cognizant of my breathing; more alert

(Sources: student interviews)

Musical performance ability

The quality of a musical performance is dependent on the result of a person's technical facility, musical imagination, and emotional engagement. Whereas technical development is process, performance is product. The majority of students confirmed that BMG changed their approach to performance. Throughout the literature, performers such as Caplan (2009), Harscher (2010), Johnson (2009), Malde (2009), and Vining (2008) describe improvements in their performing resulting from the integration of BMG skills. Examples include the ability to be poised and responsive in performance, fluid movement, and confidence with the ability to engage musical ideas due to physiological ease. Data in the current study shows that student experiences often mirrored these improvements although not to the same degree of sophistication. This is due to the fact that these musicians are all experienced professionals who have spent many years integrating and refining BMG with their musical technique. It is therefore reasonable that the students' experiences in this study were more modest by comparison.

Greater confidence was a frequent element of student experience; so too the ability to retain focus during the pressure of performance. There were also indications of feeling more centered or grounded, which led to more artistic freedom. A number of students stated BMG changed the way they prepared prior to going onstage. Figure 7.3 summarizes the students' perceptions. It also highlights the differences between the *RG's*, with the students in the *good* and *reasonable* citing stronger connections. The main difference was the way students in the *minimal RG* tried to apply BMG in performance. Mindful of their stated inability to using BMG for musical expression, their performance applications were predictably limited to discussion about how they were trying to work with BMG rather than actual performance outcomes. Interestingly,

both Rachel and Vance spoke in terms of BMG and acting/theatrical applications rather than music. Lehmann and Davidson (2002:552) describe 'inspired performance' as resulting from 'extensive and easily operationalized knowledge.' Cultivating the physical and mental skills to achieve this performance state takes considerable time and effort. Thus performance is a task that requires successful skill integration on multiple levels. While the performance experiences in the study were limited by the time-frame, nonetheless the majority of students found them enhanced from perceptions of being better prepared, more grounded, focused, confident, and aware.

Figure 7.3: Body Mapping and musical performance ability

Informant	Function/s BMG played
Good results group	
Susan	It's changed the way I approach a performance, i.e. having my instrument ready to go way ahead of time; I can do whatever I want when I'm on the stage
Sonya	It [BMG] centers me, grounds me and has provided a framework so that I can logically go about something without freaking out...it helps me to focus on details, just noticing things in my body...
Natalie	I'm more confident to go out and play; as far as anxiety, I didn't have one nerve in my body...I kind of had fun on stage; I had a feeling like a positive anxiety...it was marvelous – I had a great time
Adelaide	BMG is helping me in my performance – once you are the artist you have a lot to take care of and a lot to be responsible for and a lot to find out about – and BMG plugged very nicely into that
Amy	At the band concert...I was able to move freely; I was successful in shifting my focus between music and body awareness – it [BMG] aided me to do that
Howard	BMG has mostly changed the way I prepare for performance – I basically try to be more patient with myself and sort of let the music happen, as opposed to forcing it
Reasonable results group	
Tyler	BMG has absolutely changed my approach to performing; I become conscious of it when I'm correcting something that's wrong which I felt is a success because I felt before I wouldn't have even noticed it was wrong; in my senior recital...I managed to be so connected to the music that I was putting out the fires and maintaining what the people who weren't lost needed to see
Ingrid	BMG's make it [performance] a whole lot less mysterious; I've been trying to channel whatever energy I have into using my body the best

	way; it's allowed me to explore the practical...and see what you actually have to do to be able to make sound
Andrew	I feel more comfortable going into a performance because I have more things to work with; I'm more willing to openly take the risk of being musically expressive
Minimal results group	
Alison	In rehearsals...I would try and incorporate it [BMG] and...I was way too concerned about it, totally detached from what was going on...
Rachel	It's easier for me to approach my body when acting... I'm more able to find a place where I can change my body in order to fit the character
Vance	I think it [BMG] solidified things... its drawn together things that I knew and then added a whole lot; what I do before performances has completely changed - I stretch myself, I try to get everything very aligned, I'll do breathing...I try to get it into some kind of rhythm

(Sources: student interviews)

Self-awareness

There was a gradual evolution of self-awareness in the students' experience. It was fostered through self-reflection, a process that required students to analyze and evaluate their observations during the re-mapping process. Increased positive self-awareness was illustrated through students' journal entries, in-class interactions (e.g. questions, comments, final performance-presentations) and *Agenda Helper* responses. This was also evident in interview comments they made regarding their technical development and practical situations e.g. rehearsals, masterclasses, and performances. Because self-awareness must be developed gradually it was initiated in the first class and fostered through course content and I-R demonstrations. Constructive rest sessions and other self-reflection activities were also utilized.

In addition to accurate comprehension of BMG information, the I-R emphasized the importance of continually cultivating attention when integrating theory into practice.

Cultivating self-awareness skills allowed students to make sensory connections (kinesthesia, sight, touch and sound) with cognitive information, which produced more efficient movement. Harscher (2010) describes how discerning the cause-and-effect of shoulder blade re-mapping element facilitated numerous mapping discoveries. The role of self-awareness is evident when he explains how his initial shoulder blade re-mapping led to subsequent understanding about the structural and functional relationship with his hands and ultimately, his awareness of tension patterns that inhibited his playing.

At the beginning of the study, students were often surprised that their physical habits required such careful and repeated attention. However, once the students understood how mindfulness benefited them, they turned their attention to the challenge of cultivating awareness. A range of issues were identified by the students with regard to developing self-awareness, including: i) finding solutions to technical challenges; ii) understanding how tension inhibited movement; iii) greater awareness of the consequences of movement patterns on symptoms of pain; and iv) understanding what they were actually doing physically in a range of musical and every-day activities. Exhibiting skills such as focused attention are aligned with types of self-control found in the second phase of the self-regulated learning cycle described by Zimmerman and Campillo (2001). McPherson and Zimmerman (2002) explain the ability to utilize a variety of techniques to facilitate attention as a hallmark of self-regulated learners.

Within the BMG literature the term *inclusive awareness* is synonymous with *attention* and *mindfulness* and is defined by Conable (2000b) as the ability to be simultaneously self and world-perceiving. It must be noted that the BMG description of self-awareness differs from McPherson and Zimmerman's (2002) description in self-regulated learning. McPherson and Zimmerman (2002:341) describe the ability to 'block out distractions and concentrate more effectively' as the means by which students focus their attention. By contrast, Conable (2000b), Johnson (2009), Malde, Allen and Zeller (2009), Mark (2003), Pearson (2006), and Vining (2008) specifically advise students against concentrating because it directs attention to a single object or activity and consequently limits the broader field of awareness that is crucial for effective musical performance. Instead, students of BMG are taught to *focus* attention which results in more flexible mental functioning. Despite the difference in definition, the desired result via self-regulated learning and BMG is essentially the same. Students with the ability to control and direct their attention in the process of learning and remain committed to achieving the end result.

The rate at which students in this study were able to develop their skills in self-awareness varied according to the individual, as did their ability to maintain it. The clearest indications of their progress were evident in journal entries. By the end of the semester, the I-R noted most students understood the importance of cultivating self-awareness for effective body use even though their ability to consistently achieve it varied. More deliberate choices were evident in interview conversations. For example, Andrew's statement 'I'm not going out of my way to injure myself to make this gorgeous phrase and then walk out of the room with my arm dangling at my side because I can't do anything with it anymore' was a significant paradigm shift. Andrew had played Euphonium with a degree of pain for many years and was no longer prepared to

accept this as normal. Through his new-found awareness Andrew was able to monitor his use and regulate his movement choices accordingly.

Significant issues and themes about Body Mapping

For teachers of BMG, a number of key issues and elements were confirmed by the results of this research study: i) flexible course content; ii) proactive bridging of knowledge versus application; iii) cultivation of self-inquiry skills; and iv) self-empowerment.

Flexible course content

BMG may be taught in a variety of configurations. On the basis of the study results, the overall structure of the course was effective for giving a balance of information and time to integrate it. Small-scale movement experiments, in every-day activities and with musical instruments, were also included in the content teaching weeks as suggested by Caplan (2009), Pearson (2006), and Vining (2008). While application of movement principles as explained by Conable (2000b) is universal, instrument-specific BMG publications provide numerous examples of movement experiments. For example, Pearson (2006) explains how to maintain freedom of arm movement while adopting a playing position with the flute. Caplan (2009) provides examples of movement experiments related to each area of BMG course content as applied to oboe technique. Vining (2008) also offers a multitude of activities ('movement breaks') which make specific connections between theoretical and practical applications. In terms of teaching strategies, I-R led movement experiments were typically the student's introduction to a concept. They were subsequently encouraged to expand movement experiments as appropriate to their own performance area and according to their individual needs. Reporting back on progress made occurred via verbal

reports during class or journal entries. Frequently a student's explanation of their progress with a concept preempted additional discussion with their peers.

A number of tools were effective feedback aids to awareness. These included the self-reflective journals, individual coaching time with the I-R, the *Agenda Helper*, video observations, and peer and I-R review and observations in the group masterclasses. On numerous occasions, students commented favorably about the benefits of observing the I-R demonstrate effective and ineffective qualities of movement. Constructive rest, advocated by all teachers of BMG for developing self-awareness, was cited by students as a valuable process. Support for the development of constructive rest through specific instructions is provided by Nesmith (2010) and Vining (2008). The subject of journal entries and video observations will be discussed in greater depth later in this chapter.

Other non-BMG topics covered during the course included presentations on performance anxiety, The Alexander Technique and the Feldenkrais Method. The I-R presented the performance anxiety information and guest teachers covered the other somatic disciplines. All of these topics were presented in the latter part of the semester. While the additional somatic information was generally well received, students who were most enthusiastic about this information tended to be in the *good or reasonable RG's*.

Based on the results of this study, the 15-week semester format is strongly suited to the BMG process. As opposed to a weekend or week-long format, it allows enough time to develop application skills. Longer formats could be enhanced through more time for individual coaching

and small-group interactions. In terms of ongoing education, BMG masterclasses (e.g. monthly or bi-weekly) could be offered for students who had already taken the full course.

Proactive bridging of knowledge versus application

The data revealed a marked disparity between the students' intellectual grasp or understanding of the BMG knowledge and their ability to apply it in performance (application). All of the students stated their comfort level with their knowledge and understanding of BMG principles was in a range from 'good' to 'very comfortable.' However, when asked to assess their ability to integrate the theoretical information into practical skills for effective body use, specifically with their musical performance area, the students' evaluated themselves at a comparatively lower level. Interview statements such as 'very confident' and 'pretty successful' contrasted with 'I've gotten a good start at it', 'it varies' and 'it's very hard to get it done'.

A number of factors may have contributed to this outcome. These could include i) information accuracy of individual students' understandings; ii) the I-R's effectiveness working with students on the practical elements of the course, i.e. understanding variation in individual learning process more clearly; iii) the students' level of commitment to the work needed as demonstrated by their application to the various elements of the learning process; and, iv) more time needed to see results that students thought were satisfactory.

Comprehending the concept of the body map is of particular importance in BMG. While it is important that students absorb correct information this does not ensure they will understand their body map. For example, understanding anatomical information does not automatically equate with the securing of an accurate body map. Mark (2003:11) confirms this when he states

‘a person may know about the structure of the body, but if that knowledge does not govern the person’s movement, it is mere knowledge – not part of the person’s body map’. He illustrates this point further with the example of ‘anatomists and physicians who know lots of anatomy but move badly’ (Mark 2003:11). It is imperative to teach students *how* to apply anatomical knowledge to meet the demands of musical movement.

Masterclasses were an effective means of bridging the gap between knowledge and application. Comments from students in this regard typically identified the I-R’s coaching in the practical phase as ‘very helpful’. In her journal Rachel acknowledged the role of the I-R in facilitating the process of application, ‘thank you for your guidance... I made a huge breakthrough the other day and you were a part of it.’ In addition to the benefit of receiving critical feedback from the I-R and their peers, masterclasses also provided an opportunity for students to cultivate their skills in observation, analysis, evaluation, and self-reflection. Making crucial connections between theoretical concepts and their applications frequently occurred in masterclasses which comprised 50% of the course.

It takes skill and determination to commit to the process of change. The level of student motivation often correlated with the speed of their progress. Self-motivation, a major element in the self-regulated learning model, has been described by McPherson and Zimmerman (2002) as a crucial factor underlying a student’s decision to pursue a learning experience. Within this study, there was a correlation between the students’ motivation to embody BMG skills and the time they devoted to skill acquisition. While the majority of students in this study were satisfied with their progress during the semester, many of them expressed a desire for more time to

consolidate their skills. A few of them found their rate of progress discouraging. The issue of change will be discussed in greater depth in the concluding section of this chapter.

Cultivating self-inquiry skills

Self-inquiry skills are at the heart of the BMG learning experience. The process of correcting faulty body map information is called re-mapping. Re-mapping requires making changes in the neuronal networks (circuits and associated maps in the brain) that govern body movement. Thus self-inquiry skills are cultivated through techniques such as palpation of body structures, the study of anatomical images, and observations of self and others in movement. In this study, accurate understanding, consistent experimentation (self-experimentation), and correct observations (self-judgment) of movements were crucial elements in the re-mapping process as well as the cultivation of their self-inquiry skills. The latter may be more clearly understood through the self-regulated learning cycle.

Within the cyclic self-regulated learning process (refer Figure 2.1), self-observation during a learning task is an element of the second phase (performance/volitional control). Zimmerman and Campillo (2001) include self-recording and self-experimentations as components of self-observation. They assert that recording is a valuable but underutilized means by which musicians' can analyze performances and examine their progress. In this study, video recordings were successfully utilized by students for critical feedback of their in-class performance outcomes. In some cases students also elected to record solo performances independent of the class. Self-experimentation (another component of self-observation) was a key feature of the effective learning outcomes of the students in the *good* and *reasonable RG's*.

Students' learning experiences in the performance/volitional control phase provided the information for the third and final learning phase, known as self-reflection. In Zimmerman and Campillo's (2001) model, self-judgment and self-reaction occur after the learning experience. Evaluation of movement observations by the students enabled them to either confirm or challenge their understanding. In turn, their evaluations provided the basis of subsequent task strategies when either repeating an action or developing ideas for how to modify a movement.

The rate of change and consequent progress made by the students in this study varied. While many of them began the semester with a positive attitude and an open mind about the information and how they could use it, the I-R observed the dynamics change as students became confronted with their own issues. While some of them became overwhelmed by the volume of information and their perceptions of the amount of work they needed to undertake, others approached the re-mapping process systematically and focused on one issue at a time. This approach allowed them to see results that they could build on and their progress consequently gained momentum. The students who demonstrated self-regulated learning characteristics such as metacognition, self-evaluation and self-motivation were the most effective at cultivating skills in self-inquiry. Their response to failure was similar to the process described by O'Neill (1997). They did not succumb to or evade failure. Instead, they incorporated it into the feedback for future learning experiences.

Self-empowerment

For the students in this study, three aspects constituted self-empowerment. These were belief in the integrity of BMG information; confidence; and the ability to equate quality of movement with quality of sound. During the in-depth interviews the I-R asked the students to comment on

their impressions of BMG as a discipline and tool for musicians. Despite the variation in student outcomes over the course of the study, all of the students agreed that BMG was both an important and valuable technique for musicians, and had the potential to enhance musical performance. The students' shared belief in the value of BMG resulted from either their personal experience with positive results, seeing changes and improvements in others, or a combination of both.

For the students in the *good* and *reasonable RG's*, increased confidence and self-efficacy perceptions contributed to self-empowerment and better results. Pintrich and Schunk's (1996) conclusion that students' self-efficacy beliefs increase their ability to be successful correlates positively with a number of performance outcomes. It was most notable through the tone of the journal entries, the in-class presentations (e.g. masterclass rotation or final performance-presentation), and from the interviews. For example, Susan's final comment in her interview: 'it [BMG] made me feel so much more confident...in being able to approach people and things about my voice'. In her journals and again in her interview, Natalie explained her excitement over newfound confidence from her enhanced abilities. This had a positive effect on her recital experience and her final performance-presentation. In Sonya's interview, she also explained how she was able to implement BMG techniques to overcome issues in her performance jury that she believed would have previously resulted in a poor performance outcome. In her interview, Amy commented 'I'm pretty confident that I'll get there now that I have the tools, and I'm using them properly' therefore confirming the self-empowerment of BMG in her approach to music-making. Heightened perceptions of students' personal competence as described by Pajares (1996) were thus in evidence in the way they described their thinking and emotional reactions to situations where BMG was applied.

The third element contributing to self-empowerment was the ability to use self-reflection to evaluate quality of movement and its subsequent impact on sound. The third phase of the self-regulated learning cycle (refer Figure 2.1) consisted of processes such as judging sound and movement quality, determining the factors contributing to the outcomes, and drawing conclusions for future actions. Self-empowerment manifested in students through their own performing and in their ability to assess the results they observed in others.

Identifying the relationship between movement and sound quality in other musicians was a key part of the learning experience for all students. For example, Tyler noted detrimental results on the orchestral sound from a conductor he observed in concert; Susan identified the benefits of spinal movement (gathering and lengthening) in a professional singer's performance; and a number of the students commented on the effective movement-sound dynamic in Natalie's flute recital. These kinds of observations were invaluable in the process of developing the students' self-empowerment.

The ability to evaluate movement quality in relation to their own sound was equally important in developing self-empowerment. This is particularly helpful for musicians who spend many hours practicing in isolation during their lifetime, and must rely on self-evaluation skills for gauging their progress. Zimmerman's (2000a) research on musicians has shown that self-regulated learners expend increased effort on specific elements they believe they can change. Such is the case with practicing which typically involves extensive repetition of specific musical passages or technical elements in the process of skill mastery. Accurately discerning the effect of movement quality on sound was most evident in the students in the *good* and *reasonable RG's* who were

able to integrate BMG information more effectively during performance than students in the *minimal RG*. For example, Sonya specifically identified the quality of her bow arm movement on her violin tone in her final jury. Howard stated that correct seated balance freed his legs for improved pedaling at the organ. He also discussed the correlation between breathing and quality of sound in his keyboard phrasing. Amy commented on her ability to maintain tone quality with her bassoon during band rehearsals and performances. She noted that other people commented favorably on her sound too. Ingrid and Andrew both noticed how the presence of body tension affected their movement and sound. They were able to evaluate their movement quality but were not consistently satisfied with their results due to tension. Through their self-evaluations it was evident that students understood the importance of self-reflection in the decision-making processes around their learning experiences. The study did not investigate the degree to which a student was able to evaluate quality of movement in relation to sound. However, it remains an important element of BMG work and the I-R proposes this question be addressed in future research studies.

Variation in study outcomes

The variation in study outcomes between informants and within the *RGs* typology can be attributed to a number of factors, including:

- I. The time invested in working on personal understanding and change
- II. The student's attitude and mind-set throughout the learning process
- III. The influence of external factors that negatively influenced a student's emotional and or intellectual state, and their ability to remain focused throughout the semester
- IV. The individual student's level of commitment to the process of change
- V. The influence of their studio teacher

While the students' results were as varied as the individuals who participated in the study, the data revealed a number of common factors or themes within each *RG*. The *RG* typology described how students were able to master BMG in performance. Their assignment to a *RG* was made on the basis of performance experiences and learning outcomes. Ideas for facilitating student progress from the *reasonable* and *minimal RG's* upward into the *good RG* will also be discussed.

Good RG

The students in the *good RG* were the most dynamic learners and exhibited many characteristics of self-regulated learning. They were flexible in their approach and consequently able to refocus their thinking or agenda in response to new information, a setback or a breakthrough. This behavior is consistent with the cyclic self-regulated learning process described by Zimmerman and Campillo (2001), specifically with the application of self-reflection skills. The feedback obtained from their self-evaluation resulted in better choices for subsequent BMG learning strategies (refer Figure 2.1 Self-regulated learning cycle phases). Their level of theoretical comprehension was strong across the cohort, and in some cases students sought to make deeper connections with the information by reading additional materials or discussing connections to other sources that strengthened their experience. Actively seeking information from other sources to enhance learning is an attribute of *social factors*, the sixth psychological dimension of self-regulated learning. Members of the *good RG* were also keen observers of movement. They were able to put their own issues into a clearer context by making accurate observations of movement quality in others. Using observations in this manner is an example of

a self-initiated, task-oriented learning strategy characteristic of the method dimension in self-regulated learning.

With the exception of Howard, the 'late bloomer' in this cohort, the *good RG* students worked consistently from the beginning of the semester. This included active experimentation with concepts in everyday movements as well as their performance area, which began the process of integrating intellectual facts into physical use. Progress for these students was gradual. They were characteristically more patient than their colleagues in relation to time and the cultivation of new habits of use. The small breakthroughs or revelations they had early in the semester set the foundation for their subsequent success, and most of them articulated their process clearly in their self-reflective journals. Effective time management, positive motivational orientations and metacognitive practices are all characteristics evident in self-regulated learners. By effectively monitoring and controlling their thought-processes, the *good RG* students made progress that was substantial and personally satisfying.

The *good RG* students interacted effectively with the I-R and had teacher-guided success in their individual mid-semester coaching and the in-class practical rotations. These students came into the study with open minds and were readily challenged as the semester progressed. They handled frustration well and rebounded quickly from failures or setbacks which often proved to be important learning experiences for them. They regarded failure as part of the learning process instead of an impediment to success (O'Neill 2005). In this respect they were not paralyzed by perfectionism, even though some professed to be perfectionists at heart. Their ability to take risks was also an asset. Through their highly motivated behavior and consistent focus on learning goals, the *good RG* students typified Dweck's (1986, 2000) description of

adaptive mastery-oriented students. For teachers, fostering the development of mastery-oriented characteristics in students is important. This may be achieved through the provision of a safe learning environment wherein risk taking is encouraged, performance goals are realistic, feedback is delivered honestly and constructively, and students are given the intellectual and emotional support to process their experiences.

The agendas of the *good RG* students varied according to their individual needs. While most of them sought to achieve improved core balance when seated and standing, beyond this shared goal their agendas differed significantly. Realistic expectations of self and the information were evident. Positive studio teacher support was also important. In some cases they were able to discuss BMG concepts with their teachers to assist their understanding of how the information could integrate with their performance area pedagogy. For others in the group, consistency with the philosophical values of the I-R and their studio teacher provided them with two distinctly different but complimentary learning environments.

Reasonable RG

The students in the *reasonable RG* shared some characteristics in common with the *good RG*, such as a solid level of theoretical comprehension, approaching the course with enthusiasm for the possibilities BMG afforded them, and the ability to observe effective and ineffective movement in other people. However, while the I-R found them to be open-minded about the concepts taught in this course, these students did not pursue experimentation and integration of information into their physical use with the same vigor as the *good RG* students. For two of the three students in this group (Ingrid and Andrew), tension was a major factor that impeded their progress and both students were frustrated by their lack of improvement. All three students

invested less time interacting with BMG than the *good RG*, and all three indicated that with more time they believed they would have achieved more desirable results.

As was the case with the students in the *good RG*, the *reasonable RG* cohort were also observant of the relationship between movement quality and musical sound in their peers, themselves, and other musicians. Application of task-oriented strategies, management of self-instruction techniques, and the behavioral elements of their learning (metacognition, self-evaluation, and motivational orientations), demonstrated that students in the *reasonable RG* possessed mastery of a range of self-regulated learning skills. However, this was to a lesser degree than the *good RG* students.

Progress for the *reasonable RG* students fluctuated and their responses to this fact seemed to generate frustration that was longer lasting. While they all experienced some breakthroughs and successes with their movement in everyday life, they were less successful achieving the results they desired in performance situations. In some cases they perceived their successes to be sporadic or inconsistent. In this regard the students were actively engaged in the self-reflection (third) phase of the self-regulation learning cycle. Their ability to utilize feedback to inform the cognitive processes for task analysis and problem solving during future learning activities was less effective than the *good RG* students. Frustration was also an influence on behavior. Submission of journals reflected variation in both quantity and quality of entries. For example, Tyler was a prolific writer and provided many good insights into his process; Ingrid was also an excellent writer but did not complete the full set of entries; and Andrew submitted only half of the requested entries, though the journals he did send were concise and thoughtfully worded.

Whereas all of the *good RG* students responded positively to their interactions with the I-R in the individual mid-semester coaching and group master classes, this was not the case in the *reasonable RG*. For example, Ingrid's in-class practical rotation was not as successful as she wished. Like the *good RG*, students in the *reasonable RG* approached the study with open minds but were hard on themselves when they did not see the progress they observed in some of their peers. Zimmerman's (2000a) describes the negative effect of normative criteria manifesting in self-evaluation, specifically through unfavorable judgments about their progress in comparison with other students in the class. In this regard, the *reasonable RG* had unrealistic expectations of themselves and the information. Additionally, both Ingrid and Andrew suffered from major tension issues that proved to be a source of prolonged discouragement. Consequently they did not stay fully engaged in the learning process. Resolving a major tension issue typically requires a longer time frame than the study allowed and a greater time commitment than either student was willing to make. Their experience was consistent with characteristics from Dweck's (1986, 2000) description of *maladaptive helpless-oriented* students, whose failure to set attainable goals may result in negative feelings and a tendency to give up. One implication of this for teachers is the need to direct students to refocus on learning tasks so they are manageable and more likely to yield successful outcomes. This is especially the case for students with major tension issues. However, students who experience success are more likely to stay motivated. Encouraging *reasonable RG* students to develop more efficient time-management skills is highly recommended.

The *reasonable RG* student agendas were adapted to their individual mind-body needs and performance-area requirements. In some instances, the I-R needed to redirect their thinking because they were inclined to pursue a concept that was premature for their level of skill

development. Studio teacher support for these students was varied. Tyler had good teacher support and interactions. Andrew's faculty member was interested but he did not follow up with her. While Ingrid had solicited the support of an interested faculty member (Owen) she did not interact with him during the course of the study.

Minimal RG

All students in the *minimal RG* commenced the study with a positive attitude and a healthy curiosity about BMG. At the beginning the I-R found them to be enthusiastic and willing to learn. Two of the three students in this group (Alison and Rachel) had a good understanding of the theoretical BMG content, and all of them were able to accurately identify effective and poor movement quality in other people. They were less sure of foundation BMG processes like experimentation with core balance (seated and standing). In some cases they wanted faster results than was reasonable for the necessary changes. While they initially worked for change, as the semester progressed they did not work consistently on the integration of their knowledge base with their practical skill development.

In the context of self-regulated learning described by McPherson and Zimmerman (2002), the *minimal RG* demonstrated application of fewer skills that could contribute to BMG facility. For example, within the behavioral dimension of self-regulated learning which comprises metacognition, self-evaluation, and motivational orientations, there was a lack of mastery of skills at the foundation levels. In addition, they did not choose learning goals that reinforced skill application. This was also an indication of a lower level of motivation toward the learning process.

Progress for each of the students in this cohort was sporadic for different reasons. Rachel was the most tenacious and hard-working of the group, but was the most frustrated because of the pain she was suffering from undiagnosed Fibromyalgia. This condition made it tremendously difficult for her to function. Alison and Vance were both less emotionally resilient, particularly Alison who could be described as a paralyzed perfectionist. Both students talked about the fear of being judged and how this was a negative in their study experience. Despite their struggles, the students were respectful of the I-R and expressed appreciation for the way she handled these sensitive issues in class. In Vance's case, he disconnected from the learning process approximately five weeks into the semester for reasons he was not willing to fully explain. However, he did admit to the I-R at the end of the study that his reluctance to 'face himself' was a factor.

While each of the students in this group did experience some changes in their use, they tended to be more in the areas of everyday life activities such as sitting and walking. Their application skills were not sufficiently developed for them to experience consistent results in their respective performance areas. Studio teacher support for these students was also variable. Rachel was the only student in the group with a teacher who was interested in BMG and her engagement was minimal. Alison chose piano rather than voice for her performance area due to psychological issues she had with singing at the time of the study. While Owen agreed to be Alison's faculty member for the study, she did not follow up with him. Vance encountered negativity from his studio teacher that he found conflicting and confusing to handle. The I-R speculated that this was also a factor in Vance's decision to disconnect from the learning process.

In consideration of some of the issues this course brought to light for Alison and Vance, it is possible that an element of immaturity contributed to their inability to manage their emotions (e.g. frustrations and fears). Fear of failure and fear of being judged were issues for Alison and Vance that precluded them from fully engaging in the learning process required for effective BMG. Many of the learning outcomes for the students in the *minimal RG* were typical of behaviors exhibited by *maladaptive helpless-oriented* students. For example; they evaded particular learning challenges, experienced negative emotions that prevailed in their attitude toward goal setting and self-analysis, and a sense of helplessness with regard to their progress. While they were well aware of their progress, they did not consistently engage in self-regulatory learning practices that would facilitate skill development. This study proposes that their level of self-efficacy was also low and consequently contributed to a lack of conviction in their ability to be successful.

Creating the conditions to allow students in the *minimal RG* to progress upward would involve a number of elements in addition to those stated for the *reasonable RG*. Based on data in this study, the first step would be to keep students focused on mastery of foundation skills relative to their own interests, and to maintain this for longer. Encouraging them to resist the urge to compare their progress to others would also be necessary. In some cases, additional individual coaching may be indicated to expedite progress.

Implications for musicians, educators, and healthcare practitioners

Compatibility of BMG instruction in other musical settings

Within the range of somatic education methods, BMG is the only technique with a predominant focus on the movement needs of musicians. Since its inception BMG has been taught in a variety

of musical environments. Whereas Conable's (2000b) work provides movement principles applicable to all musicians, information about the ways BMG applies to specific performance areas has been undertaken by a number of teachers and performers in the Andover Educators network. Table 7.1 identifies the current list of BMG authors and musical performance areas.

Table 7.1: Musical performance areas with BMG publications

Musical Performance Area (Alphabetical)	BMG Authors
Flute	Pearson (2006)
Oboe	Caplan (2009)
Pianoforte	Mark (2003)
Trombone	Vining (2008)
Violin	Johnson (2009)
Voice	Malde, Allen & Zeller (2009)

Preceding chapters have identified that the training of musicians occurs in a variety of settings, ranging from one-on-one instruction in a studio, to instrumental and vocal ensembles, and other classroom settings. The dissemination of BMG information and practical critiques in this study was undertaken in a group classroom setting. Students confirmed this setting was effective. Individual progress was also made in personal practice time, during one-on-one coaching with the I-R, and in small-group conversations or interactions. Students then transferred their learning into a variety of musical settings including studio lessons, ensemble rehearsals and performances (for orchestra, band and choir), opera performances, and solo recitals and juried examinations. Students' frequent successes practicing BMG in other contexts confirms that BMG information can effectively transfer into other areas of instruction.

Cultivating self-regulated learners

It is the premise of this research that self-regulated learning theory enhances an already established BMG framework for understanding the students' learning experiences, and BMG teachers are well placed to facilitate development of self-regulation learning skills. The goal of BMG instruction is to teach students skills that enable them to function effectively as independent musicians and learners. Similarly, self-regulated learning provides teachers and students with a context for developing all dimensions of the learning process. McPherson and Zimmerman (2002) concur that self-regulated learning is particularly well-suited to instruction in musical performance and other areas of motor learning.

The study proposes students should learn to apply skills in the three phases of the self-regulated learning cycle (refer Fig 2.1) as delineated by Zimmerman and Campillo (2001). In the first phase (forethought), students should learn task analysis through goal setting and strategic planning. For example, McPherson and Zimmerman (2002) and Pintrich and Shunk (1996) suggest that effective goal setting is achieved when students understand how to divide large goals into smaller, more manageable stages. The ability to develop new strategies or adjust an approach may also be required, particularly in response to changes in learning context. Understanding self-motivational beliefs such as self-efficacy perceptions, outcome expectations and goal orientations as described by Bandura (1997) is important for both teachers and students. For example, research in self-efficacy judgments by Zimmerman (2000a:18) confirms 'the more capable people believe themselves to be, the higher the goals they set for themselves and the more firmly committed they remain to those goals.' McPherson and Zimmerman (2002:341) also report that students with high self-efficacy are 'able to organize and execute the actions or skills necessary to demonstrate competent performance.' Thus, cultivation of positive self-efficacy

beliefs contributes favorably to a student's learning experiences. Monitoring students' outcome expectations is important so that students are not under or over achieving. Moreover, they need to commit to goals that promote growth in a logical sequence of development. This also contributes to personal satisfaction that may be enduring, and positively impacts their long-term learning as a musician.

The skills comprising the second phase of the self-regulated learning cycle, performance/volitional control, are self-control and self-observation. Optimizing these processes enhances learning because students have the capacity to remain focused on specific tasks. McPherson and Zimmerman (2002) specify engagement of strategies such as self-instruction, imagery, focusing attention, and applying specific task strategies for developing self-control. Self-recording and self-experimentation are part of self-observation, and have been previously discussed in this chapter. Many of the elements comprising this phase of learning are already embedded in BMG pedagogy.

Self-reflection is the goal of the third phase of the learning cycle. This is achieved through self-evaluation, understanding causal attributes, monitoring ones level of self-satisfaction, and the ability to make adaptive rather than defensive decisions (Bandura 1991). A student's ability to constructively analyze and evaluate their performance is dependent upon these skills in self-reflection. They occur subsequent to a learning experience and provide valuable feedback for the forethought phase which begins the learning cycle all over again. Self-regulated learners are empowered to make better choices because they have a range of skills that support their learning process. By contrast, students without these strategies are limited in their capacity for personal growth (Zimmerman 2000a). In the worst case scenario they may fit the description of

a student who 'feels helpless, procrastinates, avoids tasks, or ceases active engagement because of apathy' (McPherson & Zimmerman 2002:342).

BMG is a flexible and comprehensive technique. However, this does not preclude it from being strengthened by consideration of related practices. In the I-R's estimation, teachers of BMG should remain open to developing their teaching strategies. In this case BMG and self-regulated learning share a common goal - to produce effective and independent life-long learners.

Role influence

Role power is defined as influence or power over someone resulting from a position of authority in the relationship (Kaufman, Raphael & Espeland 1999). Examples of people with role power include teachers, parents, police officers, leaders of teams, and club presidents. The role power that teachers have over their students includes the ability to set the learning agenda, decide on assessment tasks, and award grades. As has been previously discussed, the potential influence of studio music teachers is considerable because it is a one-on-one relationship that typically extends for a period of years in a student's life. This affords the studio teacher greater opportunity for individual interactions and consequent role influence than a classroom teacher who engages with large numbers of students for only a semester.

While the influence of peers was evident in the experience of the students, studio teachers had the most influence in terms of musical development and feedback. The nine students taking studio lessons during the study placed import on the interactions and reactions of their teacher to the BMG experience in journal entries or their interview. (Ingrid, Andrew and Alison were not having studio lessons at the time of the study). Studio teacher reactions to BMG ranged from

supportive and enthusiastic (e.g. Owen, Harold, Rosslyn & Hamish) to discouraging (e.g. Lawrence). Specific studio teacher interactions were previously discussed in Chapters 4 and 6.

The research results indicated that BMG positively impacted the majority of students and this was supported by the observations of their studio teachers. While none of the teachers were trained in BMG methods, most of them recognized the potential of the information to support the goals of their teaching and thus their student's development. Their significant role influence necessitates the need for accurate information for informed decision-making. This applies to all aspects of BMG information and its applications. Teachers of BMG can anticipate that studio teachers may have differing levels of understanding about the way the information works.

Musicians' health

As one might anticipate, students had unique and varied states of physical health and well-being. For example, there were students suffering from diagnosed playing-related and other physical injuries, students suffering from undiagnosed medical conditions that negatively impacted them, students who reported playing-related pain, students who suffered from chronic tension, and students who were not afflicted by any physical conditions that caused limitations in their body use. As discussed in the literature, medical conditions are, in the first instance, most appropriately treated by a physician. Although the early symptoms can be recognized by others, such as educators and performers, as a preventive measure (Brandfonbrener 2010; Conable 2003a; Rosen 2002a).

All participants with medical issues were either undergoing or had undergone medically supervised treatments and therapies for their conditions with varying results. Rachel's back pain

continued throughout the semester and the diagnosis of Fibromyalgia occurred soon after the study concluded. Through the experiences of Rachel and Amy in particular, the I-R confirmed two things in this regard: i) the importance of encouraging students to consult with medical professionals initially to rule out conditions that cannot be addressed by BMG; and ii) students need to be encouraged to maintain an ongoing dialogue with their medical provider/s if they are not obtaining the results they expected from their treatment plan. Risk factors to injury as stated by Brandfonbrener (2010) and Llobert and Odam (2007) are numerous and multiple factor may contribute to a problem. Owing to the complex interplay of factors impacting on musicians' health, multiple visits to a health practitioner may be required to determine underlying causes and appropriate treatment.

Tension was cited as a limitation to movement quality by many of the students. During the course of the semester most of them were able to resolve certain tension issues in their body use. For others like Ingrid and Andrew, chronic tension inhibited their progress. The reasons for chronic tension are many and varied, and include poor posture, excessive force when moving (e.g. holding an object or playing an instrument), over use, or a combination of these factors (Dawson 2006; Horvath 2002; Llobet & Odam 2007; Mark 2003). Ingrained habits of use require time and effort to be corrected through re-mapping and mindfulness. Students who experienced chronic tension in their body use found it challenging to change these habits in time to improve their performing skills.

Although this study was not designed to assess the impact of BMG on playing-related pain and injury, this factor was evident in a significant number of the participants. The I-R became aware of a range of pain and injury concerns at the beginning of the semester via the *Background*

Information Questionnaires and early journal entries. Six of the 12 students indicated some level of playing-related pain or discomfort. Only one student (Amy) came to the study with a specifically diagnosed playing-related injury for which she was undergoing medical treatment. (Rachel's injury was dance-related). During the course of the study all of the students made references to improvements in their pain and injury issues, and by the conclusion of the semester some students reported an absence of symptoms. It is noteworthy that none of the students experienced an increase in pain or discomfort during the study.

As a result of these outcomes, the I-R believes it is important to include BMG as part of a therapeutic team-approach to the treatment of playing-related pain and injuries. This is supported by the growing research in neuronal networks and brain plasticity which confirms the existence of body maps and the ability for changes in movement quality. The issue of BMG research with a focus on playing-related pain and injury issues is discussed in future research directions later in this chapter.

Limitations of the study

The setting for this research study was well suited to the action research methodology and inclusion of the I-R in a process designed to inform professional practice. However, a number of factors must be acknowledged as limitations to the study parameters. The first pertains to the population studied, i.e. undergraduate students. The study findings were limited by the technical and musical maturity of the study cohort. Inclusion of a wider range of student musicians, e.g. graduate students, would have given more breadth to the impact of the Body Mapping information. The size of the group studied was also determined by the number of students

enrolled in the performance enhancement class, and the students within that class who were willing to volunteer for the study.

The second limitation was the study time frame which was determined by the duration of the academic semester, i.e. 14 weeks of instruction in a 15 week semester. A longer time-frame would have generated greater potential for skill development and cultivation of self-reflective practices, and for these to be more effectively implemented. When BMG instruction is delivered in courses taught over a weekend or a week it cannot be assumed these study results would equate with the results of instruction over a much shorter period of time. Conversely, the longevity of study outcomes would be accomplished with a longitudinal study, which would examine the informants' ability to maintain their level of engagement with BMG without the weekly presence of the I-R. A further issue with regard to time was the I-R's limited ability to follow-up with study participants after it had concluded. Some participants graduated and others left for summer study abroad. This was also an issue with the faculty. While the I-R was able to make contact with all study participants as intended, post-study follow-up was limited to phone calls or emails.

The third limitation is this study's dependence on a single BMG instructor's teaching. The outcomes are therefore impacted by a number of factors. These include i) the quality of the I-R's BMG instruction; ii) the quality of the I-R's relationship with the students; and iii) the I-R's ability to manage specific issues with students. At the time of this study, the I-R had been a certified Andover Educator for three years and had taught BMG in a variety of educational settings. These settings included graduate and undergraduate choral conducting classes (as a core component), college and community choir rehearsal warm-ups, and week-long BMG courses with adults and

college students. This performance enhancement class was the first time that the I-R taught a class with BMG as the core content over a full semester.

The I-R's relationship with the students may be regarded as both a strength and a weakness. The majority of the students in this study were well known to the I-R prior to its commencement through their participation in her other courses or performance ensembles. Moreover, the school of music was comparatively small and faculty also functioned as mentors and advisors for the students. Since the I-R was familiar with most of the students' academic standing and performance capabilities before the study, she afforded a certain level of credibility to their feedback. However, it could also be argued that this familiarity could potentially cloud the I-R's judgment of their progress, with the possibility of either expecting too much or not enough from some students. Another issue in this regard is that of students wanting to please the instructor. While the I-R had developed a good rapport with the students and was respected by them, there was a risk of interactions being colored by a particular student's need to please. In the end this was not an issue that affected positive study outcomes, but may have been a contributing factor in Alison's case, which was characterized by a complicated and uneven reception of the BMG material.

Alison's journey with BMG was difficult for the I-R to assess. During the early weeks of the study her journal entries were detailed and showed good progress consistent with other students in the class. However, by the end of the study it became clear to the I-R that Alison was struggling to accept the fact that her practical application skills were not as advanced as many others in the class, and it was not until the interview that the I-R became aware of Alison's frame of mind. Following the interview Alison sent the I-R a detailed email explaining her actions and feelings.

Her motivation was to 'clear the air for her own sake.' In the email Alison revealed the extent of her self-imposed standards of perfection, her fear of failure, and her frustrations with her inability to work with BMG. She also stated that she was embarrassed and ashamed of herself, and apologized for 'not approaching this with an open mind and the ability to put myself out there' (Alison, post-interview email).

Following Alison's email the I-R understood her reactions in the interview more clearly, but it was information shared at a stage that was too late to help Alison improve her overall BMG experience. The I-R re-read Alison's journal entries for clues and determined that there was very little in Alison's journals that would have indicated that there were unresolved issues. Journals 2, 3, 4 contained discussions about her progress consistent with the I-R's expectations at that stage of the semester. Journals 8 and 9 focused on her successes and positive attitude at that time. It was not until journal 11 (there were 12 journals) that Alison indicated she felt inadequate in the course and with the study. Alison's fear of failure was a pervasive influence on her learning experience. While the I-R was not aware of its extent, retrospectively Alison's experience deepened the I-R's understanding of the way some students react to change in a skill-based learning environment. Knowledge of these kinds of student tendencies has shaped the I-R's professional practice beyond the study. Further discussion of this issue is included later in this chapter.

Future research

During the course of this study a number of future research directions emerged as significant for Body Mapping as a discipline and in combination with other areas of interest to musicians and

researchers. The potential for a broader range of data regarding BMG will be discussed in this section. They include the following which could be considered individually or in combination:

- Other populations of musicians, e.g. professionals, school-age children, and amateur musicians
- Specific performer groups, e.g. violinists, singers, pianists, etc.
- A larger informant pool
- Different BMG time-frames and environments
- Longitudinal studies
- Self-regulated learning
- *Results group* typology
- Constructivist perspective
- Deconstruction studies

Two music-related topics that would provide valuable data on the impact of BMG are performance anxiety and playing-related pain and injury. A final area for research consideration is collaboration with scientific research, specifically neuroscience, and studies involving functional magnetic resonance imaging (fMRI).

Other musician populations

The challenges concerning the teaching of musical technique and the desire of musicians to be more facile in performance apply across all performance areas and in all age-groups. The nature of those challenges varies according to an individual's aptitude, age, experience, and the level to which they aspire to perform. Studying the impact of BMG on professional musicians, many of whom also teach in private studios, would provide data with potential interest for artist

management (soloists as well as ensembles) as well as the performers themselves. Managers have a vested interest in the health of their performers, and a number of factors influencing this are under their direct control. A particular challenge in a study with professional musicians would be addressing the embedded habits of use in their technique.

Teaching younger musicians presents challenges specific to the early stages of their cognitive, physical and emotional development. Studies that focus on high school musicians and middle and elementary school children would provide data on how BMG information is processed and applied by less experienced musicians, and to what extent it could affect the rate of their technical development. Although amateur musicians do not derive their livelihood from music, their love of performance is no less important. Amateurs comprise the largest body of musicians in the USA. Since many of these musicians are active in community and church choirs, a study investigating the impact of BMG on specific amateur performing groups may help develop processes suited to their needs.

Specific performer groups

The technical requirements of every performance area are unique. As has been established in the literature, some performance areas have a higher risk of injury due to asymmetrical playing positions, namely violin, viola, flute, French horn, and guitar. Instruments such as the piano, which require greater physical exertion and therefore muscular effort, put players in the high risk category for injuries. Larger instruments such as tuba, trombone, double bass, bass clarinet, tenor and baritone saxophone present challenges because of the potential for mis-matched or disproportionate body size in relation to the instrument, particularly with children or people with a small stature. Studies that evaluate musicians who play high-risk instruments such as

piano, violin and flute, would provide valuable data on the influence of BMG on shared technical challenges as well as individualized issues. Studies that also examine the common problems among specific performer populations may also provide insights into the proportion of instrument-specific risk factors versus individualized issues such as age, gender, personality traits, personal health considerations (physical and mental), and other life-style influences.

Larger informant pool

Clearly the benefit of studying BMG with a larger informant pool would produce data with greater diversity in individual experience and substantiation for common trends. It would be valuable to study how BMG functions given different time frames. For example, intensive week-long courses of summer study which are popular with music teachers for professional development credit. Examining BMG teaching in this setting in particular would provide opportunities to more closely study the issues of time and change, which were recurring themes in this study. An investigation into BMG integration in one-on-one studio teaching environments may provide longitudinal study opportunities as well.

The question of variability in the instructor's teaching skills could be addressed by studies with a number of different BMG teachers. While distinguishing between teaching style and content is challenging in any field, the practice of BMG will be strengthened by a better understanding of how individual teaching philosophies can best enhance its methodological principles.

Longitudinal studies

Longitudinal information in any type of BMG study would allow researchers to investigate the issue of how enduring the study results were. This is particularly useful for studying situations

where students of BMG are not working under the direct supervision of a BMG instructor. As a self-inquiry method, BMG information may readily be used by individuals according to their interest (Conable 2000b). However it would be beneficial to know at what point an independent student was able to work effectively when left alone with the information.

Self-regulated learning

The educational potential of BMG could benefit from exploring the connections between it and self-regulated learning. This is supported by McPherson and Zimmerman's (2002:344) assertion that 'research that clarifies more precisely how students develop into self-regulated musicians deserves special attention from music education researchers.'

The I-R proposes two areas of focus resulting from this study. The first focus would be an examination of the correlation between the self-regulated learning cycle and the degree to which learning processes become self-enhancing and self-sustaining, which builds on McPherson and Zimmerman's (2002) similar point. Exploring connections between self-regulated learning and BMG learning processes may indicate the degree to which students are able to maintain or continue their somatic education beyond the initial period of formal instruction. The second focus would examine the connections between BMG, musical performance outcomes, and the role of self-regulation to understand how musicians develop constructive musical practices. This kind of study could be of potential interest to teachers and practitioners in other specialist performance activities (e.g. dance).

Results group typology

Development of a typology to describe performance outcomes allowed the I-R to differentiate student experiences and learning outcomes with BMG. Two scenarios are described within which this typology could be used and tested. Firstly, to assess the consistency and accuracy of BMG learning outcomes in this study with other populations; and secondly, it opens the way to determine if other groups are possible. The second scenario refines or expands on the criteria for each group in the typology. This may be achieved by approaching studio teachers or other BMG instructors to determine why students sit in particular categories.

Constructivist perspective

Within the field of education, constructivist theory has gained acceptance as a perspective for understanding how learning is acquired and utilized, and meaning is thus created (Jonassen, Peck and Wilson 1999). Richardson's (1997:3) definition of constructivism places emphasis on the role of the individual in learning when she states that 'individuals create their own understandings, based upon the interaction of what they already know and believe, and the phenomena or ideas with which they come in contact'. A number of schools of thought have developed around constructivist tenets including social constructivism and integrated constructivism (Chinn 1998). Irrespective of their particular emphasis, constructivists 'agree that learners construct their knowledge' (Beck & Kosnik 2006:9). The manner by which people create meaning is the philosophical heart of all forms of constructivism.

From a constructivist perspective, learners construct understanding from the ways they experience phenomena, how they interpret experiences, how they reason about them, and ultimately engage in processes of reflection. Thus, understanding is constructed not conveyed.

Emphasis on the five different attributes of meaningful learning is also necessary. The attributes are identified as: i) active (manipulative/observant); ii) constructive (articulative/reflective); iii) intentional (reflective/regulatory); iv) authentic (complex/contextual); and v) cooperative (collaborative/conversational). Synergistic interplay of learning activities around these attributes is crucial for real learning (Jonassen, peck and Wilson 1999).

The pedagogical premise of BMG aligns with five key principles of social constructivist theory as designated by Beck and Kosnik (2006), specifically that knowledge is constructed by learners, that it is experience-based and social. It also shares the premise that all aspects of a person are connected and that learning communities should be inclusive and equitable. Future BMG studies with a constructivist perspective may enable deeper understanding of the means by which musicians' construct and apply BMG knowledge. Insights may be possible for specific performance-areas, particularly regarding the learning community of players and noting trends shared within. Additionally, individual musicians' learning experiences in BMG may be more clearly understood in terms of performance. These foci would also be well situated in a longitudinal study.

Deconstruction studies

Lehmann and Davidson (2002) investigated the ways in which children cultivate musical skill acquisition and development. Their findings included recognition for the importance of acquired cognitive mechanisms over factors contributing to individual differences in achieving satisfactory performance levels. Drawing upon Lehmann and Davidson's (2002) research provides people working in the BMG field with a number of opportunities. In the first instance, to assess the potential for BMG to assume a role in the development of students' cognitive functioning, and

explore its contribution to successful teaching and learning outcomes. A further issue surrounds teachers who are the people most likely to influence a student's introduction to BMG. Two questions about teachers deserve investigation; i) how are teachers introduced to BMG? and, ii) how do they come to accept the pedagogy of BMG? The final issue pertains to students and the need to deconstruct how those who become committed to BMG develop their focus, while concurrently realigning, readjusting, or rejecting previous pedagogical frameworks they were using.

Performance anxiety

The issue of performance anxiety is common in discussions of musical performance (Berenson 2002b; Caplan 2009; Malde, Allen & Zeller 2009). Within the student cohort for this study, performance anxiety was listed by a number of students as a motivator for taking the class. While a number of students in the study reported a lessening of their performance anxiety by the end of the study, the issue deserves more comprehensive and systematic investigation. The reasons for performance anxiety are multi-faceted and highly subject to individual variance, therefore a study evaluating a potential correlation between reduced performance anxiety and BMG instruction would be of great interest to both teachers and performers.

Playing-related pain and injury

Currently, the education of musicians is commonly understood to be the single most effective preventative measure against playing-related pain and injury. BMG could play an effective role in this type of education. This study has proposed that BMG was effective in facilitating improved neuromusculoskeletal use in a number of the students who had previously suffered playing-related pain and injury. BMG could be integrated into a team-approach rehabilitation program

for musicians recovering from playing-related injuries. It must be emphasized that BMG is an educational technique and not a diagnostic tool in the medical sense. Teachers of BMG are not medical practitioners. Research in the area of musicians' health would be most effective in combination with experienced medical researchers focused on the needs of musicians.

Scientific collaborations

Advances in scientific enquiry in the last 50 years have allowed somatic practitioners to understand more clearly what they intuitively believed to be true from the results of their teaching practices. Through neuroscience we now have accurate identification of body maps that are both simple anatomical and functional representations. It is now understood that disorders that lead to abnormal movement patterns and distortions of the brain maps result from plasticity in the dynamic neural circuits that link and maintain these maps. fMRI is a brain imaging technique that allows 'neuroscientists to observe the living, working human brain in action' (Schwartz & Begley 2002:8). Specifically, fMRI allows scientists to 'pinpoint which brain neighborhoods are active during any given mental activity' (Schwartz & Begley 2002:23). While fMRI allows scientists to follow activity in specific areas of the brain during a given task, it does not do it on a second-by-second basis or time scale, so the temporal evolution of tasks cannot be assessed. However, fMRI does provide important clues about the structure of a brain circuit, such as the praxis network for skilled manual tasks, including musical performance, as well as some information about somatotopic (anatomical) organization (R. Nichols 2010, pers. com., 20 October).

Flohr and Hodges (2002:995) confirm that within the scientific community 'currently there is considerable interest in finding a way to use fMRI to study music.' While body maps provide a

basis for the spatial aspects of movement, brain circuits provide information about the temporal aspects as well as maintaining and altering the maps. Because fMRI provides information about the physical basis of perception and awareness, collaborative research could investigate questions relating to the potential role of BMG in a number of situations. Firstly, investigating brain reorganization in musicians suffering from focal dystonia; and secondly, better understanding the correlation between a musicians' self-awareness (through BMG), the impact on their playing, and the resultant brain activity. Both investigations would contribute to our understanding of movement quality as it relates to specific performance outcomes.

Conclusion

The action research methodology for this study was chosen by the I-R for two reasons. Firstly, it provided a structure for conducting research in an educational setting that would allow the instructor to be fully engaged in all stages of the research process. And secondly, it provided a framework for evaluating the experiences of the individual students engaged in the BMG learning process, which allowed the I-R to understand how they produced meaning from their experiences. The study results have given this I-R perspective on the BMG learning process and enhanced her professional practice. The following discussion focuses on the elements of the I-R's BMG teaching practice that have been confirmed or changed as a result of her self-reflection. The discussion also serves as recommendations for teachers of Body Mapping who are interested in evaluating their professional practice within the context of this study.

Journals

During the course of the study the I-R found journal entries to be the most valuable source of information from the students, because they revealed information that would otherwise have

remained undisclosed or not have been brought to the I-R's attention in a timely manner. For example, the I-R was able to identify if misunderstandings were specific to an individual student or shared by a larger group. Trends could be identified and immediately addressed to the benefit of the entire class. Through the weekly journal entries the I-R was also able to respond directly to individual students' questions or concerns, often posed after their experimentation in a private practice session. The students themselves also acknowledged the value of the journals for their own learning process. For example, in her interview Amy stated, 'it made me sit down and think and pay attention to what's going on within me.' Rather than regarding the journal entries as an onerous activity, the majority of students in the study found they enjoyed the process of sharing their thoughts and experiences. Submitting the entries on a weekly basis kept the students consistently engaged with the learning process, which was also desirable for this type of learning experience.

Journaling also offered the I-R a basis for comparison with the course experiences and outcomes of the students who were not part of the study. (Journals were required of study participants only). As the semester progressed the I-R noted it was easier to track the developmental needs of the students in the study than those who were not, because the journals provided a direct line of communication between them. Significantly, there was a direct correlation between the quality and quantity of journal entries and a student's overall success with BMG.

Ultimately, the I-R deemed the journals so valuable that the performance enhancement course now includes weekly self-reflective journals as a major part of the course assessment. Based on the study experience, the I-R is able to provide more direction for students as they track their progress, such as focusing on specific class content during the early weeks of the course. While

journals may not be as appropriate for a course taught in a short time-frame (e.g. over a weekend or a week), they are a valuable tool in courses encompassing longer periods of time. They could also be effective in one-on-one studio teaching environments.

Video-recording practical sessions

The use of video to record practical sessions in skill-based courses has been a standard feature of the I-R's teaching practice for many years and was a course requirement for all students in the class. In the I-R's experience the benefits of video include: demonstrating the difference between what the audience sees and the students' perceptions of their experience under pressure; the ability to review for ongoing evaluation and analysis; and as a comprehensive record of the session.

A good example of the effectiveness and importance of the video was described by Adelaide in her journal. The following excerpt explains how she learned the importance of accurate perceptions and comprehension in a pressured situation such as the masterclass.

While being coached [in the masterclass] I understood what I was being told and it made sense and was very encouraging. After class I reviewed in my mind what I learned (or "thought" I had learned) and was very excited about the new information. That evening, however, I was SHOCKED to find out how much I missed in what had actually been said to me until I watched the session on tape. It was like reading a wonderful and exciting excerpt from a book – but have no idea that it is only an excerpt! What a surprise and sense of completeness comes your way when you stumble upon the complete book! I learned that understanding what you hear doesn't guarantee that you "heard" all that was taught.

Adelaide's experience illustrates the importance of the video in the BMG learning process. A number of students in the class included video excerpts in their final performance-presentation to demonstrate their progress or highlight a movement issue.

Maintaining emphasis on process and cultivating awareness

Cultivating skills in self-inquiry by paying attention to the what, why, how, and when of movement was strongly emphasized by the I-R, because it is the key to understanding how BMG information translates into effective body use. The *Agenda Helper* and constructive rest were course elements that were particularly helpful in emphasizing process and cultivating awareness. By completing the *Agenda Helper* twice, students were able to identify areas of strength and weakness in their understanding and application of information at different stages of the learning process. It allowed the I-R to review their self-analysis at the mid-semester coaching and assist them in the formation of their re-mapping priorities moving forward.

Many students in the class wanted to know *to what degree* change was occurring. For example, Susan's response to the item 'I allow my spine to gather as I inhale and lengthen as I exhale' was 'for the most part' (Susan, *Agenda Helper*). The I-R has subsequently modified her instructions for *Agenda Helper* use to encourage students to think in terms of the percentage to which they achieve an objective. Inclusion of a sliding-scale to rate the degree of an answer would be another possibility.

Cultivating awareness was begun through constructive rest. This aspect of the course proved to be both an effective and popular activity with the students. Comments such as 'constructive rest has been immensely helpful' (Andrew, journal #8) and 'constructive rest is one of the most profitable discoveries of four semesters that I have made' (Adelaide, journal #6) exemplify the student's regard for its benefits. Others cited using it effectively in specific situations, e.g. Natalie did constructive rest prior to her flute recital. Two constructive rest resources have been

produced by certified Andover Educators since the conclusion of the data collection for this study. In Chapter 4 of *What Every Trombonist Needs to Know About the Body*, Vining (2008) explains the steps for effective construct rest with particular emphasis on the needs of trombonists, although the principles are easily applied to all areas of musical performance. David Nesmith's approach to this exercise is explained in Volume 1 of *Constructive Rest: An Audio Guide Series for Students of The Alexander Technique and Body Mapping* (Nesmith 2010). Teaching students how to develop skills for mindfulness and cultivating inclusive awareness is a crucial element of the BMG teaching process, and cannot be overemphasized.

Addressing individual differences

As a result of the study experiences, the I-R became more aware of the necessity of addressing individual students' experiences. While there is consistency in the factual content of BMG information, the question of how it can effectively be delivered to a variety of learners remains. Accounting for differences in individual student learning styles, i.e. how they perceived and processed information, was a priority for the I-R. For example, Howard's initial misunderstanding about the way BMG information was applied needed to be facilitated at the kinesthetic level so he could connect to his cognitive understanding. Directing students in a variety of ways so they could access the BMG information was also important. Some students preferred to read about concepts and experiment on their own. Other students were more responsive to the I-R's movement demonstrations illustrating effective and ineffective movement.

Managing the varying attitudes of the students was a challenge for the I-R, particularly when they were inclined to a negative state-of-mind. From the study results, the influence of attitude

was significant in a students' end-of-semester outcome. Students in the *good RG*, for example, were characteristically positive in their attitude. It should be noted that for some students, external factors other than BMG contributed to their negativity. However, their negative attitude was sometimes exacerbated by their perceived lack of progress with BMG. Navigating the changing moods and emotional states of students in any educational setting is challenging. In this study, the I-R was empathetic and emphasized the need for students to accept personal responsibility for their development. Providing them with tools for developing self-inquiry skills was part of this process. In this study, the In-R insisted that students accept personal responsibility for their learning.

Handling the issue of change

In the I-R's study experience, a number of key elements contributed to the issue of change. The majority of students in this study expressed frustrations with change at some point in the learning experience. In general they were impatient and desirous of instant results. In this regard the I-R was continually reinforcing the fact that changes in musical skills are acquired gradually, in the same way that the cultivation of musical skills was acquired progressively. For students accustomed to instant gratification in so many areas of their lives (e.g. electronic communications), accepting change gradually was a potentially painful prospect. Assisting students to overcome their fear of failure during the process of change was also a challenge. This was an issue with students who demanded perfection in themselves, because their willingness to take risks was reduced by their fear of failing to reach the perfect result.

Facilitating the students' expectations of the learning outcomes was important. From a philosophical standpoint, a BMG course is not an end-point. Rather, it is the beginning of a life-

long journey of self-exploration and possible change. The I-R reiterated for participants in this study that developing an appreciation of process was essential for evolving musicians. The benefits of BMG continue if one actively engages in self-inquiry on an ongoing basis. During the course of this study, the ability to maintain focused and committed to the learning process equated with increased quality of work, a more positive attitude, and open mind. These qualities also relate directly to Langer's (1997) characteristics of mindful learning. The results of the study confirm the need for teachers of BMG to guide students through the learning process so they are better positioned for the results they desire.

Concluding thoughts

Understanding the impact of BMG on the students' perceptions of their performance and development was achieved by analyzing their experiences over the course of a semester. In the final analysis, this study confirmed a number of things. Firstly, the majority of study participants believed BMG enhanced their ability to be musically expressive, citing specific examples such as dynamic control, sensitivity to phrasing, and improved emotional communication. Secondly, BMG improved understanding of specific technical elements as they applied to their performance area. These included richer tone quality, even vibrato, improved breath support, clearer articulation, and enhanced ability to handle faster tempi and louder dynamics, and improved intonation. Across all study performances areas, breathing technique was more clearly understood as a result of engagement with BMG information.

Thirdly, as performers, the students in the *good* and *reasonable RG's* (who comprised a total of nine of the 12 participants) described themselves as more confident, grounded and more focused during the intensity of performance. Fourthly, irrespective of their personal

performance outcomes, all of the students in this study gained an appreciation for the importance and relevance of BMG technique for musicians. This derived from their understanding of the relationship between movement and sound. Further, many of them experienced increased ease of motion in their physical use at some stage in the semester.

Within the fields of music education and performance, the study confirms the importance of accurate biomechanical movement education in the training of musicians at all levels. There is evidence of growing awareness and acceptance about the risks associated with musical performance in both the musical and health communities. Given the high incidences of playing-related pain and injury among performers of all levels, there is still a great need for this agenda to be emphasized. Success in this regard will be measured by statistics that confirm a generation of musicians who play with technical ease and freedom from pain. However, it is incumbent on music educators to be the first and last line of defense. Gary Graffman clearly articulates this in his statement 'I think the most I can do as a teacher is to make sure that my students learn to be aware of what they are doing... For it is really only through education – and thus prevention – that we can keep these physical problems at bay (quoted in Sataloff, Brandfonbrener & Lederman 2010:ix). More studies in this area will benefit musicians, educators and healthcare practitioners committed to meeting the needs of musicians. In the meantime, the study provides a foundation for future research into BMG as an educational technique, with particular emphasis on its benefits for the educational and musical requirements of performers of all ages.

Viewing students' BMG learning process through the framework of self-regulated learning shed light on a number of issues. Firstly, that the self-regulated learning cycle is methodologically and philosophically aligned with the BMG process in a number of ways. These include the

importance of focusing attention, self-experimentation, self-evaluation, and analysis of casual attributes. Secondly, a number of characteristics of self-regulated learning, such as developing task-oriented and mental strategies, are also common to BMG. And thirdly, students who were most successful in the study consistently demonstrated characteristics of self-regulated learners. For BMG practitioners, self-regulated learning opens up possibilities for re-thinking approaches to teaching.

It should be obvious to the reader that one of the major contributions to the study has been its applied research nature. It has used the phenomenon of BMG and exposed it to students while at the same time researching that phenomenon. In doing this applied research, it has raised some larger questions about how people learn, how people teach, the challenges that arise when you're trying to introduce new teaching technique that is questioned or not accepted, and the complexity in collecting data of an interpretivist nature that shows the link between the cognitive ('mind') and the physical ('body'). Nonetheless, people's perceptions and experiences about those links can be as valid and meaningful as a statistical model that has documented or 'proven' those links. The voices of these participants in explaining their understanding of the influence of BMG on their musical performance, their self-development, and embodied awareness are powerful.

Postscript

In the time since this study was conducted I have continued to teach BMG as the core component of the performance enhancement course at my university. I have worked with approximately 120 college students that represent a range of music performance areas. These include piano, guitar (classical and jazz), conducting, voice (soprano, mezzo-soprano, tenor, bass

in classical, musical theatre and jazz training), flute, oboe, clarinet, bass clarinet, trumpet, trombone, tuba, euphonium, saxophone (soprano, alto, tenor, baritone), violin, viola, cello, double bass, and percussion (set drum and marimba). While the students in this course have been predominantly undergraduate music-majors (a reflection of our institution's student demographic), a number of graduate students in the fields of music performance and music education were also included. At the point this study was conducted, the course was offered as an elective. It was enthusiastically received by students and received positive evaluations as well as full enrolments. Other faculty also acknowledged its substantive contributions to students' experience. Subsequent to this study and at their request, this course is now a requirement for undergraduate music education majors with a vocal emphasis. It continues to be an elective course for all other students in the university.

Many of the lessons I learned during the course of the research have been confirmed with subsequent student cohorts. The introduction of self-reflective journals as a core course component was instituted immediately following this study. Over time the weekly journal entries have proven to be the most effective means of monitoring student progress and analyzing teaching strategies. Use of video-recordings during the in-class practical rotations has also been confirmed as a crucial tool for students' in the self-analysis following their master class session. Whereas the immediate experience of interacting with the instructor and notes taken by a peer are important, the majority of students have cited viewing their video-recording to fully comprehend their progress in the master class situation. Some students have also extended their use of video-recordings to studio lessons and practice sessions, thereby reinforcing their understanding and development of specific sensory connections i.e. kinesthetic, visual, auditory and tactile.

From an instructional standpoint, I have learned the value of better preparing students for their process of change and the various factors contributing to it. While individual students have continued to present with unique issues and challenges, two consistent indicators that a student will successfully handle change have emerged. First, their attitude to the BMG information and the class activities contributing to the process of change. I have learned the importance of approaching the course with an open mind. Second, the students' capacity for handling failure. Failure is an inevitable part of the experimentation process. Students who understand how the information provided from failure or setbacks can be used constructively are better equipped to manage their process.

Through the benefit of more time and experience, I am more skillful at translating students' concerns into individualized instruction. Throughout the years I have also observed numerous changes in students' physical stature and musical performance resulting from implementation of BMG technique. While the rate of change and an individuals' capacity to manage it continues to be a major issue for students of BMG, those who address the learning process with consistent, systematic practice have yielded the greatest benefits. In the final analysis, I have learned to be more patient too. I have come to understand that the value of the BMG information taught during the course is not about the results in the semester but are best viewed as the foundation for an ongoing process. Teachers of BMG will find that their practice is most fruitfully considered over the long term, in some cases as contributions to students' life-long journeys in self-awareness. In sum, over the course of a lifetime of artistic process, BMG has the potential to transform the way performers refine technique, develop musically, and evolve as artists.

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Appendices

- Appendix I *Information for Participants*
- Appendix II *Study Consent Form*
- Appendix III *Ethics Approval*
- Appendix IV *Agenda Helper*
- Appendix V *Student Interview Schedule*
- Appendix VI *Faculty Interview Schedule*
- Appendix VII *Background Information Questionnaire*
- Appendix VIII: *Course Outline*

Appendix I: Information for Participants

Body Mapping Research Study

INFORMATION FOR PARTICIPANTS

As of January 11, 2005

Thank you for considering participating in my study. I am a student enrolled at the University of New England in Armidale, New South Wales in Australia undertaking my PhD studies in the School of Education. Below I provide details about the study, including the names of my supervisors involved with this study, its aims, and the conditions under which your participation is being sought.

Project title: The impact of Body Mapping: How student musicians' perceptions of their performance and development are influenced by somatic pedagogy?

Persons responsible & contact details:

1. Heather J. Buchanan
PhD candidate & Researcher
University of New England
Tel: 1-609-203-6617
Eml: heather@bodymapping.net

2. Professor Victor Minichiello, PhD
PhD Supervisor
Dean, Faculty of Education, Health & Professional Studies
University of New England
Tel: 011-61-2-6773-3862
Eml: vminichi@pobox.une.edu.au

3. Dr. Terrence N. Hays, PhD
PhD Supervisor
Lecturer, School of Education
University of New England
Tel: 011-61-2-6773-3649
Eml: thays@pobox.une.edu.au

NATURE & PURPOSE OF THE RESEARCH:

Effective, tension-free body usage is crucial for musicians because they perform highly refined, repetitive and specialized movements in order to play and sing. Music performance is demanding and places musicians at high risk of injury. The link between musicians' injuries and learning and performing music is becoming a priority for music educators and health

professionals. The severity of the problem and the need for appropriate preventative education has been acknowledged by the National Association of Schools of Music (NASM), the accreditation body for University and College music programs in the USA. (MSU is a NASM accredited program). The issue of musicians' health as it relates to the teaching and performing of music is now the focus of discussion and research in the education and medical fields. Body Mapping, a somatic discipline, teaches the practical relationships of the mind and body in action. A self-inquiry method for correcting one's body map or physical self-representation, it is defined as *the conscious correcting and refining of one's body map to produce efficient, graceful, coordinated, and effective movement*. Although teachers of Body Mapping witness its effect on musicians on a daily basis, the results of this somatic pedagogy are anecdotal and yet to be formally documented. For the credibility of the discipline at large, and for the sake of future research and development in the field, Body Mapping must be legitimized through valid research. This study is the first formal research project of its kind.

RESEARCH STUDY PARTICIPANTS:

The primary participants for this study will be student volunteers enrolled in [REDACTED] during the Spring 2005 semester at [REDACTED] University. Body Mapping will comprise the core pedagogical approach for this course. It must be emphasized that participation in this research study is purely voluntary and students who agree to participate will have the right to discontinue their involvement at any time without any consequences. Detailed information regarding the research methods used, time-frame, and other study details are outlined below. Students wishing to participate should read this information carefully and discuss it with Professor Buchanan if there are any questions or concerns before signing and returning the *Research Study Consent Form* attached to this document.

The secondary participants for this study will be [REDACTED] music faculty nominated by the student participants for the purpose of validating the musical performance and technical developments identified by the students. Each student participant will identify one faculty member only for this critiquing process.

At all times the results of the research study will remain confidential and anonymous to protect the identity of all participants.

RESEARCH STUDY AIMS:

The overall aim of this project is to enhance understanding of the impact of Body Mapping on the training and education of student musicians and to evaluate its effectiveness as a pedagogical tool. Specifically the study aims to:

- 1) Describe participants' perceptions of how Body Mapping enhances their ability for musical expression.
- 2) Understand changes in musicians' perceptions of the following:
 - a. Technical development and training
 - b. Musical performance ability, i.e. the art and craft of performance
 - c. Integration of mind-body-spirit-music connections during practice and performance
 - d. Self-awareness and impact on performance

- e. Self-empowerment, i.e. ongoing ability to evaluate body movement in relation to sound and make the necessary adjustments for self-improvement as required.
- 3) Identify the different functions that Body Mapping plays in musicians' perceptions of their musical development and performance.
- 4) Seek the view of significant others (studio teachers or area-related professionals identified by student participants) in validating perceptions of the impact of Body Mapping on musical performance and development.

RESEARCH METHODS USED:

This study will employ an Action Research methodology to guide the collection and analysis of data. Action Research is a qualitative research model used widely in the fields of education, health, and business. It is a holistic and humanistic form of research that allows music educators to deepen their understanding of professional practice through research because it focuses on the reality of what is actually happening in the teach-learning process. The opinions, thoughts, and experiences of participants are important and contribute significantly to the data collected. The teacher also plays a central role in the teaching and observation-research processes.

The study will involve the following three aspects of data collection over the duration of the Spring 2005 semester:

- 1) **Self-reflective journals:** weekly journals will be maintained by student participants to record evidence of their progress over the duration of the course of study. This is a written record of the participants' perceptions and will facilitate the formulation of specific questions for the interview process. Journal entries will take approximately 10-15 minutes per week and will be collected regularly by the researcher during the course of the semester. Participants will be asked to focus on their development at three specific stages:
 - a. The beginning of the semester prior to the introduction of the Body Mapping content.
 - b. Midway through the Body Mapping teaching process.
 - c. At the conclusion of the Body Mapping course content, towards the end of the semester, when students are at the stage of integrating the Body Mapping information with their performing and refining their skill development.
- 2) **Individual in-depth interviews:** all participants will be individually interviewed by the researcher in her campus office toward the end of the Spring semester. The questions directed to student participants will be derived from journal content and the researcher's observations of the student's progress during the semester. The interview will include questions that clarify or deepen the researcher's understanding of the participants' insights and experiences. The questions directed to faculty participants will focus on their observations of any changes or developments in their designated student participant's musical performance during the semester. Reference to any videotaped performances will be done only with the student participants' permission. All interviews will be tape-recorded. It is anticipated the student interviews will last for 30 minutes, and faculty interviews will last for 20 minutes.

- 3) **Video-taped recordings** of performances and in-class practical critique sessions will be made over the duration of the semester to document each student's progress. The videos will be available as a reference for students and the researcher. They may also be used as a reference resource by a student's nominated faculty participant if this is deemed necessary and/or appropriate by the student.

The results of this research will be initially presented for the researcher's PhD thesis. Data will subsequently be utilized for journal articles, conference presentations, and a possible book chapter. All audio tapes, video tapes, and observation notes will be coded to protect and ensure the anonymity of participants. At all times, data collected from participants will remain confidential and in the sole possession of the researcher. In the short term (up to five years) it will be stored in a locked filing cabinet in the researcher's home office. After five years all data will be destroyed: tapes will be erased and broken, and paper documents shredded.

RESEARCH STUDY PARTICIPATION:

All participation in this research study is voluntary, and participants have the right to discontinue their involvement at any time without adverse consequences. Participants who withdraw from the study are asked to do so in writing for the sake of documentary accountability for the researcher. While the context for this study is an elective course and the circumstances provide a valuable opportunity for the researcher to gain insights into this field of study, student participants are assured that they are under no pressure or obligation to participate; neither will any individual be disadvantaged for not participating.

A FINAL WORD:

If you would like to participate in this research study, please sign and return the attached *Research Study Consent Form* to the researcher, Heather J. Buchanan, no later than January 25, 2005. Please do not hesitate to contact her in person or on email (heather@bodymapping.net) with any questions or concerns about this study at any point prior to or during the completion of the research.

It is anticipated that the submission of the PhD thesis for which this research is being conducted will occur at the end of August 2006. Information from this study may also be used for journal articles, a book chapter, and conference presentations by the researcher.

This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No. HE04/179, Valid to 30th November, 2005).

Should you have any complaints concerning the manner in which this research is conducted, please contact the Research Ethics Officer at the following address:

Research Services
University of New England
Armidale, NSW, 2351
Australia
Tel: 011-61-2-6773-3449
Fax: 011-61-2-6773-3543

Eml: Ethics@pobox.une.edu.au

This project has been granted exempt status by [REDACTED] University's Institutional Review Board.

Research study participants should retain a copy of this information sheet for their reference.

Appendix II: Study Consent Form

CONSENT FORM

I, _____ have read the information contained in the *Body Mapping* (PRINT participant's name)

Research Study document entitled **Information for Participants** and any questions I have asked of the researcher have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw at any time. I agree that research data gathered for the study may be published, provided my name is not used.

_____, 2005
Participant's signature Date agreed

_____, 2005
Researcher Date received

Project title: The impact of Body Mapping: How student musicians' perceptions of their performance and development are influenced by somatic pedagogy?

Should you have any complaints concerning the manner in which this research is conducted: please contact the Human Ethics Committee at the following address:

The Secretary Research Ethics Committee
Research Services
University of New England, Armidale, New South Wales, 2351
Australia
Tel: 011-61-2-6773-3449

The names of the researchers involved with this study are:

1. Heather J. Buchanan
PhD candidate
University of New England
Tel: 1-609-203-6617
Eml: heather@bodymapping.net
2. Professor Victor Minichiello, PhD
PhD Supervisor
Dean, Faculty of Education, Health & Professional Studies
University of New England
Tel: 011-61-2-6773-3862
Eml: vminichi@pobox.une.edu.au

3. Dr. Terrence N. Hays, PhD
PhD Supervisor
Lecturer Arts Education (Music), School of Education
University of New England
Tel: 011-61-2-6773-3649
Eml: thays@pobox.une.edu.au

Appendix III: Ethics Approval

The University of New England HUMAN RESEARCH ETHICS COMMITTEE

APPLICATION FORM

This form may be downloaded from the web at
http://rs-nt-10.une.edu.au/Home/V_2_1/ecforms.html

This application form MUST be completed in conjunction with the HREC guidelines. The number of the question corresponds to the numbering in the guideline for easy reference.

Responses to all questions MUST be typed and expressed in non-specialist language. The language used must be simple and easily understood by people not associated with your discipline. Any discipline-specific/technical terms must be explained.

In response to yes/no questions please delete whichever does not apply.

Proposed Research Project

1. Title of Project: *(Brief, self-explanatory and in plain language)*

The impact of Body Mapping: How student musicians' perceptions of their performance and development are influenced by somatic pedagogy?

2. Aims of Project: *(Describe briefly)*

The overall aim of this project is to enhance understanding of the impact of Body Mapping on the training and education of student musicians and to evaluate its effectiveness as a pedagogical tool. Specifically, the study aims to:

- a) Describe participants' perceptions of how Body Mapping enhances their ability for musical expression.
- b) Understand changes in musicians' perceptions of the following:
 - i) Technical development and training
 - ii) Musical performance ability (i.e. the art and craft of performance)
 - iii) Integration of mind-body-spirit-music connections during practice and performance
 - iv) Self-awareness and impact on performance
 - v) Self-empowerment, i.e. ongoing ability to evaluate body movement in relation to sound and make the necessary adjustments for self-improvement as required.
- c) Identify the different functions that Body Mapping plays in musicians' perceptions of their musical development and performance.
- d) Seek the view of significant others (studio teachers or area-related professionals – all identified by participants) in validating perceptions of the impact of Body Mapping on musical performance and development.

3. **Justification:** *(In plain language explain in approximately one paragraph how your research will contribute to knowledge or education and will be of human benefit)*

Effective, tension-free body usage is crucial for musicians because they perform highly refined, repetitive, and specialized movements in order to play and sing. The demanding nature of music performance places musicians at high risk of injury, and the link between musicians' injuries and learning and performing music is well known but under-researched. The severity of the problem and the need for appropriate preventative education has recently been acknowledged by the National Association of Schools of Music (NASM), the accrediting body for tertiary music programs in the USA, and is now the focus of discussion in the education and medical communities. Body Mapping, a somatic discipline, presents an appropriate educational approach to the safe training of musicians' movement by clarifying mind-body relationships and connections resulting in effective movement. Andover Educators (AE) is a network of teachers who share the common goal of saving, securing, and enhancing musical careers with accurate information about the body in movement. Founded in the USA in 1997, AE currently comprises 20 Certified Teachers. While AE's witness the profound effect of Body Mapping on the music-making of students and professionals on a daily basis, the results of this somatic pedagogy are largely anecdotal and yet to be formally documented. For the credibility of the discipline at large, and for the sake of future research and development in the field, Body Mapping must be legitimized through valid research. This study will contribute important information to the field of music education by examining the impact of Body Mapping pedagogy on the performance and development of undergraduate music students.

4. **Person(s) responsible:** *(This MUST be a member of staff of the University. In the case of post-graduate research this MUST be the supervisor{s}).*

Name(s): Professor Victor Minichiello, PhD [Supervisor]
 Position(s): Dean
 School(s): Faculty of Education, Health & Professional Studies
 UNE Extension(s): 3862
 E-mail: vminichi@pobox.une.edu.au

Name(s): Dr. Terrence N. Hays, PhD [Supervisor]
 Position(s): Lecturer Arts Education (Music)
 School(s): School of Education
 UNE Extension(s): 3649
 E-mail: thays@pobox.une.edu.au

5. **Associate(s):** *(This may include Honours and Postgraduate Students, Research Assistants and Technicians) The role (and relevant qualifications) of the associate(s) in this project are to be specified.*

Name: Heather J. Buchanan
 Email: heather@bodymapping.net
 Student Number (if applicable): 203009284

If a student, specify if Honours, PhD, Masters or undergraduate:
PhD candidate

6. **Are there specific skills required to conduct this research e.g. taking blood samples, administering psychological tests etc. Please indicate relevant qualifications and skills of each researcher to undertake this research.**

Teaching Body Mapping course content in [REDACTED]
[REDACTED] to music majors; Researcher is a Certified Andover Educator
(teacher of Body Mapping) and full-time tenure-track faculty member at [REDACTED]
University, [REDACTED], USA. [REDACTED]
[REDACTED]

In response to yes/no questions please delete whichever does not apply.

7. (a) **Has this protocol been funded?** NO
- (b) **Will this application be the subject of a funding proposal?** NO
- (c) **If the response to either (a) or (b) is YES, please state name of organisation:**
8. **Proposed date of commencement of data collection:** *(cannot commence until after ethics approval has been granted)*
- Tuesday, January 18, 2005 (the beginning of the Spring Semester).
9. **Duration and estimated finishing date of data collection:**
- 17 weeks. End of data collection by Thursday, May 19, 2005.
10. **Approximate intended number of participants:**
- Maximum 16 music students [primary participants]; maximum 16 studio teachers [secondary participants]
11. **Is the state of physical or emotional health of participants relevant to your research? If so, please explain. (See Guideline 11)**

Yes. The physical health is relevant only if there is a music playing-related injury, which must be medically documented. This circumstance would not exclude a student from participation in the study.

12. (a) **How will you identify participants?**

Convenience sample: students enrolled in [REDACTED]
[REDACTED] University [REDACTED] USA during the Spring
Semester (Jan 18 – May 19, 2005)

There are a total of 75 music faculty at [REDACTED]
and those nominated by the student participants will form the basis of the sample.

- (b) If you identify participants from records not accessible from the public domain, e.g. student database, hospitals, schools, have you attached evidence of approval from the relevant organisation? (See Guideline 21)**

An ethics proposal is currently under consideration by the [REDACTED] University Internal Review Board. [REDACTED]
[REDACTED]

- (c) How will you recruit participants?**

A convenience sample will be used from a potential 35 students (maximum) enrolment. The primary participants will be volunteers from [REDACTED] students enrolled in [REDACTED] course. I will provide a briefing about the project during a meeting with the students on Tuesday, January 18, 2005 with the permission of [REDACTED] University. At this meeting written information about the project will be provided. Students will have one week to decide and confirm their participation in the project.

The secondary participants will be [REDACTED] faculty members who have been identified or nominated by the students. Their participation will also be voluntary. Initially I will approach each faculty member in person to describe the project, and they will also receive a copy of the *Information for Participants* document to clarify. Faculty will also have one week to decide and confirm their participation in the project.

- (d) How will you approach participants? (Please supply copies of any advertisements used to recruit participants).**

Personal contact and conversations with both students and faculty.

- 13. (a) Explain in approximately one paragraph the data collection methods and procedures to be used. (See Guideline 13)**

This study will employ an Action Research methodology to guide the collection and analysis of data. This will entail the following three aspects of data collection over the duration of the study.

i) Self-reflective journals: maintained by the students to record evidence of their progress over the duration of the course of study. This is a written record of the participants' perceptions and will facilitate the formulation of specific questions for the interview process. Participants will be asked to focus on their development at three specific stages:

- At the beginning of the semester before the introduction of the Body Mapping teaching in MUPR-255.
- Midway through the Body Mapping teaching process.
- At the end of the semester after all of the Body Mapping course content is taught and students are at the stage of refining their skill development

ii) Individual in-depth interviews: there will be two sets of interviews, all conducted by me in my office at [REDACTED]. The first set of interviews will be with the students

[primary participants]; the second set of interviews will be with the [REDACTED] music faculty members [secondary participants].

iii) Video-taped recordings of participant performances in class and on other occasions as designated by the students (e.g. recital, concert, masterclass).

(b) Have you attached copies of all relevant documents? (An information sheet for participants, consent form, interview questions or survey instruments must be attached where relevant).

Information sheet for participants; consent form; interview checklist of topics.

14. Does this research involve invasive procedures such as taking blood samples, administering substances or measuring physiological or biochemical function? NO
If YES, please provide details (See Guideline 14)
If NO, go to Question 17.

15. Will any of the following be used?

Chemical compounds YES / NO

Drugs YES / NO

Ionising or non-ionising radiation YES / NO

Other biological agents YES / NO

Special diets or modified foods YES / NO

If YES to any of above, give details.

16. Where relevant, attach a statement indicating responsibility for the procedures in 15. by a medical or paramedical practitioner with indemnity insurance.

Is a statement attached? YES / NO

17. Please describe any foreseeable risk of physical or emotional harm to the participants. Outline precautions to be taken. (See Guideline 17)

There should be no intrusion or risks for the participants that would cause physical or emotional harm since the methods of data collection are confined to journals and individual interviews that will be viewed by the researcher only. The video tapes submitted by the participants will be viewed only by the researcher and [REDACTED] music faculty member designated by the student participant for the purposes of this study. In the event of any performance circumstance that would cause discomfort for a participant, he/she has the right to withdraw that segment from the research and/or withdraw him-/her-self from the study (participants appraised of this in Consent Form). At all times data collected from participants will remain confidential and in the sole possession of the researcher.

18. (a) Does this research involve subject matter of a socially or culturally sensitive nature? (See Guideline 18)

NO

(b) If YES, provide details about the issues involved. Explain what steps will be taken to protect research participants.

19. (a) Does this work focus on Indigenous Australians? NO

(b) If YES:

(i) What steps have been taken to ensure that appropriate community support has been obtained? Please explain how this support is relevant to the project.

(Note: Evidence of support must be attached to the application);

(ii) Have community members had an opportunity to influence the:
design
process and
outcomes (e.g. publishing, how research findings will be returned to the community)
of this research project? If yes, please explain.

(iii) In what ways will the community benefit from this research? (e.g. this may include employment and/or training, retention of data and appropriate dissemination of research findings).

20. (a) Will your participants receive any financial reward or other compensation for their time and inconvenience? (See Guideline 20) NO

(b) If yes, give details; how much will be offered and why (e.g. travelling expenses).

21. (a) How will you ensure that participants have given free and informed consent to take part in the research? (You must include a copy of an Information Sheet for Participants and a consent form, or an alternative with justification for that alternative. See Guideline 21)

On the first day of class (January 18, 2005) the researcher will make a presentation about the research study to the students in [REDACTED]. In addition to verbal explanations and the opportunity for students to ask questions for clarification, two written documents with relevant information detailing the aims and process of the study will also be presented; *Information Sheet for Participants* and *Study Consent Form*. Students will have a full week to consider their participation before committing to the study. The voluntary nature of the study participation will be emphasized and a commitment will be confirmed once the researcher receives their signed *Study Consent Form*.

Potential [REDACTED] music faculty participants will be identified by students involved in the study, and will receive verbal and written information (*Information Sheet for Participants*) about the aims of the study from the researcher. Faculty members who agree to participate will sign a *Study Consent Form* and will be reminded of the confidential nature of the research at the commencement of their individual in-depth interview.

22. (a) **Does this research involve any impediments to obtaining the full understanding and free agreement of participants to take part in the project? See Guideline 22 (eg Will some or all participants be minors or people of limited competence to consent?)**

NO

- (b) If so, give details of how you will negotiate an agreement for the participation of these persons through a family member, carer, legal guardian or other person.

23. (a) **Are potential participants in this research in dependent relationships with the researchers and their agents, which may limit their belief that they are free to refuse participation?** (Examples include university teacher/student, staff member/supervisor, counsellor/client, carer/client, school teacher/student, parent/child, defence force personnel, or vulnerable groups such as prisoners, psychiatric patients or residents of age care facilities. (See Guideline 23)

YES – University teacher/student

- (b) **If YES, please specify the nature of the dependency and give details of the steps you will take to preserve their right to refuse participation.** (If the researcher is employed in any organisation from which research participants are drawn, the relationship between researcher and participants MUST be fully explained.)

The researcher is a faculty member at [REDACTED] and the primary participants will be student volunteers enrolled in [REDACTED], a three-credit free elective course open to music majors. This study employs an Action Research methodology because it is an effective framework for use in an educational context where the purpose of the research is to enhance the researcher's understanding of her professional practice. Accordingly, the function of the researcher as a teacher-practitioner and observer-researcher is a key characteristic of Action Research in this context. Through the process of focusing on the reality of what is actually happening in the teaching-learning process, and the resulting critical self-reflection, the study outcomes will provide data for improved educational practice. Student participants are volunteers who have the right to withdraw from the study for any reason at any time.

The [REDACTED] faculty members who will participate are also volunteers and have the right to withdraw from the study at any point should they so choose.

24. (a) **Does the project require the withholding of relevant information about the aims and conduct of the research?**

NO

- (b) If YES, explain why.

25. (a) **Does this research require that participants be deceived about a relevant aspect of the aims or nature of the research or their participation?**

NO

(b) If YES, explain why deception is required and how the interests of the participants will be protected, including what they will be told about the research and their participation.

26. How will participants be informed that they are free at any time to discontinue participation?

In writing via the *Information Sheet for Participants* received at the beginning of the study and also on the *Study Consent Form*.

27. Who will have access to the information you collect? (See Guideline 27)

The researcher (Heather J. Buchanan) and UNE PhD supervisors (Professor Victor Minichiello and Dr. Terrence N. Hays).

28. Explain how the confidentiality of data/samples/consent forms will be maintained. (The address at which data will be retained must be supplied).

(a) during the study

All audio tapes, video tapes, and observation notes will be coded to protect and ensure the anonymity of all participants. They will remain in the permanent possession of the researcher at her home address: 1 Sunnydale Way, Princeton Junction, NJ. 08550-1219. USA.

(b) for 5 years after the study (see Guideline 28)

All audio tapes, video tapes, and observation notes will be coded to protect and ensure the anonymity of all participants. They will remain in the permanent possession of the researcher at her home address: 1 Sunnydale Way, Princeton Junction, NJ. 08550-1219. USA.

(c) beyond 5 years:

Will data/samples/consent forms be destroyed? YES

Will data/samples/consent forms be retained? NO

(If no, you need to justify keeping data/samples/consent forms in the longer term and explain how and where they will be stored.)

All audio and video tapes will be erased and destroyed and observation notes and paper documents will be shredded by the researcher.

29. Ethical Issues

If you answer YES to any of the following, what steps will you take in response to these issues? Outline any safety precautions that you will be taking.

Please answer YES or NO to each of the following questions.

Are there any other ethical issues involved in this research:

- (a) Does the data collection process involve access to confidential participant data without their prior consent? NO
- (b) Are there issues related to ownership of data that may be pertinent to Indigenous Australians, cultural, or ethnic groups? NO
- (c) Will participants be photographed by camera or video? YES – video taped performances during practical sessions (in class and/or performances as designated by student participants). The performances will all be public events, i.e. during class or a concert/recital/masterclass performance.
- (d) Will participants be tape recorded? YES during individual in-depth interviews only. These will be conducted on campus in the researcher's office at MSU.
- (e) Will participants be asked to commit any acts that might diminish self respect or cause them to experience shame, embarrassment or regret? NO
- (f) Does the research involve any stimuli, tasks, investigations or procedures that may be experienced by the subjects as stressful, noxious, aversive or unpleasant? NO
- (g) In this study are there any procedures known (or thought) to be beneficial or harmful to one group of participants (EXPERIMENTAL) being withheld from another group of participants (CONTROL)? NO
- (h) Are any of the subjects minors (i.e. under the age of 18 years)? NO
- (i) Are there any other issues? NO

If YES, please explain.

All video and audio tapes will be coded for confidentiality and secured at the researcher's home address in a locked filing cabinet for a five year period. After this time they will be destroyed (erased and broken) by the researcher.

30. If your research involves minors (i.e. under the age of 18 years), or persons with a mental or intellectual impairment, what special steps have you taken to comply with the HREC Policy on Research Involving Minors and Persons with a Mental or Intellectual Impairment? (See Guideline 22 and 30)

- (a) Accreditation from an appropriate organisation? NO
If YES, please attach documentation.
- (b) Criminal Records Check NO
If YES, please attach documentation.
- (c) Other measures NO
If YES, please provide details.

If the answer to any of these items is YES, remember to indicate in your Information Sheet for the parents/guardians of participants, which of the steps has been taken.

31. (a) Is anything in the conduct of the research project likely to be subject to legal constraint? NO

(b) If YES, what steps will you take in response?

32. How will the results of your research be presented initially and how will they be disseminated subsequently (e.g. thesis, conference paper, journal article, book)?

PhD thesis initially; subsequent journal articles; book chapter; conference presentations (e.g. American Choral Directors Association, Music Educators National Conference, New Jersey Music Educators Association).

33. **Confirmation to accepted guidelines for research involving humans.**

Your signature at the end of this application confirms that your protocol conforms with the:

NHMRC National Statement on Ethical Conduct in Research Involving Humans (1999) as appropriate and that you have read the UNE HREC Guidelines.

**Does your protocol also conform to other principles of ethical conduct?
(Please specify)**

Ethics Proposal completed and under review by [redacted] University [redacted] [redacted] prior to commencement of research. [redacted] will also need IRB approval from University of New England.

**If this protocol involves working with Indigenous Australians, which additional guidelines have been used?
(Please specify)**

34. **Signatures of responsible investigator(s) and associate(s):**

I/We certify:

(i) that I/We have read the UNE HREC Guidelines;

(ii) that the proposed protocol conforms to these guidelines; and

(iii) That I/We will notify the Committee of anything that might affect ethical acceptance of this protocol, such as adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events.

Person responsible:	_____	Date:	_____
Associates:	_____	Date:	_____
	_____	Date:	_____
	_____	Date:	_____

Declaration by Head of School*:

I have read this application and the accompanying Information Sheet(s) for Participants and Consent Form(s) and am satisfied that the applicant(s) have fulfilled the UNE Human Research Ethics Committee's requirements. The research is justifiable on the basis of merit and it satisfies the guidelines imposed by the HREC Policy on Research Involving Children or Persons with a Mental or Intellectual Impairment, if relevant to this application. I am satisfied that this research complies with Occupational Health & Safety requirements relating to staff and students.

Head of School: _____ Date: _____

*Note: In cases where the Head of School is the sole person responsible for the research, then the relevant Associate Dean (Research) or Dean's signature should be obtained.

Dean/Associate Dean: _____ Date: _____
(If applicable *)

HREC Information Update & Responses

Title: The impact of Body Mapping: how student musicians' perceptions of their performance and development are influenced by somatic pedagogy?

- 1. The researcher needs to explain how she will ensure that her students do not feel coerced into participating... There is also a relationship between the researcher and co-workers – how will any potential dependency be addressed?**

Participation in this study is voluntary, and students have the right to discontinue their involvement at any time without adverse consequences. This will be clearly spelled out in the consent form and during any interactions with the participants. Specifically, participants will be assured that they are under no pressure or obligation to participate, and neither will anyone be disadvantaged for not participating. This is clearly stated in the Participant Information and will be emphasized by the researcher at the interview and various stages of data collection. The time commitment for participation will also be reinforced, and students will be advised to carefully consider their ability to manage the time required for the study. The activities engaged in for the purposes of data collection (journaling and interviews) are specific to the study and have no bearing or relationship to assessment grading in this course. This will be made clear to the participants. Also, ethics clearance for this study has been approved by [REDACTED] University, the institution where the participants are studying. (A copy of IRB Number 05-028 is enclosed).

The researcher is a newly appointed and untenured full-time faculty member at [REDACTED] University. Approval for this study has been obtained through the

proper channels of the [REDACTED] University and the same voluntary consent procedures in place with the students will occur with the co-workers.

2. **The researcher should provide a separate Information Sheet for Participants for the staff.**

See attached Information Sheet for Faculty Participants.

3. **The researchers are to advise what will happen in the event that a student agrees to participate but their teacher chooses not to participate.**

In the event that a student participant's studio teacher declines to be involved in the research study, there are other music department faculty members in each area (vocal, instrumental) who may be invited instead. It will be the student's choice to nominate the faculty member.

The role of the faculty member is to provide an independent opinion on the performance progress of a student over the course of the semester. Since the [REDACTED] music department produces numerous performance opportunities for students, i.e. regular weekly studio classes, master classes, student recitals, lunch-time concerts, and auditions, music department faculty regularly observe all of the students in performance over the course of the semester. In addition, the video-tapes of each student will also provide an audio-visual chronological record of progress, which may be viewed by faculty participants to assist them in their assessment of the student/s.

Respectfully submitted,

Monday, November 29, 2004

Appendix IV: Agenda Helper

WHAT EVERY MUSICIAN NEEDS TO KNOW ABOUT THE BODY AGENDA HELPER

HOUR ONE

- I perceive my movement clearly as I play and sing.
- My Body Map is accurate.
- My Body Map is adequate.
- My Map of my spine is accurate.
- I perceive my position clearly as I play and sing.
- I perceive my size clearly as I play and sing.
- I play and sing at full stature neither stretched nor compressed.
- I clearly perceive the quality of my own movement as I play and sing.
- I clearly perceive when I am tense.
- I can readily free myself when I am tense.
- I clearly perceive when I am off-balance.
- I can readily bring myself back to balance when I am off-balance.
- I feel supported as I play and sing.
- If I begin to lose support as I play and sing I can readily get it back.
- I use appropriate effort when I play and sing.
- If I begin to use excess effort when I play and sing I can readily return to appropriate effort.
- I clearly perceive my own emotion when I play and sing.
- I am awake tactilely as I play and sing.
- I am awake kinesthetically as I play and sing.
- I clearly perceive my sensations as I play and sing.

- ___ I use my sensations as information when I play and sing.
- ___ I know what to do with the information I am receiving from my body as I play and sing.
- ___ I am kinesthetically sensitive as I play and sing.
- ___ I am kinesthetically discerning as I play and sing.
- ___ I am kinesthetically responsive as I play and sing.
- ___ I have a good quality of attention when I play and sing, neither concentrated nor scanning.
- ___ I am self-perceiving and world-perceiving as I play and sing, without splitting and without strain.
- ___ I have all the information I need as I play and sing.
- ___ I use all the information I have as I play and sing.
- ___ I have a clear intention as I play and sing, and I carry out my intention.
- ___ I experience myself and the world in a single, fluid gestalt.

HOURL TWO

- ___ I feel balance when I play and sing.
- ___ I am neither slumped nor "postury" as I play and sing.
- ___ I am organized around my core as I play and sing.
- ___ My back, front, and sides are supported around my core as I play and sing.
- ___ I feel springy and poised when I play and sing.
- ___ I experience a dynamic inner support as I play and sing.
- ___ My head is dynamically poised on my spine when I play and sing.
- ___ My thorax is dynamically poised on my lumbar vertebrae as I play and sing.
- ___ My upper half is dynamically poised on my legs as I play and sing.
- ___ I am dynamically poised at my knees as I play and sing.
- ___ I am dynamically poised at my ankles as I play and sing.

___ My arm structure is dynamically poised over my torso and legs as I play and sing.

___ I can readily move in any direction from balance as I play and sing.

___ There is no waist in my Body Map.

HOURL THREE

___ There is no shoulder in my Body Map.

___ I know that I play and gesture with four arm joints, not three.

___ I experience good humero-scapular rhythm as I play and sing.

___ I use my sterno-clavicular joint appropriately as I play.

___ My shoulder blades move appropriately as I play and sing.

___ My collarbones move appropriately as I play and sing.

___ My arms feel light as I play and sing.

___ My arms feel supported as I play and sing.

___ My body feels articulated as I play and sing.

___ I clearly perceive the organization of my arm from the tip of my little finger to the tip of my shoulder blade.

___ My arms retain from childhood a natural organization.

___ I always perceive my arms as a part of the whole of me.

___ I never concentrate my attention on my arms or on a part of my arms.

___ In general, I perceive my parts in relation to the whole of me.

___ I move well at the joints of my upper arms and shoulder blades.

___ I perceive clearly the movement of my upper arms and shoulder blades.

___ I have an accurate, adequate Map of the joints of my upper arms and shoulder blades.

___ I play and sing without pain.

___ I play and sing without injury.

- I play and sing with such integrity that I am not vulnerable to pain or injury.
- Basically, I feel that I can do anything I want to do in playing and singing.
- If I can conceive it, I can do it.
- My upper arm bones rotate in their sockets appropriately as I play.
- I am free of pain in my upper body as I play and sing.
- I am free of strain in my upper body as I play and sing.
- I am free of pain in my elbow as I play.
- I am free of strain in my elbow as I play.
- I can pronate and supinate fully at my elbow without strain.
- My lower arm muscles are relaxed when they are not working.
- My wrists are long and free as I move.
- I do not over-stabilize my wrists as I play.
- I do not compress my wrists as I play.
- I use all three joints of my wrists as I play.
- My hands and forearms are at neutral when I have no need to bend at my wrists.
- My thumb freely moves opposite my four fingers.
- My arms do not feel heavy as I play and sing.
- My hands never hurt as I play.
- My hands never tire as I play.
- I am tactilely awake in my fingers as I play and sing.
- I am kinesthetically awake in my fingers as I play and sing.
- I use appropriate effort in my hands as I play.

HOUR FOUR

- I breathe fully and without strain.
- I allow my spine to gather as I inhale and lengthen as I exhale.
- I feel a wonderful support from the whole of me as I sing and play.
- I sing and play with my whole body.
- Basically, I can do whatever I want when I sing and play.
- I always have all the air I need.
- I always use the air I have fully and efficiently.
- I'm skilled at matching the air I take in to the phrase I going to play or sing.
- I easily begin my breath.
- I easily end my breath.
- I clearly perceive the movement of my breathing.
- My breathing feels dynamically supported.
- I use the information coming to me from my nasal passages as I inhale.
- I use the information coming to me from my mouth as I inhale and exhale.
- I have a free tongue, able to move wherever I like.
- I articulate clearly and without strain.
- I open my jaw with ease.
- I close my jaw with ease.
- My neck is free as I sing and play.
- My throat is free as I sing and play.
- My ribs move appropriately as I sing and play.
- I am free of heaving as I sing and play.
- My superficial muscles are free to gesture appropriately as I sing.

- I understand my rib movement, and I can change my rib movement when I need to or want to.
- I know right where my lungs are, and I can fill them fully if I need to or want to.
- I allow my diaphragm its full excursion up and down.
- I allow my abdominal wall full freedom in singing so that I don't interfere with the full excursion of my ribs and diaphragm.
- I allow my pelvic floor full freedom in singing and playing so that I don't interfere with the full excursion of my ribs and diaphragm.

HOOR FIVE

- I know my hip joints and pelvic floor are my middle, and I am dynamically poised over my legs as I play and sing.
- I sit poised on my sitting bones as I play and sing.
- I feel very stable poised over my legs as I stand.
- I know right where my hip joints are.
- I move my legs without tension in my inner thighs.
- I have full range of motion at my hip joints.
- I move my legs without tension in my lower back.
- My gluteus muscles are free as I play and sing.
- My hamstrings are free as I play and sing.
- My calf muscles are free as I play and sing.
- I feel grounded as I play and sing.
- I use my ankles appropriately as I play and sing.
- My legs are lively to me as I play and sing.
- I perceive my legs clearly as I play and sing.
- I never feel pain in my legs as I play and sing.
- I never lock my knees when I play and sing except when I am gesturing backwards.

___ I never play with chronically bent knees. I just return again and again to balance at my knees.

HOUR SIX

___ When I play and sing, I am attentive to how I am doing as well as to what I am doing.

___ I intend what I do, and I intend how I do it.

___ I intend to play and sing with freedom and awareness and fluidity, and I carry out my intention.

___ I know that muscles respond to intention.

Appendix V: Student Interview Schedule

Body Mapping Research Study

STUDENT IN-DEPTH INTERVIEW SCHEDULE

Date: Thursday, May 5, 2005 **Time:** 1:30 pm **Location:** McEachern 51
Name: Susan* (Alias) **Gender:** Female **Age:** _____
Degree: Music Performance **Class:** Senior
Performance Area: Voice (soprano) **Teacher:** Owen* (Alias)
Years of experience/training: _____

Contact info:

Eml: _____

Tel: _____
 (Mobile or Home)

1. Generally speaking, what is your overall impression of Body Mapping as an area of study or body of information for musicians?
2. How comfortable are you with your knowledge & understanding of Body Mapping principles?
3. How comfortable or confident are you in your ability to integrate Body Mapping information into your own usage?
4. Has Body Mapping enhanced your ability for musical expression? Explain.
5. Can you identify any changes in your technique as a result of Body Mapping? Explain.
6. Has Body Mapping changed your approach to musical performance? (Probes will be used to better understand the response provided and to understand what changes, if any, have occurred and why. If no changes are mentioned, probes will be used to understand why this is the case).
7. What role, if any, does Body Mapping play in your application of the MIND-BODY-SPIRIT-MUSIC sequence during music-making (practice or performance)?

8. Did you identify any body usage issues that you wanted to change as a result of the Body Mapping course content (*Agenda Helper*)? Explain.

Questions 9 – 12 only for participants who have integrated Body Mapping information into their music-making.

9. At what point in the course did you feel your understanding of Body Mapping information was sufficient to being to make changes in your body usage?
10. Have you experienced any frustrations or problems in implementing Body Mapping pedagogy? Explain.
11. Have you integrated Body Mapping pedagogy with your instrumental and/or vocal pedagogy? Explain why or why not.
12. Have you noticed changes in body usage in other areas of your life (e.g. every day activities)? Explain.
13. Open for participant comment on any aspect of the study.

Areas/issues specific to Susan (notes emerging during interview):

Appendix VI: Faculty Interview Schedule

Body Mapping Research Study

IN-DEPTH INTERVIEW SCHEDULE – FACULTY PARTICIPANTS

Date: Wednesday, June 8, 2005

Time: 10:00 am

Location: [REDACTED]

Name: Owen* (Alias)

Gender: Male

Faculty: Full Time

Student: Susan* (Alias)

Instrument: Voice

Years tuition: 4 years

Contact info:

Eml: [REDACTED]

Tel: [REDACTED]

1. How comfortable are you with your students exploring other areas of information that could potentially influence their technical and musical development? [probe as needed]
2. Have you had experience with any somatic (mind-body) disciplines, e.g. The Alexander Technique, Feldenkrais, Body Mapping? [If “yes” describe the experience/s]
3. How familiar are you with Body Mapping? (principles, content, applications, etc) *If faculty participant IS familiar with Body Mapping: what were your sources of information for Body Mapping?*
4. How would you describe your relationship with Susan?
5. Did **Susan** discuss the Body Mapping course information or experiences with you? [Expand as necessary. Examples: – which areas in particular?; to what extent?; why do you think he/she did or didn’t talk about Body Mapping info with you?
 - a. Was there a point in the semester when you started to see evidence of the specific changes Susan spoke about?
 - b. When did Susan start taking responsibility for herself?
 - c. How did you handle her sharing information that you weren’t familiar with?

In response to Susan’s interview & experiences this semester:

6. With regard to the art and craft of voice performance, what elements/skills/areas was Susan most successful in developing this semester? In your opinion, what contributed to this?
7. Was the Body Mapping information ever a cause for concern, or did it interfere in your teaching of Susan?
8. Some of the areas she worked on in Body Mapping:

- a. Balance (standing)
- b. Balance (seated)
- c. Shoulders
- d. Neck & head balance (esp poised head and also jaw mvt)
- e. Legs
- f. Breathing – awareness of gathering & lengthening & pelvic floor

Have you had occasion to observe any of this in action, e.g. in lessons or performances?

9. Susan described herself as *“pretty comfortable.... and pretty solid in the way that things work & understanding the basics”* with regard to the theory of BMG. With regard to putting it into action, she explained how it’s taken her time to develop some skills. She said
 - a. *“I am more confident than I was at the beginning of the semester. I felt pretty hopeless at the beginning because I could sit and think that I do understand it all and I do understand everything, but that it’s impossible for me to do it just because of the way that I felt, the shape my body was in. The state I was in at the time. But as you just keep going you learn what is too much and what is too little and you just learn... just relaxing yourself is a good way to start anytime. And that will put you in the right position to be going into other positions... I’ve been able to feel I can do a lot more and I can feel I have found balance a couple of times.”*
10. Susan’s response to the question *“Have you found that Body Mapping information has enhanced your ability to be musically expressive at all?”* was *“Yes - definitely.”*
 - a. *“And especially the performance that really stuck out for me was the Concerto Competition Performance because I was just feeling really good that day and I was feeling really free, really nice and my warm-up went really well and for the whole time before I went on stage, all I was thinking about was translations in my head, about what I was going to be singing and know what the lines were going to be like and just thinking about what it meant, that I was going to be performing those things with the orchestra at the school with this conductor... It allowed for more time to focus on other things that are important and the other things like getting the floor and things like that. It really allows me more freedom to express myself with my arms.”*
11. With regard to technique and connections with BMG, Susan spoke about some specific things:
 - a. Her discovery with jaw tension – allowing it to drop at the TMJ and not pulling it down.
 - b. Her sound/tone is warmer and the vibrato more even when her neck is free, arms are loose and upper body is not frozen.
12. Susan says that she has changed the way she approaches a performance as a result of BMG information. Specifically:
 - a. Incorporated stretching and physical exercises into warm-ups.
 - b. Breathing incorporating stretching and using chairs and getting her legs involved as support.

- c. Using constructing rest
13. Susan's response to the question "Why have you chosen to integrate BMG information with your vocal development?"
- a. *"Open. Because open is where I need to be with everything. I need to be open emotionally, open physically, my throat needs to be open, my mouth needs to be open, my arms need to be open, my mind needs to be open to be able to effectively be the artist I want to be and this is just one more way to make it easier. One more way to take me to another level and it's just... really changed and made easier, the way I need to approach things in a really, really positive way, and I'm just really thankful that it happened this semester. Everyone was right and I was wrong."* (ref. p. 10 re her feelings at the beginning of the semester.)

Appendix VII: Background Information Questionnaire

Spring 2005

Background Information Questionnaire

- The information you provide on this questionnaire is CONFIDENTIAL and will be used by the Instructor for the purpose of designing and tailoring course content, selecting appropriate teaching techniques, and determining specific participant needs and issues through the course.

Name: _____ Year Level: _____

Major: _____ Instrument: _____

1. Which performance skill (instrument, voice or conducting) will you focus on for your practical performance work in this course?
2. Have you had any previous experience with any somatic disciplines, i.e. Body Mapping, The Alexander Technique, The Feldenkrais Method, The Franklin Method? If yes, briefly explain.
3. Have you ever suffered music playing-related injuries? If yes please list and explain any treatment.
4. Have you ever been afflicted by any limitations in your technical skills as a musician? If yes, specify.
5. Can you identify any particular physical, musical, or personal (emotional, psychological) issue/s the instructor should be aware of or consider when working with you during this course? If yes, give appropriate details.
6. Have you ever suffered from performance anxiety? If yes, briefly explain the form, severity and situations likely to induce it.
7. What are your strengths?
 - a. Personally
 - b. Musically
8. Why did you choose to take this class this semester?
9. What is your primary goal for this class, i.e. what specific skill/s or issue/s do you wish to achieve/address/overcome by the end of the semester?

[REDACTED]
[REDACTED]
[REDACTED]
Spring

SCHEDULED TIME: Tuesday [REDACTED] & Friday [REDACTED] 11:30 am – 12:45 pm

CREDITS: 3.00

INSTRUCTOR: **Professor Heather J. Buchanan** [Office hours by appointment]

[REDACTED]
heather@bodymapping.net

[REDACTED]
www.bodymapping.net

SYLLABUS

*Movement never lies. It is a barometer telling
the state of the soul's weather to all who can read it.*

Martha Graham

DESCRIPTION:

A comprehensive theoretical and practical experience in the development of techniques needed for success in musical performance. Through the study of somatic education disciplines, primarily Body Mapping, students will study the specific anatomical and physiological information about the body in movement and its relevant applications for musical movement in their performance area. Prevention of injury and promoting facility in practice and performance is a central theme of the course. Students will also attain self-understanding and skills and information to develop confidence using a range of techniques for performance enhancement, including resolving/managing performance anxiety, and pre-performance centering exercises.

REQUIRED RESOURCES:

The following items are required and should be purchased from the [REDACTED] prior to the second class.

1. VHS video tape for recording practical sessions in class. (Alternatively you may bring your own video equipment to class).
2. Conable, B. 1998, *What Every Musician Needs to Know about the Body: The Practical Application of Body Mapping and the Alexander Technique to Making Music*, GIA Publications, Inc., Chicago, IL.
3. Conable, B. 2000, *The Structures and Movement of Breathing: A primer for choirs and choruses*, GIA Publications, Inc., Chicago, IL.
{**Note:** This text is also required for [REDACTED].}
4. Gelb, Michael J. 1994, *Body Learning: An introduction to the Alexander Technique*, Owl Books, Henry Hold & Co, LLC, New York, NY.

RECOMMENDED RESOURCES:

The following items are recommended (not required) for students interested in pursuing particular course topics/areas in greater depth. Book titles are available for purchase through the [REDACTED]

1. Butler, Sharon 1996, *Conquering Carpal Tunnel Syndrome & Other Repetitive Strain Injuries: A Self-Care Program*, New Harbinger Publications, Oakland, CA. [Book]
2. Jordan, J & Buchanan, H. 2004, *Evoking Sound: Body Mapping Principles and Basic Conducting Technique*, GIA Publications, Chicago, IL [Video or DVD]
3. Maisel, Eric 2005, *Coaching the Artist Within*, New World Library. [Book]
4. Mark, Thomas 2003, *What Every Pianist Needs to Know about the Body: with supplementary material for organists by Roberta Gary & Thom Miles*, GIA Publications, Inc., Chicago, IL. [Book & Video]
5. Swiss ball (large, inflatable vinyl ball, also called exercise ball)
6. Yoga mat or beach towel (for constructive rest session)

COURSE EXPECTATIONS:

- Commitment to the goals of the class by actively contributing to the development of a safe learning environment for the benefit of all.
- Genuine interest and support for class colleagues as they engage in the necessary risk-taking and potentially difficult and painful process of change.
- Active and constructive participation in class discussions, critiquing and performances.
- Punctual attendance at all classes and appointments. (*See attendance policy for specific details*).
- Timely completion of weekly journals & other assessment items.
- Thorough preparation for regular classes, including reading assignments, baseline performance recording and/or photographs, written critiques, and homework assignments.
- Preparation/organization of resources required for all classes and assessments.
- Use of BlackBoard as required for designated course topics.

ATTENDANCE POLICY:

Full attendance in class is necessary for students wishing to optimize the course experience. The course content is comprehensive and ranges from lecture to small group activities and practical laboratory work. To maximize the benefits of this course for individuals and the entire class, the following attendance policy is in effect.

1. Absence from class due to illness must be reported to the instructor ASAP and within one (1) week of the absence. Serious illness requiring extended absence requires supporting documentation from a medical professional.
2. Students who miss more than 50% of class time, for any reason, will receive a failing grade.
3. Absence from assessment activities will result in a failing grade.

In order for an absence to be under consideration as “excused,” a written explanation must be submitted to the instructor ASAP and no later than one (1) week following the absence. Absences are considered excused at the discretion of the instructor, and include illness of sufficient gravity for the student to be confined to his/her room/bed, a serious family illness, or a death in the family. Days off to complete personal, holiday, or vacation travel will not be routinely excused. Please use professional courtesy where absences are concerned and contact the instructor in person or via letter, telephone, or email. It is the student’s responsibility to catch up on course work missed during his/her absence.

4. **Tardiness:** Regular late-arrival at class will not be tolerated. Students who are consistently tardy will be penalized accordingly – two ‘tardies’ will equal one absence. As a point of courtesy, students who arrive late to class must excuse themselves to the instructor and tender an apology and explanation at the conclusion of the class. Tardiness may be excused at instructor’s discretion.

ASSESSMENT: Assessment will comprise four (3) areas, outlined below.

Title	Description	Due-date	Weighting
Class Participation Grade	Encompasses all aspects of course participation that contribute to a positive/beneficial experience for self & others, specifically: attendance; active participation in class discussions & critiquing sessions; positive attitude; open mind; sensitivity toward issues & needs of others; completion of homework & reading assignments in preparation for class activities.		20%
Agenda Helper & Private Coaching	Opportunity to discuss understanding of key philosophical and foundational principles, as well evaluate individual progress on key anatomical and physiological elements required for effective musical movement. Agenda Helper must be completed and used as a guide for directing change. Private Coaching session student directed with Instructor feedback as required	20 minutes each before Spring Break	30%
Final Performance-Presentation [10 minutes duration]	<p>The Performance-Presentation is designed to facilitate and highlight the progress/change and unique issues and needs of each individual student. It is not a performance “jury”. It is an opportunity for students to demonstrate & document their understanding/insights and journey of self-development at the end of the course.</p> <p>Presentation should demonstrate integration and mastery of somatic principles (& performance anxiety techniques if applicable), as well as explanation of the technical and musical challenges for your instrument, repertoire, and how these relate to your own technical & musical issues. Identification of “issues” will be guided by the <i>Agenda Helper</i> discussed in your coaching.</p> <p>The format is open to individual interpretation, but must include evidence of reflective thought and analysis of your personal journey. Use of visual aids and/or multi-media encouraged. Musical performance is an important component but should be limited to one short piece or an excerpt lasting approx 3 minutes.</p>	<p>Tue, Apr 26 (during class);</p> <p>Fri, Apr 29 (during class);</p> <p>Tue, May 10 (1 – 3 pm finals time)</p>	50%

COURSE CONTENT:

The following areas form the core of the course content. Additional topics of interest will be added to meet the needs of the class as the semester progresses and as time allows.

a. Introduction to Body Mapping Principles

The scientific basis for Body Mapping; Mirror Neurons; Philosophical and foundation principals of Body Mapping; medical and health problems commonly encountered by musicians; putting music training on a secure somatic foundation; training musicians’ movement by cultivating an accurate

and adequate body map; training sensory discernment and responsiveness; training inclusive, fluid attention.

- b. The Core of the Body and the Places of Balance**
Mapping the spine (structure, function & size); “posture” vs “poise”; How should I sit?; How should I stand?; the balance of the head on the spine; the balance of the head and thorax on the lumbar vertebrae; the balance of the torso on the legs; balance at the knees; balance at the ankles & on the arches of the feet; balance of the arm structure.
- c. Mapping the Arm Structure**
The four arm joints; the organization of the arm from the tip of the little finger to the tip of the shoulder blade; support for arm movement from a dynamic, lengthening and gathering core.
- d. Mapping the Legs**
The three leg joints; the organization of the leg musculature & the effect on posture & breathing; support for leg movement from a dynamic, lengthening and gathering core; the reflex that gives us a spring in our step!
- e. The Structures and Movement of Breathing**
Mapping the structures and movement of breathing, including a dynamic gathering-and--lengthening core; what is ‘breath-support’?
- f. Body Mapping in Action!**
Critiquing the practical applications of Body Mapping for musicians – individual performance work with instructor and class critiquing; focusing on the ‘how to?’ issues, i.e. using your nervous system to train or retrain movement; how to cultivate sensory discernment and responsiveness in yourself and others; how to train or retrain inclusive, fluid attention; what is ‘appropriate effort’?; Constructive Rest.
- g. Common miss-mappings**
Reviewing the most common miss-mappings affecting musicians; the causes and the effects of miss-mappings in specific areas (instrumental, vocal and conducting).
- h. Body Mapping and daily living activities**
How everyday life body usage impacts musical movement; handwriting; sitting at the computer; computer use; bending, lifting and carrying heavy objects; driving in the car; carrying backpacks & other bags; sleeping.
- i. Addressing Performance Anxiety**
Techniques for overcoming debilitating conditions (physical and emotional) that contributes to or causes performance anxiety; How to handle “Perfectionism”; Pre-performance anxiety.
- j. Other somatic disciplines:**
The Alexander Technique; Feldenkrais *Awareness Through Movement*

ADDITIONAL RESOURCES:

Books:

Alcamo, I. 1997, *The Princeton Review Anatomy Coloring Workbook*. Random house, Inc., New York, NY.

Calais-Germain, Blandine 2003, *The Female Pelvis: Anatomy & Exercises*, Eastland Press, Inc., Seattle, WA

Cash, M. 2000, *Pocket Atlas of the Moving Body: For all students of human biology, medicine, sports and physical therapy*. Ebury Press, London.

Conable, Barbara & Conable, William 1995, *How to Learn the Alexander Technique: A Manual for Students*, 3rd edn, GIA Publications, Inc., Chicago, IL.

Creager, C. 1994, *Therapeutic Exercises using the Swiss Ball*. Executive Physical Therapy, Inc., Berthoud, CO.

Dennison, Paul E. & Dennison, Gail E. 1986, *Brain Gym: Simple Activities for Whole Brain Learning*, Edu-Kinesthetics, Inc., Ventura, California.

Dimon, T. 2001, *Anatomy of the Moving Body: A basic course in bones, muscles, and joints*. North Atlantic books, Berkeley, CA.

Green, Barry 1986, *The Inner Game of Music*, Doubleday, New York, NY.

Green, Barry 2003, *The Mastery of Music: Ten Pathways to True Artistry*, Broadway Books, New York, NY.

Greene, Don 1998, *Audition Success: An Olympic Sports Psychologist Teaches Performing Artists How to Win*, ProMind Music, New York, NY.

Herrigel, Eugene 1999, *Zen in the Art of Archery*, Vintage Books, New York, New York

Horvath, J. 2002, *Playing (less) Hurt: An Injury Prevention Guide for Musicians*, Morris Publishing, Kearney, NE.

Jeffers, Susan 1987, *Feel the Fear and Do It Anyway*, Fawcett Columbine Book, New York, NY.

Jones, F. 1997, *Freedom to Change: The Development & Science of The Alexander Technique*, 3rd edn. Mouritz Ltd, London.

Jordan, James 1999, *The Musician's Soul*, GIA Publications, Inc., Chicago, Illinois.

Kropff, Kris (ed) 2002, *A Symposium for Pianists and Teachers: Strategies to develop the Mind and body for Optimal Performance*, Heritage Music Press, Dayton, OH.

Leonard, George 1992, *Mastery: The keys to success and long-term fulfillment*, Plume published by the Penguin Group, New York, NY.

Madaule, Paul 1994, *When Listening Comes Alive: A Guide to Effective Learning and Communication*, Moulin Publishing, Norval, Ontario, Canada.

McCoy, S. 2004, *Your Voice: An Inside View*. Available for purchase from author. [Book & CD-ROM]

McKinney, James C. 1994, *The Diagnosis and Correction of Vocal Faults: A manual for teachers of singing and for choir directors*, revised & expanded edn, Genevox Music Group, Nashville, Tennessee.

Miller, Richard 2003, *Solutions for Singers*, Oxford University Press, New York, NY.

Myers, Thomas W. 2003, *Anatomy Trains: Myofascial meridians for Manual and Movement Therapists*, Churchill Livingstone, United Kingdom.

Netter, F. 1997, *Atlas of Human Anatomy*. ICON Learning Systems, Teterboro, NJ. [CD-ROM & Book]

Pfautsch, Lloyd 1969, *Mental Warm-ups for the Choral Director*, Lawson Gould Music Publishers, Inc., USA.

Smith, Brenda, & Sataloff, Robert Thayer 2000, *Choral Pedagogy*, Singular Publishing Group, San Diego, California.

Rich, Harvey 2002, *In the Moment: Celebrating the Everyday*, HarperCollins Publishers Inc., New York, NY.

Thondup, Tulku 1996, *The Healing Power of Mind: Simple Meditation Exercises for Health, Well-being, and Enlightenment*, Shambhala Publications, Inc., Boston, MA.

Videos & Charts:

Eichenberger, Rodney 2001, *Enhancing Musicality through Movement*, Santa Barbara Music Publishing, Santa Barbara, California.

Johnson, Jeff 2000, *Redy, Set, Sing! Activating the mind, body and voice*, Santa Barbara Music Publishing, Santa Barbara, California.

Norris, R. 1990, *Therapeutic Exercise for Musicians*. MMB Music, Inc, Saint Louis, MO.

The World's Best Anatomical Charts, 2000. Anatomical Chart Company, Skokie, IL.



Appendix VIII: Course Outline

[REDACTED]
[REDACTED]
Spring, [REDACTED]

Professor Heather J. Buchanan

CLASS SCHEDULE PLAN

Day/Date	Details
T, Jan 18	Course introduction; textbook & resources; assessment; class logistics – daily set-up help etc; creating an environment of “trust”; individual introductions; complete & return <i>Background Info Questionnaires</i> and <i>Contact Sheet</i> H/wk: Read Nichols article.
F, Jan 21	Discuss Nichols article; Introduction to BMG Principles (#1) H/wk: Begin reading <i>Body Learning</i> & look for photos of self when “free”
T, Jan 25	BMG Principles (#2 completed)
F, Jan 28	Draw body map; Core of Body + intro gathering-and-lengthening (spine)
T, Feb 1	Places of Balance (#1)
F, Feb 4	Places of Balance (#2) H/wk: conclude reading <i>Body Learning</i> ; read Mirror Neurons article/information
T, Feb 8	Discuss Mirror Neurons; Arms #1
F, Feb 11	Guest lecturer: [REDACTED] – Chiropractor
T, Feb 15	Arms #2; Distribute <i>Agenda Helper</i> (complete & bring to Individual Coaching session)
F, Feb 18	Arms completed; Hellerwork exercises; Introduce Constructive Rest (bring towel or yoga mat)
T, Feb 22	Breathing #1; Explain <i>Agenda Helper</i> ;
F, Feb 25	Breathing #2 <i>Individual Coaching</i>
T, Mar 1	Breathing #3 (completed); constructive rest (w/focus on breathing) <i>Individual Coaching</i>
F, Mar 4	Legs; Explain Practical Rotations sign-up <i>Individual Coaching</i>
T, Mar 8	Performance Anxiety (#1); (Practical Rotation sign-up) <i>Individual Coaching</i>
F, Mar 11	Performance Anxiety (#2); (Practical Rotation sign-up) <i>Individual Coaching</i>
T, Mar 15	Spring Break
F, Mar 18	Spring Break
T, Mar, 22	Guest: Feldenkrais Workshop w/ [REDACTED]

F, Mar, 25	Good Friday – no classes
T, Mar, 29	Practical Rotations Day 1 (3 students with 1 reserve)
F, Apr 1	Practical Rotations Day 2 (3 students with 1 reserve)
T, Apr 5	Practical Rotations Day 3 (3 students with 1 reserve)
F, Apr 8	Practical Rotations Day 4 (3 students with 1 reserve)
T, Apr 12	Practical Rotations Day 5 (3 students with 1 reserve)
F, Apr 15	Practical Rotations Day 6 (3 students with 1 reserve)
T, Apr 19	Guest: Alexander Technique Workshop w/ [REDACTED]
F, Apr 22	Practical Rotations Day 7 (2 students); clarify final presentation questions; complete <i>Agenda Helper</i> for 2 nd & final time; show photos of self when free
T, Apr 26	<i>Performance-Presentations (day 1)</i> – 6 students @ 10 mins each
F, Apr 29	<i>Performance-Presentations (day 2)</i> – 6 students @ 10 mins each
T, May 10 Finals week	<i>Performance-Presentations (day 3)</i> – 8 students @ 10 mins each 1:00 – 3:00 pm; complete <i>Course Evaluations</i>

NOTES:**1. IT requirements:**

- a. **Data Projector:** required every class for first ½ of semester + Final Presentation-Performances.
- b. **VHS Camera & Tripod:** required every class for 2nd ½ of semester (rotations) + Final Presentation-Performances.

2. Guest Teachers:

- a. **Feldenkrais Method:** [REDACTED] (1 class)
- b. **The Alexander Technique:** [REDACTED] (1 class)
- c. **Chiropractor:** [REDACTED] (1 class)

3. Practical Rotations:

- a. Plan for 3 students per class with 1 back-up in case of absence.
- b. Minimum 7 classes needed (20 students presenting)

4. Agenda Helper & Private (Individual) Coaching:

- a. Allow 20-25 mins per student for coaching.
- b. Agenda Helper handed out 2 weeks prior to coaching.
- c. Coaching sessions outside of class, during weeks 7 & 8 (prior to spring break)

5. Constructive Rest: Integrated into classes at conclusion (10 mins) as necessary.