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An exploratory study of the use of imagery by vocal professionals: Applications of a sport psychology framework

Patricia Louise Bowes

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An Exploratory Study of the Use of Imagery by Vocal Professionals:

Applications of a Sport Psychology Framework

by

Patricia Louise Bowes

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
School of Music
College of The Arts
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Keywords: music performance, music education, mental rehearsal, singing performance, functional equivalence

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Dedication

This dissertation is dedicated to my heart and joy, my son, David Alistair Bowes.

I further dedicate this study to all the current and future generations of imaginative and creative performers around the world. I am hopeful that this investigation in imagery helps to light your way and gives you greater ease in achieving optimal performance.
Acknowledgements

In the effort to prepare this document, it is my privilege to acknowledge the assistance of a number of people to whom I extend my gratitude. First and foremost, I am deeply indebted to my Committee Chair, C. Victor Fung for his tireless diligence and integrity, whose direction and support, made dissertation possible and successful. To the members of this research committee, Sheila Woodward, Janet Moore, and Constance Hines, I offer my heartfelt thanks for all your support, guidance, and outstanding effort. To the participants of this study, whose identities remain confidential, I thank you for all the time, effort, and thoughtfulness you shared with me through the entire process and finally supporting the completion of this research. Your contributions were most valuable and I especially thank you for listening to your inner voice and developing your imagery so diligently and extensively. I am thankful to the researchers who assisted in peer debriefings and coding the transcriptions. To the many thousands of students I have taught over the course of my life, thank you for helping me begin to learn and understand imagery, creativity, excellence, and how all these work in life and in education. To all my many teachers through the years who have taught me to be a better musician, artist, actor, and teacher. To my mother, Paula Bowes, thank you for graciously editing one of the early drafts. To my son, David, who offered kind support, excellent meals, and continuous encouragement, I extend sincere appreciation. Finally, I am deeply grateful and indebted to Ronald T. Jeffers, for his kind and generous support, dedication, and helpful assistance in seeing me through all the levels of this eventful process.
# Table of Contents

List of Tables ........................................................................................................ vii
List of Figures ......................................................................................................... viii
Abstract .................................................................................................................. ix

Chapter 1: Introduction ............................................................................................ 1
  Rationale ............................................................................................................... 10
  Statement of the Problem ..................................................................................... 15
  Purpose of the Study ............................................................................................ 17
  Research Questions .............................................................................................. 19
  Theoretical Framework ......................................................................................... 20
    Where Imagery Was Used .................................................................................. 22
    When Imagery Was Used .................................................................................. 23
    What Was Being Imagined ................................................................................ 23
    Why Imagery Was Used .................................................................................... 24
  Significance of the Study ...................................................................................... 25
  Definitions of Terms ............................................................................................. 28
  Delimitations ........................................................................................................ 37
  Limitations of the Study ....................................................................................... 37
  Organization of Remaining Chapters .................................................................... 42

Chapter 2: Literature Review ................................................................................... 44
  Theories of Imagery Use ....................................................................................... 44
    Early Developments and Theories of Imagery .................................................. 47
      Psychoneuromuscular Theory ........................................................................ 47
      Symbolic Learning Theory ............................................................................. 48
    Cognitive-Based Theories .................................................................................. 49
      Dual Code Theory ............................................................................................. 49
      Bio-Informational Theory ................................................................................ 50
      Triple Code Theory .......................................................................................... 51
    Psychological States Theory .............................................................................. 52
      Self-Efficacy Theory ....................................................................................... 53
      Attention-Arousal Set Theory ......................................................................... 54
    Functional Equivalence Theory ......................................................................... 55
  The Four Ws of Imagery Use .............................................................................. 58
    Where or Location of Imagery Use ................................................................... 61
When or Time of Imagery Use ................................................................. 62
What: Content of Images ........................................................................... 64
What: Imagery Types .................................................................................. 65
   Execution Images .................................................................................... 65
   Metaphoric/Artistic Images ...................................................................... 68
   Character/Role Images ........................................................................... 72
Context images .......................................................................................... 74
Body-Related Images ................................................................................. 75
Irrelevant images ......................................................................................... 78
What: Imagery Characteristics ..................................................................... 78
   Senses ..................................................................................................... 79
   Perspective ............................................................................................. 85
   Ability ..................................................................................................... 87
   Direction ................................................................................................. 89
   Deliberation ........................................................................................... 91
   Amount and Duration ............................................................................. 93
Why or Reasons for Imagery Use ............................................................... 95
   Analytic Framework of Imagery Use ......................................................... 96
   Cognitive Reasons ................................................................................ 96
   Motivational Reasons .......................................................................... 103
   Artistic Reasons ................................................................................... 111
   Health Reasons .................................................................................... 112
Research in Imagery Use of Musical Performers ....................................... 113
   Trusheim Study ..................................................................................... 113
   Carter Study .......................................................................................... 116
   Bellon Study .......................................................................................... 117
Conclusion .................................................................................................. 119

Chapter 3: Method ...................................................................................... 123
   Research Design .................................................................................... 123
   Sample Selection ................................................................................... 124
   Measures ................................................................................................ 127
      Interview Protocol ............................................................................... 127
   Ethical Consideration ............................................................................ 128
   Procedures ............................................................................................. 129
      Timeline for Data Collection ............................................................... 131
      Data Analysis Procedures ................................................................. 132
      Legitimization .................................................................................... 133
      Trustworthiness ................................................................................ 136
      Researcher Bias ................................................................................ 136
      Frequency Counts ............................................................................. 137
   Summary ................................................................................................ 138

Chapter 4: Results ...................................................................................... 139
   Participants ........................................................................................... 139
   Interview Protocol and Process ............................................................. 145
### Coding

- Where Do Vocal Professionals Use Imagery to Achieve Optimal Performance?
- When Do Vocal Professionals Use Imagery to Achieve Optimal Performance?
- What Do Vocal Professionals Use in their Imagery to Achieve Optimal Performance?

### Imagery Types

- Execution Images
- Metaphorical Images
- Context Images
- Body-Related Images
- Musical Sound Images
- Character/Role Images

### Imagery Characteristics

- Senses
- Perspective
- Imagery Ability

### Why Do Vocal Professionals Use in their Imagery to Achieve Optimal Performance?

- Cognitive Reasons
  - Learning Vocal Skills and Techniques (Cognitive Specific)
  - Memorizing and Planning (Cognitive General)
- Motivational Reasons
  - Goal Attainment (Motivational Specific)
  - Arousal and Energy (Motivational General-Arousal)
  - Self-Confidence and Mastery (Motivational General-Mastery)
- Artistic Reasons
  - Vocal Quality
  - Appearance
  - Character Development
  - Communication with Audience
- Healing Reasons
  - Overall Health
  - Vocal Health

### Summary

Chapter 5: Summary of Findings, Implications, and Conclusions
Recom

Implications of the Study .................................................. 258
Recommendations for Future Research .............................. 306
Limitations of the Study ..................................................... 283
Four Ws of Imagery Use Framework for Singers ................. 281
Imagery for Vocal Production ............................................ 307
What Imagery Characteristics Vocalists Used...................... 260
Use of the Senses ............................................................. 299
Why Vocalists Used imagery .............................................. 268
Musical Sound Images ....................................................... 258
Senses .............................................................................. 261
Character/Role Images ....................................................... 259
Perspective ...................................................................... 262
Musical Performers’ Use of Imagery ................................. 308
Imagery Ability ................................................................. 264
Artistic Reasons ............................................................... 270
Sensory Imagery ............................................................... 293
Cognitive Reasons .......................................................... 268
Musical Sound Imagery ..................................................... 297
Motivational Reasons ....................................................... 270
Context Imagery ............................................................... 295
Imagery for Vocal Production .......................................... 307
Matching Imagery Content With Function ....................... 292
Goal Attainment ............................................................... 296
Mental Practice ................................................................. 292
Modeling ........................................................................... 296
Metaphorical And Anatomical Images ............................... 293
Musical Sound Imagery ..................................................... 297
Arousal Modification ........................................................ 301
Use of the Senses ............................................................. 299
Healing Imagery ............................................................... 301
Self-Efficacy and Mastery ............................................... 302
Character Development .................................................... 303
Communication with the Audience .................................. 304
Children’s Use Of Imagery ............................................... 309
Using Advanced Technology To Facilitate Imagery Development...... 304
Quantitative Studies ................................................................. 310
Music Teachers’ Imagery ............................................................ 310
Relationship of Flow and Imagery ............................................... 311
Functional Equivalence of Performers’ Imagery ............................ 311
Cross-Disciplinary Studies .......................................................... 312
Summary .................................................................................... 313

References ................................................................................ 315

Appendices .................................................................................. 353
  Appendix A  Permission to Publish Imagery Framework ............... 354
  Appendix B  Introductory Letter and Scripts: Vocal Professionals ... 355
  Appendix C  Introductory Letter and Scripts: Vocal Professors ...... 357
  Appendix D  Singers’ Interview Guide ....................................... 359
  Appendix E  Dancers’ Interview Guide ...................................... 367
  Appendix F  Permission to Use the Dancers’ Interview Guide ...... 374
  Appendix G  Research Participant Request ................................... 375
  Appendix H  Consent Script ....................................................... 377
  Appendix I  Vocal Participant Survey .......................................... 380
  Appendix J  Key of Emergent Codes and Categories/Themes ........ 382

About the Author.......................................................................... End Page
List of Tables

Table 1  Comparison of Potential Areas of Imagery Use among Athletes, Dancers, Instrumentalists, and Solo Vocalists ................................................................. 9
Table 2  Major theories explaining the effects of imagery on performance .............. 46
Table 3  Analytic Framework of Imagery Effects ................................................... 97
Table 4  Musical Mental Practice Studies Comparison ........................................ 99
Table 5  Major Imagery Studies in Musical Performance ..................................... 114
Table 6  Proposed Framework for Vocalists’ Use of Imagery ............................... 121
Table 7  Research Questions Directly Addressed in Singer’s Interview Guide ....... 134
Table 8  Participants’ Age and Gender Distribution ............................................. 140
Table 9  Participant Pseudonym, Gender, Voice Range, Age Range, and Highest Degree of Education ............................................................ 141
Table 10 Participants’ Singing Genre Frequencies ................................................. 143
Table 11 Participants’ Professional Solo Singing Experience ............................... 144
Table 12 Vocal Participants’ Responses to Where They Used Imagery ............... 151
Table 13 Vocal Participants’ Responses to When They Used Imagery ............... 154
Table 14 Vocal Participants’ Imagery Types, Categories, and Subcategories ....... 161
Table 15 Vocal Participants’ Specific Sense Imagery Use ................................... 178
Table 16 Vocal Participants’ Rank Order of Sense Imagery Use .......................... 182
Table 17 Vocal Participants’ Imagery Perspective ............................................. 183
Table 18 Vocal Participants’ Imagery Ability .................................................... 184
Table 19 Vocal Participants’ Cognitive Reasons for Imagery Use Categories ....... 189
Table 20  Vocal Participants’ Motivational Reasons for Imagery Use: Categories, and Subcategories .......................................................... 204
Table 21  Vocal Participants’ Artistic Reasons for Imagery Use Categories .......... 220
Table 22  Vocal Participants’ Healing Reasons for Imagery Use Categories ........... 243
List of Figures

Figure 1. Four Ws of Imagery Use Framework for Athletes .......................... 59
Figure 2. Four Ws of Imagery Use Framework for Dancers .......................... 60
Figure 3. Four Ws of Imagery Use Framework for Singers ............................ 282
An Exploratory Study of the Use of Imagery by Vocal Professionals: Applications of a Sport Psychology Framework

Patricia Louise Bowes

ABSTRACT

The purpose of this study was to identify and describe the use of imagery in vocal professionals’ efforts to achieve optimal performance based on research from sport psychology. The four Ws of imagery use: where, when, what, and why have been applied to this study from the fields of athletics (Munroe, Giacobbi, Hall, & Weinberg, 2000) and dance (Nordin & Cumming, 2005). These were adopted after many years of research in athletic performance excellence, with particular reference to the Analytic Framework of the Cognitive and Motivational Functions of Imagery (Paivio, 1985; Hall, Mack, Paivio, & Hausenblas, 1998). This theoretical framework was combined with those of previous interview studies investigating professional musical performers in their use of imagery (Bellon, 2006; Carter, 1993; Trusheim, 1987) and provided a foundation for this study. Theories from psychology explaining the effects of imagery were also integrated, including functional equivalence and neuroimaging. An exploratory design was chosen to investigate the comprehensive nature of this inquiry using a purposeful sample (N = 15). A semi-structured interview based on the four Ws was conducted with 15 solo classical vocal professionals, 10 females (sopranos and mezzos) and 5 males (tenors and a
baritone) ranging in age from late twenties to late sixties, residing in several major cities of the United States. Vocalists used imagery during practice, before performance, at home, traveling, and a range of other times. Imagery content was divided into types and characteristics. Vocalists’ use of imagery types encompassed execution, metaphorical, context, body-related, musical sound, and character/role images. Imagery was employed to perfect vocal production and quality, embody the character’s qualities and emotional aspects for performance, visualize metaphorical and anatomical images to achieve proper vocal execution, achieve goals, and communicate with the audience. Imagery characteristics of vocalists involved visual, auditory, and kinesthetic senses, using primarily internal and some external perspectives. These professionals’ imagery abilities were deliberate, controllable, and positive. Similar to competitive athletes, solo vocal performers engaged in imagery for many cognitive and motivational functions. Vocalists replicated dancers in artistic, and healing functions of imagery use in preparing for and achieving optimal performance.
Chapter 1
Introduction

Professional vocalists require exceptional capabilities to coordinate highly technical, musical, and artistic skills in their performances. Technical skills involve many aspects of correct vocal production, breath management and control, diction and text articulation, often in many different languages. Skills in music require training in theory, history and styles, and interpretation. Artistic skills involve those in acting, creative, and affective methods of interpretation (Caldwell & Wall, 2001; Leyerle, 1986). Other areas of expertise requirements include extensive memory capabilities, ability to perform in front of live audiences, and being physically and mentally competent to cope with the stresses of performance life. While these skills require varying degrees of cognitive processing, developing the full faculties of the mind is often neglected in arts performance training programs (Connolly, 2002; Connolly & Williamon, 2004; Dayme, 2006; Kohut, 1992). However, in sports, imagery and mental training have been given a prominent position when preparing athletes to achieve performance excellence.

Imagery and its relationship to execution and outcome assume different meanings for athletic and artistic performers. In vocal performance, imagery is often used as a representation of metaphorical, poetic, artful pictures, feelings, or concepts that facilitate specific performance requirements, be they dramatic, artistic, mechanical, or technical (Averino, 1989; Freed, 2000; Miller, 1996; Moorcroft, 2002; Vennard, 1968). Vennard (1967) defined imagery as “Figures of speech to express concepts which are difficult to
understand literally” (p. 261). The two major reasons that the vocal profession generally practices imagery in this form could be related to vocal training being primarily an oral tradition, and the practice of singing professionals who become teachers, passing on their own experience and understanding of the voice (Freed, 2000). The fact that singing is strongly based on experience and behavior, emphasizing knowing of the body rather than knowing intellectually also reinforces the need for this imagery. However, based on several qualitative research studies, it may be deduced that singers seem to use imagery in a wide variety of ways (Bellon, 2006; Carter, 1993), including those detailed in sport psychology literature (e.g., Morris, Spittle, & Watt, 2005; Murphy & Martin, 2002).

Artistic and musical performers may regard imagery differently from how it is defined in the field of psychology (Richardson, 1983; Sheikh, 1983). In psychology, imagery is distinguished from perception by how the individual responds to environmental elements experienced through one’s senses and possibly filtered through a number of personal cognitive and affective variables. Imagery includes internal experiences from memory or fantasy where no outside stimulus is evident. Throughout one’s lifetime, imagery can be conscious, subconscious, or unconscious and can take the form of daydreaming, mentally running through past experience, future planning and goal formation, and even spontaneous intuitive flashes. The following definition of imagery is one of the most widely accepted and often quoted:

Mental imagery refers to (1) all those quasi-sensory or quasi-perceptual experiences of which (2) we are self-consciously aware, and which (3) exist for us in the absence of those stimulus conditions that are known to produce their genuine sensory or perceptual counterparts, and which (4) may be expected to
have different consequences from their sensory or perceptual counterparts

[emphasis his]. (Richardson, 1969, pp. 2-3)

This definition has been borrowed and adapted extensively in sport imagery literature.

Perry and Morris (1995) described mental imagery as the “central pillar of applied sport psychology” (p. 339). In this field imagery is considered a key component of mental training in which “athletes can learn to use it systematically to aid performance, reduce anxiety, increase confidence, enhance endurance, speed recovery from injury or heavy exercise, and much more” (Morris et al., 2005, p. 5). Connecting the applications and benefits of imagery in sport psychology with its use by professional singers may reveal important similarities and differences, facilitating higher levels of performance success beyond those achieved by traditional training methods.

Increasingly over the past few decades, the athletic profession has recognized that developing the psychological faculties, particularly imagery, allows the athlete to achieve outstanding results well beyond which have been derived from concentration on physical practice and skill development (Gould, Eklund, & Jackson, 1992). These were often referred to as peak experiences (Maslow, 1968) or optimal experiences (Csikszentmihalyi, 1990), two terms that have often been used interchangeably. Their meanings have been blurred in some of the literature; however, they are quite different in their relationship to performance preparation and outcome. Distinguishing these two terms is highly relevant to the present investigation and its relationship to consciously controlled imagery in performance excellence.

Maslow (1954, 1968, 1970, 1971) initiated the psychological study of outstanding human experience in his theory of hierarchy of needs, the penultimate of which was self-
actualization and the corresponding peak experiences. According to Maslow, peak experiences are those involving cognitive and emotional changes including egoless perception, complete and total attention, wonder and awe, disorienting time and space, with a possible transcendence of unity, characterized by feelings of blissful joy, and illumination. Maslow’s peak experience has the connotation that there is one outstanding occurrence in an individual’s life representing the climax of an entire career at some given point and all other experiences either lead to or occur after this.

By contrast, Csikszentmihalyi (1990) defined optimal experience, or flow, being in the zone, or in the groove as controllable and attainable outstanding experiences. Csikszentmihalyi explained:

[W]e feel a sense of exhilaration, a deep sense of enjoyment that is long cherished and that becomes a landmark in memory for what life should be like. . . . The best moments usually occur when a person’s body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile. Optimal experience is thus something that we make happen [emphasis his]. (p. 3)

Csikszentmihalyi continued “Because optimal experience depends on the ability to control what happens in consciousness moment by moment, each person has to achieve it on the basis of his own individual efforts and creativity” (p. 5). Therefore, the term preferred in this study, optimal performance, described the results of mental and physical efforts of performers, particularly athletic, artistic, or musical, in challenging themselves to continually strive for excellence throughout their entire career.
Imagery plays an important part in achieving *optimal performance* and has been a recognized element in vocalists’ experience. The outstanding American soprano, Phyllis Curtin, gave this account of her experience of an *optimal performance*:

> When singing is ‘right,’ it’s the most exhilarating physical and mental experience imaginable or beyond imagination. It’s transcendental. It’s as if I’m not doing it at all. It’s all happening out there and it’s all happening in my projected feeling and imagination on that particular piece. (cited in Carter, 1933, p. 207)

This is just one example of the intermingling of imagination and *flow* in performance when all the physical, mental, and musical elements were working together and seemed to lift the individual out of normal consciousness beyond time into a heightened experience of the present moment. In the effort to understand the many components of *optimal performance*, sport psychologists have pursued this research area extensively (Gould, Dieffenbach, & Moffett, 2002; Orlick, 1990; Orlick & Parrington, 1988).

Although imagery has been empirically investigated for over one hundred years (e.g., Betts, 1909; Galton, 1880, 1883, 1907; James, 1890; Jastrow, 1892), extensive progress has been made over the past forty years through hundreds of studies in sport psychology (e.g., Morris et al., 2005; Murphy & Martin, 2002; Murphy, Nordin, & Cumming, 2008; Weinberg & Gould, 2003). As behaviorism’s favor diminished, imagery’s significance and applications began to be investigated (Holt, 1964).

Additionally, the human potential movement of the last decades of the twentieth century and the popularity of a variety of publications focusing on performance enhancement (Gallway, 1974; Maltz, 1960; Raiport, 1988) further stimulated growing interest in imagery and mental practice in a variety of performance areas.
Athletes’ use of imagery and mental practice has been applied in all facets of training, practice, competition, and performance and has been found to facilitate athletic performance and increase success in a variety of sports as reported in several meta-analyses (Driskell, Cooper, & Moran, 1994; Feltz & Landers, 1983; Hall, 2001; Hinshaw, 1991). While the main focus of this research has been in studying the effects of mental practice, imagery has also been associated with confidence enhancement (Callow, Hardy, & Hall, 1998; Moritz, Hall, Martin, & Vadocz, 1996), reduction of anxiety and stress (Vadocz, Hall, & Moritz, 1997), imagery ability (Rodgers, Hall, & Buckholz, 1991), imagery perspective, (Hale, 1982; Harris & Robinson, 1986; Hardy & Callow, 1999), and other psychological skills (Calmels, D’Arripe-Longuefille, Fournier, & Soulard, 2003). The body of this research is so extensive that only those studies directly contributing to understanding the use of imagery in sports as it specifically relates to vocalists’ experience was considered in this study.

There is substantial anecdotal evidence that mental rehearsal and imagery practice is a major part of elite athletes’, dancers’, musicians’, and singers’ professional endeavors. For example, the world-class professional golfer, Jack Nicklaus, described details of his use of imagery in achieving world status in golf (Nicklaus & Bowden, 1974). One of the more compelling anecdotal records of mental practice in musical performance was that of a Chinese professional pianist. After six brutal years of imprisonment, the second place winner of the 1958 International Tchaikovsky Piano Competition, Liu Chi Kung, expertly played a concert with the visiting Philadelphia Orchestra in Beijing, solely from mentally practicing the piano all those years (Korn, 1984). In the field of singing, the late Italian tenor, Luciano Pavarotti, identified mental
imagery as an extremely important element of his success (Günter, 1992a). Athletes and
musicians seem to share similarities in their applications of imagery that extend beyond
the effects of physical practice.

The similarities and contrasts of athletes and musical performers are worthy of
consideration with regard to imagery use. For a comprehensive comparison, see Table 1
below. The common practices of vocalists and athletes include: (a) use and complete
reliance of the body in performing; (b) highly specialized training and skill in
coordinating specific cognitive and motor behaviors in order to achieve even a modicum
of success (Hays, 2002); (c) the requirement of focus and concentration to perform both
physically and mentally at high standards of excellence often before a demanding
audience; (d) mental disposition which can positively or negatively effect the outcome of
a performance (Chapman, 2006; Emmons & Thomas, 1998); and (e) meeting the
challenge of competitive pressure to perform under various conditions, environments, and
expectations (Bellon, 2006; Gregg, Hall, & Hanton, 2007; Kohut, 1992). These
requirements of both athlete and artistic performer suggest that mental preparation is no
less vital to success than physical preparation.

There are five identified differences that set singers apart from athletes,
concerning the areas in which imagery could be applied. First, singers must control fine
motor mechanisms of the vocal apparatus, most of which are often not even visible to the
naked eye. Second, singers are required to develop much more discreet cognitive and
affective skills for executing expressive and artistic performances than athletes, such as
gaining facility with meaning and words in many languages (Caldwell & Wall, 2001;
Emmons & Thomas, 1998; Moyer, 1992). Third, singers are required to vocally,
physically, and artistically communicate directly to an audience. Fourth, vocalists must employ creative and artistic expression through embodying various qualities of characterization, such as subtext engagement, emotional dexterity, and expertise in dramatic, historical, and cultural styles (Lehmann, 1945/1985; Hays, 2002). Finally, singers must develop musical technique by becoming proficient in vocal production as well as the rudiments of music, such as rhythm, pitch, harmony, and composition.

Illustrating the differences between classical solo vocalists and other performing musicians is relevant to this study in regard to imagery uses. Members of chorus ensembles and instrumental groups, such as symphonies and orchestras, are required to read music notation when the music is not memorized and to watch the conductor, while avoiding overt gazing at the audience. Unlike most ensemble performers, traditionally singers must memorize their repertoire and communicate musically using text, often in many different languages. Instrumentalists may perform as soloists but they generally do not directly interact visually and are usually separated from the audience by their instruments and sometimes by their music stands. Solo singers, particularly in recital and oratorio performances, are generally the only musicians who perform directly facing the audience with no instrument, conductor, or other performers to separate them from the audience (Carter, 1993). This intimate and vulnerable position requires vocalists to employ a high degree of mental skills including concentration in controlling unwanted images, thoughts, self-criticisms, and other distractions, while maintaining positive self-confidence, body image, and self-consciousness. Many of these skills, which successful vocalists must master, represent requirements for cognitive and affective development
and training along with technical and artistic facility in being able to perform to demanding and often critical audiences.

Table 1

*Comparison of Potential Areas of Imagery Use among Athletes, Dancers, Instrumentalists, and Solo Vocalists*

<table>
<thead>
<tr>
<th>Performance Requirements</th>
<th>Athletes</th>
<th>Dancers</th>
<th>Instrumental Musicians</th>
<th>Solo Vocal Musicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artistic Affective/Expression</td>
<td>Specific sports:</td>
<td>Bodily, facial,</td>
<td>Musical, artistic,</td>
<td>Musical, artistic,</td>
</tr>
<tr>
<td>Training</td>
<td>Figure skating,</td>
<td>artistic, and</td>
<td>some affective</td>
<td>expression, affective</td>
</tr>
<tr>
<td></td>
<td>artistic gymnastics</td>
<td>affective</td>
<td>expression</td>
<td>versatility, verbal,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bodily, facial</td>
</tr>
<tr>
<td>Use of Sensory Modality in Imagery</td>
<td>Kinesthetic &amp; visual</td>
<td>Kinesthetic, visual, &amp; aural</td>
<td>Visual, aural,</td>
<td>Visual, aural,</td>
</tr>
<tr>
<td>Audience Interaction</td>
<td>Not essential, financially supportive</td>
<td>Indirect but essential, financially supportive</td>
<td>Indirect but essential, financially supportive</td>
<td>Most direct connection, financially supportive</td>
</tr>
<tr>
<td>Arousal Management</td>
<td>Optimal levels of arousal are trained for individual and sport</td>
<td>Performance anxiety often a major issue.</td>
<td>Performance anxiety often a major issue.</td>
<td>Breathing &amp; full preparation</td>
</tr>
<tr>
<td>Health &amp; Injury Concerns</td>
<td>High stress training, overuse syndrome,</td>
<td>High stress training, injuries</td>
<td>Repetitive strain injury from overuse syndrome,</td>
<td>Physical fatigue vocal health problems</td>
</tr>
</tbody>
</table>

9
Rationale

The rationale for this study includes several important elements: (a) traditional uses of imagery in vocal pedagogy as compared with those of psychology, (b) terminology issues, (c) mental and physical practice research, (d) mental practice studies using university students, (e) correlating sport psychology research with musical performance, (f) imagery use in achieving artistic and musical performance excellence, and (g) researchers’ call for empirical studies of imagery use by vocal performers.

Vocalists’ understanding of the function of imagery differs rather extensively from that of psychology. Traditionally, imagery has been employed in learning and executing musical skills in musical study and performance. For years, vocal pedagogues have recognized the value of specific imagery applications in securing singing technique and achieving artistic and emotionally sensitive performances (Brower & Cooke, 1920/1996; Fields, 1947; Lehmann, 1960; Leyerle, 1986; Vennard, 1968; Ware, 1998). For the past century, general and sport psychologists have examined imagery extensively in ways that extend beyond the conventional uses assumed in vocal pedagogy. According to psychologists (e.g., Sheehan, 1983; Singer, 1966), imagery is a natural cognitive skill that has been well exploited in various performance areas (Sheikh, 1983; Sheikh & Korn, 1994). Several vocal pedagogues (e.g., Cleveland, 1989a; Fields, 1972; Ware, 1998) have embraced the psychological concepts of mental imagery and its function in training singers. According to Günter (1992a), “It is my understanding that in artistic singing and, consequently in vocal pedagogy, no satisfactory results can be obtained without mental concepts, without training mental awareness, without training the ear, and without training the ability of the imagination” (p. 46). It could be that the time has come to
update and extend vocalists’ comprehension and implementation of imagery in ways that reflect more current and research-supported applications for the purposes of improving performance outcome and success.

Use of imagery terms between sports and musical performance needs to be explicated. The language of imagery in the sports context focuses on mental practices and functions in relation to performance, such as skill learning and building, strategy of execution, goal orientation, arousal, and mastery (Hall, Mack, Paivio, & Hausenblas, 1998; Paivio, 1985), while music imagery assumes metaphorical and artistic contexts in skill learning and acquisition and in vocal literature interpretation (Carter, 1993; Fields, 1947; Lehmann, 1960). As dance researchers have embraced these sport-based imagery terms, more aspects of imagery have been identified, including imagery types, characteristics, and artistic qualities (Nordin & Cumming, 2005). Linking these terms in how they are used in vocal performance could provide a foundation for applying the findings of imagery research in sport psychology to musical performance.

In training individuals for athletic or artistic performance, practice has been regarded as paramount in achieving success (Hallam, 1997; Jørgensen & Lehmann, 1997). However, exclusive or extensive physical practice of a skill does not ensure proficiency (LaFosse, 1973). The cognitive aspects of performance are often neglected in many training programs (Kohut, 1992). Researchers agree that most motor skills begin in the individual as a thought (Feltz & Landers, 1983; Oxendine, 1969; Richardson, 1969) and operate on a cognitive to motor continuum (Feltz & Landers, 1983; Richardson, 1967a). While there are many athletic skills that are considered more motor than cognitive, researchers have reported that appropriate mental practice and imagery use
have facilitated motor performance (Driskell et al., 1994; Feltz & Landers, 1983). Singing could be considered more cognitive than motor, especially since the internal vocal apparatus cannot directly be seen and most of the skills involved in coordinating vocal performance excellence are largely controlled cognitively, affectively, and internally. Therefore, perhaps even more than athletics, singers could benefit from cognitive training, such as imagery, as a component of their practice and performance. Sport imagery researchers, Murphy and Jowdy (1992), argued that imagery research needs to extend beyond athletic performance, and said, “Future research needs to be directed towards a better understanding of the roles that imagery plays in human performance so that we can help all persons to optimally utilize their innate capacities” (p. 245).

Mental practice studies, representing the majority of imagery investigations, have been performed primarily in a controlled and sterile laboratory setting, using the ever prevalent and convenient subject pool of university students (cited in Gregg et al., 2008). In these studies, participants, content, and all relevant factors have been removed from the natural environment, modifying the behavior and the results. Consequently, Yuille (1985) and Lindauer (1983) have recommended investigating highly experienced subjects in their natural practice and performance environment in order to gain a more complete understanding of imagery use. These researchers suggest that university students too often lack the maturity and understanding that seasoned professionals gain after years of meeting the demands of performance requirements. It was also assumed that universities and conservatories of music did not traditionally provide students with psychological skills instruction, including imagery, although this trend seems to be changing (Caldwell
& Wall, 2001; Connolly, 2002; Connolly & Williamon, 2004; Emmons & Thomas, 1998). Musicians, teachers, and coaches may be unaware of or unfamiliar with the benefits, techniques, and specific applications of imagery as used in sport psychology in athletic or artistic performance. It is possible that professional singers would have a greater understanding and knowledge of incorporating appropriate mental skills, including imagery, after years of meeting the various challenges involved in the highly technical and artistic endeavor of vocal performance.

The results of a study such as this could provide singing pedagogues and professionals with an understanding of how singers’ imagery use directly relates to that of professional athletes and dancers in achieving optimal performance. Too often highly gifted, talented, and even trained singers abandon a professional career because of seemingly unmanageable cognitive issues such as performance anxiety, lack of ability to memorize, and insurmountable physical, psychological, and affective blocks that could possibly be easily rectified using appropriate imagery techniques and applications (Caldwell & Wall, 2001; Chapman, 2006; Emmons & Thomas, 1998; Freymuth, 1999). Imagery use, as found in sport psychology research, offers techniques and skills which could help singers overcome some of the well-known barriers to performance excellence, such as performance anxiety, memory loss, or vocal problems. A detailed inquiry into the various aspects of imagery use of professional singers may reveal if or how those practices can be incorporated in training professional vocalists. This knowledge could inform vocal practice and contribute to music performance research.

Professional vocalists may already use imagery techniques in achieving optimal performance in ways that are similar to those employed by their elite athletic
counterparts. Texts in musical performance have promoted the development of imagery and mental aspects of achieving excellence as it is used in sports (Green & Gallwey, 1986; Freymuth, 1999; Kohut, 1992). Other recent publications have been helpful in providing a variety of useful mental practice applications in achieving vocal performance excellence (Caldwell & Wall, 2001; Chapman, 2006; Emmons & Thomas, 1989; Ristad, 1982). Researchers have examined the use of imagery and mental practice in artistic performers (Castellano, 1983; Hays, 2002; Rosenberg & Trusheim, 1989). Specifically, imagery has been studied in dancers (Fish, Hall, Cumming, 2004; Hanrahan, & Salmela, 1990; Nordin & Cumming, 2005), musicians (Connolly, 2002; Freed, 2000; Gregg, Clark, & Hall, 2008), brass players (Trusheim, 1987; Ross, 1985a, 1985b), pianists (Coffman, 1987, 1988, 1990; Lim & Lippman, 1991; Rubin-Rabson, 1941; Sisterhen, 2005) and singers (Bellon, 2006; Carter, 1993). This literature strongly supports the link between sport psychology imagery research and imagery use by vocal professionals. However, relatively little research has been conducted directly linking these two areas.

A number of researchers have called for further study investigating the various aspects of imagery in musical performance, particularly in the vocal profession (Bellon, 2006; Carter, 1993; Connolly, 2002; Murphy & Jowdy, 1992; Nordin & Cumming, 2005; Trusheim, 1987). After investigating imagery in professional brass instrumentalists, Trusheim (1987) recommended investigation in vocalists and wrote:

Perhaps singers have the most to gain from their imagery experiences. Vocal production is perhaps the most personalized and individualized of all musical approaches. Vocalists must rely on their own physical structure and its manipulation for every aspect of their tone production. (p. 344)
There is therefore need for a study to determine how professional vocal performers use imagery, the extent to which it is used successfully by them, and its relative value in training professionals. If the use of imagery could provide the same excellent success in vocal performance as has been documented in athletic performance, then it behooves music educators, and particularly vocal instructors, to espouse and teach these imagery practices in specific ways that have been employed by successful professionals.

**Statement of the Problem**

The use of imagery to achieve optimal performance in sports has been extensively researched for the past fifty years (for a review see Morris et al., 2005) resulting in widespread training and dissemination of the various components and aspects of its applications in achieving athletic performance excellence. Elite athletes and those performing at higher competitive levels were found to use imagery more than novices and those with less skill and experience (Barr & Hall, 1992; Calmels et al., 2003; Driskell et al., 1994; Feltz & Landers, 1983; Hall, Rodgers, & Barr, 1990; Hall, et al., 1998). Although several exploratory studies have reported the various aspects of imagery use in musical performers (Bellon, 2006; Carter, 1993; Trusheim, 1987), few investigations have focused on the recent findings in imagery research in achieving optimal results in sport psychology in relation to classical solo singing professionals (Gregg et al., 2008; Gregg, Hall, & Nederhoff, 2005; Sisterhen, 2005).

Research and text in vocal pedagogy, which include mental training and imagery applications in achieving optimal performance as described in sport psychology, is limited and is rarely empirically supported. Carter (1993) summarized how voice teachers have used imagery to assist singers in the following:
Imagery used by teachers was employed in five specific teaching situations: first, to transcend or circumvent verbal explanations with regard to rhythm, line, matching pitch, breath control, and tone quality. Second, imagery was used to address defective or inadequate technique. Third, imagery was employed to enhance good technique. Fourth, imagery was capable of connecting exterior kinesthetic sensations and movements to less understood interior sensations of the vocal mechanism. And last, imagery helped the singer to identify more closely with textual and musical material, thereby bringing new freshness and spirit to expressive interpretation of vocal literature. (Carter, 1993, p. 182)

These functions of imagery in this context have been employed for many years and remain valid and important. The focus has been primarily on vocal technique acquisition and strengthening and musical interpretation for performance. However, uses and functions of imagery in the sport and dance areas may be more pervasive and offer more advantages to performers than the above description.

While vocal performers have used imagery, particularly metaphors and artistic applications for many years (Averino, 1989; Carter, 1993; Fields, 1945; Lehmann, 1945/1985), only recently has imagery, as it is defined and used in sport psychology, been included in vocal performance literature (Caldwell & Walls, 2001; Dayme, 2005, 2006; Emmons & Thomas, 1998; Günter, 1992a, 1992b; Williamon, 2004). It is possible that professional vocalists have learned to use imagery for performance excellence as an element intrinsic to the nature of singing, by their own efforts, or by some supplementary method or training. If singers already use imagery as defined in sport in their professional efforts, this could have serious implications on vocal training and performance
possibilities. Understanding specific details of the four Ws of imagery use: *where, when, what,* and *why* from research in sport (Munroe, Giacobbi, Hall, Weinberg, 2000) and dance (Nordin & Cumming, 2005) as it relates to vocal performance, may be especially relevant to singers striving to be able to access their optimal performing abilities and achieving success in an enduring professional career. It is possible that professional vocalists’ use of imagery has not been identified in terms heretofore accepted by the vocal profession or linked to what has been considered imagery and its employment as such in athletics for many years.

Increasing understanding of professional vocalists’ uses of imagery could serve singers in a variety of ways, including these seven: (a) begin to determine the relevance of sport and dance imagery research, and applications to that of singing excellence, (b) help to create a foundation of understanding of terms and usage, (c) identify specific content and purposes of imagery in achieving optimal vocal performance, (d) facilitate specific guidelines for training, (e) direct effective applications and interventions, (f) guide further research, and (g) develop and provide an imagery framework specific to these vocal performers. The researcher has found only a paucity of the literature available in English pertaining to the systematic study of the use of imagery in vocal performance, especially those correlated to imagery research in sport and dance. It was therefore believed that investigation in this field would provide an important contribution to the vocal performance profession.

*Purpose of the Study*

The purpose of this study was to investigate imagery use in achieving optimal performance in vocal professionals. Research from sport psychology and particularly the
framework of the four Ws of imagery use: where, when, why, and what, (Munroe et al., 2000; Nordin & Cumming, 2005) was used to compare and contrast singers’ imagery experiences in order to contribute to the body of knowledge of imagery in musical performance practice and development. This study sought to bridge the gap between music performance research, dance, and sport psychology in the uses of mental imagery. Questions applied in the study were based on general and sport psychology, dance, and music imagery research as it related to vocal performance. The study focused on solo singers for their extensive professional experience. It was assumed that these vocalists were more adept at applying imagery in their artistic endeavors and professional efforts, and were more extensively developed and grounded in the practical requirements of a vocal career than novice singers in a university training program (Bellon, 2006; Carter, 1993; Yuille, 1985).

The four Ws framework previously applied to athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005) addressing where (location), when (time periods), what (content and qualities), and why (functions) of imagery were adopted in this exploratory study for vocal professionals. It was hypothesized that similar themes as those found in athletes and dancers would emerge, including uses of imagery as it related to the five areas: skill acquisitions and refinement, strategy of performance, goal-oriented activities, motivational arousal, and mastery. Additionally, it was thought that themes of artistic and healing imagery as reported in dance research would also appear. It was further thought likely that new significant themes of imagery applications would emerge that had not been identified in adult athletes or dancers, which were exclusive to the experience of solo vocal performers. It was anticipated that compilation of this
information would lead to the creation of a framework of the use of imagery specific to vocal professionals. Furthermore, the results from this study could have implications in developing models for teaching imagery to vocal and instrumental musical performers.

Research Questions

The research questions addressed in this study employed the framework of the four Ws of imagery use: where, when, what, and why, and are outlined below.

1. To what extent do vocal professionals use imagery in achieving optimal performance?

2. Where do vocal professionals use imagery to achieve optimal performance?

3. When do vocal professionals use imagery to achieve optimal performance?

4. What do vocal professionals use in their imagery to achieve optimal performance?

5. Why and for what purpose do vocal professionals use imagery to achieve optimal performance?

Employing an inductive and deductive approach seemed appropriate for the study for several reasons (Patton, 2002). Deductive aspects were represented in the findings of previous studies investigating imagery use incorporating the above framework for athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005) and the analytical framework of the cognitive and motivational functions of imagery (Paivio, 1985; Hall et al., 1998). The author hypothesized that some aspects of imagery use by vocal performers would be similar to that of elite athletes, dancers, and musical performers (Bellon, 2006; Carter, 1993; Trusheim, 1987), which represented the deductive portion of the analyses. Additionally, inductive analysis allowed for the possibility of new categories to emerge from the data (Patton, 2002), since very little was known about how professional singers’
use of imagery was related to the above questions and frameworks. The following theoretical framework represented some of the major developments and research in the use of imagery in sport psychology and relevant findings in musical performance studies.

**Theoretical Framework**

The theoretical framework of this study of imagery in vocal performance has its roots in historical psychology theory, extensive studies in sport psychology, and the limited research in imagery use by music professionals. Early imagery theories emerged with the development of the study of psychology (e.g., Carpenter, 1874; Galton, 1880) including various theories of psychology (Bandura, 1977; Lang, 1979a; Neisser, 1976) and the most recent developments of neuro-imaging in brain research (Decety, 1996a, 1996b; Jeannerod, 1994). Imagery in sport psychology began being investigated more rigorously in the past three decades and included various elements such as comparing the efficacy of physical with mental practice (e.g., Driskell, Cooper, & Moran, 1994), use of imagery abilities (Hall, 1998), imagery perspectives (Hale, 1982; Callow & Hardy, 2004), and use of imagery by elite athletes (Orlick, 1990). These and the more recent investigations of imagery in sports generally focused on various areas which provided many quantitative answers to the questions: where, when, what, and why, through a variety of methods. However, it became apparent that exploring elite professionals’ personal experiences of imagery proved more valuable in gaining in-depth understanding of varieties of its practical application. The four Ws of imagery framework was developed and implemented to gather a more complete spectrum of the use of imagery by elite athletes (Munroe et al., 2000), which also served to clarify and corroborate the previous findings gathered in quantitative research. Subsequently, this framework was
used to investigate imagery by dancers (Nordin & Cumming, 2005), which revealed more relevant information of artistic uses of imagery than those found in sports. Several studies providing in-depth interviews of vocal and instrumental imagery use were also relevant to this study.

Numerous theories have attempted to explain imagery’s effects in human performance. One of the earliest to develop was the psychoneuromuscular theory, which resulted from the work of James (1890) and Jacobson (1927, 1929, 1930a, 1930b, 1930c, 1930d, 1931), posited that mental imagery produced muscular innervation in the specific muscles involved in the imagery. In symbolic learning theory, Sackett (1934, 1935) argued that mental imagery facilitated memory in creating symbols for learning, which facilitated subsequent performances. Paivio’s (1971) dual coding theory proposed that two different codes in imagery, the verbal and the image, aided memory and facilitated learning. In the bio-informational theory, Lang (1977, 1979a, 1979b) argued that imagery was composed of stimulus and response propositions, which enhanced learning and performance. In the self-efficacy theory, Bandura (1977, 1997) proposed that imagery assisted the development of confidence and positive behavior in the individual, improving performance. Schmidt’s (1982) attention-arousal set theory put forward that imagery assisted in accessing specific optimal levels of attention and arousal in performance preparation.

As a result of the recent technological advances in medical imaging, functional equivalence theory held that mental practice and the experiences of images were functionally equivalent to specific aspects of actual physical practice of the same activity (Decety, 1996a, 1996b; Farah, 1984; Jeannerod, 1994, 1995; Kosslyn, Ganis, &
Many of these studies found that areas and pathways of the brain that were activated during imagery were the same as those that occurred in the mental preparation of an individual just prior to engaging in that act. This field of research has potentially many implications for using imagery for practice and performance purposes.

Many of these theories addressed certain aspects of imagery effects in performance, however they may not have addressed all the issues involved. More importantly, these theories may vary in their application to imagery use by professional singers. Munroe and others (2000) first examined the four Ws of imagery use in answering the questions: where, when, what, and why did athletes use imagery. Where and when dealt with the time and place in which the individuals actually engaged in imagery. What was being imaged represented the content and qualities of imagery and the reasons and functions of imagery use were addressed in the category of why. Studies relevant to the various uses of imagery in performing artists also addressed some of these issues and included dancers (Fish et al., 2004; Nordin & Cumming, 2005), musicians (Bellon, 2006; Ross, 1985a, 1985b; Trusheim, 1987), pianists (Coffman, 1990; Sisterhen, 2005), and singers (Bellon, 2006; Carter, 1993).

*Where Imagery Was Used*

The location, or where, imagery was previously reported in direct relation to athletes’ practice and competition settings (Weinberg & Gould, 2003). Athletes seemed to use imagery most in direct relation to competition and less in practice (Hall et al., 1990; Salmon, Hall, & Haslam, 1994). Athletes used imagery in almost any setting, including at home, work and school, (Salmon et al., 1994), and particularly in bed at
night (Hall et al., 1990; Hall & Buckholz, 1991). Some athletes reported using more imagery outside of practice or competition settings (Salmon et al., 1994).

**When Imagery Was Used**

With regard to *when* imagery was being used, sport competitors were found to engage in imagery just prior to competition, less during and following competition or in practice settings (Hall et al., 1990; Munroe, Hall, Simms, & Weinberg, 1998). Athletes were also found to use imagery more during practice than beforehand or afterwards (Salmon et al., 1994). Imagery use in relation to competition was regarded as performance enhancement, while using imagery in the context of practice was considered skill learning (Munroe et al., 2000). Outside of these times, athletes used imagery on breaks in their normal day (Salmon et al., 1994), and particularly at night just before sleeping (Hall et al., 1990; Hall & Buckholz, 1991). These findings were also reported in dancers’ imagery (Nordin & Cumming, 2005).

**What Was Being Imagined**

The category, *what*, entailed the content and quality of imaging. Traditionally imagery research concentrated on laboratory studies comparing the efficacy of mental practice to physical practice (Driskell et al., 1994; Hinshaw, 1991, Feltz & Landers, 1993). Over the years, the content of athletes’ imagery research was expanded and included use of the senses, sessions, effectiveness, controllability, and nature of imagery as defined in by Munroe and others (2000). In investigating dancers’ imagery use, Nordin and Cumming (2005) identified two major traits: imagery types and imagery characteristics. Imagery types encompassed execution, metaphorical, context, character and role, those that related to the body, and irrelevant images. Imagery characteristics
dealt with qualities of the image itself and included the various senses, perspective, ability, direction, deliberation, amount, and duration.

*Why Imagery Was Used*

Paivio (1985) generated the analytic framework of functions of imagery use and identified two main reasons that athletes’ use of imagery, cognitive and motivational. This model was later extended by Hall and others (1998), resulting in five distinct categories: (a) cognitive specific, or skill and technique building; (b) cognitive general, or strategy applications; (c) motivational specific, as in goal attainment; (d) motivational general – arousal, in “psyching up” or calming down of arousal or affect; and (e) motivational general – mastery, such as being mentally tough, having self-control, or in control in performance. This analytic framework was the result of years of development through numerous studies in sports on imagery.

Based on this framework, sport psychologists investigated the use of imagery in various athletic fields (Barr & Hall, 1992; Hall et al., 1990; Rodgers et al., 1991). This led to the development of the Sport Imagery Questionnaire (SIQ) (Hall et al., 1998; Hall, Stevens, & Paivio, 2005), while valid and reliable in assessing athletes’ use of imagery, which seemed to be inadequate in reflecting the full use of imagery, including metaphor, artistic, health, and spontaneous images of dancers (Fish et al., 2004; Monsma & Overby, 2004; Nordin & Cumming, 2005) or classical musicians (Gregg et al., 2008). Using the SIQ or other imagery instruments did not seem to be able to adequately represent the entire picture of how singers use imagery. Gregg and colleagues (2008) adapted the Sport Imagery Questionnaire (SIQ) (Hall et al., 1998; Hall et al., 2005) for use with musicians, resulting in the Functions of Imagery in Music Questionnaire (FIMQ). Although using
this instrument uncovered many similarities between imagery use by musicians and athletes, it failed to reveal many aspects of musicians’ imagery, particularly auditory sense imagery and musical and artistic characteristics and functions. Therefore the more broadly based exploratory inquiry of the four Ws of imagery use of Munroe and others (2000) and Nordin and Cumming (2005) was chosen for the purpose of understanding the use of imagery by professional vocalists.

Several investigations have focused on musical performers’ use of imagery in elite brass orchestral instrumentalists (Trusheim, 1987) and top vocal professionals (Carter, 1993). Although these studies were extensive and valuable, these researchers used artistic and creative frameworks of imagery and included only minimal research of imagery in sport psychology. Bellon’s (2006) study examined the correlations of specific musical performers and their incorporation of the main elements of sport psychology, of which imagery was a part. These studies were examined individually with regard to their relevance to imagery use in vocal professionals and in relation to the four Ws framework in the following chapter.

Significance of the Study

It was anticipated that the present study might provide important contributions to the literature on vocal performance practice, with implications about its application in vocal pedagogy. As an outgrowth of Freud’s psychoanalysis and behaviorism in the 1960s and 1970s, Maslow’s (1968, 1971) humanistic psychology promoted the trend of human potential movement in sport and later artistic performers. After decades of research and training in the applications of imagery for achieving performance excellence in sports, music researchers as well as pedagogues had recently begun to recognize the
potential for similar success in musical performance using these similar cognitive methods (Caldwell & Wall, 2001; Connolly, 2002; Connolly & Williamon, 2004; Dayme, 2005). Investigators and psychologists who had experience and understanding in the positive effects of imagery were found to be “demonstrating anew that people tutored in the use of imagery skills can perform at remarkable levels in comparison to those common to rote learning situations” (Sheehan, 1972, p. xiv). It was suggested that, by applying the advances achieved in the research of imagery in sport psychology over the past forty years (Morris et al., 2005; Murphy et al., 2008), singers’ uses of imagery would compare favorably and therefore appropriate findings in sports and dance research could be applied in vocal programs and singing practices.

Seashore (1939) recognized the importance of including applied psychology and other sciences in vocal performance. In an effort to merge scientific innovation with voice development, he invited vocal pedagogues to incorporate the new developments in science with vocal training in the hopes of enhancing this ancient art. He stated:

The science of voice draws upon many fundamental sciences; notably physics, physiology, anatomy, anthropology, neurology and psychology. . . . [I]t has become the function of psychology to integrate these basic scientific approaches into an applied science which we may call the ‘psychology of vocal arts.’ (p. 340) Over the years, extensive research has been conducted to this end (Deutsch, 1999). With the exception of several studies (Bellon, 2006; Carter, 1993; Gregg et al., 2008), the researcher was only aware of a paucity of investigations focusing on the psychology of imagery use in musical and singing performance. It was hoped that this study would help bridge the gap of imagery research in sport and dance with music and vocal performance.
research. In examining the uses of imagery in solo vocal professionals, findings were compared with those in sport and dance, the results of which could be applied in the vocal training programs.

Generally, music students have been left to their own devices as to how to mentally cope with the many challenges they had to face in their training (Chapman, 2006; Dayme, 2006; Emmons & Thomas, 1998; Freymuth, 1999). A number of cognitive aspects of musical performance may have a direct relationship to sport concerns, such as learning and perfecting skills and strategies, setting and achieving goals, preventing or grappling with arousal problems, and performance anxiety. It was suggested that, in identifying and analyzing the special mental skills and practices of professional musicians and singers, teachers, professors, and coaches may be better prepared to train and equip their students with the skills necessary for optimal performance as has been practiced in sports training for decades. If imagery could be used successfully to deal with the normal psychological, technical, or affective problems that arise in the practice and performance of singing, many more talented musicians and singers could enjoy and participate in the profession in which they may have exceptional talent. The gap in vocal research of addressing the psychological considerations related to imagery use of singers could begin to be filled, assisting future generations of performers in achieving excellence. It was also possible that implementing early training in imagery could assist singers in coping with previously insurmountable blocks that could be alleviated and possibly eliminated all together.

While vocal pedagogues have begun including some mental aspects of singing in their texts (Caldwell & Wall, 2001; Chapman, 2006; Emmons & Thomas, 1998;
Williamon, 2004), exploratory studies such as this could add to the growing body of research on the uses of imagery in musical performers. Few investigations have been conducted on the use of imagery by vocalists based on imagery research in sport psychology (Bellon 2006; Gregg et al., 2008; Stedman, 1985). Gaining an understanding of professional singers’ experience and use of imagery could assist vocal teachers and students in applying effective practices, skills, and concepts in creatively using imagery to reach beyond skill proficiency and achieve optimal performance in the professional arena. A study such as this could contribute to facilitating and understanding how imagery use can enhance vocal performance. The findings could possibly extend into other forms of musical performance and training, contributing to the body of literature in imagery use for optimal performance. A full inquiry into imagery uses in professional vocalists could benefit the body of knowledge in all three areas: sport, dance, and musical performance, especially in applied fields and training programs.

Definitions of Terms

The following is a list of terms pertinent to this study and is not meant to represent general use of imagery, sport psychology, musical, or vocal performance. The terms and their definitions are listed in alphabetical order.

• *Audiation* was a term coined by Gordon (1976, 2003a) who rejected the label of *auditory image* because of its connotation with the visual sense and lack of its ability to describe the internal process of music cognition. He defined *audiation* in the following way:

Audiation is to music what thought is to language. Audiation takes place when we hear and understand in our minds music that we have just heard performed or
have heard performed sometime in the past. . . . We also audiate when we hear and understand in our minds music that we may or may not have heard but are reading in notation or are composing or improvising. We may audiate while we are reading music. (Gordon, 1999, p. 41)

Audiation was also defined as the process of internally hearing and understanding musical elements such as rhythm, pitch, and tonality in sequences and patterns (Gordon, 1993). Audiation differed from inner hearing or auralizing (Karpinski, 2000), pitch internalization (Klonoski, 2003), and auditory imagery in that it dealt with elements and patterns of musical sounds that had meaning and required understanding in context (Klonoski, 2003). (Auditory imagery is further defined later in these definitions.)

• Body image was identified as an individual’s mental concept of the external physical appearance of their body (Nordin & Cumming, 2005). Singers’ body image could differ in how they regarded themselves on or off stage (Carter, 1993).

• Cognitive psychology was defined as the study of the process whereby people transformed, reduced, elaborated, stored, recovered, and used sensory input (Neisser, 1976).

• Goals were images of concepts, skills, or behaviors that were created and held for future achievement, exemplified in the charge “[b]egin with the end in mind” (Covey, 1989, p. 95). Goals in performance or competition were separated into outcome, performance, and process.

  • Outcome goals “typically focus on a competitive result of an event, such as winning a race, earning a medal, or scoring more points than an opponent”
Singers set goals and worked for many years striving to win coveted competitions and roles.

- **Performance** goals “focus on achieving standards or performance objectives independently of other competitors, usually making comparisons with one’s own previous performances” (Weinberg & Gould, 1999, p. 308). Individuals were more able to control the achievement of these types of goals than **outcome** goals. For vocalists, these goals may have included presenting a character in opera in a way more believable to an audience, or polishing a particular vocal skill throughout a concert.

- **Process** goals “focus on actions an individual must engage in during performance to execute or perform well” (Weinberg & Gould, 1999, p. 308). Gaining better breath control on a specific section of an aria would be considered a singer’s **process** goal.

- Imagery derived from several Latin terms, *imago*, “a likeness,” *im-itari*, “to imitate,” *imaginer* “to imagine, think,” and *imaginatus* “to picture one’s self” (Skeat, 1943, p. 282). For many years Richardson’s (1969) definition set the standard in the majority of research studies, particularly in sport psychology (see definition in Introduction). The following represented a comprehensive definition of imagery use in sport psychology:

  Imagery is intriguing for its close relationship to perception and action. It is such a rich memory system, matching the complexity of information presented by the environment and contained in the execution of motor skills. Images bind personal thoughts and emotions to experience. . . . Imagery can be creative, allowing one to
experience attitudes and actions mentally in ways that have not yet been encountered in real performance. (Simons, 2000, p. 92)

Imagery has had many other terms such as picture-like visual imaginations, conceptualization, ideational functioning, introspection, imaginary practice, implicit practice, conceptualizing practice, sofa training, symbolic rehearsal, visualization, and many others (Murphy & Martin, 2002).

- *Imagery ability* was defined as “an individual’s capacity of forming vivid, controllable images and retaining them for sufficient time to effect the desired imagery rehearsal” (Morris, 1997, p. 37). Ability to imagine and manipulate images could be developed over time, with an individual’s conscious effort and support from a knowledgeable guide. For the purposes of this study, *imagery ability* also included imagery controllability, direction, deliberation, and the degree of vividness.

  - *Controllability* referred to “the capacity of the individual to generate not only vivid but also persistent images, yet persistent only for the time they should be used, that is, both persistent and interruptable [sic] on request” (Denis, 1985, p. 8S). Controllability dealt with how easily an image was manipulated by the intentions of the individual.

  - *Direction* of imagery was whether the image was helpful and facilitative or hurtful and debilitative to the person imagining (Nordin & Cumming, 2005).

  - *Deliberation* of imagery was degree to which the individual spontaneously or purposefully created the image (Nordin & Cumming, 2005).
Vividness connoted clarity of detail, which has had implications on internal processing. Vivid imagers learned more than poor imagers (Marks, 1977).

- **Mental practice** (MP) was a specific type of imagery wherein the person imagined motor movements and cognitive processes, thought about the activity, practiced various aspects of a skill, both at the initial stages of learning through to the end stages of performance, without external or physical movement (Denis, 1985).

- **Metaphoric image** referred to the transference of word meanings in relation to issues, concepts, or even skills that could not readily, fully, or accurately be described in factual terms. It was derived from the Greek “*metapherein*, to carry over” meaning “a figure of speech containing an implied comparison, in which a word or phrase ordinarily and primarily used of one thing is applied to another” (Guralnik, 1982, p. 893). It also came from the Latin word, *metaphora* meaning “a transferring of a word from its proper signification to another” (Skeat, 1943, p. 365). *Metaphoric image* was used extensively in effective expression in vocal and instrumental music (Barten, 1992, 1998). An example of the use of imagery in vocal production was:

  The projection of imagery falls under two general headings: mimicry and sensual awareness. In the first category, directives such as ‘imitate a steamboat whistle’ or ‘produce a hooty tone quality’ are often useful in the conceptualization of a pure falsetto (Reid, 1983, p. 156).

More traditional metaphors used by singers include, “Breathe in as if smelling a rose. . . . Breathe in as if beginning a yawn. . . . Breathe in as if drinking a glass of water” (McKinney, 1994, p. 55-56).
• *Modeling* was also known as vicarious experience, identified in Bandura’s (1977) social learning and self-efficacy theories as one of the components of successful performance expectations. It was referred to as:

a process in which observers copy or reproduce behaviors or actions demonstrated by others. The idea is that imagining oneself performing a task successfully is similar to observing someone else perform the skill (modeling, or overtly performing the skill (past experience) and therefore provides reinforcement and increased expectations of success (Morris et al., p. 48).

• *Motivation* referred to “the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity and persistence of behavior” (Vallerand & Thill, cited in Short et al., 2006, p. 54). Motivation in this study included the energy gathered to inspire drive and enthusiasm to accomplish some action, task, feat, or performance.

• *Optimal experience*, also known as *flow*, was a term coined by Csikszentmihalyi (1990) “the state of mind in which people are so involved in an activity that nothing else seems to matter” (p. 4) and “being in the zone,” or the feeling of performance excellence (see discussion in Introduction earlier in this chapter).

• *Perception* stemmed from the Latin, *percipiere*, “to take hold of . . . to become aware of through sight, hearing, touch, taste, or smell” (Guralnik, 1984, p. 1054). “Perception is the larger process of making meaningful sense out of sensation” (Klinger, 1981, p. 2). This differed from imagination in which the individual was not responding directly with any one of the senses to stimuli in the environment. Neisser (1972) argued that imagery lay at “the intersection of memory and perception” (p. 233).
• *Perspective* in imagery referred to how the item or occurrence was being experienced, that is, either internally or externally.
  
  o *Internal imagery* was the “first person perspective” (Denis, 1985) or “involvement” imagery (Lane, 1980) requiring “an approximation of the real-life phenomenology such that the person actually imagines being inside his/her body and experiencing those sensations which might be expected in the actual situation” (Mahoney & Avener, 1977, p. 137). Imagining the experience “from the first-person perspective which enables the singer to replicate a performance of practice situation utilizing kinesthetic imagery” (Moyer, 1992).
  
  o *External imagery* involved the “third person perspective” (Denis, 1985) or “spectator” imagery (Lane, 1980) in which a person viewed himself/herself as an outside observer, as if watching a video (Epstein, 1980; Hale, 1982; Mahoney & Avener, 1977).

• *Professional singer/vocalist*, for the purposes of this study, was a male or female singer, trained at a university or conservatory, who had earned at least half of his livelihood by singing solo in public. These particular singers had performed professionally in varying venues including opera, recital, classical concert, and chamber works for at least four consecutive years.

• *Self-talk* was an individual’s internal “verbalizations or statements addressed to the self. . . . serving at least two functions; instructional and motivational” (Hardy, 2005, p. 84). These were mental directions or comments a singer processed internally.

• *Sense imagery* was categorized into six different divisions: (a) visual, or sight; (b) auditory, or hearing; (c) kinesthetic, or bodily feeling; (d) tactile, or feeling of touch; (e)
olfactory, or smell, and (f) gustatory, or taste. The three senses: visual, auditory, kinesthetic, and combining several of these were most reported in musical performance studies (Bellon, 2006; Carter, 1993; Trusheim, 1987) and are further defined here:

- **Visual imagery** connoted the use of the sense of sight to see a scene from either the internal or external perspective (see *perspective* definition above). It included the mode of visual representation of objects and actions.

- **Auditory imagery**, also known as *auralization* (Martin, 1952), represented hearing sounds internally when they were not present including audience applause, environmental sounds, and other musical and nonmusical sounds. In music, auditory imagery assumed these internal sounds to be various aspects of musical production such as tone, rhythm, and timbre (Seashore, 1938/1967). In the musician, auditory imagery was most developed when it became *audiation* (Gordon, 1999) (see this definition above).

- **Kinesthetic imagery**, also known as “kinesthetic simulation” (Hackford & Munzert, 2005, pp. 4-5), was derived from “Kinesthesi α: Greek *kinein*, ‘to move,’ and *aesthesis*, ‘perception;’ an awareness of movement through sense impressions caused by changes in the internal state of the body” (Reid, 1983, p. 169). According to Callow and Waters (2005), kinesthetic mode was: “[i]magery involving the sensations of how it feels to perform an action, including the force and effort involved in movement and balance, and spatial location (either of a body part or piece of sports
equipment)” (pp. 444-445). Günther (1992b) expanded this definition as, “kinesthesis is a sensuous perception of tension in the muscles and of movement in muscles and joints. These sensations are real and with an adequate sensitivity can create a mental image which one can use in singing” (p. 4).

- Chromesthesia was a multi-sensory image reportedly experienced by musicians. It was defined as “colored hearing, a particular form of synesthesia in which color images (photisms) are evoked by auditory stimuli” (Polzella & Kuna, 1981, p. 165).

- Skills were understood on the cognimotor continuum. Cognitive and motor skills were thought to exist on a continuum from cognitive, mental, or covert, to motor, physical, or overt (Feltz & Landers, 1983; Hinshaw, 1991; Richardson, 1967a).

  - Cognitive, or ideational (Sackett, 1934) skills were the function of mental information processing and organization. It stemmed from the Latin term, “cognitio, finding out, acquisitions of knowledge” (Skeat, 1943, p. 120). Cognitive skills involved the covert process of thinking and comparing and were required in processing perceptual and symbolic tasks or those without any physical movement.

  - Motor skills involved overt use of fine or gross muscular or physical movement. Cognition was the act of conceiving and processing these overt actions.
Delimitations

Criteria for selection of the participants in this study represented certain delimitations (see Chapter 3). The criteria for participation in this study were limited to solo vocal classical performers who had at least four years of professional experience singing classical repertoire in opera, oratorio, concert, recital, and art song. These were male and female vocalists who sang in major metropolitan areas of the United States and represented many different experience levels of singing from early in their career to retirement. Their voices ranged from soprano, mezzo, tenor, and baritone. Participants from this population were chosen because of their extensive experience in vocal performance and their willingness to share their experiences of using imagery in their profession. The findings of this study were not intended to be generalized to any group beyond the participants of the study.

Limitations of the Study

There were a number of threats to validity needing clarification in this exploratory study. Specifically, these consisted of (a) sampling considerations, (b) the lack of formal assessment of the participants in imagery ability and experience levels, (c) response biases, (d) issues of temporal validity, (e) the elusive and subjective nature of imagery, and (f) researcher bias. These were individually addressed and steps were taken to minimize each threat.

Selection of participants for this study was purposeful and involved snowball sampling of professional singers from various areas of the United States. This method was deemed more effective than random sampling (Patton, 2002) since the population of all professional singers was not available for selection in this study (Onwuegbuzie, 2003).
The sample size was relatively small and may not have reflected how the majority of professional singers practiced and used imagery in their profession. In order to address this limitation, singers working in major metropolitan areas of the United States were represented. Furthermore, both male and female vocalists with different levels of experience and voice types were included and their identities were kept confidential. Even so, the results of this study were limited to this study participant and were not generalizable to the entire population of professional classical solo singers in the United States.

There were no formal instruments implemented to assess participants’ ability or previous training in imagery (Munroe-Chandler & Hall, 2004-2005). In addressing this limitation, singers in this study were asked to give details of their early experiences and training in imagery. Additionally, participants were invited to assess various aspects of their imagery ability including accuracy, vividness, their ability to manipulate their images, and whether their imagery was helpful or hurtful. This self-reported information allowed the researcher to more thoroughly analyze and interpret the data set. Early training and experiences, as well as ability levels of these participants represented factors that could have influenced individual use and facility of imagery particularly in the effort to achieve optimal performance (Martin et al., 1999).

A possible internal credibility threat may have been observational bias, which occurs when the researcher has “obtained an insufficient sampling of behaviors or words from the study participants” (Onwuegbuzie, 2003). This could also be due to the limitations of the number of participants chosen for the study or insufficient time of gathering data during each interview. Revising and adapting a respected interview guide
used in previous studies of various populations of athletics and dance for appropriate use
with singers attempted to address this latter threat. In addition, the subjects were invited
to contribute answers at any time during the interview or add to the given question in
their own way. Furthermore, interview questions were repeated and reworded to assure
complete responses from the interviewees. Member checking was also used in addressing
this threat (Johnson & Christensen, 2004), in which each transcribed interview was sent
to the participant for revision and editing.

Response biases occurred when subjects distort their answers to seem more
favorable to other important people such as colleagues, teachers, and researchers (Vella-
Brodrick & MacRae, 2004). The two most common response biases were acquiescence or
the tendency to respond in a certain direction, either negative or positive and social
desirability where subjects answered in what they thought they should say in order to
appear more favorably in the eyes of peers or other people (Patton, 2002; Vella-
Brodrick & MacRae, 2004). It was possible that the participants, for any number of reasons, did
not want to reveal all pertinent information regarding their use of imagery for optimal
performance. However, an attempt was made to minimize this effect through the
confidentiality of data collected.

Mental imagery was a highly subjective and difficult behavior to directly observe,
describe, and analyze due to its internal and private cognitive nature (Mackay, 1981). The
dependency on self-report may have resulted in inaccuracy due to lapses in memory
recall, lack of understanding of imagery terms used in this study, and possible discomfort
in self-disclosure. The heavy reliance on accuracy of self-report made results suspect,
however, this remained the most reliable method in gaining a descriptive and in-depth
understanding of imagery use in optimal performance. Providing initial imagery definitions, asking open-ended questions, probing for further responses, and using questions that cross-referenced each subject for two different directions were employed to minimize this threat. Every effort was made to avoid leading the participant and the researcher endeavored to maintain a neutral stance and attitude during the interview process. At the conclusion of the interviews, these singers were asked if they had been led in any way either by the questions or in any manner of the interviewer. Maintaining confidentiality also allowed the subjects to respond more honestly and accurately.

Furthermore, participants’ responses were compared with other studies of imagery use in athletes (Munroe et al., 2000), dancers (Nordin & Cumming, 2005), vocalists (Carter, 1993), and musicians (Bellon, 2006; Trusheim, 1987).

A further threat to external validity in this study was temporal validity since the results may not have been fixed across time and represented a cross-section of the specific population (Onwuegubuzie, 2003). The time of year in which the interviews were conducted (December 2008 to February 2009) produced a snapshot of professional vocalists working during a heightened performance season. Singers may have used imagery differently in relation to the time of year and season. In an attempt to minimize this possible threat, the interview questions were sent in an email attachment to all participants prior to the interview appointment in order to assist them gaining familiarity by previewing the definitions, questions, and probes. All of the interviews were scheduled at convenient times designated by the participants, during periods, which in no way conflicted with vocalists’ holiday concert schedules. Furthermore, through member checking, participants were given the opportunity to amend their transcribed interviews in
any way they felt appropriate in describing their use of imagery. This provided time for
the participants to contemplate their responses and give as complete and accurate account
as possible. As a result, the exploratory design of the study added to the existing body of
knowledge in the use of imagery in professional vocal performance.

The nature of investigating imagery in professional vocalists may have presented
inherent problems with validity. Terminology of imagery and its definitions as used in
this study were not universal since singers regarded imagery differently from sport
psychologists. In an effort to avoid confusion, explanation of some of the basic terms was
given in the introductory letter and embedded in the interview questions. Furthermore, it
was possible that the interview format and the individual interview with each participant
did not adequately cover the various topics of interest in the use of imagery in singing.
The extensive review of the relevant literature and a pilot study were made to diminish
this threat. The interview guide was based on several studies in the line of research
gaining information as to where, when, what, and why (Munroe et al., 2000; Nordin &
Cumming, 2005). The pilot interview was administered to a regional singing professional
to determine strengths and weaknesses leading to minimal revisions and rewordings of
any awkward or confusing questions. This was an important step in assuring the highest
content-related validity possible for the data collection.

The threat of researcher bias is inherent in qualitative study and was avoided
wherever possible in order to increase the trustworthiness of this study (Anfara, Brown,
& Mangione, 2002; Patton, 2002). This type of bias happens when the researcher has
personal thoughts about the questions, answers, or the overall subject of the inquiry that
may have an either conscious or subconscious effect on the responses of the participants
Peer debriefing, rigorous methodology, and attention to detail were conducted and maintained as well as avoiding bias in data collection, analysis, and interpretation in order to remain true to reporting the responses of the participants. Rigor in this research made the results and conclusions as valid as possible in this exploratory format. This investigator has had considerable training and experience as a professional vocalist as well as prior knowledge and experience in imagery, which may have served to bias responses in the interview. However, it was reasonable to expect the researcher to have some knowledge of the subject she was investigating (Patton, 2002).

Subjectively analyzing participants’ reports can also invite problems in gathering, interpreting, and reporting this information, often leading to investigator bias. For this reason, debriefing with peers was conducted throughout the research process in an effort to strengthen trustworthiness and validity of this study. Additionally, four other researchers with advanced degrees in music education and training in research methods assisted in the data analysis and in categorizing the results of the interviews (Johnson & Christensen, 2004).

Organization of Remaining Chapters

Chapter 2 includes an extensive literature review in the research involving the uses of imagery in the athletic, artistic, and musical performers, including pertinent theories, studies, and applications. The framework of the four Ws of imagery use: *where*, *when*, *what*, and *why* as proposed in athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005) is examined in relationship to musical and vocal performers’ use of imagery. Chapter 3 provides details of the research design, the participants, methodology, data collection procedures, and methods of analysis for this study, including
legitimization. The results of the data analyses are provided in Chapter 4 along with tables and figures. Emergent themes and areas of similarity to previous research are also reported. The summary of the study is discussed in Chapter 5 as well as themes, interpretations and significant findings. The implications for music and vocal education are included, followed by limitations of the study and recommendations for further research.
Chapter 2

Literature Review

This chapter provides support for understanding of the four Ws framework for vocalists’ use of imagery by drawing upon the literature primarily from sport psychology (e.g., Hall et al., 1998; Martin et al., 1999; Munroe et al., 2000) and dance research (e.g., Nordin & Cumming, 2005). The paucity of imagery research in music performance limited the author’s references in this area to only a small number of studies including those in instrumental brass (Trusheim, 1987), musical performance (Bellon, 2006), and singing (Carter, 1993). The chapter begins with a review of the theories of imagery effectiveness on performance from general and sport psychology, which provided the groundwork in understanding the various aspects of imagery research. Then, each query in the main framework of the four Ws: where, when, what, and why is examined individually. Results from the major studies from sports, dance, and musical performance are analyzed, compared, and synthesized in relation to vocal professionals’ use of imagery in achieving optimal performance. The chapter concludes with a proposed framework of imagery supporting the current study.

Theories of Imagery Effectiveness on Performance

A number of theories have been developed over the years to explain and understand the underlying mechanisms of imagery and its effects on performance. Four categories of theories have been identified primarily in sport psychology as those relevant to understanding the workings of imagery and mental practice: (a) early developments
and theories, (b) cognitive-based theories (c) psychological states theories, and (d) functional equivalence theory. The early developments and theories included several historical inquiries into imagery (Carpenter, 1874, James, 1890), the psychoneuromuscular theory (Jacobson, 1930a, 1930b, 1930c, 1930d, 1931) and symbolic learning theory (Sackett, 1934; 1935). The focus of these studies was in testing mental practice in motor skills. Cognitive-based theories included a foundation in the mental processes involved in imagery. These included Paivio’s (1971) dual code theory, bio-informational theory of Lang (1977, 1979a, 1979b), and Ahsen’s (1972, 1984) triple code theory. Theories emphasizing psychological states, such as arousal and motivation, included the Bandura’s (1977, 1982, 1986, 1997) self-efficacy theory and the attention-arousal set theory of Schmidt (1982). The theory of functional equivalence (Decety, 1996a, 1996b; Farah, 1984; Finke, 1980, 1985, 1989; Finke & Shephard, 1986; Jeannerod, 1994, 1995, 1999, 2006) represented the newest developments in imagery theories and involved neuroimaging. Functional equivalence studies found that imagining motor tasks seemed to replicate the same mental patterns involved in preparing to execute the task. Although this theory was relevant to imagery in performers, it could not be supported or disputed in this study. However, it did offer evidence and understanding of imagery use beyond what has been presented in prior studies. Further details of these theories were briefly outlined to provide a background in understanding the major elements and supporting research as identified in sport psychology (see Table 2).
Table 2

Major Theories of Effects of Imagery on Performance

<table>
<thead>
<tr>
<th>Theory</th>
<th>Theorists</th>
<th>Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychoneuro-muscular</td>
<td>Carpenter (1874)</td>
<td>Imagery of a motor skill produced minute muscular innervations, similar to actual execution. Muscular memory</td>
</tr>
<tr>
<td>Theory</td>
<td>James (1890)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jacobson (1930s)</td>
<td>provided feedback of that action, improving performance</td>
</tr>
<tr>
<td>Symbolic Learning</td>
<td>Sackett (1934, 1935)</td>
<td>Imagery was effective in learning and rehearsing particularly cognitive tasks through symbols representing tasks in the brain</td>
</tr>
<tr>
<td>Theory</td>
<td>1935</td>
<td></td>
</tr>
<tr>
<td>Dual Coding</td>
<td>Paivio (1971, 1975, 1986)</td>
<td>Imagery represented dual coding modes: imaginal and verbal, which facilitated the action and memory</td>
</tr>
<tr>
<td>Theory</td>
<td>1971, 1975, 1986</td>
<td></td>
</tr>
<tr>
<td>Bio-Informational</td>
<td>Lang (1977, 1979a, 1979b)</td>
<td>Imagery consisted of stimulus (the scenario), response (emotional and physical reactions), and meaning propositions</td>
</tr>
<tr>
<td>Theory</td>
<td>1977, 1979a, 1979b</td>
<td></td>
</tr>
<tr>
<td>Triple Code</td>
<td>Ahsen (1984)</td>
<td>Imagery was composed of three elements: image (I), somatic response (S), and meaning (M)</td>
</tr>
<tr>
<td>Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention-Arousal</td>
<td>Schmidt (1982)</td>
<td>Appropriate imagery assisted performers to achieve optimal levels of arousal for performance success</td>
</tr>
<tr>
<td>Set Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional Equivalence</td>
<td>Decety (1996)</td>
<td>Imagery and perception of a specific action were functionally equivalent in the same neural substrates action was inhibited in imagery</td>
</tr>
<tr>
<td>Theory</td>
<td>Jeannerod (1994)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finke (1980)</td>
<td></td>
</tr>
</tbody>
</table>
Early Developments and Theories of Imagery

Various aspects of mental imagery have been investigated since the early study of psychology. Examination of the effects of mentally practicing a motor task began with development of the *ideo-motor* principle (Carpenter, 1874), in which images or intentions of muscular actions produced slight nerve impulses. James (1890) argued that mental images of actions was produced in slight muscular discharges generated in the related muscles and further postulated that by imagining, one could learn to perform skills without overt practice. Washburn (1916) supported the assumption that mental representations undergirded muscular activity. Jacobson’s (1930a, 1930b, 1930c, 1930d, 1931) studies were among the earliest to formally investigate neuromuscular effects from mental activities. According to Jacobson mental practices produced a sub-threshold arousal of the normal motor output, which were strong enough to generate slight neuromuscular or kinesthetic sensations. Contrary to Jacobson’s findings, Shaw (1938) reported that electromyographic (EMG) activity during imagery was distributed in a variety of muscle groups, not just the ones involved in the imagery.

*Psychoneuromuscular theory.* Psychoneuromuscular theory was one of the earliest theories addressing mental imagery, which stated that mental practice effects were intervened by minute muscular movements, subsequently reflective of the same muscular activity as that produced during actual physical motor activity. These muscle movements provided kinesthetic feedback so that future adjustments could be made (Corbin, 1972; Richardson, 1967b; Schmidt, 1987; Start & Richardson, 1964). This theory had been developed through many studies, using the most innovative instrumentation available at the time. Even though it enjoyed popularity for decades, the
positive relationship between actual muscular activity and its imagined counterpart has yet to be established (Feltz & Landers, 1983; Murphy & Martin, 2002).

Symbolic learning theory. Sackett’s (1934, 1935) symbolic learning theory held that specific representations of skills or “mental blueprints” (Vealey & Walter, 1993) were stored in the brain as they were acquired. Learning a task resulted in forming a “representation,” code, or symbol of that task, which could aid learning, recall, and performance, facilitating automaticity of the activity (Paivio, 1985). Sackett concluded that more mental rehearsals increased learning retention, but after a certain amount of practice there were no further gains, creating a negative acceleration relationship between rehearsals and retention. The theory did not address how elite athletes or performers effectively use mental practice when these “mental blueprints” were already well established. Furthermore, the design of the study may not have represented the actual use of imagery in the practices of performing artists or athletes. Yuille (1985) argued that researchers would be more apt to generalize and benefit from these experiments if actual experts were examined in the various fields.

Imagery studies fell out of favor for many years in the early decades of the twentieth century. Both psychoneuromuscular and symbolic learning theories lacked the ability to fully explain the wide variety of applications and aspects of imagery use, such as affect, motivation, and cognition (Murphy, 1985). Furthermore, the popularity of Watson’s (1931) behaviorism supported his demand for empirical and scientific validation of such elusive forms of human functions. The reemergence of scientific inquiry into imagery was heralded by Holt’s article, “Return of the Ostracized” (1964) whereby he provided compelling evidence and called for renewed research in imagery.
Various groups in psychology began to embrace and include imagery in their clinical practices and research, including cognitive and psychological states theorists.

**Cognitive-Based Theories of Imagery**

Cognitive psychology (Neisser, 1976) encompassed the processes whereby people transformed, reduced, elaborated, stored, recovered, and used sensory input (Neisser, 1976). Most of the work in imagery concerned acquisition, storage, retrieval and use of thought, known as information-processing. There were three cognitive-based theories of imagery: (a) Paivio’s (1971, 1986) dual code theory which included the pictoral and verbal representation of the image; (b) bio-informational theory (Lang, 1977, 1979a, 1979b), wherein imagery contained both a stimulus, a response proposition, and its intrinsic meaning (c) Ahsen’s (1984) triple code theory, in which the (I) image, (S) somatic response, and (M) meaning of the image were necessary to affect performance. These cognitive-based theories were investigated for their relevance to imagery use in performance execution.

**Dual code theory.** In dual code theory, Paivio’s (1971, 1986) theoretical assumptions for imagery effectiveness in memory involved parallel processing of information in two basic coding systems operating in cognitive functions, verbal and pictoral, which have been reported to aid in memory and retrieval. This theory was supported by several studies including those of “the current neuropsychological model of functional localization” (Jeannerod, 1994). Hall, Moore, Annett, and Rodgers (1997) investigated recalled movement patterns using imagery, a verbal guide, a combination of both, or no practice control. Results indicated that the combination of imagery and verbal guide led to the most successful pattern recall. Annett (1986, 1994) extended the dual
coding approach rendering it specific to motor applications. Annett developed the action-language-imagination (ALI) model whereby the two methods assisting skill acquisition, verbal or demonstration, and were linked in the action-language bridge making it possible to act on verbal instructions or encode actions in language. Ahsen (1984) criticized the dual coding theory for being “an abstract, linear model” (p. 18), omitting the function and importance of meaning or somatic effect. It could be argued that athletes and performers used verbal coding in a variety of ways to learn and master skills, however dual coding would only account for a limited portion of artistic performance experience, particularly in the area of affect and emotion.

*Bio-informational theory.* Lang (1977, 1979a, 1979b) developed his bio-informational theory in the psychophysiological studies of phobic and anxiety patients. According to Lang, images were organized into two basic propositions: stimulus, and response with its relevant meaning characteristics. “Stimulus propositions are those descriptive details which establish the context and designate specific stimuli. The response propositions are the things the subject does in the scene” (Lang, 1979b, p. 19). Lang recommended that response proposition scripts include as many specific details of the intended emotional and physical states to achieve the most significant and desired behavioral and physiological changes.

Imagery effectiveness was most supported by how a person responded to stimuli as demonstrated in studies by Lang and his colleagues. Lang, Melamed, and Hart (1970) compared the emotional imagery, particularly those verbally invoked by use of specific scripts, with biological responses to fear images using two groups: those with a phobia of live snakes and the other the social phobia of public speaking. Lang found the social
phobia groups’ arousal leveled off while the images in the snake phobia group were much more vivid, showed highest increases of heart rate, and registered at the upper end of the hierarchy. Study participants were able to gain more control of their performance by modifying their responses, producing greater change in behavior. Similar results occurred in a cross-validation study with participants having public speaking anxiety and spider phobias (Weerts & Lang, 1978). In desensitization studies treating these phobic patients with stimulus and response propositions, Lang (1979a) subsequently found successfully treated phobic patients reported less fear reactions to imagery and calmer heart-rates. Budney, Murphy, and Woolfolk (1994) supported Lang’s theory that imagery instructions, in which more response items were included and produced more physiological responses than stimulus-only scripts.

The use of bio-informational theory of imagery could prove particularly applicable for addressing arousal concerns of singers since they, like public speakers, perform before audiences. Many vocalists have struggled with crippling performance anxiety and inability to achieve proper arousal levels appropriate for performance on stage. In controlling inner thoughts, emotions, and images by including the desired response propositions, vocal performers could possibly move beyond their fears or phobias into more free and expressive delivery of their art to the audience. However, Lang’s theory may have fallen short of explaining some of the cognitive and motivational functions of imagery and the use of language in processing information into action, particularly in highly skilled athletes and performers.

**Triple code theory.** Ahsen’s (1984) triple code theory, similar to Lang’s theory, also addressed imagery more in terms of the emotional effect imagery had on the
individual. Ahsen’s (1984) triple code theory was developed in his response criticizing Paivio’s (1971) dual code theory. Ahsen diminished the importance of the verbal content and argued that the somatic element and meaning required representation for imagery to be effective. Also emerging from his studies with mental patients and phobias, Ahsen (1972) included three main components of his ISM imagery theory, which were: (a) the image itself (I) internally containing all the sensations of actual experience; (b) the somatic response (S), which represented the psychophysiological changes, including emotions elicited by the specific image; and (c) meaning (M), which was specific to the image and the individual, including their history, experience, and previous conceptions. Three components of triple code theory, the image, the somatic response, and the meaning (ISM), reflected issues and concerns for vocal professionals, making it applicable in musical performance.

The cognitive theories addressing imagery issues such as verbal coding, image itself, the specific somatic responses to images, and the meanings applied to these experiences as well as their verbal connections needed to be considered in imagery use in singers. Application of cognitive theories to vocal performance may have proven appropriate since imagery in this context was highly individualized. The interaction between these imagery elements was important, however they were limited in other details of how imagery affects performance. More recent research has emerged addressing the psychological states and how these affect imagery performance.

*Psychological States Theories*

Psychological states theories addressed the internal processes involved in arousal and confidence when using imagery in performance. Information-processing approach
included two main theories: (a) Bandura’s (1977) self-efficacy theory where imagery was partly seen as the product of social interaction, and (b) attention-arousal set theory (Schmidt, 1982), which addressed the optimal levels of arousal necessary for specific activities.

**Self-efficacy theory.** Bandura’s (1977) self-efficacy theory grew out of social learning theory and cognitive-behavioral therapy, which dealt with psychology patients’ beliefs and understandings in influencing problematic affect and behavior. Self-efficacy theory held that consciously directed, task specific imagery increased expectations of success, which facilitated confidence and positive outcome of the actual performance. “A substantial body of literature shows that efficacy beliefs regulate human functioning through four major processes [including] cognitive, motivational, affective and selective processes” (Bandura, 1997, p. 116). Bandura (1986) posited that self-efficacy and self-evaluation cognition such as attaining goals and achieving success enhanced intrinsic motivation. Furthermore, an individual’s performance and resulting confident beliefs were based on personal expectations from “past performance success, vicarious experience (modeling), verbal reinforcement, and emotional arousal” (Morris et al., 2005, p. 48).

In modeling, another aspect of self-efficacy theory, the learner matched motor movement and skills with an observed standard or representative. Feedback was required to check for accuracy, corrections, and refinement of these skills. This learning had a cognitive effect on the individual as to the degree of proficiency to which they were capable of performing these movements. Bandura explained:
When a person observes a model’s behavior, but otherwise performs no overt responses, he can acquire the modeled responses while they are occurring only in cognitive, representational forms . . . an *imaginal* and a *verbal* one. After modeling stimuli have been coded into images or words for memory representation they function as mediators for subsequent response retrieval and reproduction. (1997, p. 133)

Athletes and performers have benefited from the practice of modeling for a long time. Athletes have watched other athletes to learn how to execute their skills, just as singers have been encouraged to listen to excellent vocalists to replicate and be inspired by the quality and practices of other excellent singers (Tosi & Galliard, 1723/1968). Both athletes and performers also learned, from others and by experience, how to regulate their arousal levels for optimal performance.

*Attention-arousal set theory.* Attention-arousal set theory (Schmidt, 1982), also referred to as arousal or activation theory, proposed that imagery allows for an optimal state of arousal for each performer and each activity, which facilitated performance excellence and success. Attention-arousal set theory also proposed that imagery prepared the athlete (and performer) for action to embody a perfect arousal state while focusing attention on task-relevant cues rather than distractions (Murphy, Woolfolk, & Budney, 1988). Landers (1980) reported that high arousal or emotional activity had the potential of narrowing or decreasing attentional range while low levels broaden attention. This inverted-U theory stated that optimal performances were associated with moderate levels of arousal, while high and low arousal could have a deteriorating effect on performance.
Each one of these theories: psychoneuromuscular theory, symbolic learning theory, cognitive-based theories, and psychological states theories, addressed specific aspects of imagery effects on performance. Most of these theories emerged in response to the current issues present during the time in which they were addressed and often developed in response to earlier theories. Furthermore, they were tested and analyzed in the best empirical manner possible at the time. Functional equivalence theory used the most advanced technology in examining the workings of imagery available to date.

*Functional Equivalence Theory*

More recent research and developments using highly technical electronic imaging capacities especially those from medical science have taken mental imagery out of its subjective and therefore questionable category into one of more extensive, rigorous, and scientific investigation. This represented a departure from the psychological models and theories previously designed and used to explain imagery function. Functional equivalence theory (Decety, 1996a, 1996b, 2002; Farah, 1984; Finke, 1980, 1985, 1989; Finke & Shephard, 1986; Jeannerod, 1994, 1995, 2006) postulated that the same brain functions involved in imagery were functionally equivalent in the brain activities of the preparation of that same skill or activity even though physical motor execution was usually blocked during imagery (Holmes & Collins, 2002). Both activated the same neural substrates, pathways, and processes in specific areas of the brain. While motor preparation was activated below the level of consciousness, imagery of that act was consciously directed in the same action (Jeannerod, 1994). This effectively placed intended actions and skills on a covert to overt continuum (Jeannerod, 1994, 2006; Kosslyn, 1994; Kosslyn & Koenig, 1992). Decety (1996b) reviewed studies involving
mental chromatic and autonomic responses while imaging. He concluded that the studies “converge to support the notion that motor imagery shares the same neural mechanisms that are involved in motor control of actual actions” (p. 91).

Due to the recent developments in neuroimaging, researchers were able to objectify imagery activity, possibly resolving decades of controversy over its elusive and subjective nature particularly in the area of motor performance. Holmes and Collins (2002) have implemented the findings of functional equivalence into applications of imagery training for use in sports performance. They have found that imagery as a “motor representation can be used to explain the multifaceted and variable motor behaviour [sic] of elite sport athletes and to develop a mechanistic explanation for the effectiveness of imagery generally” (p. 123). They further argued that: “if physical and mental practice can be shown to possess high functional equivalence, then many procedures that are efficacious in physical practice should be relevant to mental practice as well” (p. 124). Holmes and Collins concluded that the most effective imagery reflected, as closely as possible, all the cognitive, motor, sensory, and affective elements present in the preparation and execution of the given task.

Studies specific to brain functions in images involved in auditory processing, musical expression, and observational learning were particularly relevant to this study. Using neuroimaging capabilities, Aleman, Nieuwenstein, Böcker, and de Haan (2000) found that auditory imagery was associated positively with auditory and musical training. Meister, Krings, Boroojerdi, Müller, Töpper, & Thron (2004) found similar brain activity during imaginary as in actual musical performance. Halpern and Zatorre (1999) observed that vocal song performance activated specific areas of the brain. More recently,
Decety (2006) found that emotional imagery and empathy reflected actual expression of emotion in brain activity. In studying the neural activity of humans viewing another individual performing actions, Fadiga, Fogassi, Pavesi, and Rizzolatti (1995) observed increased stimulation of the same parts of the motor system in the brain as when subjects both imagined and performed that motor action. Similarly, Corchin, Barthelemy, Lejeune, Roux, and Martineau (1998) found changes in electroencephalography (EEG) cartography of both hemispheres of the brain in subjects watching videos of a person executing gymnastic movements. Kosslyn and others (2001) concluded that “most of the neural processes that underlie cognitive like-modality perception are also used in imagery; and imagery, in many ways, can stand in for (re-present, if you will) a perceptual stimulus or situation” (p. 641). These studies were particularly relevant to the issues of training vocal performers in how they learn to employ modeling, observation, skill acquisition and technique, and embody a variety of affect in portraying different characters and roles.

All these imagery theories had been developed over many decades and seemed to follow psychological innovations and medical imaging inventions in addressing imagery’s effects on cognitive and motor performance (see Table 2). Psychoneuromuscular theory addressed muscular aspects while symbolic learning theory dealt with specific coding in the brain. The cognitive-based theories, including Paivio’s (1971) dual-coding theory, Lang’s (1977, 1979a, 1979b) bio-informational theory, and Ahsen’s triple code theory, addressed information processing. The psychological state theory of Bandura’s (1977) self-efficacy theory dealt with environmental and social stimuli as interacting with imagery development of self-efficacy and confidence in the
individual. Schmidt’s (1982) attention-arousal set theory posited that there were certain affective and arousal states, which made optimal performance achievable. Functional equivalence was based on neural imaging evidence that imagery and motor activity share the same cognitive processes. With the recent developments in brain imaging, functional equivalence seemed to provide the most comprehensive explanation, the results of which may impact the relevancy of the earlier theories. However, these theories may have been relevant to the framework of the four Ws in providing a foundation for understanding imagery’s effects on performance.

**The Four Ws of Imagery Use**

The framework of the four Ws of imagery use: where, when, what, and why, from athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005) provided a basis for this study. Where and when imagery was examined first, followed by what performers imagine, including imagery characteristics and types. A discussion of the purposes, or why different imagery content was employed followed. The major studies investigating the use of imagery in musical performers were examined and compared with relevant sport and performance imagery research.

The framework of the four Ws was initially proposed in imagery of athletes and included six levels (Munroe et al., 2000), as seen in Figure 1. Levels one and two depicted where and when, respectively, and the third level revealed a connection of the function and content of imagery in answering why and what athletes used imagery. In adapting the four Ws framework for dancers (see Figure 2), Nordin and Cumming (2005) eliminated the use of levels and created a hierarchical tree and separated why and what.
Figure 1. Four Ws of imagery use framework for athletes.

Figure 2. Four Ws of imagery use framework for dancers.

The category of what, or content, was divided between imagery types and imagery characteristics. Imagery types included images of execution, metaphors, context, body-related, and character/role. In the why category, cognitive and motivational reasons were carried over from the sports framework (Munroe et al., 2000). Three additional imagery reasons categories emerged from the dance study: (a) artistic reasons of choreography, movement enhancement, and audience communication; (b) healing reasons, and (c) no reason. These adaptations were considered to more appropriately apply to use of imagery in artistic performers and specifically to the vocal professionals in this study. Therefore, these two frameworks were used in this study to analyze and compare to the imagery uses of these professional singers and to allow a new singers’ imagery framework to emerge from the data analyses. The main elements of the two imagery frameworks are analyzed which answered the questions: where, when, what, and why. This is separated into the following sections: (a) where; (b) when; (c) what, imagery types and imagery characteristics; and (d) why, and the cognitive, motivational, artistic, and healing reasons. The chapter ends with a review of the relevant imagery research in music performance.

Where or Locations of Imagery Use

Location, or where, athletes and artistic performers engaged in imagery was represented in five categories: (a) practice or rehearsal; (b) performance or competition venue; (c) at home; (d) in transit, commuting, or traveling; and (e) other places. Researchers initially reported that athletes used imagery primarily in training and practice areas. However, more recent studies found that athletes used more imagery on the competition field than training areas (Barr & Hall, 1992; Hall et al., 1990). Salmon and others (1994) reported athletes engaging in imagery outside of practice or competition, in
the home, school, and at work. Dancers and musicians imagined in all areas of the rehearsal or practice studio and the performing venue, such as the dressing room, backstage, and on stage (Bellon, 2006; Nordin & Cumming, 2005; Trusheim, 1987). They also reported using imagery while in transit or commuting, on the train, driving, in quiet places, and at home, especially in bed. Both athletes and performers used imagery in many places and settings, particularly those in which they could concentrate and mentally practice and prepare for the performance. These varied by time, place, personal preferences, and imagery abilities.

**When or Times of Imagery Use**

According to the studies cited below, the specific times, or *when*, athletes and performers participated in imagery constituted ten categories: (a) practice or rehearsal, (b) performance or competition, (c) during quiet times, (d) in transit or traveling, (e) certain types or styles of performances, (f) times of the day or night, (g) periods of the season or year, (h) anytime or all the time, (i) in times of difficulty, and (j) during injury or health problems. Many of these categories were similar to the location where imagery was employed, since times chosen by these performers were connected with their scheduling requirements of rehearsals and performances.

Athletes reportedly engaged in imagery primarily just prior to competing than during or after competition (Barr & Hall, 1992; Rodgers et al., 1991; Weinberg, Butt, Knight, Burke, & Jackson, 2003; Ungerleider & Golding, 1992). Other researchers (Munroe et al., 2000; Salmon et al., 1992) found athletes using imagery more during practice than before or after training sessions, however it was not known how directly this practice was connected with performance. Oxendine (1969) proposed that “effective
mental rehearsal techniques may enable learners to practice at times when they are not able to actively perform the tasks” (p. 755). Later, researchers (Weinberg & Gould, 2003; White & Hardy, 1998) reported that athletes also used imagery when they were experiencing tough or difficult times, under a lot of pressure, during sickness or injury, or fatigue while convalescing, or while physical practice was not possible. Outside of practice or competition, athletes engaged in imagery during breaks while at work or school (Weinberg & Gould, 2003). Athletes and artistic performers were found to use imagery just prior to going to sleep (Bellon, 2006; Hall et al., 1990; Munroe et al., 2000; Rodgers et al., 1991; Trusheim, 1987; Weinberg & Gould, 2003).

Musicians and dancers imagined more during practice and rehearsals than before or after, and more before performances than during or after (Bellon, 2006; Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987). Performers also used more imagery when they needed to engage in or communicate with artistic elements or metaphorical imagery. For example, dancers imagined more if metaphors were needed in an expressive piece (Nordin & Cumming, 2005), and singers used more imagery during song recitals than operatic performances (Carter, 1993). Both dancers and musicians engaged in mental rehearsal when they were tired, injured, or in a place where they could not overtly rehearse. They also used imagery extensively to alleviate performance anxiety, for instance when they felt nervous, anxious, or distracted. Furthermore, musicians and dancers imagined more during the time of year when their schedules were heavy with rehearsals and performances (Bellon, 2006; Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987). Generally, athletes and artistic performers used imagery throughout the
normal day, and specifically when different types of imagery were used to facilitate practice or performance.

**What: Content of Images**

In the initial investigation of the four Ws of athletes’ imagery content, Munroe and her colleagues (2000) identified six specific categories: (a) sessions, (b) effectiveness, (c) nature of imagery, (d) surroundings, (e) types of imagery, and (f) controllability. Sessions referred to the duration of the imagery engagement which were directly related to findings in the *where* and *when* category. Effectiveness involved the participants’ evaluation of the usefulness of their imagery practices. Whether the images were positive, negative, or the degree of their accuracy comprised the nature of imagery. Surroundings included the venue of practice or competition and those in attendance. Types of imagery encompassed the specific uses of four senses: (a) vision, including internal and external perspective and vividness; (b) auditory, or sounds; (c) kinesthetic or the feel of the movements; and (d) olfactory, or smells. Athletes used the kinesthetic and vision senses the most and involved experiences of the specific sport or venue of competition. Image controllability had to do with the individual’s ability to manipulate the image and the speed with which the image was executed. While all these categories are critical in describing athletes’ imagery, the organization of this was preferred in Nordin and Cumming (2005) dance imagery investigation due to its closer approximation to the artistic experiences of the professional vocalists in this study. Nordin and Cumming (2005) adapted the results from the framework derived from athletes’ imagery findings of Munroe and her colleagues (see Figure 1), and determined that dancers’ imagery content was divided between types and characteristics. Henceforth in this
chapter, each of the important findings from athletes and related literature was reported according to the dancers’ framework (see Figure 2).

What: Imagery Types

Imagery types were those of content, or the “image” itself. In investigating dancers’ imagery, Nordin & Cumming, 2005) identified six different types of imagery investigated were: (a) execution, (b) metaphoric and artistic, (c) context, (d) body-related, (e) character and role, and (e) irrelevant images. Each content area was examined in detail for its use in achieving optimal athletic, artistic, and musical performance.

Execution images. The image types described as execution included (a) skill learning and technique; (b) sequencing, planning, and strategies; and (c) goal imagery. Skill learning images included specific images in mentally practicing actions and methods for performance. Mental practice studies in sport and musical performance are addressed in the section on why later in this chapter. Munroe and others (2000) distinguished execution images in two distinct areas: (a) skill development in technique learning and skill building, and (b) performance enhancement, including correctional efforts.

Skill images were generally regarded as imagery functions in the why category and not a part of content. However, athletes have illustrated the value of being able to visualize specific skills and its relationship to physical execution of that skill. Mac Wilkins, winner of four Olympic gold medals described this:

 Basically it boils down to the fact that if you’re trying to accomplish something, a particular athletic movement, if you can’t visualize it then it’s pure chance you will be able to perform the movement. If you visualize it and can really see it . . .
you have a clear target to aim for and a much better chance of realizing that
target. (cited in Ungerleider & Golding, 1992, p. 20)

This quote underscores the connection between being able to mentally execute skills and
physically performing them. For athletes, skill images depended upon the type of sport in
which the athlete was engaged. Similarly, specific images of instrumental musicians
could include playing an instrument in a certain fashion, executing a certain embouchure
for brass players (Trusheim, 1987) or holding the wrist in a way that facilitated playing
arpeggios on the piano. For singers, images of opening the sinuses and the throat to
achieve better resonance or performing octave leaps correctly would be considered skill
execution images.

Planning and sequencing images in performance also dealt with development and
execution of strategies and routines (Munroe et al., 2000; Nordin & Cumming, 2005).
Strategies in athletic performance included images of rehearsing game plans in football
(Fenker & Lambiotte, 1987), strategies in wrestling (Rushall, 1988), and routines such as
those in figure skating and gymnastics (White & Hardy, 1998). Munroe and her
colleagues (2000) reported strategy and sequence imagery in the cognitive aspects of the
why category and not as a separate content. Musicians imagined strategies and plans in
organizing their practice and pre-performance routines, specific performance sequences,
strategies of handling difficult passages, and ways of coping with distractions (Bellon,

Research in imagery with regard to goal attainment has only recently emerged.
Sports research in goal setting and achievement involved three different types of goals:
(a) outcome, (b) performance, and (c) process goals (Weinberg & Gould, 1995). Outcome
goals in this study focused on the final result of the effort or endeavor. Performance goals involved the projection of exceeding one’s own efforts in a particular setting without regard to other competitors. Process goals contained the desired effect of improving more specific performance functions. Weinberg and Gould (1995) suggested that athletes focusing on performance or process goals more readily achieved performance success. Woolfolk, Murphy, Gottesfeld, and Aitken (1985) found that athletes who imagined the outcome of their specific sport activity just prior to performance subsequently influenced that same activity more than mental rehearsal. Reports of goal imagery were included as motivational aspects of imagery reasons in the study by Munroe and colleagues (2000).

Woody (1999) proposed that expressive performances required mental conceptions of performance goals. The more complete and descriptively detailed the performance goals were in the mind of the performer, the more successful the actual performance seemed to be. Jackson and Csikszentmihalyi (1999) suggested that performers keep focused on their goals by visualizing ahead of time the specific performance both in parts and as a whole. This gave the individual a clear blueprint of all the components involved in its successful execution. The application of different goals corresponded to the varying requirements of the specific task.

Artistic performers used goal images to improve skill and performances, identify and execute desired roles to perform, and mentally project future stagings (Carter, 1993). Performance goals were found to often intermingle with outcome goals for artistic professionals. Dancers used goal images to imagine being the best, perform difficult skills, and set long and short-term goals (Nordin & Cumming, 2005). Professional singers expected and projected positive outcomes, regularly setting achievable and effective
goals (Carter, 1993). The following quote exemplified outcome and performance goals made by the world-renowned tenor, Luciano Pavarotti, early in his illustrious career. He stated:

> When I began to study, I made lists of all the roles I wanted to sing, and the age at which I planned to sing them. At the top I put ‘Rudolfo – 22.’ I did it at 26. Everything has come later than I planned, and I am not sorry. I thought to retire myself at 55, but for now the voice feels [fine]. (Luciano Pavarotti, cited in Crutchfield, 1985)

Pavarotti was 50 when he gave this interview and was still singing until very close to his death at 71. Christine Harel, a freelance singer, (Bellon, 2006) described process goals in endeavoring to improve her performances. She said:

> I also have objectives such as: I would really like, this time, to be able to stand in a particular way while singing; or also: I would like for my voice to stay in a particular place in my body while singing. I can have various objectives based on where I am at with my instrument [voice] at the time. This comes from the feedback that I got from previous performances and what I would like to improve. (p. 17)

Professional singers seemed to be familiar with various aspects and methods of employing outcome, performance, and process goals throughout their careers.

*Metaphoric/artistic images.* Metaphoric and artistic imagery was traditionally used in artistic performance and have been included in more current investigations in several sports, such as figure skating and artistic gymnastics (Ruiz & Hanin, 2004). Recent studies have revealed the successful use of metaphorical imagery in athletes
regulating affect in achieving flow states (Hanin & Stambolva, 2002; Ruiz & Hanin, 2004). Nordin and Cumming (2005) reported dancers using various kinds of metaphorical imagery with performance, “including images of color, objects that are not present, actions that cannot actually be performed, the environment, and themes” (p. 403).

Musicians have used metaphorical and poetic imagery for technical execution and expressive interpretation in expressive performances of a composition. Often the style and historic genre of the piece have dictated specific imagery and interpretation. Carter (1993) reported singers using more imagery in performing recitals than oratorio or opera. Conductors were known to share certain metaphors or poetic images for interpreting phrases, movements, and entire symphonies (Barten, 1992, 1998; Bellon, 2006; Carter, 1993; Trusheim, 1987). Conductors, directors, and musical instructors also used allegorical and descriptive language and imagery, story telling, and kinesthetic and visual imagery to help create a certain feeling or intention in a piece. In her observations of instrumental classes, Barten (1992, 1998) reported instructors described countless varieties of metaphors and similes to elicit appropriate musical expression in their students’ performances. Instrumentalists and singers have used a wide range of metaphoric imagery in achieving a cohesive artistic interpretation of piece of music.

In the context of vocal performance imagery was often assumed to mean metaphoric or poetic images related to affect and artistic expression (Bellon, 2006; Carter, 1993; Coffin, 1987; Leyerle, 1986; Miller, 1996) as opposed to the definition of imagery used in sport psychology. Professional singers in Carter’s (1993) and Bellon’s (2006) studies emphasized metaphorical and artistic use of imagery in affecting expressive performances and to describe methods to produce different vocal sounds, as in
Pavarotti imagining an airplane ascending as he sang a rising series of pitches (Hines, 1982).

Within the vocal pedagogical community there had been much controversy concerning the appropriate use of imagery in teaching voice (Titze, 1986). According to Vennard (1971), imagery was often a description a teacher would employ to help students gain understanding of vocal production if direct explanation was ineffective. “Its philosophy is that while the physical details are either unknown or not directly controllable, the experience of good tone production can be described in figures of speech which will enable the student to grasp it” (p. 15). Vennard cautioned the singing teacher to be careful only to use imagery with ideas that the student singer could grasp easily through past experience. He referred to “float the tone on the breath” and “don’t reach for high notes; approach them from above,” as statements that had particular meaning only to those who have experienced these vocal techniques.

Other pedagogues have argued in favor of employing a fully integrated artistic and scientific approach to singing teaching. Reid (1983) strongly cautioned against the use of imagery in favor of a more scientific approach to singing. He argued:

To a certain extent, vocal instruction is impossible without imagery, since even the most elemental scale pattern must be conceptualized before it can be executed. However, the successful realization of a preconcept [sic] depends upon an ability to respond, which is a matter of physical coordination. Since the student has presented himself in order to overcome obvious physical disabilities, the use of imagery cannot be considered pertinent to the central issue. Imagery,
therefore, is not an important factor in the voice building process. (Reid, 1983, p. 155)

Although Reid was “philosophically opposed to imagery” (Carter, 1993, p. 183), he realized that metaphorical imagery was sometimes necessary in teaching but held the conviction that subjective uses of imagery could go counter to the more scientific, and therefore more technical approach of vocal training. Dayme (1982) also argued for a more integrated approach, and said, “When all the available knowledge of the mechanics and artistry of singing is used, then the result can only be a better understanding and enjoyment of vocal artistry” (p. 3).

Freed (2000) compared metaphorical use of imagery terms included in American vocal texts from the early part of the twentieth century with its more recent usage. Many of these terms were still employed in contemporary pedagogy and were directly related to skill acquisition in voice training (e.g., learning breath support; achieving and executing proper sensations and placement of the voice). Singers in Carter’s (1993) study reported using such imagery (e.g. “bellows,” “bouncing ball on a water fountain,” “stretching a rubber band”), which were used to facilitate vocal production. Freed recommended that imagery in vocal pedagogy be connected with the more grounded physiological experiences. Given the subjective and artistic definition of imagery, advising caution in its use was understandable. Nonetheless, metaphorical imagery in vocal pedagogy was often required.

While the dangers in using metamorphic imagery were clear, its use in music was well established and was not likely to change, due to the abstract nature of music (Barten, 1998). However, imagery, as it has been used and investigated in psychology and sport
psychology, offers a much broader definition and encompasses mental aspects of musical and singing development, as exemplified in the work of several pedagogues (Caldwell & Wall, 2001; Fields, 1972; Ware, 1998). However, music performance has remained a creative art in which metaphor was valid, especially in singers who created and interpreted roles and characters.

*Character/role images.* Character and role images were limited to dramatic, emotional, and artistic requirements in dance, music, and singing. Dancers, as well as singers, imagined the behaviors and emotions of their characters as well as their physical movements and appearance (Carter, 1993; Craig, 1992; Hanrahan & Vergeer, 2000; Nordin & Cumming, 2005). These were related to the experience of certain qualities, human or non-human, for instance, a dancer recreating the swan in *Swan Lake*. Even instrumentalists in musical compositions have had certain roles in which they created characters, such as those in Prokofiev’s *Peter and the Wolf*, wherein specific instruments represented the different characters in the story. Many musical compositions suggested some kind of affective ideal or image from which the performer could embody and present the work. However, in singing, often the interaction of music with the text more specifically suggested its placement as to how it was to be interpreted and performed. Operatic singers recreated their characters using words presented vocally, dramatically, musically, as well as physically, mentally, and affectively (Barten, 1992; Carter, 1993; Emmons & Thomas, 1998, 2008).

Creating characters and roles in art song recitals was considered more rigorous and difficult than those in opera or oratorio. Songs for recitals require an entire subjective world to be recreated mentally, dramatically, and emotionally for each song in order to
achieve an effective performance (Barten, 1992; Carter, 1993; Emmons & Sonntag, 2002). Lotte Lehman (1945/1985) in *More Than Singing*, offered suggestions for interpreting *lieder* of many composers (e.g., Brahms and Schumann). She often included entire scenarios performers could imagine in recreating the song. For example, in performing *Gute Nacht* from *Die Winterreise* by Schubert, she described the specific scenario when she suggested:

Imagine that you are this man who is on the verge of complete disintegration. It is a cold winter night. You have decided to leave during the night for if you left in the daylight, you might see her, from whom you are fleeing, and perhaps if you should see her again you would weaken and would not find the strength to go. But you can no longer bear the torture of being near her. You will lose your mind if you cannot escape from her. (Lehmann, 1945/1985, p. 110)

The poet and composer created an entire dramatic world in these lieder songs, the dictates of which helped the performer to bring the character to life.

Even though Lehmann maintained that specific images were dictated in the text of these songs, elite singers in Carter’s (1993) study often felt images were private and were flexible according to specific need. Some singers created entire stories and scenarios to act out the images of their songs. Most singers felt that embodying subtext, or underlying meaning, came from the text or story of the opera or song. Feeling appropriate emotions and imagining past personal experiences in order to more completely embody the character of the song best accomplished this. The dramatic skill of imagining the subtext allowed the performer to unlock emotional significance and communicate the intentions of the composer and poet to the audience.
Many singers’ accounts of their lives in biographies dealt with their experience of vocal production and interpretation (Ferrier, 1955; Horne & Scorvell, 1984). Autobiographies such as Lehmann, (1945/1985) and Ferrier (1955) revealed how these singers brought intuition and imagination into their characters and roles in performances. Hines’ (1982) interviews of 40 internationally recognized male and female opera singers illustrated some experiences in creating roles for many operas. Developing singers could use these accounts as models for their own work with bringing characters to life on the stage both in imagination and in physical execution.

*Context images.* Both athletes and performers have reported the use of context images involving the environment, other people, and specific situations and venues. Imagery context has been recognized as an important element since the beginning of mental training in sports, as in this example:

Before the 1976 Summer Olympics, representatives from the Soviet Union shot pictures of the Olympic facilities in Montreal. These pictures were returned to the Soviet Union and studied by the athletes. Although the Soviet athletes had not been to Montreal, they used the pictures to create images of themselves performing in those facilities. Creating these types of images served to familiarize the athletes with the Olympic environment before they arrived. (Vealey, 1986, p. 211)

This type of image was reported in athletes’ imagery as various elements in the surroundings (e.g., sounds from spectators, smell of the grass) (Munroe et al., 2000). Nordin and Cumming (2005) identified this type as another category that emerged from dancers’ imagery research. Prior to this sport imagery research related to context had...
rarely been a separate subject and was incorporated in various studies such as those on vividness and manipulation of images.

In reporting context images of musicians, Trusheim (1987) found brass instrumentalists including details of auditions rooms with reviewers and acoustical qualities of specific performances spaces. These and the musicians in Bellon’s (2006) and Carter’s (1993) studies described images with other musicians in the performing space or venue in front of an audience. Furthermore, these singers imagined the entire scenarios of songs they had created in their minds while mentally and physically performing on stage.

*Body-related images.* Another imagery type concerned the different body-related images in which athletes and performers engaged, including anatomy, feeling, appearance, musical expression, and health concerns (Carter, 1993; Hanrahan & Vergeer, 2000; Munroe et al., 2000; Nordin & Cumming, 2005). Much of the sport research of body-related imagery has been included in studies investigating kinesthetic imagery, and is examined in the category of sense imagery later in this section.

The body related category emerged from the Nordin and Cumming (2005) dance imagery study. Dancers often employed a number of body-related images. Physical and emotional feelings were connected with arousal, muscular tension, and affective sensations. Several dancers imagined various and specific parts of their anatomy for individual performance execution. Dancers also used images of their appearance and that of their characters in more effectively relating to the audience (Nordin & Cumming, 2005).

Singers who used body-related imagery shared some of the same concerns as dancers, and had some that differed. Carter (1993) discussed vocalists’ use of imagery
based on Leyerle’s (1986) five theoretical categories of organic imagery in singing. These consisted of posture, respiration, phonation, resonation, and use in vocal or psychological problem areas. Since Garcia II developed the laryngoscope in 1854 (Garcia & Paschke, 1975), singers have been able to see and understand the actual anatomy of the larynx. Subsequently vocal pedagogues have advocated for the increased incorporation of vocal anatomical images, which were considered more scientific than metaphorical imagery (Dayme, 1982; Leyerle, 1986; Miller, 1996; Vennard, 1968). More recent texts have included extensively detailed illustrations of the various aspects of vocal and human anatomy as it relates to singing (Chapman, 2006; Miller, 2004). Singers imagined their entire physical body and vocal mechanism, or “interior posture” in controlling the vocal sound and physically creating their character (Bellon, 2006). Vocalists were found to have had images arise concerning their ability to sing or not, especially having fears of losing their voice (Stedman, 1985). Due to the fact that singers depended on the health of their body as their musical instrument, they used many different body-related images (Bellon, 2006; Carter, 1993).

The use of body-related imagery in achieving musical sound and expression is not new to musicians. Brass instrumentalists (Trusheim, 1987) and professional singers (Carter, 1993) used kinesthetic imagery to mental hearing of pitches and musical passages. Furthermore, one of the singers in Carter’s (1993) study practiced physical movements related to the rhythm of the music as the result of training in Dalcroze Eurythmics (Jaques-Dalcroze, 1920/1972). This helped the vocalist physically execute and subsequently apply the use of kinesthetic imagery to strengthen rhythm and connect with the natural tension and expression in the particular piece of music. Learning the
words in physical rhythmic motion also facilitated memory for several of Carter’s
singers.

Several studies focused on the use of imagery in athletic injury. In an
investigation of the cognitive and motivational functions of imagery, Sordoni, Hall and
Forwell (2000) developed the Athletic Injury Imagery Questionnaire (AIIQ) and found
that injured athletes employed motivational imagery to facilitate rehabilitation. Marathon
runners, older athletes, and those who had been to a sports physician were more likely to
monitor their body for pain and injury than younger and less educated athletes
(Ungerleider, 1992). Athletes reported that recovery from injury was enhanced using
possible uses of imagery to facilitate the many stages of healing athletic injury. Some
musical performers also used imagery in healing their bodies after injury or coping with
physiological, psychological, and emotional aspects of injury and its consequences
(Trusheim, 1987). Performers consistently used mental practice of their particular
instrument or genre to continue and augment physical practice during fatigue and injury
(Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987).

The mind-body paradigm literature had supported the connection of imagery with
psychophysical conditions especially in healing (see Sheikh, 2003, for a comprehensive
review). Early studies with cancer patients using imagery to combat cancer reported
positive results of recovery and remission of the disease (Simonton, Matthews-Simonton,
& Sparks, 1971; Simonton, Simonton, & Creighton, 1978). Studies (Schwartz, 1984;
Schwartz & Kussek, 2003) have suggested that the human being is a complete system
made up of a number of subsystems including mind and body. These parts interact
resulting in new emergent properties which are facilitated and achieved in the use of imagery to recover and maintain optimal health.

Irrelevant images. Irrelevant images emerged in the dance research of Nordin and Cumming (2005) and were not directly addressed in the sport imagery research in Hall and others (1998) and Munroe and colleagues (2000). Irrelevant images were identified as those types that spontaneously arose that may have had nothing to do with practice or performance. Musicians and singer were reported to have images that were not wanted and that emerged spontaneously (Bellon, 2006; Carter, 1993; Trusheim, 1987). These were found intertwined in the images they reported. One singer in Carter’s (1993) study reported the regular occurrence of spontaneous images while using self-hypnosis, however these images directly related to her performance and could not be considered irrelevant.

These imagery types as established by Nordin and Cumming (2005) comprised the content of imagery with which performers, more than athletes, were involved. Most of these represented the vehicle in which artistic expression was achieved in creative performance. The general qualities in how athletes and performers engage in imagery will now be examined.

What: Imagery Characteristics

Imagery characteristics included qualities of imagery as a modality or a by-product rather than imagery type or content previously discussed. According to Nordin and Cumming (2005) the characteristics of imagery included six specific qualities: (a) senses, (b) perspective, (c) ability, (d) direction, (e) deliberation, and (f) amount and duration.
Senses. According to Richardson (1969), sensory imagery differed from perception in that imagery was not dependent on experiencing outside sensory experience, but replicated the experience of that sensory information in the cognitive processes (Richardson, 1969). Senses used in imagery were the same as those involved in perception and included six categories: (a) visual, (b) auditory, (c) kinesthetic, (d) tactile, (e) olfactory, and (f) gustatory.

In some of the earliest studies of the use of senses, Galton (1880, 1883) surveyed visual imagery ability and found it more profoundly developed in engineers, women, and schoolboys than scientists. In a diary study, Kosslyn, Seger, Pani, and Hillger (1990) found that two-thirds of imagery in people’s normal life was visual. However, the use of specific senses often depended on the individual and their chosen activities, or experiences, as well as the type of sport, art form or music, the various skills and requirements of the athlete or performer. For example, field athletes used more visual imagery than marathon runners (Ungerleider & Golding, 1992), which may be related to the visual components in field athletics. Furthermore, the extensive physical requirements over time for long-distance athletes may require more kinesthetic imagery.

The specific sensory modality, or its combinations, that athletes employed in various sports have been examined in a number of studies. Results of sports research have differed as to which imagery sense athletes use more, visual or kinesthetic. Murphy and Martin (2002) found athletes preferred kinesthetic to visual imagery, however other studies reported athletes were better visual than kinesthetic imagers (Barr & Hall, 1992; Gregg et al., 2005; Hall & Martin, 1997; Moran, 2004; Murphy et al., 2008). Ryan and Simons (1982) found that better visual or kinesthetic imagers showed more improvement
than those with weak visual or kinesthetic skills. Furthermore, soccer players not only used visual and kinesthetic imagery extensively, but some also reported using auditory imagery (Salmon et al., 1994). Munroe and others (2000) reported athletes in their study used visual, kinesthetic, auditory, and olfactory sense imagery. Sport psychologists generally recommended that athletes use as many sense modalities as possible in their imagery to increase effectiveness (Moran, 2004; Morris et al., 2005; Murphy et al. 2008; Vealey & Greenleaf, 2001).

Artistic performers used multiple sense images in ways specific to requirements of their art. Dancers in Nordin and Cumming’s (2005) study reported experiencing multisensory imagery: kinesthetic, visual, and aural. Elite musicians used the same three sense modalities in their profession (Bellon, 2006; Carter, 1993; Holmes, 2005; Moyer, 1992; Ross, 1985; Trusheim, 1987). MacPherson (1997) found more experienced musicians were able to connect their kinesthetic and auditory image with playing wherein the “link between fingers and singers was automatic and seemed to occur without any conscious effort” (p. 70). In her interview of a solo cellist and guitarist, Holmes (2005) reported that instrumentalists imagined the sound, the feel of muscles, the visual image of movement, as well as the appropriate affect and expression in preparing the actual execution of music. Recreating the kinesthetic feeling of the proper breath control, together with imagining the perfect embouchure of the mouth for brass players (Trusheim, 1987) or position of the fingers for string players (Holmes, 2001), also played a major part in producing the desired quality of sound.

Although reports of athletes experiencing sounds in imagery are less frequent than other senses, the difference between their use of auditory imagery must be distinguished
from how auditory imagery is generally employed by professional musicians. Athletes heard the sounds of their sport in their inner hearing, such as splashing of water in the pool, footsteps on the track, or crowds cheering (Munroe et al., 2000). Most of the auditory imagery of musicians involved musical elements including pitch, rhythm, harmony which required a high degree of training, understanding, and awareness of music in context (Gordon, 1999), which is exemplified in the studies that follow.

Research in assessing sensory ability in imagery with regard to music began being reported over a century ago. Betts (1909) investigated pitch accuracy and found that student musicians who reported using auditory imagery scored higher than those who did not. In a subsequent experiment of the same study, Betts (1909) reported that in sight-reading or hearing a familiar tune, participants used kinesthetic and auditory images for internally playing or singing a given composition. In comparing the auditory imagery in adults and children, Agnew (1922a) found that children and musicians scored higher than non-musical adults in auditory vividness tests. Seashore (1919) worked extensively in the area of cognitive music assessment and auditory imagery in his 10-point inventory of musical talent. Seashore (1938/1967) and later Farnsworth (1958) recognized that auditory imagery interacting with kinesthetic, or motor imagery, was often accompanied by visual images. Seashore wrote, “The motor imaginal [sic] type is ordinarily also well developed . . . the motor tendency to image the tone or execute it in inceptive movements is highly developed in the musical mind” (1938/1967, p. 6). These early studies served to strengthen the investigation of vocalists’ imagery use and the ability in mentally experiencing music through the various sense modalities.
Instrumentalists and singers reported first learning their music internally prior to playing or singing, and later continuing mental rehearsal in relearning and perfecting pieces (Bellon, 2006; Carter, 1993; Holmes, 2001; Moyer, 1992; Trusheim, 1987). James Olin, a brass professional in Trusheim’s study was quoted as saying, “What I try to do is to visualize or auralize [sic] or whatever what I want to hear coming out of my horn.” (cited in Trusheim, 1987, p. 179). Many musicians reported internally hearing their line of music as well as those of others in the musical ensemble, and often every note in the entire orchestra, opera, or composition (Carter, 1993; Trusheim, 1987). Singers who were trained to play the keyboard reported internally hearing more of the accompaniment than those who had no keyboard skills (Carter, 1993). This represented elements of Gordon’s (1999) idea of audiation, which “takes place when we hear and understand in our minds music that we have just heard performed or have heard performed sometime in the past” (p. 41). Audiation was not just a high level of auditory imagery but one developed through a foundation of understanding musical structures and context, the experience of which elite singers, instrumentalists, and conductors seem to share. This understanding of imagery in musicians has been examined extensively over the years (e.g., Azzara, 1999; Liperote, 2006; Reynolds, 1995).

As singers and musicians developed their art through playing, observational, and listening experiences, they eventually gathered a storehouse of sound images in their minds (Fields, 1972). This seemed to be supported in recent research in neuroimaging, in which brain activity of hearing and imagining music was found to be similar (Kosslyn et al., 2001; Zatorre & Halpern, 2005). Ideal vocal or instrumental sound was used to guide singing and playing and became more sophisticated over time as influenced by listening
and remembering past models of others and one’s own performance experiences (Carter, 1993; Trusheim, 1987). The great violin master teacher, Dorothy DeLay, emphasized building “a well-differentiated mental vocabulary of sounds” (cited in Stockholm, 1975, p. 40). Musicians combined aural images of the ideal musical sound with the required kinesthetic feeling necessary to produce specific qualities of timbre and expression of the notes or phrases (Bellon, 2006; Trusheim, 1987).

The practice of internally hearing the sound and replicating that ideal auditory image on the instrument or in the voice replicate in performance has been examined in the literature (Averino, 1989; Fields, 1972; Ware, 1998). In his treatise on *Ideo-Kinetics*, Bonpensiere (1953) promoted concentration on the auditory image to achieve the desired sound wherein one need only “ideate our end results in a process of flow . . . we ideate our absolute unconcern with the ways and means to obtain them” (p. 14). Unlike traditional piano pedagogy, Bonpensiere promoted the primary use of auditory, visual, and kinesthetic intention while allowing the body to respond to the vividness of the mental image. He illustrated this in the following quote:

Never think of your music in terms of execution (of what your hands and fingers should or are going to do) but in terms of interpretive rendering (what you would expect it to sound like if a performer from heaven were executing it for you). (p. 69)

Brass instrumental professionals reported performing as a result of clearly imagining the individual idea musical sound prior to playing (Trusheim, 1987). Using auditory and kinesthetic imagery served to facilitate proper execution of musical sound in both instrumental and vocal production.
In vocal pedagogy, Averino (1989) stated that “[i]n order to produce a song, the singer must have it clearly in mind: pitch, rhythm, musical form and the emotional content of the words. The performer is the imagination” (emphasis hers, p. 40). Fields (1972) advocated that vocalists create a clear mental ideal auditory image of the sound they desired to produce prior to its execution. In producing that aural image, Geraldine Farrar’s statement reflected this in the following, “[W]e learn to know the sensations produced in muscles of throat, head, face, lips and other parts of the anatomy, which vibrate in a certain manner to correct tone production. We learn the feeling of the tone” (cited in Brower & Cooke, 1996, p. 53). Lamperti concurred when he said: “Do not listen to yourself sing! Feel yourself sing! When internal conditions are right and ready, the singing voice appears not before” (cited in Brown, 1931/1973, p. 16). Since the body was considered the singers’ instrument, they were not able to hear their own voices as others hear them. Therefore singers learned early to equate the desired tone in auditory imagery with the kinesthetic feeling of what was required to produce that exact sound (Bellon, 2006; Carter, 1993; Stedman, 1985). Furthermore, pitch and vowel production often elicited kinesthetic imagery by singers in Moyer’s (1992) study.

For vocalists, kinesthetic, auditory, and visual imagery were considered the most important senses used for expressive and artistic performance (Bellon, 2006; Carter, 1993; Emmons & Thomas, 1998, 2008). Singers were found to use kinesthetic imagery to control breath, feel rhythm, and physiologically respond with emotion and expression in portraying a character in an aria or song (Bellon, 2006; Carter, 1993). Those who had experienced viewing the internal mechanisms of their voice through laryngeal image biofeedback (LIB) were able to connect these images both visually and kinesthetically,
imagining the vocal anatomy in preparing and singing a variety of desired sounds (Cleveland, 1989a, 1989b, 1989c). With training and experience imagery using all the senses can be trained and strengthened, which has been corroborated since imagery seems to become more complex over time (Carter, 1993; Trusheim, 1987). The use of sensory imagery seemed to be essential to the singers’ and musicians’ expressive and artistic performance. How athletes and performers executed their images through the senses, including perspective and various abilities is being addressed as follows.

**Perspective.** The question of efficacy of the use of internal compared with external imagery was tested in many studies yielding a variety of results. Mahoney and Avener (1977) were some of the first researchers to identify imagery perspective as an important element in imagery use for the performer. Lane (1980) described internal perspective (first person) as one of “involvement,” while the external viewpoint (third person) was as if the person was looking at himself in a video of a performance as a “spectator.” Internal imagery was more highly correlated with motor movement than external imagery (Hale, 1992; Harris & Robinson, 1986). More skilled athletes reported more frequent use of internal than external imagery (Mahoney & Avener, 1977; Rotella, Gansneder, Ojala, & Billing, 1980). Conversely, several studies found no significant differences between the effectiveness of internal and external imagery (Barnes, 1982; Highlen & Bennett, 1979; Mumford & Hall, 1985). However, in Hall and others (1990), elite and novice athletes reported equal use of internal and external imagery, often switching between them. Imagery perspective effectiveness was also correlated with types of sport and performance task requirements (Hardy, 1997) with external imagery more associated with sports in which form was essential. Sequence of actions were
improved with external imagery while internal perspectives were preferred if there was only a single task to perform. Results of imagery benefit depended on the athlete’s (a) imagery ability, (b) the ability to imagine the suggested image, and (c) the type of task (Taylor, 1993). Performance skills with a concentration on form were more associated and often perfected with external imagery, while using internal imagery perspective seemed more successful with wrestlers or tennis players.

The intermingling of kinesthetic senses with visual perspective imagery has been the subject of some controversy (Callow & Hardy, 2004). In a study investigating the US track and field participants of the Seoul Olympics, Ungerleider and Golding (1991, 1992) found that more successful athletes used external perspective and stronger kinesthetic imagery. Hale (1982) argued that the kinesthetic sense was more associated with internal imagery, while others (White & Hardy, 1995; Hardy & Callow, 1999) held that kinesthetic imagery involved both internal and external perspectives. Hardy (1997) and White and Hardy (1995) proposed that different task requirements seemed to suggest specific perspectives, recommending the use of kinesthetic imagery in combination with both internal and external imagery to increase effectiveness. Future studies investigating the specific brain functions of vision and motor centers may shed more light on this subject.

Nordin and Cumming (2005) found dancers using a combination of internal imagery, such as imagining the emotions of a character, and external imagery, particularly in regard to their concern with bodily appearance on stage. Bellon (2006) reported singers using internal perspective, especially regarding the mechanics of vocal production, and external perspective for perceiving their appearance in relation to the
hall, stage, and audience. Singers also reported combining internal and external perspectives to imagine the entire venue in which they were performing, including the hall or arena, stage, audience, and dressing rooms. Musicians as well as dancers imagined how they would feel and look to be in a new competition or performance space in order to familiarize themselves with its many features (Bellon, 2006; Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987). Although Carter (1993) did not directly identify the different visual imagery perspectives used by singers in her study, participants’ descriptions suggested employment of both internal and external imagery. Caldwell and Wall (2001) and Emmons and Thomas (1998) recommended that singers learn and become proficient in using both internal and external imagery. Imagery perception also was influenced by various capabilities to engage in the image itself.

*Ability.* One of the variables in imagery use was the ability of the individual and the degree to which he or she could vividly produce mental images. It was also important to discern what types of imagery the person preferred to employ, or those with which one was familiar. The effectiveness of imagery was dependent on a number of factors: (a) skill level, (b) past training and experience in imagery, and (c) degree to which imagery was consciously directed. The type of athletic or artistic skill in which one was engaged to perform may have also influenced this imagery ability. For example, because of extensive training, musicians typically may have had the opportunity to develop more auditory imagery ability than athletes who may have excelled in kinesthetic images. Types of imagery ability included all the various sense modalities just as they were experienced in real life. The differences in the development of mental use could have been a result of the reinforcement and feedback, or lack of it, for using the various types
of imagery. The desired outcome for which the imagery was being used may have been dependent on the individual’s ability to use imagery (Arieti, 1976; Martin et al., 1999; Murphy & Martin, 2002; Richardson, 1983).

Several instruments have been devised to assess imagery ability in athletes. One of the earliest was Betts’ (1909) study, *Distribution and Functions of Mental Imagery*, the instrument of which was later shortened by Sheehan (1972) and widely used in imagery research. Marks (1973) created the Vividness of Visual Imagery Questionnaire, or VVIQ. The two most popular and useful in sport were Vividness of Movement Imagery Questionnaire (VMIQ; Isaac, Marks, & Russell, 1986) and the revised Movement Imagery Questionnaire (MIQ-R; Hall & Martin, 1997). Two criticisms of these instruments in assessing imagery ability were that much of the support comes from the research team in which these tests were developed, and that these self-reported tests were hard to replicate with subjects often reported positively at the upper end of the distribution (Sommer, 1980).

The effects of imagery ability differences have been most examined in sport psychology research, especially with regard to performance excellence. In learning and performing motor skills, good imagers often had the advantage over poor imagers (Goss, Hall, Buckolz, & Fishburne, 1986; Isaac, 1992). Rodgers and others (1991) reported athletes’ imagery ability as being fairly well developed. Elite athletes used clear and accurate imagery and were found to be better imagers than non-elite athletes (Barr & Hall, 1992; Orlick & Parrington, 1988; Salmon et al., 1994; Ungerleider & Golding, 1992; Vadocz et al., 1997). Athletes better imagined skills in which they had already had gained mastery and their imagery abilities increased the more they were used (Gregg et
al., 2005; Rodgers et al., 1991; Vadocz et al., 1997; Ungerlieder & Golding, 1991) and the higher the effectiveness of that imagery became (Hall et al., 1990; Vadocz et al., 1997; Vealey, 1986; Weinberg & Gould, 2003). Athletes with better imagery ability in vividly producing and controlling images were thought to enjoy superior performances (Isaac, 1992; Ryan & Simons, 1982). Researchers agreed that imagery was a skill that could be developed (Hall, 1998; Hall & Martin, 1997; Morris et al., 2005) and recently has been investigated more thoroughly using advanced medical imaging techniques.

Investigations of artistic performers’ imagery ability were few indeed. Agnew’s (1922a) study reported that music teachers and children possessed good auditory imagery. Most of the dancers in Nordin and Cumming’s (2005) investigation offered self-reports of possessing the ability to produce vivid, life-like images, depending on the type of imagery and the sense modality used. Some had difficulty with imagery in developing or portraying characters or controlling imagery involving injury or pain. All but one of the brass musicians in Trusheim’s (1987) study had no difficulty in creating and controlling images. Many of these professionals had performed for many years and reported that particular uses of imagery were generally quite vivid. Both singers (Carter, 1993) and musicians (Bellon, 2006) reported having facility with imagery. Generally, artistic performers possessed fairly adequate ability in imagery. The next imagery characteristic was the direction in which imagery was used by athletes and performers.

**Direction.** Research in imagery direction, a term coined by Short and others (2004), dealt with whether the image was facilitative or debilitative. In one of the first experiments, Powell (1973) examined the effects of using positive and negative imagery in 18 female clinical psychology students in a dart-throwing task. While one group
positively imagined the darts hitting in the center of the target, which led to higher scores, another group imagined a negative performance of missing the bull’s eye, which resulted in significantly poorer scores. Despite the lack of a control group, Powell concluded that positive imagery content could be facilitative, and negative imagery could debilitate performance. A number of subsequent studies supported Powell’s findings (e.g. Gould, Weinberg, & Jackson, 1980; Short et al., 2004; Woolfolk, Parrish, & Murphy, 1985). In examining performance effects, Epstein (1980) and Woolfolk, Murphy and others (1985) found no effect on performance using positive imagery, while negative imagery debilitated performance. Therefore, it could not be assumed that positive images were facilitative or negative images were debilitative (Short, et al., 2004). Further research is needed to clarify this distinction.

Nonetheless, positive imagery was correlated with successful outcomes and negative images with poorer performances in athletes (Hall et al., 1990), instrumental musicians (Bellon, 2006; Trusheim, 1987), and vocalists (Carter, 1993), with some exceptions (Bellon, 2006). Positively imaging the desired outcome improved athletic and artistic performance, particularly during competition, while negatively imagining the task seemed to be detrimental (Munroe et al., 2000; Woolfolk, Murphy et al., 1985). Positive imagery was correlated with increased confidence (Moritz et al., 1996; Trusheim, 1987) and decreased anxiety (Vadocz et al., 1997). Not all imagery was positive. Sometimes the negative image, as in rerunning mistakes over and over, could degrade performance in athletics (Murphy et al., 2008), dance (Nordin & Cumming, 2005), and music (Bellon, 2006; Carter, 1993; Trusheim, 1987). Some of these issues were connected with imagery deliberation.
Deliberation. Deliberation in imagery involved the individual’s ability to volitionally control and consciously direct images. According to Richardson (1983, 1994), imagery facilitated learning especially for acquiring perceptual motor skills if it was voluntary and controllable. Imagery deliberation seemed to range on a continuum from those spontaneously appearing to the ones that were fully manipulated (Murphy et al., 2008). The area of deliberation was also connected with whether imagery was used effectively or produced adverse effects. There were a number of deliberation variables that could impact performance. Imagining inappropriate action, such as the negative examples previously mentioned, could result in experiencing performance deterioration. Using the wrong imagery type for a certain outcome could have perhaps negatively affected outcome. Other elements included presence of debilitating anxiety, distraction and lack of control of spontaneous or certain kinds of imagery, and images producing overconfidence, adversely affecting performance (Carter, 1993; Emmons & Thomas, 1999; Ristad, 1982). Researchers have investigated various ways in which athletes and performers could gain better control of their imagery.

Controllability was the ability to consciously manipulate images (Richardson 1994) and had been assessed by several instruments. Early psychological investigations into controllability and manipulation of images focused on the problem of mental rotation of an object (Shepard, 1978; Shepard & Metzler, 1971). Many other scales of imagery ability have been developed and implemented in various settings. Gordon’s (1949) Test of Visual Imagery Control (TVIC) was devised to assess control, the ability to manipulate, or hold images in the mind. More recently, Vella-Brodrick and MacRae (2004) reviewed the imagery assessment instruments used in the athletic context, the
discussion of which was beyond the scope of this study. However, the results were promising for validating imagery use in performers and supported the need for more research in this area.

It could be assumed that imagery practice improved performance but research has shown that this was not always the case. In an early study investigating imagery control, Clark (1960) recounted a participant’s lack of control:

[O]ne subject reported mentally attempting to bounce the ball preparatory to shooting only to imagine that it would not bounce and stuck to the floor. This disturbed him to a point where he could not successfully visualize the shooting technique. (p. 567)

Clark (1960) reported gains in self-confidence and error identification with participants who learned to increase their imagery ability and control. Athletes with better imagery ability in consciously producing and controlling images were found to enjoy superior performances (Isaac, 1992). To illustrate the importance of individual meaning and interpretation in imagery use, Murphy and Martin (2002) offered an account of several skaters imitating the imagery of another skater who used an image of a ball of light to facilitate his performance. Using this model image produced a variety of negative effects in the other young skaters, highlighting the individualistic nature of imagery and the need to match imagery type for intended outcome.

Research has indicated that most performers experienced some spontaneous imagery; whether it is used to help the performer often depended on experience and ability. Dancers and musicians experienced spontaneous imagery including negative, intrusive images such as rerunning a poor performance (Bellon, 2006; Nordin &
Cumming, 2005; Trusheim, 1987). Dancers reported actions or sensations “triggering” spontaneous imagery. It appeared that images could be controlled or uncontrolled as well as debilitative or facilitative. Further variables such as amount and duration helped to increase our understanding of imagery use in performance.

Amount and duration. Amount and duration were two ways in which time spent engaging in imagery has been examine. Amount of imagery referred to how often individuals engage in the actual imagery session. Imagery duration was the length of time it took for the image to appear, remain or proceed, and fade. It seemed to vary by individuals, different sports and performance types, skill level of performer, imagery types, and time of season (Munroe et al., 1998).

The type of execution in which the individual was engaged may have determined the length of the imagery session. For instance, imaging application of a single skill would have only taken a short amount of time, while imaging an entire performance of a role in an opera would have taken a much longer time, perhaps as long as it would have taken to actually perform it. Hall (2001) recommended more imagery practice for best results. Ungerleider and Golding (1992) reported that the amount of mental practice time was directly related to the amount in which track and field athletes engaged in training.

Only a few studies have examined the amount necessary for imagery effectiveness. Short imagery sessions of one to three minutes were found to be more effective than longer ones of five to seven minutes for basketball players (Etnier & Landers, 1996). In their meta-analysis, Driskell and others (1994) reported that the longer one engages in mental practice, the less effective are the results. They recommended that
imagery sessions and training last about 20 minutes for optimal results. More research is needed in this area.

The duration of specific imagery sessions was examined in several studies. Imagery duration included the amount of time it took for the emergence of an image, the time in which one was actually engaged in imaging, the speed of the imagery, or how long its usefulness lasted (Nordin & Cumming, 2005). Mackay (1981) demonstrated that imagery reflected internal cognitive processing and therefore it could be assumed that imagery directly correlated to one’s relationship with how performance was executed.

Imagery times were highly correlated with actual time it took to execute that skill in slalom races (MacIntyre & Moran, 1996) and canoe-slalom (Hall & Martin, 1997). Experts’ imagery of their springboard dives times were closest to actual times (Reed, 2002), whereas divers with less experience employed longer imagery durations than those of their actual dives.

Studies focusing on the amount and duration of imagery use in artistic performers remained sparse. However, Nordin and Cumming (2005), Carter, (1993), and Trusheim (1987) reported that performers often engaged in mental imagery, depending on the time of season, type of performance requirements, and the individual’s experience. One of the instrumentalists in Bellon’s (2006) study reported up to one third of his practice time was spent in mental practice. It was possible that the more years involved with the performance, the more the individual engaged in imagery and the more effective mental practice became. Durations of imagery varied for different performers. Dancers reported using slow, actual, and fast speeds in using imagery especially in running through routines or memorizing sequences (Nordin & Cumming, 2005). Trusheim (1987)
reported brass instrumentalists using a compressed mental practice session. A singer reported imagining in real time, the same as actual performance (Bellon, 2006). Imagery speed seemed to vary with the individual needs, requirements of the task, and personal preferences. The various aspects of why imagery was used by athletes’ and artistic performers will now be examined.

Why or Reasons for Imagery Use

In examining the reasons why athletes and performers used the various types of imagery, a number of empirical developments changed how imagery use and function were regarded. It was originally thought that athletes used imagery for skill acquisition and training (Feltz & Landers, 1983). However, more evidence surfaced that imagery was also being used to enhance performance and motivation (Hall et al., 1990; Munroe et al., 1998; Paivio, 1985; Weinberg & Gould, 2003). Athletes were found to use both cognitive and motivational imagery in varying degrees (Hall et al., 1998; Paivio, 1985) depending on the sport, the individual athlete, level of competition in which they were involved, and the time of season (Cumming & Hall, 2002a; Hall et al., 1998; Munroe et al., 1998). Furthermore, one image could be used for several reasons as readily as several types of imagery could be used for a single purpose (Callow & Waters, 2005; Fish et al., 2004; Murphy et al., 2008; Nordin & Cumming, 2005; Short et al., 2004; Short et al., 2006). In examining the purposes dancers used imagery, Nordin and Cumming (2005) added artistic and healing reasons, which were deemed appropriate to how singers used imagery (Carter, 1993). Investigating the developments of imagery study in how it evolved in sport psychology and its adaptations and correlations to artistic and musical performance help to clarify the main questions in this study.
**Analytic framework of imagery use.** In analyzing the research on *why* athletes and artistic performers imagined, a number of important developments transpired. Paivio’s (1985) analytic framework of imagery provided a foundation for understanding use and posited that imagery influenced performance in both cognitive and motivational functions, both of which operated at a specific and general level. This 2 X 2 orthogonal model created one dimension as cognitive-motivation, and the other as specific-general. The resulting four imagery areas were: (a) cognitive specific (CS), or skill acquisition, development, and performance; (b) cognitive general (CG), strategies and routines; (c) motivational specific (MS), goal oriented behavior; and (d) motivational general (MG), physiological and affective arousal. Later, Hall and others (1998) divided motivational general into two distinct areas, resulting in motivational general-arousal (MG-A), or arousal modification or psyching up, and motivational general-mastery (MG-M), or mental toughness, self-efficacy and concentration (see Table 3). The major contributions and findings of studies addressing the analytic framework of imagery use in sport, dance, and music, including cognitive, motivational, artistic, and healing reasons were pertinent to *why* singing professionals use imagery in achieving optimal performance and will now be examined.

**Cognitive reasons.** Generally, imagery was often used to solve problems, understand certain challenges, or simply change concepts and beliefs (Nordin & Cumming, 2005; Murphy et al., 2008). These cognitive reasons for using imagery encompassed functions of both the CS, or skills and mental practice, and SG, or game plans, strategies, and routines.
Table 3

*Analytic Framework of Imagery Effects*

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<tr>
<th>Cognitive</th>
<th>Motivational</th>
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<td>Specific</td>
<td>Goal-oriented</td>
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<tr>
<td>Skills (CS)</td>
<td>(e.g., imagining scenarios and</td>
</tr>
<tr>
<td>(e.g., motor skills, technique)</td>
<td>performance in future projection)</td>
</tr>
<tr>
<td>General</td>
<td>Arousal (MG-A)</td>
</tr>
<tr>
<td>Strategy (CG)</td>
<td>(e.g., relaxation, psyching up and</td>
</tr>
<tr>
<td>(e.g., game plans, strategies, routines, sequences, and planning)</td>
<td>increasing arousal)</td>
</tr>
<tr>
<td></td>
<td>Mastery (MG-M)</td>
</tr>
<tr>
<td></td>
<td>(e.g., confidence, mental toughness, positivism, focus, and concentration)</td>
</tr>
</tbody>
</table>

Note: Adapted from Paivio (1985) and Hall, Mack, Paivio, and Hausenblas (1998, p.74).

Cognitive specific (CS), or mental practice, had been the most widely researched area of imagery, and was generally understood as the internal learning, practice, and performance of both cognitive and motor, or physical, skills (Driskell et al., 1994; Feltz & Landers, 1983; Hall et al., 1990; Hall, Schmidt, Durand, & Buckolz, 1994; Mahoney & Avener, 1977). Results of the extensive volume of mental practice studies were summarized in several meta-analyses (e.g., Driskell et al., 1994; Feltz & Landers, 1983; Hinshaw, 1991; Richardson, 1967a, 1967b). Athletes used mental practice imager to learn skills, techniques, and actions in order for them to become automatic in
performance. Mental practice was found to be more effective for novices in more cognitive than physical tasks, while “experienced subjects benefited equally well from mental practice regardless of task type” (Driskell et al., 1994, p. 488). Generally it was accepted that the effects of mental practice were moderated by a several factors: (a) type of task, (b) retention interval or duration of time between treatment and assessment, and (c) experience levels of the subjects. While a full analysis of the many studies in mental practice was beyond the scope of this study, the findings as they directly related to imagery use in professional performers were included here.

The use of mental practice in musical performance had been explored in a number of experimental investigations. Studies in musical performance compared physical practice (PP) with mental practice (MP) in memorization of specific musical excerpts. These included studies in piano (Coffman, 1987, 1990; Highben & Palmer, 2004; Lim & Lippman, 1991; Lo, 1976; Rubin-Rabson, 1941), trombone (Ross, 1985a, 1985b), clarinet (Coffman, 1987), guitar, and vocal performance (Theiler & Lippman, 1995). The majority of these investigations involved primarily university students rather than professional classical instrumentalists or singers. Table 4 provides a comparison of seven of these mental practice studies listed alphabetically by author. These studies were conducted in testing different applications of physical practice (PP) and mental practice (MP) in music performance, including general information on participants, variables, tasks, assessments, and results.
Table 4

*Musical Mental Practice Studies Comparison*

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Experience Level</th>
<th>Variables</th>
<th>Control</th>
<th>Musical Task</th>
<th>Performance Assessed</th>
<th>Posttest</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffman (1987)</td>
<td>80:40</td>
<td>College</td>
<td>a) PP, b)</td>
<td>Yes, sight-</td>
<td>4 part church hymn for children pitch, rhythm</td>
<td>Performance time duration, composition w/PP</td>
<td>Second half of alternating</td>
<td>MP</td>
</tr>
<tr>
<td>study on piano</td>
<td>40</td>
<td>male, music majors</td>
<td>MP</td>
<td>reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>novice piano</td>
<td>alternating</td>
<td>motivational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>players</td>
<td>w/PP,</td>
<td>group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>study on piano</td>
<td></td>
<td>half piano performers</td>
<td>a) normal,</td>
<td>of early Baroque</td>
<td>style, compositions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from the community</td>
<td>b) auditory hearing</td>
<td></td>
<td></td>
<td>Motor skills were</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(min. 6 years training)</td>
<td>only</td>
<td></td>
<td></td>
<td>ability least</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) motor- hands only</td>
<td></td>
<td>2 major, 2 minor.</td>
<td></td>
<td></td>
<td>by memory</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d) covert- no movement</td>
<td></td>
<td></td>
<td></td>
<td>test with feedback</td>
<td></td>
<td>removed</td>
</tr>
<tr>
<td>Lim &amp; Lippman (1991)</td>
<td>7</td>
<td>College piano majors</td>
<td>a) MP with score, b)</td>
<td>No</td>
<td>6-16 m. (25-37s) of Weiner, accuracy, Faure, phrasing &amp;</td>
<td>Note accuracy, rhythmic</td>
<td>2 posttests</td>
<td>Physical practice</td>
</tr>
<tr>
<td>study on piano</td>
<td></td>
<td>(min, 11 years formal training)</td>
<td>MP with score and listening, c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>was best followed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>years formal training)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>by</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PP with score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: MP: Mental practice; PP: physical practice.
Table 4 (continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Experience Level</th>
<th>Variables Control</th>
<th>Musical Task</th>
<th>Performance Assessed</th>
<th>Posttest</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lo (1976)</td>
<td>Piano, College class piano students</td>
<td>a) PP, b) MP</td>
<td>Rhythm, melody, harmony of a four-part hymn</td>
<td>Yes, memorizing 4 part hymns</td>
<td>Pre and posttest</td>
<td>MP group improved more than PP group</td>
</tr>
<tr>
<td>Ross (1985)</td>
<td>College music majors</td>
<td>a) PP w/MP, b) PP, c) MP w/ slide movements, d) control</td>
<td>Etudes</td>
<td>Correct notes and rhythm</td>
<td>Posttest</td>
<td>Combination of PP &amp; MP superior</td>
</tr>
<tr>
<td>Rubin-Rabson (1941)</td>
<td>Skilled pianists (ages 21-25 years)</td>
<td>None</td>
<td>Challenging etudes from Zipoli, Pasquini, Galuppi, Frey, Cohnany, Gal, and Toch.</td>
<td>Memory</td>
<td>2 weeks later &amp; 7 months memory,</td>
<td>MP-PP-PP facilitation, less retention and more trials</td>
</tr>
<tr>
<td>Theiler &amp; Lippman (1995)</td>
<td>College, guitar and voice majors</td>
<td>(a) all PP, mixed</td>
<td>Pitch &amp; rhythm</td>
<td>2</td>
<td>MP &amp; continuous</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>4 17th C.</td>
<td>Guitar accuracy, w/score,</td>
<td>PP most effective for guitarists</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 posttests</td>
<td>PP most effective for guitarists</td>
<td></td>
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</tbody>
</table>

Note: MP: Mental practice; PP: physical practice.
One of the first researchers to conduct mental practice studies in musical performance was Rubin-Rabson (1941) who examined memory of compositions in piano students using combined mental practice (MP) and physical practice (PP) with all physical practice. Rubin-Rabson employed analytical pre-study prior to three treatments, which included: (a) PP, MP, PP; (b) PP then MP; and (c) PP plus extra PP. Results indicated that subjects who used mental practice in the middle of learning had the higher scores for memory than subjects who practiced mentally after learning. Scores for this group were retained weeks later, while the other groups’ scores declined.

Other researchers modified this analytical pre-study model in examining mental practice in pianists. Lo (1976) reported MP groups memorized four-part hymn significantly better than the PP only group in class piano subjects. Coffman (1988) found that alternating MP and PP was superior to the PP only or MP only groups in trials of novice pianists learning a composition. Lim and Lippman (1991) examined seven piano majors’ mental practice effects. After 10 minutes of rehearsal, scores were higher in the group using physical practice followed by listening to an aural model and mental practice. In examining mental practice in guitarists and vocalists, Theiler and Lippman’s (1995) design included a control and three treatments: (a) PP only; (b) PP and MP; and (c) a combination of PP, MP, and an aural model. For guitarists, MP treatment was superior to all others for pitch accuracy. The results for vocalists in this study revealed that combining MP and PP with an auditory model was superior.

Mental practice studies have also examined the use of movement, or simulated performance, and aural ability in conjunction with imagery. In dance, Hanrahan, Tetreau, and Sarrazin (1995) also found that MP enhanced performance when movement was
incorporated. Ross (1985a) reported that combining physical and mental practice was the most effective method of mastering a musical task, however the inclusion of movement simulating practice with either mental or physical practice was not significant. Highben and Palmer (2004) found that aural ability, more than motor ability significantly affected the memory of a newly learned piece for 16 pianists. Highben and Palmer suggested focus on the aural image rather than the kinesthentic activity of hand movements facilitated better performance memory.

Generally, the results of mental practice in musical performance extended the findings in sport research. The effects of mental practice seemed to be comparable to those of physical practice, although physical practice still seemed optimal, especially in less experienced musicians. Combining MP with PP was found to be as effective, if not more effective than PP alone. Novices as well as experienced musicians seemed to benefit slightly less from MP, than those with intermediate experience. Novices lacked technical skill and experts achieved a ceiling effect since they had less to learn.

Dancers reported using imagery in learning to clarify their work, strengthen memory, change their habits, and solidify corrections, which related to CS functions. Imagery aided their physical practice by making it more conceptually concrete and streamlining their rehearsal (Nordin & Cumming, 2005). Artistic performers were found to often use imagery for learning and refining skills and techniques, and memorization in order to automate skills and interpretations (Bellon, 2006; Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987), particularly for solo performances.

In sports, cognitive general (CG) functions of imagery of development and execution of sequences and strategies included rehearsing game plans and routines
(Munroe et al., 2000; Murphy et al., 2008). Researchers investigated various CG imagery in two similar ways: (a) routines such as those in artistic gymnastics (White & Hardy, 1998) and on the pommel horse (Mace, Eastman, & Carroll, 1987) and (b) strategies as found in slalom canoe races (MacIntyre & Moran, 1996), football (Fenker & Lambiotte, 1987), and wrestling (Rushall, 1988). Results in using CG imagery were reported to be beneficial to organizational performance.

Related to cognitive specific (CG) imagery functions, dancers imagined entire performances, planning, or adapting to differing variables such as stage blocking or familiarizing themselves with performance spaces and venues (Nordin & Cumming, 2005). Musicians reported using imagery in strategizing pre-performance routines, organizing their practice for better performance execution, and to execute conductors’ directions and plan routines (Bellon, 2006; Trusheim, 1987). They also used imagery to coordinate difficult aspects of performance, deal with technical and musical challenges, and cope with performance distractions and varying acoustical effects of different performance halls (Bellon, 2006; Carter, 1993; Trusheim, 1987). Furthermore, singers imagined coordinating details of entire performances, for example, entrances, managing costumes, props, and sets, and dealing with blocking and venue considerations (Carter, 1993).

Motivational reasons. Motivational functions of imagery use included three reasons: (a) goal setting and achievement, or motivational specific (MS); (b) modifying and controlling arousal, included in motivational general-arousal (MG-A); and (c) developing and maintaining confidence, self-efficacy, mental strength as in motivational general-mastery (MG-M) (Hall et al., 1998).
Athletes reported using various types of imagery in the MS function to set and achieve goals, such as improving performance, mastering specific skills, overcoming challenges, winning competitions, and motivating themselves to succeed (Hall et al., 1990; Murphy et al., 2008). Orlick and Parrington (1988) interviewed 75 Canadian 1984 Olympian athletes in their practices and reported, “The best athletes had clear daily goals. They knew what they wanted to accomplish each day, each workout, each sequence or interval. They were determined to accomplish these goals and focused fully on doing so” (p. 111).

Dancers reported using imagery to aid their use of goals (MS) and to increase their incentive to continue, particularly in the face of difficulty (Nordin & Cumming, 2005). This was also found in singers who also used imagery to progress in their goals of gaining roles, winning competitions, or just improving certain skills (Bellon, 2006, Carter, 1993). The goal imagery most associated with motivation seemed to involve mastery (Lacaille, Whipple, & Koestner, 2005), which also related to preparation and strengthening confidence in optimal performance.

Motivational general-arousal MG-A was related to controlling affective states, stress, and competitive anxiety levels, that is “psyching-up” and relaxation or calming down (Barr & Hall, 1992; Monsma & Overby, 2004; Orlick, 1990; Salmon et al., 1994; Vadocz et al., 1997; White & Hardy, 1998). Munroe and others (2000) identified three elements of arousal and stress in motivational imagery: (a) excitement, (b) control, and (c) relaxation. Athletes and artistic performers differed in arousal requirements due to physical and mental performance requirements.
Extensive research in general psychology has been conducted in the use of relaxation and effective stress techniques in arousal modification. Progressive Muscular Relaxation (PMR) was a scheme in which Jacobson (1957) employed imagery techniques to systematically tense and then relax each muscle. Meichenbaum (1977, 1985) developed stress inoculation training (SIT) in cognitive behavior modification, in which subjects were taught to use imagery and self-instruction and self-talk directives, such as “stay calm” and “easy does it.” In extending the work of Jacobson, Suinn’s (1986) Visuo-Motor Behavior Rehearsal (VMBR) was originally developed for sports and focused primarily on creating a relaxed state in which imagery could better affect specific areas of performance.

Various texts focused on the applications and techniques of relaxation imagery to facilitate successful performance (e.g., Benson, 1987; Gawain, 1978, 2002; Harris, 1986). Performers have often had to contend with seemingly uncontrollable levels of nervous tension, the effort of which has tended to increase negative effects. Green and Galway (1986) and Ristad (1982) have recommended that performers accept the symptoms of anxiety by reframing the context of their individual meaning. Singers in Carter’s (1993) study differentiated between positive or anticipation and working tension and negative anxiety and unwanted tension or the spontaneous emergence of little “devils”. Additionally, performers used different methods of combining breathing techniques with relaxation imagery to facilitate performance in sport and music (Bellon, 2006; Carter, 1993; Harris, 1986; Sisterhen, 2007).

Optimal arousal levels in performance varied with athletes, type of sport, as well as specific task requirements (Schmidt, 1982). Athletes used MG-A images to control
emotions and stress levels, particularly prior to performance (Hecker & Kaczor, 1988; Munroe et al., 1998). Athletes used many types of imagery to change their emotional condition, the MG-A function, particularly to relax, “psych up,” and energize themselves, thus modifying arousal to appropriately execute performances (e.g., Harris, 1986; Murphy et al., 2008; Orlick, 1990; Oxendine, 1980; Vadocz et al., 1997). Oxendine (1980) reported that highly anxious participants in his study were successful in low difficulty tasks and low anxious subjects were more successful in high difficulty tasks. This was illustrated in the Yerkes-Dodson Law, which stated, “complex tasks are performed better when one’s drive is low, while simple tasks are performed better when drive is high” (Oxendine, 1980, p.104). In contrast to the high levels of MG-A imagery used by athletes to facilitate performance, dancers and musicians required much more subdued levels of arousal (Bellon, 2006; Carter, 1993; Cumming & Nordin, 2005; Stedman, 1985; Trusheim, 1987). Musicians generally performed better when they were relaxed and calmed, however, many believed that some anxiety, or adrenaline, was beneficial to performing optimally.

The practice of relaxation in imagery has been the subject of some controversy. It had long been an accepted practice to require relaxation prior to imagery engagement as proposed in Jacobson’s (1957) Progressive Muscular Relaxation (PMR) and Suinn (1976, 1986) Visuo-Motor Behavior Rehearsal (VMBR). Little empirical support for this did not affect the insistence of sport psychologists to require relaxation before motor imagery (Weinberg & Gould, 1999). However, Holmes and Collins (2002), in supporting imagery applications that complied with the findings of functional equivalence theory, argued that arousal levels in imagery should reflect the optimal levels of the performance of that
specific task. Since pre-imagery relaxation inhibited sport performance, which was supported in Perry and Morris (1995), actual arousal and emotional levels should be embedded in the imagery in order to precisely replicate the task in the brain.

The extensive personal exposure in solo singing performance before an audience could modulate arousal and performance success. Extreme feelings of vulnerability and self-criticism could deteriorate confidence, increase arousal levels, and debilitate performance (Bellon, 2006; Ristad, 1982; Stedman, 1985). The nature of singers embodying the instrument often precluded personal identification with singing ability and the approval of the audience. As a result, singers may have perceived or imagined the audience regarding them in the three possible ways: (a) negatively or with hostility, (b) positively and with support for the singer, or (c) accurately responding to each moment in the performance (Bellon, 2006; Carter, 1993). All these factors and variables impacted MG-A imagery use by singers.

Motivational general-mastery (MG-M) imagery was examined frequently in sports literature (e.g., Abma et al., 2002; Hall et al., 1998; Munroe et al., 2000; Weinberg & Gould, 2003) and was related to five themes: (a) being mentally tough, (b) focus and concentration, (c) self-efficacy and confidence, (d) being positive, and (e) modeling.

Mental toughness involved handling difficult situations and elements of adversity usually just prior to or during performance. Focus and concentration dealt with the mental ability to directly control images, thoughts, and distractions, which could affect optimal performance. In a study investigating qualities and behaviors of 235 Canadian Olympic athletes, Orlick and Parrington (1988) concluded that:
In almost all cases the best focus was one that kept the athlete connected to what he or she was doing (his or her job). In contrast, the worst focus was one in which the athlete was dwelling on factors over which he or she had no direct control, such as other competitors, final outcome, or other distractions. (p. 116)

When distractions were allowed to debilitate performance, confidence levels decreased. Therefore, ability to concentrate and focus could influence self-confidence and perceptions of mental toughness of the performer.

Levels of concentration seemed to affect performers’ involvement in their presentations (Fields, 1972). Debilitating distractions decreased when performers focused on the specific tasks of the performance, characterization, and communication with the audience (Carter, 1993; Trusheim, 1987). According to Csikszentmihalyi (1990), sustained involvement in the task was directly correlated in those individuals who experienced optimal performance. In describing a performer completely involved this way in a role, Csikszentmihalyi (1990) stated:

Self-consciousness, which is the most common source of distraction, is not a problem for such a person. Instead of worrying about how he is doing, how he looks from the outside, he is wholeheartedly committed to his goals. In some cases it is the depth of involvement that pushes self-consciousness out of awareness, while sometimes it is the other way around: it is the very lack of self-consciousness that makes deep involvement possible. (pp. 211-212)

This deep personal connection with the performance seemed to be regulated by the level of confidence, focus, and concentration of the performer.
Imagery relating to confidence and self-efficacy were involved with feeling successful, positive, and up to the task. Self-efficacy theory (Bandura, 1977, 1982, 1997) posited that motor performance was enhanced by images of successful expectations. Bandura (1997) stated that “[e]fficacy beliefs affect thought pattern that could enhance or undermine performance” (p. 116). He further proposed that self-efficacy was belief in one’s own capabilities in acting in specific ways. In sport research, MG-M imagery was correlated to self-efficacy in competitive athletes (Mills et al., 2000-2001; Moritz et al., 1996; Vadocz et al., 1997; Vealey, 1986) and was a factor distinguishing elite and less successful performers (Gould, Weiss, & Weinberg, 1981; Woolfolk, Murphy, Gottesfeld, & Aitken, 1985). Employing and maintaining positive imagery and outlook was found to facilitate athletic performance (Munroe et al., 2000). Positive self-talk and stopping negative thoughts were also used in achieving confidence (Gammage, Hardy, & Hall, 2001; Hardy, Gammage, & Hall, 2001). Sport researchers (Orlick, 1990; Rushall, 1988; Suinn, 1972, 1986) supported the use of confidence-building techniques in imagery in the applied athletic fields. Athletes who imagined performing in a confident manner were better able to develop, maintain, and regain confidence (Moritz et al., 1996).

In vocal pedagogy text, the idea of mentally perceiving oneself as strong, confident, and mentally fit for the task of performing was not new. In reflecting some of the qualities of MG-M imagery, the renowned vocal teacher, Vennard (1971), rigorously supported the idea of inner composure and self-efficacy in the following description:

The first requirement of the singer-personality is poise. He must have confidence in himself. This is why natural singers are often insufferable egotists. They are not egotistical because they sing well; on the contrary, they control their voices well
because they are so self-confident. . . . This is their priceless asset. Dampen the exhibitionist pleasure they take in their voices, and you will have damaged the voices themselves. . . . Another requirement of the singer-personality, related to poise, is perseverance. Poise is courage for the challenge at hand; perseverance is strength of character for the long pull. (Vennard, 1971, pp. 24-25)

For Vennard, successful singing required a strong sense of self-confidence, especially in regard to vocal control and mental toughness. Carter (1993) and Bellon (2006) reported elite singers used strong, positive self-images and self-talk continually in rehearsing, auditioning, and performance. Furthermore, they were found to be adept at controlling mental, physical, and environmental distractions through focus and concentration. Fields (1972) advocated that the joy of singing consisted of “a sense of well-being and exhilaration of spirit that comes from the experience of being free from worry or restraint of any kind” (pp. 9-10). Stedman (1985) reported that singers used imagery for confidence building, personal enjoyment, and becoming more proficient in executing techniques and embodying qualities necessary for mastery.

The use of modeling ideal performances, whereby performers learned a new skill or technique by watching an expert performer, also related to MG-M imagery use (Bandura & Jefferies, 1973). The image of the ideal performance served to motivate the individual to perform beyond what had been previously considered possible. Feltz (1984) argued, “just mentally seeing oneself successfully performing the desired task is enough to convince an athlete that he or she has the ability to successfully execute the task” (p. 193). Rushall (1988) employed covert modeling, to assist performance anxiety conditions in an elite wrestler, strengthening confidence. Musicians used modeling and role-playing
in imagining how an outstanding performer would execute a specific performance to increase their motivation and self-confidence (Bellon, 2006; Caldwell & Wall, 2001; Emmons & Thomas, 1999). Singers modeled performance excellence in front of a mirror for immediate feedback to see how they were physically projecting the character.

**Artistic reasons.** Artistic reasons addressed the creative, expressive, and interpretive aspects of meaning in performance interpretation. Although artistic image functions were rarely addressed in sport research this was an important aesthetic aspect in figure skating, synchronized swimming, and artistic routines in gymnastic floor exercises (Hays, 2002; Murphy et al., 2008). Likewise, dancers used imagery to evaluate their performance and to check external body awareness such as stage blocking, musical timing, and coordination with other dancers to achieve appropriate artistic imagery in performance (Nordin & Cumming, 2005). Instrumental and vocal musicians used imagery to create artistically expressive performances and following conductors’ artistic directions (Bellon, 2006; Carter, 1993; Trusheim, 1987).

Singers imagined engaging in artistic expressivity, assuming the character or role, and effectively communicating with the audience (Bellon, 2006; Carter, 1993; Stedman, 1985). Elite vocalists in Carter’s (1993) investigation recognized that technique and vocal material had to be completely solid and automatic in order for positive interaction with the audience to occur. Carter (1993) reported that singers in her study exchanged imaginal interactions of “electricity,” “vibrations,” and “love” (p. 245) with their audiences. They also responded to positive nonverbal, kinesthetic feedback from their audiences, by feeling strengthened confidence and self-efficacy. Artistic performers used
specific sense imagery in achieving appropriate artistic images relevant to the desired performance.

Health reasons. Due to the extensive physical requirements in both athletics and artistic performance, the body was highly regarded and maintaining excellent health was a paramount concern for performers. Imagery in the process of maintaining health had been the focus of many studies (Sheikh, 2003; Sheikh & Jordan, 1983; Sheikh & Korn, 1994). Imagery use in illness and healing was popularized with the work of Simonton and his colleagues (Simonton et al., 1971; Simonton et al., 1978) in their treatise in the mental applications for treating disease, especially cancer, as previously mentioned. This method of imagery use in rehabilitating injury and pain management has been applied in sports (Orlick, 1990). Green (1992) suggested imagery applications for facilitating sport injury.

Athletes and performers used imagery for healing purposes in several ways. Elite gymnasts imagined their routines to forget their pain and become more involved in the performance (Calmels et al., 2003). According to Nordin and Cumming (2005), dancers used imagery for four different healing reasons: injury prevention and healing, pain management, spiritual healing, and rejuvenation. Imagery was used as a substitute for actual practice to save energy and rest the body when they were too tired to perform. Dancers also used imagery to improve the internal awareness of their body such as posture, coordination, balance, and weight distribution (Nordin & Cumming, 2005). Singers and instrumentalists often used mental practice when they were sick or needed to preserve their voices and fingers (Bellon, 2006). Brass musicians used imagery during health recovery and recreated memories of former performance excellence (Trusheim,
Injury prevention, healing, and recovery were an important aspect represented in the major musical performance studies in imagery.

Research in Imagery Use of Musical Performers

Several extensive studies have been conducted in interviewing outstanding musical performers in their use of imagery, which extended beyond those elements previously mentioned. Trusheim (1987) investigated how professional orchestral brass instrumentalists used imagery. Using a similar framework, Carter (1993) examined the use of imagery in elite singers. Most recently, Bellon (2006) interviewed several different kinds of performing musicians in their use of sport psychology interventions, including mental imagery. Many of the specific findings from these studies have previously been reported in the various categories, however these studies represent extant research more closely addressing the use of imagery in musical performers, especially singers, as presented in the sport psychology research literature. These three studies will be analyzed individually in regard to their relevance to the present study. Table 5 shows the three major imagery studies in musical performance, the participant performers, general uses of imagery as they relate to dance and sport research, as well as the findings of each study.

Trusheim Study

In one of the first extensive interview studies on musical performers’ use of imagery, Trusheim (1987) investigated 26 top brass instrumentalists who were members of five of the most prestigious symphonies in major cities of the United States, using the iii Framework representing the image, imagining, and imagination (Rosenberg, 1987). Trusheim (1987) interviewed these musicians concerning their use of imagery in the various aspects of training, rehearsal, and performance. These elite brass players reported
Table 5

Major Imagery Studies in Musical Performance

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Performers</th>
<th>N</th>
<th>Sense Imagery</th>
<th>Metaphoric/Artistic</th>
<th>Perspective</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusheim</td>
<td>Elite Orchestral</td>
<td>26</td>
<td>Auditory, visual, kinesthetic, tactile</td>
<td>Artistic expression, conductors’ imagery</td>
<td>Internal and external</td>
<td>Instrumentalists use imagery extensively</td>
</tr>
<tr>
<td>(1987)</td>
<td>Brass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carter (1993)</td>
<td>Elite Singers/Teachers</td>
<td>11</td>
<td>Auditory, kinesthetic, visual</td>
<td>Artistic expression, communicating w/audience</td>
<td>Internal and external</td>
<td>Singers use imagery artistically and expressively</td>
</tr>
<tr>
<td>Bellon (2006)</td>
<td>Singers, Instrumentalists, Conductors</td>
<td>6</td>
<td>Auditory, kinesthetic, visual</td>
<td>Artistic expression</td>
<td>Internal and external</td>
<td>Performers use imagery, visualization, relaxation and energizing</td>
</tr>
</tbody>
</table>

extensive use of metaphoric and artistic imagery. They also used imagery in modeling other revered players and developed a high degree of proficiency in aural and kinesthetic imagery in executing their musical skills and talents. Trusheim did not compare his findings with those in sport research, but in his literature review, he did devote a page to imagery studies primarily focused on Suinn’s (1983, 1986) VMBR techniques for visualization and relaxation.
Trusheim reported these musicians also used imagery in what could be considered the cognitive types and functions of skill learning and acquisition, as well as strategies in executing performance requirements. These instrumentalists regularly used mental practice to secure passages and augment physical rehearsal, often in various locations and when playing their instruments was not appropriate. These professionals also employed motivational imagery types and functions to regulate their arousal to appropriate levels for optimal performance. Furthermore, the brass players in the study engaged in imagery to achieve various goals, boost confidence, and master the mental and emotional requirements of performance. These musicians used imagery in a variety of applications, including artistic purposes in musically expressing the compositions and healing purposes when they were recovering from illness, reflecting dancers’ imagery purposes (Nordin & Cumming, 2005). Their use of imagery compared quite favorably to the research in imagery types, times, locations, and functions addressed in sport and dance research.

Trusheim’s study raised several concerns that were relevant to the present study. Although the participants represented some of the most prestigious positions in the orchestras of the United States, these subjects were all male ensemble musicians and their identities were all revealed in the study. Their high standing in the musical community could have influenced their responses. These musicians did not perform regularly as soloists without instruments, standing face-to-face singing to a demanding audience, as is the norm in classical solo vocal performance. Furthermore, they were not responsible for memorizing words or text, often in another language, to songs, arias, and entire roles in operas, representing vocal skills that require years of development and refinement. Many
of these requirements and issues were addressed in the Carter (1993) study of vocal professionals.

**Carter Study**

Following Trusheim’s (1987) study, Carter (1993) used Horowitz’s (1978) psychological model to investigate the use of imagery in 11 elite vocalists. Using a moderately scheduled interview format, topics included: career preparation, teachers’ use of imagery, performance anxiety issues, mental rehearsal, and mental imagery in vocal pedagogy. These issues related to the present study perhaps more than any other music investigation.

The results of this comprehensive study directly addressed many of the aspects of using imagery outside of the context of sport psychology. Vocalists in the Carter study reported being involved with imagery from an early age and continued to use various aspects of imagery in their profession. A number of vocalists stressed the importance of acquiring a “storehouse of aural images” throughout life, beginning in early childhood. Many of them learned to use metaphorical imagery from their teachers, especially in developing proper vocal technique building and breath management, diction, and expressive performance. Concerning sense imagery, vocalists reported using kinesthetic imagery most frequently, followed by auditory imagery, then visual imagery. Imagery was used for technique building as an aid in interpreting vocal literature. Imagery assisted these vocalists in developing their characters and roles in affective expression and effectively communicating with the audience. Singers used mental practice to augment physical practice during injury or times when they could not physically sing, for example when traveling, at night, or just prior to performance. Imagery use assisted these vocalists
in reinforcing positive beliefs, calming performance anxiety, and facilitating performance preparation, including imagining performing a new role or in a new venue or opera in which they had yet to perform.

Various aspects of the Carter study were cause for concern in relation to the present study. The participants in the study were all located in the New York and Boston area of the United States. It is not certain that their use of imagery was a result of their locality and proximity to other performers who practice imagery in their profession. Furthermore, many of these singers were directly involved in teaching other vocalists, which may have facilitated their own use and propensity to use imagery in singing. One of the interviewees, an outstanding singer also known for her excellent use of imagery in her teaching, had previously taught had two of the other participants. Even though Carter (1993) did not connect the imagery uses of vocalists to those in sport psychology, there were many references that correlated with the uses of imagery found in dancers (Nordin & Cumming, 2005). Carter’s imagery definitions were more in keeping with vocal pedagogy than the more athletic uses such as the imagery types, characteristics, and functions described in this study.

*Bellon Study*

Bellon (2006) interviewed six musical performers from different fields in the effort to compare their mental practices with the main principles of sport psychology, including “goal setting, pre-event routines, visualization, focus, arousal regulation (energy levels), and optimal performance” (p. 1). Although Bellon (2006) used a general model from sport psychology texts, her interviews did provide a wealth of information for how professional musical performers use specific types of imagery as defined in sport
texts. Specific studies in sport psychology research were not included. Only one section investigated imagery and visualization; however, many of the issues in the study dealt with the mental aspect of practice, preparation, and performance. Bellon’s results concluded that all of the musicians in her study used imagery in ways that mirrored much of content and functions of imagery used in dance and athletics.

Some of the criticism of the Bellon (2006) study concerned sampling issues, interview questions, and terminology, as they were related to the present study. The small sample of six participants included two singers from Quebec (a retired mezzo soprano, a part-time singer and choral conductor), two oboe instrumentalists (one from France and the other from Puerto Rico), an instrumental conductor, and a collaborative pianist, both of whom were professors at Arizona State University. Of the two singers, one had enjoyed a somewhat shortened international career and had just retired from singing, while the other was a part time professional vocalist. This was a very broad sample, raising questions of the degree to which the results were generalizable to other performers, particularly professional singers. Some of the interview questions may have elicited specific results that could be judged as leading the participant rather than probing specific subjective responses. For example, the question was asked, “What distracts you most during or before a performance?” (p. 3). This question presupposed that the individual could initially be distracted during or before a performance, leaving little room for an alternative affective experience. Furthermore, Bellon continually referred to imagery as visualization rather than differentiating between the various sensory aspects of imagery: visual, kinesthetic, auditory, and metaphorical types or functions of images.
One of the limitations shared among the Trusheim (1987), Carter (1993), and Bellon (2006) studies was the use of professionals whose names were revealed and often highly recognized in the field. Sharing the names of those individuals included in an interview study allowed for the risk that the participants would shape their answers in order to appear better than what they may share if their identities remained confidential.

The Trusheim (1987), Carter (1993), and Bellon (2006) studies represented the primary interview investigations of the use of imagery in musical performers, which were relevant to the present study. They could be considered part of a growing body of research in using imagery in musical performance. Bellon’s (2006) study was the only researcher to base her study on the principles of sport psychology applications. These investigators did not attempt to correlate the findings in musical performance with the theoretical framework provided in recent developments of imagery in sport psychology. Therefore, it was with caution that the four Ws of the use of imagery: where, when, what, and why (Munroe et al., 2000; Nordin & Cumming, 2005) was applied to these studies.

Information gathered on musical performers’ imagery use in the Trusheim (1987), Carter (1993), and Bellon (2006) studies provided part of a strong foundation for this study.

**Conclusion**

This chapter has provided an examination of the theories relevant to imagery use in sport, dance, musical, and vocal performance. These included the early contributions and development of theories, the cognitive-based theory, the psychological states theory, and the more recent developments in the theory of functional equivalence. The body of literature focused on important aspects of imagery using the four Ws framework: *where, when, what, and why* from research in sports (Munroe et al., 2000) and dance (Nordin &
Cumming, 2005). Also included were the results from imagery research with performing musicians (Bellon, 2006; Carter, 1993; Trusheim, 1998). Other relevant theories were examined on the effects of imagery.

In synthesizing the theories of imagery, the four Ws of imagery use in sport (Munroe et al., 2000) and dance (Nordin & Cumming, 2005), and the related musical performance research, the researcher proposed the vocalists’ four Ws of imagery framework (see Table 6). This framework was created to guide the development of this study in gathering and reporting the data from the solo professionals’ interviews. Specifically, it was intended to assist in constructing codes and themes in the analyses of the data and as an initial step in creating the vocalists’ imagery framework for this study.
Table 6

*Proposed Vocalists’ Four Ws of Imagery Framework*

<table>
<thead>
<tr>
<th>Question</th>
<th>Category</th>
<th>Subcategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where (place)</td>
<td>Singing Places</td>
<td>Practice Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stage</td>
</tr>
<tr>
<td></td>
<td>Home</td>
<td>Bed</td>
</tr>
<tr>
<td></td>
<td>Other places</td>
<td>Hotels</td>
</tr>
<tr>
<td></td>
<td>Transit</td>
<td>Commuting</td>
</tr>
<tr>
<td></td>
<td>Anywhere</td>
<td></td>
</tr>
<tr>
<td>When (time)</td>
<td>Practice</td>
<td>Pre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>During</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>Pre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>During</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>At Home</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Traveling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anytime/all the time</td>
<td></td>
</tr>
<tr>
<td>What (content)</td>
<td>Imagery Types</td>
<td>Metaphorical/Artistic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Character/Role</td>
</tr>
<tr>
<td></td>
<td>Imagery Characteristics</td>
<td>Body-Related</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Senses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount &amp; Duration</td>
</tr>
</tbody>
</table>
In the remaining chapters, the research design of this study is presented in Chapter Three. Results of the interviews and the subsequent categories and subcategories are explained in Chapter Four. Chapter Five includes a discussion on the findings in relation to the relevant research.
Chapter 3

Method

The purpose of this study was to investigate imagery use in achieving optimal performance in vocal professionals. Research from sport psychology and particularly the framework of the four Ws of imagery use: where, when, why, and what, (Munroe et al., 2000; Nordin & Cumming, 2005) were used to compare and contrast singers’ imagery experiences in order to contribute to the body of knowledge of imagery in musical performance practice and development. The inquiry was also based on imagery research in the professional practice of other musical performers such as brass players (Trusheim, 1987), various musicians (Bellon, 2006), and vocalists (Carter, 1993). This chapter describes the research design, participants, instrumentation, and procedures used in this. The chapter concludes with a summary.

Research Design

A basic interpretive qualitative research design was chosen for this study since the use of imagery, as defined by sport psychology, in professional vocalists was a relatively new and understudied area of research. Patton (2002) recommended: “In new fields of study where little work has been done, few definitive hypotheses exist and little was known about the nature of the phenomenon, qualitative inquiry was a reasonable beginning point for research” (p. 193). This research approach allowed for one to gain an in-depth understanding of how vocal professionals used imagery in their profession. Data
were collected through interviews designed to gather a broad and rich body of information on imagery use in these vocalists.

In a qualitative study such as this, it was reasonable to expect the researcher to have some background and experience in the area being investigated, particularly since the researcher is considered an instrument in qualitative study. In an effort to gain reflexivity in the study, it was important to disclose specifics of the researcher’s background to allow the reader to understand how the researcher interacted with the various phases and aspects of the study (Patton, 2002). The researcher held undergraduate and graduate degrees in applied art, theatre, and music, particularly vocal performance. She also participated in a young artists’ training program in a regional opera company and has performed in operatic roles, concerts, and recitals professionally. The researcher has taught general and choral music in public schools as well as in a private studio teaching voice and other musical instruments. Additionally, she has been an avid sport exerciser for her entire life. Through this training and experience, the researcher was familiar with the language and practices of professional vocalists as well as imagery. During the course of conducting this study, she was in the process of discovering the relevance of imagery in sport psychology. Despite the possible threat of bias, this background made the researcher uniquely qualified to conduct, analyze, report, and discuss a study such as this.

Sample Selection

Purposeful, homogeneous sampling was the method used to select the participants for examining imagery use by professional vocalists. The sample consisted of 15 out of a
total number of 18 vocal professionals who were invited to participate and met one of the following criteria:

1. Singers who held a four-year degree in musical performance from an accredited university or conservatory and had worked and made the majority of their living for at least four consecutive years as a professional solo vocalist.

2. Singers without a four year college degree, who had worked and made the majority of their living for at least eight consecutive years as a professional vocalists.

In either case, participants were solo singers who had primarily sung in the Western classical singing tradition, including work in opera, concert, recital, and oratorio. This population of vocalists was chosen as the best source for providing information on the use of imagery by singing professionals. “Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research” (Patton, 2002, p. 46).

In order to locate these participants, snowball or chain sampling (Patton, 2002) was initiated by asking singers and professors of vocal performance known to the researcher to identify and suggest others who fit the criteria of this study and were willing to participate. These information-rich individuals, or key persons, were sampled from different parts of the United States and had experience in the many areas of solo classical repertoire performance. They represented various stages of their career, beginning with at least four years of experience as a professional to retirement age. Both males and females were targeted with voices in the major vocal registers: soprano, mezzo, tenor, baritone,
and bass. In contacting these individuals by email, the researcher invited singers she knew to participate and asked them to suggest other singers who might have been interested in being interviewed for the study (see Appendix B). Vocal professors and teachers previously known to the researcher in Alabama, California, Michigan, Florida, New Jersey, New York, Massachusetts, and Pennsylvania were also emailed and asked to identify and contact other potential participants who had been or were currently performing professionally (see Appendix C). The minimum sample size was determined to be at least five male and ten female singers from varying vocal registers and from different regions of the United States in an attempt to include singers not restricted to one or two cities.

Solo classical professional vocalists were chosen as participants of this study for five reasons. First, the specific requirements of the professional singer were extensive and singers could benefit extensively from knowledge about the specifics of the use of imagery in performance excellence. Second, the increasing incidences of including various aspects of imagery in vocal texts (e.g., Caldwell & Wall, 2001; Chapman, 2006; Dayme, 2005; Emmons & Thomas, 1998; Williamon, 2004) suggested the need for further scientific inquiry in how professional singers use imagery. Third, this researcher was able to use her training and expertise in singing and imagery research in interviewing the professional vocal participants. Fourth, an initial sample of professional singers was available to this researcher through past experience and network in the field. Finally, since many of the athletic and music studies in imagery have used the ever prevalent and convenient subject pool of college students, professional singers with a minimum of four years of professional experience were chosen for their expertise in their field. Yuille
(1985) as well as Lindauer (1983) called for more appropriate methods of investigating imagery studies than the highly controlled experimental designs. He stated, “We need to discard experimental methodology for the investigation of context-dependent processes and replace it with field-based research” (p. 146). He also criticized the use of the convenient sampling of undergraduates and recommended using a sample on which the inquiry focused. For these reasons, singers whose primary source of income was solo classical professional vocal performance were chosen for this study.

Measures

Interview Protocol

The singers’ interview guide (see Appendix D) was developed for use in this study. Questions included in the protocol were designed to gather information about where and when singers used imagery, what kinds of imagery they engaged in, and why, or the reason they used imagery. Using an interview guide approach as suggested by Patton (2002), this semi-structured format allowed for inclusion of ideas relevant to the inquiry, introduction of new concepts in the interview, and exclusion of items not germane to the participant’s experience of imagery. Furthermore, specific probes were applied, where appropriate, as a follow-up to responses by the individual interviewee.

The Nordin and Cumming (2005) dancers’ interview guide (see Appendix E), from the four Ws of imagery use study served as a basis for gaining information and allowing the participants to share their thoughts and expertise about their use of imagery in vocal performance, in order to address the specific qualities and concerns of professional vocalists. The dancers’ interview guide was adapted with permission (see Appendix F) to reflect the findings in the music literature and what the researcher, as a
professional singer, considered pertinent to eliciting imagery responses from the professional vocalists. Adaptations also included personalizing the interview guide for this research and adding a working definition of optimal performance. In order to avoid the assumption that the participant used imagery in the first section of the protocol, imagery was defined and described. The first question asked of the participant was if he or she ever engaged in this type of imagery. If the participant affirmed that imagery was used, the interview continued. Additionally, a new category was added to the Why section called Your Sound since it was assumed that musicians might imagine musical sounds or use imagery to recreate vocal sounds (Averino, 1989; Carter, 1993; Fields, 1972; Hines, 1982; Miller, 1996; Trusheim, 1987).

The singers’ interview protocol was pilot tested with a professional singer who met the requirements for participation. Only minimal suggestions to include several appropriate probes were made. The interview guide was revised based on these suggestions. Therefore the instrument protocol was then administered in the actual interviews with the chosen participants. The use of the singers’ interview guide assisted in addressing more holistically the subjective nature of imagery (Lindauer, 1983).

Ethical Considerations

Upon receiving approval from the Institutional Review Board (IRB), the researcher contacted identified vocalists by email and invited them to participate in the study. Email correspondence was chosen for convenience in the recruitment process, due to logistics, time, and financial considerations. Vocal performance professors were sent an email and letter by the researcher requesting them to suggest eligible participants for the study (see Appendix C). Eighteen eligible vocalists were sent a letter of invitation to
participate (see Appendix B). Included in these documents was an explanation of the purpose and rationale of the study, the general definition of imagery, the intended use of the data, the intention and purpose of recording the interview, and the details of confidentiality of their identity (see Appendix G). The response rate resulting from the initial 18 invitations to participate in the study included 15 singers.

Vocalists who were interested in participating were informed of the procedures and requirements of the study by being read the Consent Script (see Appendix H) in a preliminary telephone conversation. This included the invitation to participate, the purpose of the study, description of procedures, intent of the researcher to record and transcribe verbatim, the invitation to review and edit their transcriptions including a timeline for return, and the risks, inconveniences, and benefits of being involved in the study. In order to gain more candid and accurate responses of imagery use by these vocal professionals, their identities were not revealed. This was articulated in the statement of confidentiality and singers were also informed that their participation was completely voluntary. The participants agreed to the terms in the Consent Script, the conditions of the requirements of the study, to be recorded, and to allow their recorded responses to be used for this, and possibly future research.

Procedures

In order to familiarize participants with the study, the imagery terms as used in sport psychology and the requirements for participation were described in an attached letter to both potential participants and vocal performance professors (see Appendix G). The following definition of imagery was provided by email to the participants:
Imagery is an experience that mimics real experience. We can be aware of ‘seeing’ an image, feeling movements as an image, or experiencing an image of smell, taste or sounds without experiencing the real thing. Sometimes people find that it helps to close their eyes. It differs from dreams in that we are awake and conscious when we form an image. (White & Hardy, 1998, p. 389)

The participants understood the requirements that they had to be earning at least half of their income from vocal performance engagements. Participants were sent a copy of the Consent Script (Appendix H) and the Singer’s Interview Guide (Appendix D). Next, a convenient time and date for the subsequent telephone pre-interview was scheduled.

The researcher conducted a pre-interview telephone conversation with each of the study participants, during which time the Consent Script (see Appendix H) was read to them. Participants were able to clarify any concerns with the procedure of the inquiry, logistics of the telephone interview, the intention to record the discussion, and the definition of imagery as it relates to sport psychology. The actual telephone interview was scheduled at an appointed time convenient for the participant. At the designated time the interview was conducted and digitally taped using the Zoom H2 Handy Recorder, and a telephone equipped with a speakerphone.

The telephone interview began with a statement of the purpose of the study, verbal verification of the participant’s name and agreement to participate in the study and interview, and the White and Hardy (1998) imagery definition (see above). The interview commenced and the length for each session lasted between 40 and 150 minutes. Participants were asked to answer questions in the interview protocol (see Appendix D), which addressed each of the four Ws, that is, where, when, what, and why they used
imagery were then specifically discussed. Probes were used to gain understanding of imagery as defined in sport psychology and reported in the literature (Bellon, 2006; Carter, 1993; Trusheim, 1987).

Upon completion of the telephone interview, each conversation was transcribed verbatim and the document was sent via an email attachment to each respective participant for review, additions, verification, and validation as a procedure of member checking (Johnson & Christensen, 2004). Each vocalist was given the opportunity to scrutinize his or her own interview for accuracy and clarity. Participants were asked to return their comments and any changes within seven days of receipt of the document. If there was no response by that date, the researcher sent a second email and when necessary, telephoned the participant to verify receipt of the interview transcription and to request a response. A second date was offered and if there was no response, the interview was assumed to be accurate. All of the participants made minor revisions, and most requested that superfluous words, “like,” “um,” and “you know” be removed. These suggestions were honored.

Along with the final copy of the transcription, each participant was sent via email the vocal participant survey (see Appendix I) requesting information on participants’ demographics, education, and experience in the field. All singers completed and returned this survey and the results were also submitted for analysis.

*Timeline for Data Collection*

Prospective participants and vocal teachers and professors were sent initial email invitations to participate in the study in early December 2008. A week later, a second invitation was sent to any person who did not respond to the first invitation. Pre-interview
telephone calls were made to the vocalists who had met the participation criteria by mid-
December, 2008. All interviews took place between the middle of December 2008 to early January 2009. Interviews were then transcribed and emailed to each respective participant for member checking between early January and the middle of February 2009.

Data Analysis Procedures

Upon completion of the telephone interviews and participants’ verification of the transcriptions, data analysis began. The pilot participant’s interview was also included in the body of interviews. During the course of listening carefully to the participants’ responses in the earlier interviews, more probes were included in the remaining interviews. Transcription responses were coded manually. Each unit of meaning, whether it was a word, a phrase, or an entire chunk of text, was coded using a priori categories derived from the interview protocol that was based on the previous research in the four Ws of imagery use and the literature. Each code was color coded and entered in the right margin of each interview quote. Units of meaning fit into major themes and new categories and subcategories emerged where they were not able to be included in the a priori set. Similar codes were then categorized together to identify new themes. Each of these entries was then categorized, subcategorized, and counted for utilization frequency (Kvale, 1996; Kvale & Brinkmann, 2009; Leech & Onwuegbuzie, 2007).

Both deductive and inductive approaches (Patton, 2002) were used. Deductive analyses connoted that which was previously known in an area of inquiry, represented here by the prescribed conceptual framework of the four Ws of imagery use: where, when, what, and why in athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005), cognitive and motivational functions of imagery (Paivio, 1985; Hall, 1998) and
the artistic and healing reasons (Nordin & Cumming, 2005). Inductive analysis and reasoning was employed to accommodate new information gathered from participant interviews and allowed for new categories to emerge from the data. This exploratory method was used for this study rather than testing a proposed hypothesis.

Primary data sources for the singers’ interview guide for each of the research questions is shown in Table 7. However, the intrinsic nature of imagery created a challenge in separating the specific units of meaning provided in the interview quotes. Participants’ responses to the research questions were not only found in their direct answers to the questions posed during the interview but were intricately interwoven throughout the interview, as Patton (2002) stated, “the relevant data won’t be found in the same place in each interview” (p. 440). Often the participants’ responses included information relating to many themes, not only those directly addressing the proposed questions. Therefore, each transcription was analyzed line-by-line, revealing units of meaning ranging from single words to entire paragraphs.

Legitimization

The research process itself served to secure efforts to legitimize the findings of this study. Validity was strengthened by using these expert participants in this specific field, the professional vocalists, who were chosen due to their first hand knowledge, experience, and understanding of how singers can effectively use imagery for achieving optimal performance. “Consulting with experts who possess conceptual and practical experience in the field of investigation is an ideal method for ensuring satisfactory face and content validity” (Vella-Brodrick & MacRae, 2004, p. 124). Internal validity was enhanced by providing a complete description of participants, procedures, and analyses
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Singers’ Interview Guide Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where do vocal professionals use imagery to achieve optimal performance?</td>
<td>40) Where do you use imagery?</td>
</tr>
<tr>
<td>When do vocal professionals use imagery to achieve optimal performance?</td>
<td>39) When do you use imagery?</td>
</tr>
<tr>
<td>What do vocal professionals use in their imagery to achieve optimal performance?</td>
<td>27) Describe any other reasons that you have for using imagery to achieve optimal performance, that are different from the ones we have mentioned?</td>
</tr>
<tr>
<td></td>
<td>29) To what extent do you use imagery relating to vision?</td>
</tr>
<tr>
<td></td>
<td>30) To what extent do you use imagery relating to sound and hearing?</td>
</tr>
<tr>
<td></td>
<td>31) To what extent do you use imagery relating to smell?</td>
</tr>
<tr>
<td></td>
<td>32) To what extent do you use imagery relating to taste?</td>
</tr>
<tr>
<td></td>
<td>33) To what extent do you use imagery relating to touch?</td>
</tr>
<tr>
<td></td>
<td>34) To what extent do you use imagery relating to kinesthesia?</td>
</tr>
<tr>
<td></td>
<td>35) Describe any other kinds of sensations that you feel in your imagery?</td>
</tr>
<tr>
<td></td>
<td>36) Which of the above would be the primary senses you use in your imagery?</td>
</tr>
<tr>
<td></td>
<td>37) Describe your ability to use imagery to achieve optimal performance?</td>
</tr>
<tr>
<td></td>
<td>38) To what extent is your imagery facilitative, debilitating, or both?</td>
</tr>
</tbody>
</table>

Note: Interview questions taken from the Singers’ Interview Guide (see Appendix D).
Table 7 (continued)

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Singers’ Interview Guide Questions</th>
</tr>
</thead>
</table>
| Why and for what purpose do vocal professionals use imagery to achieve optimal performance? | 15) Describe any imagery you use that is based on skill learning and execution?  
16) Describe any imagery you use relating to sequences?  
17) Describe any imagery you use relating to strategies?  
18) Describe any imagery you use relating to arousal and anxiety?  
19) Describe any imagery you use relating to self-confidence and mastery?  
20) Describe any imagery you use relating to goals?  
21) Describe any imagery you use relating to metaphors?  
22) Describe any imagery you use relating to character development?  
23) Describe any imagery you use relating to emotions?  
24) Describe any imagery you use relating to energy?  
25) Describe any imagery you use based on appearance?  
26) Describe any imagery you use based on your sound?  
28) Describe any other reasons that you have for using imagery to achieve optimal performance, that are different from the ones we have mentioned? |

Note: Interview questions taken from the Singers’ Interview Guide (see Appendix D).

used in this study, as well as allowing for accurate comparisons to other studies and participants. Member checking (Johnson & Christensen, 2004) was conducted by sending a transcribed copy of the interview to each participant for review. These singers were told that they could change, add, or clarify anything in the interview they felt was unclear, omitted, or unintended. In order to provide the reader with a more complete understanding of the processes of the results and offer an opportunity to make individual conclusions, examples of quotes were provided to illustrate categories and groupings.
Furthermore, participants were asked at the end of each interview if they had been led in any way during the course of the interview.

**Trustworthiness**

Mental imagery was difficult to objectively measure because it was not an overtly observable behavior. Singers might not have revealed all of the pertinent information they experienced internally concerning imagery. This could be due to a number of reasons including these: (a) there may have been a lack of agreement in the definitions and uses of imagery terminology between athletes and vocalists, (b) it was possible that these subjective experiences were present in vocalists but they had not previously been required to verbalize or analyze them, or (c) this internal process of imagery use may have been too personal and the vocalist may not have been completely comfortable with conversing about this topic. These issues were addressed beginning with the initial stages of contact with the potential participant. The White and Hardy (1998) imagery definition was given to bridge any latent gaps in the use of this term between sports and music. The preliminary telephone conversation was intended to alleviate any of the participants’ concerns, gain rapport with the researcher, and facilitate understanding of the imagery subject in general.

**Researcher Bias**

An important concern in this study throughout the interviews and the analysis was the threat of researcher bias. It was reasonable to expect investigators of qualitative studies to have some degree of expertise in the area of inquiry (Patton, 2002). Although this researcher, trained in both singing and imagery, was a necessary aspect of this study, her participation in the interviews also posed the threat of researcher bias. A number of
elements were put in place to control for this potential problem. As recommended by
Miles and Huberman (1994), detailed records of the process to collect and interpret data
were maintained. In order to strengthen authenticity and trustworthiness, peer debriefing
was conducted throughout all stages of the research process. Peer debriefing was defined
as “exposing oneself to a disinterested peer in a manner paralleling an analytic session
and for the purpose of exploring aspects of the inquiry that might otherwise remain only
implicit within an inquirer’s mind” (Lincoln & Guba, 1985, p. 308). These stages of the
research process included the design of the study, choosing and adapting the interview
protocol, interviewing participants, coding issues, methods of reporting, and discussion of
the results. This was done to help uncover the researcher’s personal assumptions, biases,
and perspectives that may have threatened the credibility of the study.

During the course of conducting the interviews, the investigator assumed a neutral
stance and allowed the interviewee to answer freely from his or her experience. Leading
questions were avoided wherever possible and each of the imagery issues were presented
in as balanced a method as possible. Questions in the form of probes encouraged
vocalists to elaborate on their answers and bring in responses not previously expected on
the subject of imagery use in achieving optimal performance. Although qualitative
techniques of this nature could not be completely free of bias, the researcher endeavored
to employ methods as described above to control for such bias.

*Frequency Counts*

Frequency counts could be misleading but were included in the results for the
purpose of clarity in understanding the results of the interviews. In using qualitative
techniques, frequency counts could be misunderstood for a number of reasons including
the small sampling, the personal nature of imagery experience, or quality and specifics of
the interview protocol, which served to elicit certain responses. Sometimes rare
experiences were revealing and created more understanding of the research questions,
therefore a category was created even if one singer only mentioned it once. Initial codes
were checked and recoded repeatedly in order that the responses were categorized as
effectively as possible in the effort to verify coding reliability. It was important to note,
however, that frequency was not necessarily an indicator of importance (Gammage et al.,
2001; Munroe et al., 2000).

Summary

This chapter presented the design of this exploratory study of mental imagery use
in achieving optimal performance in solo vocal professionals. The four Ws of imagery
use taken from sport psychology research was employed to gain information in athletics
(Munroe et al., 2000), dance (Nordin & Cumming, 2005), and imagery findings from the
literature review, especially music performance studies in imagery (Bellon, 2006; Carter,
1993; Trusheim, 1987). The interview guide was borrowed and adapted to be appropriate
for vocal professionals. Professional vocalists volunteered for the study and were
interviewed through recorded telephone conversation. These interviews were transcribed
verbatim and analyzed through the frameworks of previous four Ws investigations
(Munroe et al., 2000; Nordin & Cumming, 2005). Participants were described, the
interview process was given, and data analyses were explained. The details of the results
of the investigation are discussed in Chapter Four. These results are discussed in relation
to the results and findings of previous research in Chapter Five, including implications
for music education and recommendations for further research.
Chapter 4

Results

Results of this exploratory study were based on the interviews of 15 professional singers as described in the previous chapter. In this chapter, the backgrounds of the participants are presented first, the interview protocol and process is discussed, followed by results for each of the research questions based on the framework of the four Ws of imagery use. Analysis of the data is presented for each of the major questions -- where, when, what and why. The chapter is concluded with a summary.

Participants

A total of 15 professional vocalists, 10 females (66.7%) and five males (33.3%) were interviewed for this study. Participants’ ages ranged from the late twenties to the late sixties and were reported in five-year groupings. Summary data on study participants’ age and gender are reported in Table 8. The majority of participants \( n = 11 \) were between 30-45 years old, 67\% \( n = 10 \) were female and 33\% \( n = 5 \) were male.

In order to provide a more detailed account of each participant, Table 9 details each participant’s interview order, pseudonym, age, voice type, and highest educational degree earned. Pseudonyms were chosen with first letters in alphabetical order according to their gender and the order of their interview. For example, the male participant, who was the seventh interviewee, was given the random name Gerald, which began with the letter G, the seventh letter of the English alphabet. The thirteenth interviewee was female and arbitrarily given the name Monique, since the letter M was thirteenth in the alphabet.
Table 8

Participants’ Age and Gender Distribution

<table>
<thead>
<tr>
<th>Age Range (in years)</th>
<th>Female $n = 10$</th>
<th>Male $n = 5$</th>
<th>Total $N = 15$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
<td>$n$</td>
</tr>
<tr>
<td>25-30</td>
<td>1</td>
<td>6.7</td>
<td>1</td>
</tr>
<tr>
<td>30-35</td>
<td>4</td>
<td>26.7</td>
<td>4</td>
</tr>
<tr>
<td>35-40</td>
<td>2</td>
<td>13.3</td>
<td>2</td>
</tr>
<tr>
<td>40-45</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>45-50</td>
<td>1</td>
<td>6.7</td>
<td>1</td>
</tr>
<tr>
<td>65-70</td>
<td>2</td>
<td>13.3</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>66.7</td>
<td>5</td>
</tr>
</tbody>
</table>

$N = 15$

Participants included seven sopranos (average age = 37.4), three mezzo sopranos (average age = 55.8), four tenors (average age = 40), and one baritone (age = 42). Of the 15 participants, 13 held a master’s degree or higher, including a tenor and baritone with doctorates.

Participants resided in various areas of the United States including California, Florida, Maryland, New Jersey, New York, and Pennsylvania. Particular information on each participant’s current residence remained general and confidential in order to obscure the singer’s identity. Furthermore, it was not considered pertinent to this study since many traveled far distances to their professional engagements.
Table 9

Participants’ Pseudonym, Gender, Voice Type, Age Range, and Highest Degree

<table>
<thead>
<tr>
<th>Order of Interview</th>
<th>Pseudonym</th>
<th>Gender</th>
<th>Voice Type</th>
<th>Age (in years)</th>
<th>Highest Degree Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anna</td>
<td>Female</td>
<td>Soprano</td>
<td>35-40</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>2</td>
<td>Barry</td>
<td>Male</td>
<td>Tenor</td>
<td>40-45</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>3</td>
<td>Catherine</td>
<td>Female</td>
<td>Soprano</td>
<td>30-35</td>
<td>Master’s</td>
</tr>
<tr>
<td>4</td>
<td>Dorine</td>
<td>Female</td>
<td>Soprano</td>
<td>30-35</td>
<td>Master’s</td>
</tr>
<tr>
<td>5</td>
<td>Eloise</td>
<td>Female</td>
<td>Soprano</td>
<td>35-40</td>
<td>Master’s</td>
</tr>
<tr>
<td>6</td>
<td>Francine</td>
<td>Female</td>
<td>Mezzo</td>
<td>30-35</td>
<td>Master’s</td>
</tr>
<tr>
<td>7</td>
<td>Gerald</td>
<td>Male</td>
<td>Tenor</td>
<td>35-40</td>
<td>Post Graduate</td>
</tr>
<tr>
<td>8</td>
<td>Harriet</td>
<td>Female</td>
<td>Soprano</td>
<td>30-35</td>
<td>Master’s</td>
</tr>
<tr>
<td>9</td>
<td>Ivan</td>
<td>Male</td>
<td>Tenor</td>
<td>35-40</td>
<td>Master’s</td>
</tr>
<tr>
<td>10</td>
<td>Josephine</td>
<td>Female</td>
<td>Soprano</td>
<td>45-50</td>
<td>Post Graduate</td>
</tr>
<tr>
<td>11</td>
<td>Karen</td>
<td>Female</td>
<td>Mezzo</td>
<td>65-70</td>
<td>Post Graduate</td>
</tr>
<tr>
<td>12</td>
<td>Louis</td>
<td>Male</td>
<td>Tenor</td>
<td>40-45</td>
<td>Doctorate</td>
</tr>
<tr>
<td>13</td>
<td>Monique</td>
<td>Female</td>
<td>Mezzo</td>
<td>65-70</td>
<td>Master’s</td>
</tr>
<tr>
<td>14</td>
<td>Nicholas</td>
<td>Male</td>
<td>Baritone</td>
<td>40-45</td>
<td>Doctorate</td>
</tr>
<tr>
<td>15</td>
<td>Ophelia</td>
<td>Female</td>
<td>Soprano</td>
<td>25-30</td>
<td>Master’s</td>
</tr>
</tbody>
</table>

N = 15

Singers reported the vocal performance genre in order of their most frequent, second most frequent, and third most frequently performed singing genres (see Table 10). Thirteen participants reported that their most frequent genre was opera, one reported
oratorio, and one reported an equal distribution among oratorio, recital, art song, early music, liturgical music, and concert singing. The second most frequent genre identified was recital and cited by seven singers, followed by oratorio, and concert types. Participants’ reports of their third genre varied widely among other forms of concerts and recitals.

There were a variety of levels of professional vocal experience among study participants, all of whom had performed regionally. There were four singers who had performed in only one region of the United States and, for the purposes of this study, were considered regional singers. Eight of these professionals with experience in two or more United States regions were given the classification of national experience. There were ten vocalists who had been engaged to sing outside the United States and were considered internationally experienced. However, three singers reported singing in a single region of the United States as well as another country, and were also considered international singers. Years of experience were given along with the locations in which these participants had sung, ranging from six to over 40 years of total professional experience (see Table 11). The average total years of professional solo singing experience was 18.6 years.
Table 10

_Participants’ Singing Genre Frequencies_

<table>
<thead>
<tr>
<th>Order of Interview</th>
<th>Pseudonym</th>
<th>Singing Genre Frequencies</th>
<th>Second Most Frequent</th>
<th>Third Most Frequent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anna</td>
<td>Opera, Oratorio</td>
<td>Recital</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Barry</td>
<td>Opera, Recital</td>
<td>Liturgical</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine</td>
<td>Opera, Recital</td>
<td>Choral</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dorine</td>
<td>Opera, Art Song</td>
<td>Liturgical</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Eloise</td>
<td>Opera, Recital</td>
<td>Art Song</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Francine</td>
<td>Opera, Concert</td>
<td>Liturgical</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Gerald</td>
<td>Opera, Liturgical</td>
<td>Oratorio</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Harriet</td>
<td>Opera, Recital</td>
<td>Concert</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ivan</td>
<td>Opera, Recital</td>
<td>Oratorio</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Josephine</td>
<td>Opera, Recital</td>
<td>Early Music,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Liturgical</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Karen</td>
<td>Opera, Oratorio</td>
<td>EM</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Louis</td>
<td>Oratorio, Opera</td>
<td>Early Music</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Monique</td>
<td>Oratorio, Recital, Art Song, Early Music, Liturgical, Concert Equally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Nicholas</td>
<td>Opera, Recital</td>
<td>Oratorio</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ophelia</td>
<td>Opera, Art Song</td>
<td>Recital</td>
<td></td>
</tr>
</tbody>
</table>

*N* = 15
Table 11

*Participants’ Professional Solo Singing Experience*

<table>
<thead>
<tr>
<th>Order of Interview</th>
<th>Pseudonym</th>
<th>Years of Experience</th>
<th>Location Experience</th>
<th>Regions</th>
<th>Nations and World Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Regional</td>
<td>National</td>
<td>International</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Anna</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>NE, MW, SW</td>
</tr>
<tr>
<td>2</td>
<td>Barry</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>All but SW</td>
</tr>
<tr>
<td>3</td>
<td>Catherine</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>NE</td>
</tr>
<tr>
<td>4</td>
<td>Dorine</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>SE</td>
</tr>
<tr>
<td>5</td>
<td>Eloise</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>SE</td>
</tr>
<tr>
<td>6</td>
<td>Francine</td>
<td>18</td>
<td>6</td>
<td>0</td>
<td>All</td>
</tr>
<tr>
<td>7</td>
<td>Gerald</td>
<td>14</td>
<td>8</td>
<td>9</td>
<td>All but MA</td>
</tr>
<tr>
<td>8</td>
<td>Harriet</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>All but NW,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ivan</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>All but MA</td>
</tr>
<tr>
<td>10</td>
<td>Josephine</td>
<td>25</td>
<td>3</td>
<td>0</td>
<td>NE, MW</td>
</tr>
<tr>
<td>11</td>
<td>Karen</td>
<td>40+</td>
<td>40+</td>
<td>40+</td>
<td>All</td>
</tr>
<tr>
<td>12</td>
<td>Louis</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>MW</td>
</tr>
<tr>
<td>13</td>
<td>Monique</td>
<td>40+</td>
<td>11</td>
<td>35</td>
<td>All</td>
</tr>
<tr>
<td>14</td>
<td>Nicholas</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>MW</td>
</tr>
<tr>
<td>15</td>
<td>Ophelia</td>
<td>8</td>
<td>0</td>
<td>3</td>
<td>MA</td>
</tr>
</tbody>
</table>

*Note: NE: Northeast; SE: Southeast; S: South; MW: Midwest; SW: Southwest; NW: Northwest; MA: Mid-Atlantic; CN: Canada; CA: Central America; SA: South America; AS: Asia; UK: United Kingdom; EU: Europe; AU: Australia; AF: Africa; RU: Russia; IR: Israel.*

*N = 15*
Interview Protocol and Process

The singers’ interview protocol (see Appendix D) proved to be a valuable tool in gathering both breath and depth of responses from these singers. The open-ended format of the questions allowed for probing as was deemed appropriate for each participant. The singers’ interview guide was sent to study participants prior to the interviews, which helped the singers to understand imagery terms and be mentally prepared to respond to the answers during the telephone interviews.

In addition to the changes that were made to the original Nordin and Cumming (2005) dancers’ interview guide (see Appendix E), a few terms required clarification during the interviews to maintain a common language in confusion in concepts such as distinguishing meanings of terms. These were not uncovered during the pilot test. For example, a misunderstanding relative to the question of times when singers used imagery occurred in differentiating between breaks and holidays. Singers were perplexed by the word “holiday” in the fourth probe of question 39 regarding when singers used imagery, “To what extent does your imagery use differ between rehearsal, performance, and holiday periods?” Since the height of most vocalists’ performance season was during the Christmas and New Years holidays, the word “holiday” was changed to “break”, meaning the period during the year when professionals had time off and were not engaged in practices, rehearsals, or performances. Most of the participants reported using imagery during breaks only minimally, if any at all. However, in the sport (Munroe et al., 2000) and dance (Nordin & Cumming, 2005) studies, breaks meant quiet periods throughout the day, which contrasted with how this issue was addressed in this study. The meanings of
the terms “tactile” or “touch” and “kinesthetic feeling” had to be explained to many of these participants since they were not accustomed to using the word “kinesthetic” to describe feelings and movements inside their body. Singers were also somewhat unsure as to how to answer the sequences and strategies questions (Items 16 and 17). Adding a single probing question on “planning” seemed to have provided more clarity for these singers. These changes should be addressed and resolved in future uses of the singers’ interview guide.

Although the first three sections of the singers’ interview guide generated responses about singers’ background, these responses did not prove to be critical to answering the research questions of where, when, what, and why singers used imagery. Upon reviewing the transcripts, it was found that singers’ personal information was not concise enough to be included in this study. Therefore, in the effort to accurately and efficiently report the demographics of the participants, the vocal participants’ survey was designed (see Appendix I) and administered to the participants along with their transcriptions. This greatly aided in maintaining confidentiality and more generally and accurately reporting the demographics of the participants in this study.

Several different aspects of the interview process itself helped shape this study. The researcher was an experienced vocal professional, was a student of imagery, and had training in conducting interviews. As the interviews progressed, the researcher became more familiar with the process and further refined the interviewing technique with each subsequent participant. Slight changes were made in terminology of the probes and singers’ answers more reflected the intentions for which the guide was used. Generally, the participants were articulate and willing to share their knowledge and experience. A
number of them had prior experience being interviewed for radio, television, and newspaper, and were comfortable with the process. The interviewer generally took a neutral stance and refrained from offering too much direction so that singers’ responses could more clearly reflect their individual expertise in imagery.

The nature of the responses of participants to the interview and the specific questions varied widely. The duration of the interviews lasted between 40 and 150 minutes. Several singers were more verbal and shared a wealth of information, regardless of my efforts to invite them to be more concise, while other vocalists answered more to the point and needed continuous prompting. Similarly, participants’ responses ranged from extensively detailed, insightful, and rich to some that were more perfunctory or less focused. The quality of responses depended on the degree to which the interviewee stayed on topic and answered the specific given question. Several of these participants were teachers and answered in the form of what they would share their responses with their students. Most of these responses were not included since it was not certain if the answers comprised that interviewee’s personal experiences of imagery. Additionally, quotes that were difficult to understand and unclear were also omitted in the analyses, if, after making a concerted effort through emailing and telephoning the participant, the researcher failed to gain clarity. Overall, the extensive breadth and depth of these vocalists’ answers contributed to the growing storehouse of knowledge and understanding of imagery in professional solo singing performance.

**Coding**

As described in Chapter 3, transcriptions were initially analyzed using the predetermined categories and subcategories derived from the four Ws framework, the
singers’ interview guide, and the related literature. Data were segmented into units of meaning, which ranged from a single word to chunks of text containing one item of information. These were initially coded using the a priori categories and subcategories. In the case where a meaning unit did not fit into the predetermined codes, a new category or subcategory was created as appropriate. The final data analyses included six main themes: (a) where, (b) when, (c) imagery types, (d) sense imagery, (e) imagery ability, and (f) imagery use (see Appendix J).

Each meaning unit was labeled by theme, category and subcategory. For example, a thematic code of “SI:KI:VP” indicated “Sense Imagery: Kinesthetic: Vocal Production.” This represented the imagery type of kinesthetic sensory imagery response taken from interview question 34, “To what extent do you use imagery relating to kinesthesia?” and involving images of vocal production. Another example of the coding was “IU:VS:MO,” indicating “Imagery Use: Vocal Sound: Modeling,” representing the imagery type of vocal sound from question 26, “Describe any imagery you use based on your sound?” and the use of modeling. The complete list of themes and codes are provided in Appendix J.

When it appeared that the codes were beginning to be organized cohesively, four other researchers trained in coding qualitative data “check-coded” (Miles & Huberman, 1994, p. 64) one of the transcriptions to establish inter-coder agreement. It became apparent that the first three sections of the singers’ interview guide did provide sufficient content for understanding the participants’ backgrounds but did not adequately address the research questions in this study. Initially, the inter-coder agreement was .78 and was deemed satisfactory but could be improved. The themes and codes were again analyzed
and reviewed, revealing several redundancies, which resulted in further consolidation of the codes. The same transcript, without the responses to the first three sections, was analyzed by the four researchers, resulting in an inter-coder agreement of .83, which was found more acceptable for this study.

Themes and codes that had emerged from the first coding were used to analyze the transcripts a second time and each meaning unit was placed by the participant’s name and code (by color) into each cell of an Excel document. At the end of the second analysis, all data were analyzed and redundant categories and codes were collapsed into codes that represented the findings as efficiently as possible. Another analysis was employed to scour each transcript for any remaining meaning unit that could correspond to the individual codes. Transcriptions were saved in Word documents and key words were entered to find quotes using various descriptive words connected to that code. For example, in looking for all the quotes for the theme of “arousal,” specific words such as “nerves,” “performance anxiety,” “stage fright,” and “afraid” were used to search the entire document and locate every quote, which had anything to do with “arousal.” This action was performed in every transcript and all codes (see in Appendix J).

All the coded quotes were transferred into their own Word documents and analyzed and compared to other coded data in that category for emerging themes and patterns. These themes and codes were compared with those of the four Ws frameworks for a final check before confirmation. These data were interpreted and a framework emerged, which constituted further deductive analyses processes (Strauss & Corbin, 1998). Quotes in all coded categories were analyzed by frequency and general emerging patterns.
Frequency counts were reported according to the number of participants who responded in these categories rather than the number of times the singer mentioned the item. This was primarily due to the semi-structured nature of the interview guide and the repetitive nature of some of the questions. This was exemplified by the researcher’s statement given at the beginning of the interview, “Also, do not worry if some questions seem repetitive. This is partly to make sure that I am covering all aspects of your singing imagery and not leaving anything out, and partly useful to obtain quotes for later analyses” (see Appendix D). Since so many singers offered answers to questions in several ways, at times revealing replications, it was deemed that reporting frequency counts by participants was more appropriate for this study.

In reporting the results of the interviews, it was determined that first knowing where and when singers engaged in imagery provided a better understanding of what was imagined and why images were used. An attempt was made to separate what, or the content of imagery, from why, or the purpose. However, participants’ responses were so integrated in the content and purposes of their imagery that it presented certain challenges in reporting these findings. It was determined that the cohesive nature of this information be maintained as much as possible. Therefore, where, when, and what imagery was reported first, and the section on why offered a more complete and integrated description of how these singers incorporated imagery in their profession. What follows is the report of the analyses of the vocal participants’ responses as organized under the four major themes of the four Ws of imagery use: where, when, what, and why.
Where Do Vocal Professionals Use Imagery to Achieve Optimal Performance?

Results of where singers use imagery are followed by when imagery was used. Vocalists’ reports of where, or the location of imagery engagement, was separated into four categories: (a) general locations, (b) home, (c) other places, and (d) in practice or performance settings. Responses are given here according to the divisions that emerged which resulted in a number of subcategories within each category as shown in Table 12.

Table 12

<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice/Rehearsal/</td>
<td>Stage (Auditions &amp; Performances)</td>
<td>15</td>
</tr>
<tr>
<td>Performance Settings</td>
<td>Studio/Practice Space</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Rehearsal Space</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>At the piano</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Dressing Room</td>
<td>2</td>
</tr>
<tr>
<td>Home</td>
<td>Bed</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>At Home (Bathroom &amp; Kitchen)</td>
<td>9</td>
</tr>
<tr>
<td>General</td>
<td>Alone</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Anywhere/Everywhere</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Quiet/Relaxing Places</td>
<td>5</td>
</tr>
<tr>
<td>Other Places</td>
<td>Commuting/Driving</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Exercising/Outside</td>
<td>6</td>
</tr>
</tbody>
</table>
Results of the singers’ responses in the *where* category, from the most frequent to the fewest, were: (a) practice/rehearsal/performance settings, (b) home, (c) general, and (d) other places. All of the participants reported using imagery on stage for auditions and performances, followed by six who imagined in the practice or studio space. Four vocalists used imagery in the rehearsal space, two at the piano, and two in the dressing room. Referring to the places she used imagery, Francine said, “I use it in the practice room. I use it in the rehearsal hall, and I use it most specifically in the wings before a performance, or the hallways before an audition.” The home was the next most frequently named space with 13 specifically imagining in bed and nine naming various areas in the home. For example, Dorine said, “I’m usually in the comfort of my own bed, or on my couch where I can stretch out and relax. I like to be lying down and I try to get myself as comfortable as possible.” In the general category, less than half of the participants chose being alone, anywhere or everywhere, and in quiet or relaxing places. Other places included eight preferring commuting and driving and six either outside or exercising.

It was significant that all of the vocalists considered using imagery at auditions to be as important as at performances. For the younger singers, auditioning was mentioned more frequently than the older, more experienced professionals. Being successful in auditions allowed the singer to actually perform, since roles were so few and many performers vie for these in this format. Therefore, with regard to professional vocalists’ use of imagery, auditioning had to be a separate inclusion in the performance category.

These solo singers used imagery in the performance setting where they were already set to practice or perform. Outside of these settings, vocalists engaged in imagery wherever it was convenient for them to process their thoughts and feelings in imagery, as
evidenced by the high number of responses for being alone, at home, in bed, and commuting and driving (see Table 12). Their particular performance requirements and living situations and environments may have influenced these results. Furthermore, some singers reported imagining in many different places, particularly those who seemed to enjoy more engagement and experience in this mental practice.

When Do Vocal Professionals Use Imagery to Achieve Optimal Performance?

Responses giving the time periods when imagery was used resulted in six subcategories: (a) practice, (b) rehearsal, (c) performance, (d) performance season, (e) breaks, and (f) other times. These are presented in this particular order by when these singers reported their use of imagery beginning with the primary and specific time periods of practicing, through performance, and ending with break periods and times not directly involved in singing. Table 13 presents a summary of vocal participants’ responses to when they used imagery.

With regard to using imagery around practice times, all participants reported engaging in imagery during practice, two singers used it before, and three singers reported using imagery to assist in retrospection of what they did and to decide what to do in the future. Ophelia identified the cyclical nature of what was considered after practice and the next before practice times. She explained that, “afterwards you are studying and imaging what happened and you remember what happened and you’re learning from those things and improving. But if you think about it, the afterward is really just the beginning of the practice.” Upon further investigation, this distinction held some weight. Ophelia and Catherine expressed the desire to use more of this type of
Table 13

\textit{Vocal Participants’ Responses to When They Used Imagery}

<table>
<thead>
<tr>
<th>General Time</th>
<th>Specific Time</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice</td>
<td>Before</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>During</td>
<td>15 (6 in the learning process)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4 after learning music)</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>4</td>
</tr>
<tr>
<td>Rehearsal</td>
<td>During</td>
<td>9 (2 some)</td>
</tr>
<tr>
<td>Performance</td>
<td>Before</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>During</td>
<td>9 (5 some)</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>6</td>
</tr>
<tr>
<td>Performance Season</td>
<td>Before</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>During</td>
<td>15</td>
</tr>
<tr>
<td>Breaks</td>
<td>During</td>
<td>3 used imagery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 used less imagery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 no imagery used</td>
</tr>
<tr>
<td>Other Times</td>
<td>Night</td>
<td>11 (6 going to sleep)</td>
</tr>
<tr>
<td></td>
<td>Quiet Times</td>
<td>8 (2 during tedious tasks)</td>
</tr>
<tr>
<td></td>
<td>All the Time</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Day</td>
<td>5 (3 waking up)</td>
</tr>
</tbody>
</table>
imagery during the initial stages of practice. Ophelia mused, “it behooves me to have the imagery before, because then it transfers naturally to the practice.”

Six singers used imagery during the process of learning the material and four used it after most of the basic notes and music were secured, as illustrated by Francine’s response. She said:

The only time I wouldn’t [use imagery] is when I’m being very, very, very technical and I’m learning a piece or I’m just learning basic plunking of notes . . . But even in my own private studio work, once a piece has gotten to a certain level where I need to start making more out of it than just learning the notes and learning the rhythms, that’s when I start to use imagery.

Louis also engaged in imagery after the rudiments of the piece were learned. He stated:

During the preparation process for musical literature that I’m preparing, during the learning process, in particular, after a basic knowledge of music is already there. But I need to hone that knowledge into a more detailed mastery of the music.

Generally, all vocalists engaged in imagery during practice in relation to the learning process which considerably outweighed the responses given for before or after practice.

Regarding times these singers used imagery, a distinction between practice and rehearsal arose as an issue particular to the classical vocal profession. For solo singers, practice was usually conducted alone, at various times most convenient for the individual. Rehearsals were more formal events scheduled and organized for the purpose of staging an opera or recital, usually involving other singers, musicians, and possibly directors and coaches, depending on the singing genre and performance venue. Singers were required
to show up and participate having already memorized their roles and arias. Josephine explained:

I prepare myself outside of rehearsal and then I come there and just rehearse with the other musicians. So it’s really a lot of instant music. So it’s not a lot of work.

We’re expected to do a lot of work on our own, and come prepared.

Louis’ response also illustrated this when he said, “I’m much more likely to use imagery or visualization in advance of a rehearsal than I am to use it during the rehearsal itself.” Nicholas differentiated his rehearsal and practice efforts when he said, “if I’m in rehearsal in a show and trying to study a second or third show at the same time then it’s tricky balance to stay rested enough to accomplish everything.” He was in rehearsals for one opera while learning and practicing other roles. Differentiating practice, rehearsal, and performance periods was important when examining professional singers’ imagery use.

For the purposes of this study, “before performance” referred to periods following the completion of all practices and rehearsals. All participants used imagery just prior to performing. Three singers engaged in pre-performance routines of extensive imagery and quiet time on the day of the performance to mentally prepare for optimal performance that evening, as Anna aptly described:

The day it all comes together into one thing, and, when I put my makeup and hair on, I’ll take three hours if I can, if I have it, if I have the time I’ll try to do an hour to three hours. . . . I’m really just focused on the entirety of the performance.

Nicholas’ value of his extensive pre-performance (or pre-audition) imagery time was reflected in the following quote, “I feel that giving myself enough time to achieve focus
before an audition or performance is almost more important than anything else on a
performance or audition day.” Use of imagery in relation to performances and auditions
represented a great portion of when singers used imagery and both of these types of
performances should be included in future research.

Vocalists’ responses for using imagery during performances varied. Nine singers
used imagery during performance; five reported a significantly diminished amount while
on stage and six after performance. As an example, Catherine said, “During a
performance, I only employ imagery if I fall out of character and need to get back in.
When I'm actually performing, it is distracting to be thinking about performing, it's better
to just do it!” Most of the imagery that singers used in performance was set beforehand
and was intended to render automaticity to their execution and portrayals on stage.
Francine further illustrated, “I’m aware that I’m using it when I’m performing, but I’m so
involved in the performance, that I don’t necessarily remember using it. I just remember
making the conscious decision beforehand to do it.” Conversely, two vocalists reported
using no imagery during performance, including Barry, who said, “I don’t use imagery in
performance. I use imagery in rehearsal so when performance comes, whatever comes
out, comes out.” Harriet explained some of the reasons why she used less imagery in
performance. She said for example, “I use it all beforehand, so that by the time I’m on
stage, I’m only acting in that character.”

Six participants reported using imagery to a lesser extent after performing,
primarily use it as a learning tool for future presentations. Anna stated:
[U]sually I give myself at least four or five days before I start to take apart the performance, and rework in, ‘next time I’m going to do this, it’s gonna feel like this, and it’s gonna be like this experience.’

Few participants articulated this type of retrospection and intention to change behavior for the future performances. Imagery engagement after performance was more common in the responses of singers, such as Monique, who repeatedly performed the same roles and concerts during the singing season.

Vocalists used imagery differently throughout the year. All participants engaged in imagery during the performance season whether it was associated with practice, rehearsal, or performance. The six participants who reported using imagery to prepare for the next season also reported using some imagery during breaks. Seven singers said they took a rest from imagery while on extended vacations, five used less imagery, and three reported incorporating it more. For example, Louis said, “I might utilize it in anticipation of the next section of the rehearsal.” Still some confusion remained as to whether these breaks were rest periods throughout the day, between practice and performing, or during an extended vacation such as the summer.

Singers reported using imagery extensively at times outside of practice, rehearsal, and performance. Eight participants reported using imagery at anytime or most of the time, five preferred the day and of those, three imagined upon waking up in the morning. Night proved to be a more favorable time for 11 participants, including seven who specified using imagery before going to sleep. One singer had no preference between day and night. Engaging in imagery required quiet times for seven participants, especially Eloise who said, “I’m by myself and there’s like nothing going on and I can just do it in
my mind, with nothing to interfere.” Karen and Ophelia described using imagery while engaged in tedious tasks such as cleaning or washing dishes.

To summarize the findings of where and when, all singers used imagery in stage and practice areas during practice, just prior performance, and during the performance season. Many participants used imagery more during rehearsal and performance than before and after. At other times, these participants used imagery at home in bed at night, and during quiet periods outside, exercising, and during travel. These results have helped to lay the foundation of what imagery singers use and later why they use it.

What Do Vocal Professionals Use in Their Imagery to Achieve Optimal Performance?

In analyzing these responses, the framework established in dance research of the four Ws of imagery use (Nordin & Cumming, 2005) was used to differentiate imagery types from imagery characteristics. Imagery types were all those responses that the singer qualified as an image. Imagery characteristics encompassed the way in which these images were experienced, such as through the senses, perspective, and various aspects of their ability to imagine.

Most often participants’ responses represented specific details of the imagery type, characteristic, and purpose of imagery as an integrated experience. It was challenging to extract the singers’ imagery content from its intended purpose. Furthermore, the same image could be used for a variety of reasons, and many different images were used for a single purpose. Even during the interviews, participants pointed this out. Ivan clearly illustrated his difficulty in analyzing his own imagery practices when he said, “It’s hard to separate it out when I think about it minimally because when I am visualizing, it’s all these things combined. In other words, they’re all together for
me.” Excessively dissecting this information may have reflected too much of an atomistic approach to analyzing the very natural and holistic human function that is imagery as experienced by these professional vocalists. Therefore, imagery types and characteristics are reported as concisely and efficiently as possible in order to provide a clear foundation of the various qualities of images these singers used. The section in this chapter on why provides a more comprehensive picture of the intricacies of these participants’ imagery.

**Imagery Types**

Imagery types are reported in categories that emerged from the singers’ responses and included the content of the image itself. Their responses were organized into six pre-determined subcategories that were adapted from dancers’ imagery research (Nordin & Cumming, 2005). In the original four Ws of imagery use framework for dancers (see Figure 2) the last category was irrelevant images, which represented an imagery type that was not found in the singers’ responses. However the category of *musical sound* was added to the types of imagery singers described in their interviews. The resulting six categories of imagery types included: (a) execution, (b) metaphorical, (c) context, (d) body-related, (e) musical sound, and (f) character/role images. Table 14 provides a summary of the categories, descriptions, and number of participants.

*Execution images.* Execution images for singers were divided into three sections: (a) skill learning and technique, (b) sequences and planning, and (c) goal images. All singers reported an abundance of images of skill learning and techniques and their responses resulted in five subcategories: (a) vocal production, (b) text and phrases, (c) page notation, and (e) breath control. Images of vocal production and technique were described in all singers’ interviews. For example, in maintaining consistency through her
Table 14

Vocal Participants’ Imagery Types, Categories, and Subcategories

<table>
<thead>
<tr>
<th>Imagery Types</th>
<th>Categories</th>
<th>Subcategories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execution</td>
<td>Skill Learning &amp; Technique</td>
<td>Vocal Production</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Text &amp; Phrases</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Page Notation</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breath Control</td>
<td>6</td>
</tr>
<tr>
<td>Sequences &amp; Planning</td>
<td></td>
<td>Phrasing &amp; Patterns</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planning Songs &amp; Arias</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Song Cycles &amp; Recitals</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creating Stories</td>
<td>3</td>
</tr>
<tr>
<td>Goal Images</td>
<td></td>
<td>Outcome</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Process</td>
<td>15</td>
</tr>
<tr>
<td>Metaphorical</td>
<td>Vocal Production</td>
<td>Imaginary Actions</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Objects Not Present</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Colors (Hue &amp; Timbre)</td>
<td>9</td>
</tr>
<tr>
<td>Context</td>
<td>Environments</td>
<td>Stage Scenarios</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Song Scenarios</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distant Places</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Home</td>
<td>1</td>
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<tr>
<td>Imaginary People</td>
<td></td>
<td>Audition Panelists</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other People</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-human</td>
<td>4</td>
</tr>
<tr>
<td>Audience Images</td>
<td></td>
<td>Favorable images</td>
<td>9</td>
</tr>
<tr>
<td>Imagery Types</td>
<td>Categories</td>
<td>Subcategories</td>
<td>Number of Participants</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
<td>------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Body-Related</td>
<td>Arousal</td>
<td>Breath Control</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calm Images</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nerves &amp; Tension</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Appearance</td>
<td>Looking Good On Stage</td>
<td>11</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td></td>
<td>Vocal Production</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Body Feeling &amp; Movement</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posture &amp; Alignment</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health</td>
<td>6</td>
</tr>
<tr>
<td>Musical Sound</td>
<td>Musical Sounds</td>
<td>Melody</td>
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<td>Accompaniment</td>
<td>14</td>
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<td></td>
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<td>Pitch</td>
<td>10</td>
</tr>
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<td>Vocal Sounds</td>
<td></td>
<td>Modeling Expert Singers</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ideal Sounds</td>
<td>7</td>
</tr>
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<td></td>
<td></td>
<td>One’s Own Voice</td>
<td>4</td>
</tr>
<tr>
<td>Character/Role</td>
<td>Emotions</td>
<td>Emotions of Characters</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Past Experiences</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Behaviors</td>
<td>Action &amp; Movement</td>
<td>12</td>
</tr>
<tr>
<td></td>
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<td>Acting out Roles</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Appearance</td>
<td>Costumes &amp; Character</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender Change</td>
<td>1</td>
</tr>
</tbody>
</table>
vocal registers, Monique said, “I see my sound as a steady flowing thing, even from top to bottom.” Eloise described her images of her efforts to establish continuity through her registers. She offered, “in order to sing scales that go up and down, I imagine the opposite direction and the opposite flow of energy.” In securing another type of vocal technique, Ophelia imagined a “soft palate lift, and maybe flattening of the tongue” to produce more vocal resonance.

Singing text and words of one language or another have been considered a basic requirement of vocal performance. Fourteen participants offered responses in which their imagery included words, text, or phrases, which emerged in the interviews as an imagery element specific to singers. Francine aptly illustrated this in the following quote:

I see the words. When I study just the language, I see the IPA of the pronunciation of the words. And most importantly with the languages that I don’t speak fluently, I see, also in my head, the English translation. So as I’m singing in German, I will actually see in my head, the English words. It helps me.

Experience of words, text, and phrases in visual imagery emerged naturally from the data and seemed appropriate since these elements were an integral part of singing training for performance.

Ten singers reported other uses of visual images with regard to performance, particularly page notation in relation to memorizing and executing songs. Karen had an acute ability in visualizing the score. She stated, “I see that all the time. I could tell you what side of the page something’s on. I don’t have a photographic memory, but it’s almost like that.” Barry and Francine reported having a photographic memory and page
notation images were easy for them to recreate. Regarding his experience of mentally seeing the score, Nicholas said, “When I’m memorizing, a little bit. I try to get beyond that soon, as quick as I can, so that I don’t have to think about that and can concentrate on other things.” Ivan also had remembered his images of notation and described, “there’s a sense of the music, the sheet, hovering in front in my consciousness. Then that disappears.” Page notation images often subsided when the music became more internalized. Mentally reading from a score was sometimes necessary in certain instances. Ophelia said she used notation imagery “if I do have a difficult passage where this cadenza for instance has a lot of technically challenging aspects, I would see, yes, the music notation in front of me.” Monique and Francine mentally imagined the score particularly while singing modern classical music. Francine said:

> [W]ith contemporary music, very specifically when it’s something that may be atonal, it doesn’t even make sense harmonically, again, I see the score. I see the score in my head, and I know exactly where that C is compared to the G, compared to the A.

Page notation images were connected to performing the song and helped singers to accurately memorize the notes and phrases of the music.

Six singers imagined breathing techniques related to vocal production (e.g., Barry: “imagine the path of your breath”). While performing a long phrase, Anna would imagine inhaling at the same time she was singing. These techniques and breathing images ranged from specific anatomical replication to individually created metaphors.

Every singer reported mentally rehearsing and silently singing the songs and roles. Many of their images directly reflected or were related to all the skills they
practiced physically. Differences appeared in the degree to which they focused on vocal production, words, breath, or various combinations of these musical elements and may have been associated with levels of training and experience.

All participants gave examples of images of sequence and planning involved in learning or performing music ranging from a simple phrase to an entire recital or role. These types of images comprised four sections: (a) phrasing and patterns, (b) planning songs and arias, (c) sequences of song cycles and recitals, and (d) creating stories. Five vocalists imagined phrases and distinct sections especially while learning repertoire, such as Josephine who said, “I see the patterns in the music.” Eight participants described images of planning through the execution of their songs and arias. Catherine illustrated this by saying, “I imagine myself singing through an entire piece vocally and singing everything correctly.” For six singers, sequencing imagery was integrated into their recital arrangement and progression through song cycles. Nicholas created “specific ideas about how each piece is going to go.” Likewise, Josephine imagined “the shape of the music and what each song was in the program.” Three singers reported creating stories that linked the different songs in their recitals together in a cohesive manner. Eloise said she had “to come up with some kind of a story that makes sense in order to sequence through them.” Singers used elements naturally intrinsic in music as well as those related to the compositions to create planning and sequence images in performance preparation.

Imagery of goals reported by these singers primarily consisted of three distinct kinds: (a) outcome goals, (b) performance goals, and (c) process goals. These images ranged from vocalists who imagined singing in a role in a famous opera house to executing the perfect high note.
Outcome goal images were reported in 14 participants and ranged from specific, clearly imagined goals to those more general. Specific outcome goals included images that were sometimes competitive, the results of being chosen from an audition, performing a desired role, or singing on a certain level or in a famous venue. For instance, images involved visualizing the final results of a competition, as when Ivan imagined himself “with the award in hand.” Catherine and others imagined details of a specific role and actually being engaged to perform it as a result of the audition. Catherine stated, “I imagine myself in the costume and in the show I’m auditioning for, imagining already having gotten the gig and performing it on stage.” Francine organized a routine for imagining the outcome for performing in different venues. She said:

In order to accomplish successfully singing for them and getting the job, what I’ve done is go into the house [theatre], see a show there, and imagine myself on that stage, so putting myself on the other side already before they even give me the opportunity. Saying ‘I already got the job, I already have gone through rehearsals, I already accomplished everything.’

Other specific outcome goals included images of performing in prestigious venues such as the Metropolitan Opera. For example, Nicholas stated, “the MET is one of the places I’m hoping to sing before I’m done, and so I’ve used that a little bit to imagine myself singing there.” General outcome goals were less focused and were evident in six quotes. To illustrate, Gerald had “goals of singing at international performing venues, and being like other highly sought-after performers,” and Josephine wanted to “sing on the next level of the business, on a higher level of the business.” These vocalists used outcome goals from very specific and clear to fairly general images.
Performance goals primarily dealt with singers achieving standards of excellence in their own on stage performances, which was described in 11 participants’ responses. These goal images included a desire to experience general positive affect as expressed by Eloise who wanted to “really enjoying what I’m doing,” and the somewhat more specific intention expressed by Gerald of “making my vocal technique better.” Ophelia concentrated on the immediate moment with the assumption that her efforts could lead to better opportunities. She stated, “I try to focus on the task at hand, and the tasks at hand always lead to the bigger goal.” She also expressed continued interested in “getting better, and better, and better. It’s something I’ll never be able to attain.” Ophelia’s performance goals were more general as compared to Louis’ goals which were more artistic and combined performance and outcome goals as he illustrated:

I want to give the absolute best artistic performance that I can. And when I do that, regardless of what stage I’m on or what role it is in, that’s when I feel like I’m the most accomplished vocally that I can be.

Nicholas’ imagined executing his ideal audition and said, “I will imagine it all. I’ll picture the scene usually ahead of time.” This type of goal work included all three types of goals, outcome, performance, and process.

Results for process goal images of learning or improving specific performance skills were so frequent in this study and seemed to be an intrinsic aspect of singers’ imagery content. These ranged from securing techniques in vocal production, achieving a certain sound quality, embodying the character and emotion of a role, and imagining the body to have a certain appearance in the effort to achieve automaticity, or habit, in the desired skill or technique. The specific findings are not reported here since they were
found to pervade nearly every aspect of the imagery these professional vocalists used and are included in many other sections of this chapter.

Metaphorical images. Singers offered a plethora of metaphorical images primarily relating to vocal production. While most of the participants used some kind of metaphor in their imagery, all were familiar with a number of metaphors used in traditional vocal training. Responses of metaphorical images related to vocal production included three categories: (a) imaginary actions, (b) objects not present, and (c) colors. These represented categories adapted from dancers’ framework of imagery (Nordin & Cumming, 2005).

Thirteen participants described metaphorical imaginary actions representing vocal production and technique, such as regulating the breath and vocal placement. Gerald controlled his breath by using the image of “very gently, gently, gently, blowing a speck of dust.” For vocal support, Josephine imagined that her “voice is a shelf. I think of putting those notes on a shelf.” Francine’s imagery of her vocal production was like “catching the baseball behind my head.” Related to enlarging the throat for singing, Eloise said, “Imagine that you’re a seal and you’re going to swallow the fish whole.” Some of these singers used metaphorical images consistently in their vocal production.

Twelve singers described objects that were not present, constituting the widest variety of metaphorical images, all of which related to vocal technique and production. Examples of some object images were, “potato sacks in the back” (Barry), “a conveyor belt” (Monique), and “a string of spaghetti” (Harriet). Many of these singers reported using the same images, which may have represented those generally accepted in vocal pedagogy (e.g., “smelling a rose”; “fireplace bellows”). Many singers created their own
metaphors, such as Eloise’s image of a “crescent moon, which is behind you, embracing you.” Some of these images were used in place of actual mechanical processes of the voice. More examples of these images and the specific applications were included in the section on vocal production in this chapter.

For nine of these vocalists, imagery of color represented visual hues and shades primarily relating to the timbre or the quality of vocal sound. Anna experienced the visual aspect of color in relation to parts of music. She said, “I’ll see colors, different notes have different colors and different phrases have different colors, reds or greens or blues.” Ivan provided the richest color imagery description. He said:

A passionate line will invariably, for me, have reddish tint. A passionate line with an ascending line, towards the top will be that passionate red that goes to a brighter color, almost always towards . . . gold, a very bright gold, for the upper part of the voice. No matter what it is, no matter if it’s blue that I’m envisioning, it always goes to gold on top, red to gold on top. The top is always the same color. Unless I using something like a *fille voce*, *sotto voce*, *pianissini*, up top, then it’s a silver.

This example could arguably be described as chromesthesia in which the visual colors mix with sound in imagery. Conversely, other singers regarded color images as those relating to the emotional expression in the voice. Nicholas illustrated this by saying, “I’ll look to place, or look to work in certain menacing colors in a menacing situation.” In either case, color images for these singers described a spectrum of vocal qualities they could apply in their singing.
Context images. Vocalists’ imagery encompassed specific contexts and included three different categorical aspects: (a) environments, (b) imaginary people, and (c) audiences. All 15 singers imagined various environments, which were classified into four subcategories: (a) being on stage or in the theatre, (b) the scene of a song, (c) distant places, and (d) home. Vocalists described various scenarios of themselves performing on a stage. For example, Catherine said, “I would just imagine being on stage, taking a curtain call.” Harriet imagined singing to an audience member “in the last row of the theatre.” Monique was one of six singers who created her own artistic environment in her mind when she performed. She said, “I try to put myself in the scene of the picture that that song is painting. So in my mind, I see the sun; I see the water; I see the mountains. They’re all around me.” Karen imagined being in a far away land. Ivan described images of his old age with his grandchildren surrounding him at home “in front of a fireplace.”

Several different kinds of imaginary people appeared in seven participants’ images. These included audition panelists and people who were directly related to the production such as other characters in a scene, the director, or instrumental musicians. Other singers imagined panelists present in their auditions. Four participants reported non-humans such as angels and devils. Francine imagined “an angel on one shoulder and a devil on the other.” At times just prior to performing, Monique reported contending with images of “Satan” when she was feeling nervous.

Nine vocalists imagined interactions with the audience. Most of these singers regarded the audience members favorably, as Karen came to realize. She said, “I actually imagined an audience really not that frightening.” Other images involved sharing something with the audience. Eloise would “picture the audience and try to imagine what
they’re hoping for,” and Josephine imagined her voice was “reaching that last seat, not just the people in the very front.” Other audience images are reported in the Artistic Reasons section of this chapter.

**Body-related images.** Body-related images comprised singers’ concerns with feeling or seeing their physical body and was classified into four categories: (a) arousal, (b) appearance, and (c) kinesthetic images. With regard to the body, feelings and images of arousal were the most frequent, with 13 vocalists sharing their images of breath control, feelings of calm, and specific areas of physical tension. Breath images in relation to calming thoughts and feelings were most common in regulating arousal. Gerald imagined the “feeling of the breath calmly moving through my body,” while Josephine used “the imagery of seeing the breath coming in and out of my body.” Four singers experienced calmness throughout their body, including Dorine who imagined “this feeling of peace, peacefulness and calmness that starts at the top of my head and goes down my body.” Four singers mentioned images of feeling nervousness and tension that assisted them in executing their performances.

Eleven participants used appearance images, which was not surprising since much of their professional lives involved performing in front of an audience. Appearance in this category primarily included images for stage performance outside of appearance imagery in performing in character in an opera. Josephine used the “imagery of looking beautiful and appealing to the audience.” Anna said, “sometimes I’ll look in the mirror to see what I’m doing right then, and then to create what I want it to look like in my head instead.” Louis stated, “[I] visualize myself looking the way that I want to.” Generally, appearance
imagery was used to create at least the illusion of appropriate visual presentation for performance.

Singers’ responses varied in the level of detail they imagined their appearance to be on stage. Several held a more general image in their minds as to what they wanted to look like on stage (e.g., Josephine, “looking beautiful and appealing to the audience. . . . looking like a princess,” Ophelia: “poised, trying to be as in control, even though you completely feel out of control”). Harriet proposed, “I guess there’s a standard that I expect of myself when on stage. Yes. I expect to have a finished product.” Other singers’ appearance imagery was extensively detailed. For example, Karen illustrated:

I know how I will walk on stage, how I will look, how I will hold my hands, who am I, how do I want to present myself, how I go on, how I look when I go on, how I even hold my body when I go on.

Each detail concerning her appearance was fully planned and vividly imagined.

Reports of kinesthetic images included those of (a) vocal production, (b) body feeling and movement, (c) posture and alignment, and (d) health. Ten responses in vocal production images involved specific mechanisms in the body. Catherine and Ivan provided the best examples of these images. Catherine imagined the feeling of “where in your body the resonance [of the sound] will strike or where it will vibrate.” Ivan used imagery to experience “the ease, the vibrato, the blood flow, the vibrations of the tone when my body is supporting the tone, what that feels like in my body.” Along with the six vocalists who mentioned body movement, Josephine felt it was important to “imagine yourself as a young child, or as a baby lamb or something to get your body to move a certain way.” Six singers described images of posture and alignment which either
represented optimal qualities or those representing the physical character depicted in a
song or aria. Six participants reported health images. During periods of sickness, Barry
imagined “the times when I was perfectly healthy.” Before even vague symptoms of
illness set in, Gerald would tell himself “that I’m healthy, so that my body functions at its
optimal level.” Images relating to the body seemed to be an intrinsic part of performing
as a singer.

**Musical sound images.** Singers reported hearing both musical and vocal sound
images in relation to practice and performance. All singers engaged in silent musical
practice and mentally heard various sounds in their head related to vocal and musical
production. Musical auditory images were classified into three subcategories: (a) pitch,
(b) melody, and (c) accompaniment. Ten singers mentally heard the specific pitch just
prior to initiating that sound in their voice. Monique illustrated this perfectly when she
said:

I always breathe in the note I’m about to sing. . . . so that the note is existing
before I actually sing it, so that I’m right in the middle of the note. . . .I can’t tell
you how that helps you mentally. There’s no searching for it, you see, you’ve
pinned it before you even start.

Exact pitches were imagined in the beginning of phrases, in approaching a high note, as
well as notes throughout the aria. Fourteen participants mentioned hearing the melody in
their heads just before singing the line or during mental practice. Josephine imagined
“hearing a passage in my head before I would sing it.” All but one participant reported
hearing the accompaniment, especially the musical intervals that occurred between their
vocal phrases. During silent practice, Dorine said she was “hearing the piano, imagining
the accompaniment from start to finish.” Gerald stated, “I do imagine the accompaniment [and] hear the interludes.” Harriet reported mentally hearing “another instrument’s part that plays in sort of duet with me while I’m singing my line.” Some singers mentioned being able to mentally hear several musical elements simultaneously. Nicholas said, “I will hear basically everything going on in my head. So I’ll hear my line and hear the text, and hear the orchestra.” It seemed that these participants used sound images to assist them in silent and vocal practice and performance.

Participants reported using images of vocal sounds which were divided into the subcategories of (a) modeling sounds of expert singers, (b) ideal sounds, and (c) hearing one’s own singing voice. Anna was one of 10 vocalists who used sound modeling in her imagery, which she developed by “[w]atching other singers, and listening to their music, especially ones that are similar to you.” Likewise, Eloise said, “I have sort of imitated or imagined performances that I’ve seen other people do.” Several of these participants included the names of famous vocal professionals they used as inspiration for their images. Ideal sound images were possibly a culmination of what that particular singer had seen, heard, and experienced throughout the years as a professional. Seven singers reported using these images, including Karen who stated, “I know the sound that I want to make.” Four singers heard their own voice in silent practice and anticipated an ideal production of that specific sound. These sound images provided an ideal and appropriate standard that these performers strove to achieve or accomplished successfully.

Character/role images. Another important aspect of imagery for the singing professional was the element of acting. From the participants’ responses, character and role images included (a) emotions, (b) behaviors, and (c) appearance.
Emotional images emerged as being vital to bringing a character, song, or role to life for all these professionals. Several of the participants expressed their conviction that emotional imagery gave them motivation for the behavior of the character. Eliciting the correct emotional image was critical in providing an appropriate framework for how the character or story of the song progressed in performance. Ivan said, “the mood changes, yeah, the moment before the change happens.” Six of the singers reported using their own memories of past experiences to create the appropriate emotions in a performance. In recreating a sorrowful feeling for a particular role, Barry said he accomplished this “by going to that place, and bringing back images of a sadder time.” In order to maintain the ability to sing in times of great emotion during an aria, Josephine would simply “touch on memories to be able to bring you to that place that you need to be able to portray the song.” Specific and appropriate emotional imagery was deemed critical to performance excellence and served as internal guide and motivation for movement of the character.

Fourteen vocalists reported imagining the behavior of the character, which included 12 images of motivation for action and four images of physically staging the specific characters and roles. Nicholas allowed his images to naturally develop by “setting myself within the text of the plot of the opera and letting the motivation of the character, and getting ideas that the character would be having, shape the phrases.” Anna said, “I do some of this visualization where I’ll go through and go, ‘I want this to look like this,’ especially if you’re dying or you’re angry” as part of the requirements of staging. Some of these singers employed movement and behavior images in specific roles. In portraying Mimi in La Boheme, Josephine recalled, “I would be using a lot . . . constantly having images going through my brain at the same time I was singing, of
someone who was wounded, and physically crippled and disabled to portray that type of
character.” For staging Carmen, Francine conjured images of being in Spain many years
ago and described, “Imagine that you are digging through the earth, you’re in Seville . . . .
What does the floor feel like underneath your [sic] feet?” This imagery included sensory
and context details helped recreate the character’s experience in the scene.

Appearance in this category encompassed external aspects of the character, the
costumes, makeup, and historical and cultural settings as dictated by the composer or the
production. Four singers described their imagery of appearance including Eloise, who
best illustrated these details. She said:

I imagine myself in the costume and on the set, and in the castle or whatever it
was, the mansion, or in the country home or wherever, and what was I wearing,
what was my hair, and what were the jewels.

In acting out roles, singers often needed to imagine a change in their physique for
presentation on stage. Being a mezzo, Francine had to appear to change genders, which
she aptly did through her appearance imagery.

Imagery types described here represented the content the participants reported
using in their professional efforts. The following sections describe some of the imagery
qualities these vocal professionals experienced their images.

*Imagery Characteristics*

Participants’ responses relative to imagery characteristics was coded using five
subcategories from Nordin and Cumming (2005: (a) sense imagery, (b) perspective, (c)
ability, (d) direction and deliberation, and (e) amount and duration.
Senses. Six categories of imagery involving the senses emerged in the analysis: (a) sight or visual, (b) sound or auditory, (c) kinesthetic or feeling, (d) touch or tactile, (e) smell or olfactory, and (f) taste or gustatory. During the interviews, singers were given the opportunity to describe the specific extent of their uses of each of the senses. All singers reported using vision, auditory, and kinesthetic imagery in their artistic endeavors. The senses of touch, smell and taste were used to a much less extent in practice and performance. Participants’ specific responses to each of the senses involving some imagery types (addressed in the previous section) are given in Table 15.

All 15 singers reported using visual imagery with six who said they used it a great deal. Barry and Francine each stated they had a photographic memory and Karen declared that she was “a visual learner.” The sense of sight was used primarily in visualizing scenarios, vocal production and technique, and page notation. Auditory imagery was employed by all the vocalists to imagine hearing various aspects of their vocal production, the music, and the text involved in their silent practice and performance. Kinesthetic imagery included feeling the internal technical, physical, and emotional aspects of singing and acting. Specific images using these three senses were described in the previously section on imagery types.

Tactile and kinesthetic senses had been confused in seven of the interviewees’ responses, which may have originated from simple terminology differences. For example, Louis declared, “I do experience the music in a very tactile, visceral kind of way.” Even though tactile refers to touch and visceral connotes deeper feelings, the assumption could reasonably be made that he was referring to the internal vocal mechanism and perhaps not the epidermis of the neck and jaw. This was later confirmed in a subsequent
Table 15

*Vocal Participants’ Specific Sense Imagery Use*

<table>
<thead>
<tr>
<th>Sense</th>
<th>Categories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sight/Visual</td>
<td>Visual</td>
<td>15 (6 a great deal)</td>
</tr>
<tr>
<td></td>
<td>Scenario</td>
<td>14 (6 imagined executing the aria)</td>
</tr>
<tr>
<td></td>
<td>Vocal Production</td>
<td>13 (8 anatomical, 8 metaphorical)</td>
</tr>
<tr>
<td></td>
<td>Page Notation</td>
<td>13</td>
</tr>
<tr>
<td>Sound/Auditory</td>
<td>Sound</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Words/Text/Phrase</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Pitch</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Melody</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Accompaniment</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Silent Singing</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Vocal Production</td>
<td>15</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>Kinesthetic</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Character/Emotion</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Vocal Production</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Body Check</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Pitch Preparation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Automaticity</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 15 (continued)

<table>
<thead>
<tr>
<th>Sense</th>
<th>Categories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch/Tactile</td>
<td>Touch</td>
<td>4 yes, 5 some, 4 not much, 2 none</td>
</tr>
<tr>
<td></td>
<td>Character Based</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Future Performance</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Communication with Audience</td>
<td>2</td>
</tr>
<tr>
<td>Smell/Olfactory</td>
<td>Smell</td>
<td>2 yes*, 4 some, 8 not much, 1 none</td>
</tr>
<tr>
<td></td>
<td>Character/Emotion</td>
<td>7 (4 emotion in character)</td>
</tr>
<tr>
<td></td>
<td>Vocal Production</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Venue</td>
<td>3</td>
</tr>
<tr>
<td>Taste/Gustatory</td>
<td>Taste</td>
<td>2 yes*, 5 some, 7 not much, 1 none</td>
</tr>
<tr>
<td></td>
<td>Text-based</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Vocal Production</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: *Both were cooks.

telephone conversation with Louis in which he clarified that he did imagine
kinesthetically in singing and tactile sense imagery was used more in the physical act of
vocalizing and securing technique. Furthermore, when the terms kinesthetic and tactile
were explained as defined in this study, all seven singers agreed they meant the
kinesthetic sense and not touch.
The sense of touch was usually employed in imagery when its use was dictated in the text of a song or the action of a character. For example, Louis was one of two participants who used the tactile sense in imagining future auditions and performances:

If I know that I’m going to be wearing a certain suit for an audition, I try to feel . . . what it will be like to be standing up in that suit. Am I going to place my hands on the piano during a recital and if so, what will that piano feel like? If I’m going to have a wig on during an operatic performance, how will that constrict my scalp?

Smell and taste imagery was employed the least with roughly half of the singers reporting that they did not use it very often. Only two participants seemed to enjoy taste and smell images and referenced their extensive cooking experience. Otherwise these vocalists reported using smells and tastes in context of the song or role. Using olfactory imagery in performing in the opera, La Boheme, Ivan would “imagine what kind of perfume Mimi would wear. What kind of cologne does Rudolpho put on when he’s getting ready to go out?” Gerald used the sense of smell to assist him in portraying his character in specific settings. He said:

In some operas, you find yourself in particular scenes where you’re either in a dungeon or you’re on the gallows, or some place, and where people are dying around you, so that imagining the smell of death, or whatever that gives a fear response, and an honest one.

Singers also used smell imagery in association with the odor of specific venues.

Taste imagery was sometimes connected with text articulation and characterization. As an illustration, Eloise said, “You’ve got to make this yummy. . . .
like *felice mi fa*, [from Musetta’s Waltz in *La Boheme*] it’s like, it’s got to be yummier each time you say it. So I think of darker and darker chocolate as I go up.” These participants used touch, and particularly smell and taste the least of all the senses, but these senses remained available for use in imagery to more specifically embody the character and enhance performance. However, concerning participants reporting using no specific sense imagery, two participants used no tactile, one singer never used smell, and another singer did not use taste.

From the above accounts, vocalists used their senses extensively for imagery in their professional endeavors. In gathering information on rating sense imagery preference of use, singers were asked the interview question 36, “Which of the above would be the primary senses you use in your imagery?” Subsequent probes during the interview invited vocalists to rate the second and third sense they used in imagery. Ivan and Monique felt the senses of vision, hearing, and kinesthesia held equal and topmost importance. The final results of the sense imagery rating by the remaining 13 participants revealed vision to be first with seven votes, auditory second with eight, and kinesthesia third with six (see Table 16). Several mentioned touch usually as the third choice, but later changed it to kinesthesia. Taste was used slightly more than smell, and mostly employed by two participants who enjoyed cooking. Therefore, by a very small margin in the first three, the rank order of senses used in imagery by these professional soloists from the most to the least was: (a) vision, (b) auditory, (c) kinesthesia, (d) tactile, (e), taste, and (f) smell.
Table 16

_Vocal Participants’ Rank Order of Sense Imagery Use_

<table>
<thead>
<tr>
<th>Sense</th>
<th>Primary</th>
<th>Secondary</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision/Sight</td>
<td>7</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sound/Auditory</td>
<td>1</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Kinesthesia/Feeling</td>
<td>5</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Two participants choose sound, kinesthetic, and vision together as equally important.

_Perspective_. Capabilities of visual imagery also involved the use of internal and external perspectives. Singers in this study favored internal perspective, however several used external with some employing both as seen in Table 17. Internal perspective, reported by 14 singers, was seeing things from the first person point of view. Nicholas stated, “I’m always picturing it from my perspective, because I never see myself in the scene.” Conversely, five participants used the external, or the third person viewpoint, as was the preference of Gerald who said, “I’d see me, watching from the audience.” Ivan was one of three singers, who were able to switch between inner and outer perspective, but gave more weight to the internal. He said:

> It flips from the inner eye to the outer eye, back and forth...[I]f I’m stuck with just the outer eye, then I’m not as complete as I could be...What’s most powerful is the inner eye. If I can get into the inner eye of what, what I am initial seeing, then I know I’m on track... That’s when I know it’s real. If I can do that transition in my visualization.
Anna sometimes used "external to get the perspective the audience." Again these visual perspective images were used for various reasons and depended on individual abilities and skills.

Table 17

_Vocal Participants’ Imagery Perspective_

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>14</td>
</tr>
<tr>
<td>External</td>
<td>5</td>
</tr>
<tr>
<td>Switching</td>
<td>3</td>
</tr>
</tbody>
</table>

_Imagery ability_. Another pre-determined category of imagery characteristics was imagery ability, or how well the singers were able to create their images. These data were classified into three subcategories: (a) ability, accuracy, and level of detail; (b) deliberation and direction; (c) amount and duration. The frequency of results of the various characteristics of vocalists’ imagery ability can be seen in Table 18.

When singers were asked about their imagery ability and degree of accuracy separately, the responds were identical. Twelve singers said it was good while three others rated theirs as fair. Regarding vividness, 10 vocalists reported having very vivid images and five felt that theirs were fairly vivid. Four singers described their images as being very accurate, with Louis adding, “right down to the last level of minutia.” Some felt that their images could be improved.
Table 18

Vocal Participants’ Imagery Ability

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>12 Good 3 Fair</td>
</tr>
<tr>
<td>Accuracy</td>
<td>12 Very accurate 3 fair</td>
</tr>
<tr>
<td>Vividness</td>
<td>10 Very vivid 5 Fair</td>
</tr>
<tr>
<td>Manipulate</td>
<td>11 Well 4 Fair</td>
</tr>
<tr>
<td>Helpful</td>
<td>10 (5 no answer)</td>
</tr>
<tr>
<td>Hurtful</td>
<td>2 Not hurtful 8 at times (5 no answer)</td>
</tr>
<tr>
<td>Detail</td>
<td>4 Very vivid (11 no answer)</td>
</tr>
<tr>
<td>Need for Improvement</td>
<td>3 Yes (12 no answer)</td>
</tr>
</tbody>
</table>

Deliberation involved whether the image appeared spontaneously or deliberately and the degree to which it was controlled or manipulated. Singers’ rated their imagery deliberation as being primarily controlled, with 11 participants reporting that they were able to easily manipulate their images, and four rating their ability to do this as fair. Some singers realized that physical practice was a prerequisite to imagining, as exemplified by Nicholas who said, “I found that probably just because I have a lot of practice on the stage things now, that I can imagine. Imagery was good.” Some exceptions and problems in manipulating images included Monique’s “little Satan,” which appeared to her spontaneously and could have debilitated her performance if she had not exercised control over it prior to walking out on stage.
Direction dealt with hurtful (debilitative) or helpful (facilitative) images. In response to imagery direction, 10 singers reported that their images were generally more helpful and facilitative than hurtful. However, eight felt that sometimes their imagery could be harmful or debilitative. Ophelia illustrated:

It’s hurtful if you don’t control it . . . If you are discovering technique and you find the wrong image and it doesn’t help you and you continue to use it over and over again, then yes it can be hurtful as well.

At times Anna’s images were not helpful, as she stated, “if I don’t do a good job [imaging], it can be destructive.” Singers reported this occurring especially when their images were not appropriate to their specific needs. Catherine found that sometimes “they’re not helpful, because they’re really not the right image.” Francine discovered, “If it’s hurtful, it’s because I’ve chosen to do something that’s unsuccessful, and then, again, I have to make an adjustment.” Several participants discovered problems when they did not take the time to imagine clearly, such as Ophelia discovering her “blind spots” on stage, where she had inadvertently omitted specific imagery in her performance preparation.

Regarding amount and duration, the former dealt with the time given to engage in imagery, while the latter involved how long the image appeared, remained and proceeded, and faded. Although no question specifically centered on either amount or duration of the image itself, a few participants offered glimpses of their experiences in this regard. Amount of time in imagery sessions seemed to vary with the individual from very quick flashes (Gerald) to consciously practicing imagery all night long in preparing
for an upcoming role (Eloise). Regarding duration, Louis described using high-speed imagery in practice and memorizing:

I go through the recital very quickly and very frantically in my mind in an attempt to make sure that I can recall the text right to the forefront of my mind very quickly. It’s a memory drill to make sure that I have the text memorized really, but I am thinking the notes and the pitches all the way through. Oftentimes what I’ll do in this type of practice is eliminate any rests or sections where I’m not singing. It will literally be practicing just my singing responsibility. And I’ll do it as quickly as I can and I’ll move from one section to the next immediately without break.

This detailed example of high speed, or compressed mental practice, seemed to help solidify the song in memory for Louis. Just prior to auditions, Nicholas tried, in his words, “to visualize pretty much everything that happens for about 10 minutes.” Dorine spent 15 minutes imagining her performances from start to finish. Information on imagery amount and duration in vocal performance seemed to depend on the need of the individual and their facility with imagery skills.

As a result of participating in these interviews, several singers’ understanding of imagery changed particularly with regard to the uses of their senses and abilities. Gerald reflected this, when he said, “my first criticism I would make is that I need to make my visualization more specific, more detailed.” In evaluating her imagery strengths and weaknesses as a result of answering the questions, Eloise realized that she could shift her use of sense imagery and include those that were less developed. She said, “I think I’ve stacked a little bit too much in the kinesthetic and I should be more aware of the
emotional. I think I should think about taste, smell, and touch, which I’ve said I don’t like, and experiment with those.” Catherine’s retrospection also revealed her desire for improvement when she declared:

I am not a master. I feel a little bit lazy at it all. Like I said, you’re bringing up all these things that I could be doing. This is so cool. I think I go to a comfort level, and then don’t push it, because I don’t necessarily take the time. . . . I’m constantly aware that the imagery is a good way to go, but in practice, it does not always play out as well as I would hope. But that could be because I’m not very consistent in my use. . . . So find the accurate and then reinforce it by repetition, and I don’t think I do enough repetition.

Catherine and some of the other singers reflected a belief that there may be a link between the specificity and clarity of the image and performance outcome. Furthermore, it became apparent to many of these participants that imagery ability could be continually developed and strengthened and that it was a powerful tool in their quest for performance excellence. Results of singers’ reasons for using imagery content and ability will now be discussed.

**Why Do Professional Vocalists Use Imagery to Achieve Optimal Performance?**

Responses regarding why, or the reasons for which imagery was used, were similar and at times quite different compared to athletic and dance imagery research. Singers’ imagery functions seemed to generally reflect aspects of the athletic frameworks of Paivio (1985), Hall and associates (1998), Munroe and others (2000), and perhaps more specifically those of dance imagery research (Nordin & Cumming, 2005). In analyzing the data, emerging categories were constantly compared with those found in
the sport and dance frameworks. Vocal professionals’ reasons for using imagery were classified into four categories: (a) cognitive, (b) motivational, (c) artistic, and (d) healing. Many of these reasons were presented in previous sections to allow the reader to understand the details of how the content of images interacted intrinsically with the purposes for which they were being used in these professional vocalists’ experiences. Additionally, participant responses were interchangeable across different questions, which created certain challenges in reporting these results.

**Cognitive Reasons**

The cognitive reasons for using imagery addressed the functions of thinking through or planning out behaviors. These were divided between cognitive specific (CS), which included skill learning and execution, and cognitive general (CG), relating to sequencing and strategies, originally proposed by Paivio (1985). Table 19 included specific categories and subcategories of singers’ cognitive reasons for using imagery.

*Learning vocal techniques and skills (cognitive specific).* Cognitive reasons for singers’ use of imagery were those in which singers reported using images for the purposes of learning, developing, strengthening, and correcting skills. Results from the interviews were exceptionally frequent regarding acquiring proficiency in vocal production and quality and resulted in two distinct subcategories of vocal production and metaphors in vocal production. These quotes primarily involved changing or securing vocal technique, and were therefore included in the cognitive category.
Table 19

*Vocal Participants’ Cognitive Reasons for Imagery Use Categories and Subcategories*

<table>
<thead>
<tr>
<th>Cognitive Reasons</th>
<th>Categories</th>
<th>Subcategories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Specific (CS)</td>
<td>Vocal Production</td>
<td>Technique</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease &amp; Comfort</td>
<td>9</td>
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<tr>
<td></td>
<td></td>
<td>Breath Support</td>
<td>7</td>
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<td></td>
<td></td>
<td>Kinesthetic</td>
<td>6</td>
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<td></td>
<td></td>
<td>Audiation</td>
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<td></td>
<td></td>
<td>Note Duration</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>Projection</td>
<td>2</td>
</tr>
<tr>
<td>Metaphors in Vocal Production</td>
<td>Breath</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Throat Opening</td>
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<td>6</td>
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<td></td>
<td>High Notes</td>
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<td>3</td>
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<tr>
<td></td>
<td>Vocal Registers</td>
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<td>2</td>
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<tr>
<td></td>
<td>Resonance</td>
<td></td>
<td>2</td>
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<tr>
<td></td>
<td>Changing Quality</td>
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<td>2</td>
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<tr>
<td></td>
<td>Vocal Line</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Memorizing &amp; Planning,</td>
<td>Learning &amp;</td>
<td>Learning</td>
<td>6</td>
</tr>
<tr>
<td>Cognitive General (CG)</td>
<td>Memorizing</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Sequencing</td>
<td>Songs &amp; Arias</td>
<td>5</td>
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<tr>
<td></td>
<td>Program Planning</td>
<td>Recitals</td>
<td>10</td>
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<td></td>
<td></td>
<td>Stories</td>
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<td></td>
<td>Staging</td>
<td>Movements</td>
<td>7</td>
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<tr>
<td></td>
<td></td>
<td>Motivation</td>
<td>2</td>
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<tr>
<td></td>
<td>Characterization</td>
<td>Clarity of Role</td>
<td>6</td>
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Vocal production involved specific aspects of using imagery directly involved with producing, extending, or projecting the sound. Each of the 15 singers offered several responses in vocal production issues, resulting in seven subcategories: (a) vocal technique, (b) ease and comfort of producing sound, (c) breath support, (d) kinesthetic connection, (e) audiation, (f) extending note duration, and (g) projection.

Specific aspects of vocal technique appeared in ten of the responses. Some singers, such as Catherine used technique images in warm-ups “to help me produce proper vocal technique.” Eloise illustrated her experience of this, and said that:

in order to sing scales that go up and down, I imagine the opposite direction and the opposite flow of energy. . . . in order to sing from low to high, I’m gonna sink down and out through my body.

Imagery to keep the voice grounded in the high notes and lifted in the low ones assisted this singer in maintaining continuity of sound execution throughout the registers. Other singers were also concerned with gaining skills in singing in specific registers. For example, Nicholas was looking to produce “a little more focus and ring in the upper part of my voice.” In producing a vocal sound particular to mezzos, Karen said, “In order to do that whistle range, I just see these imaginary folds going almost together. It just pops right into my mind.” Imagery for vocal placement concerned the muscles of the vocal apparatus producing tones in a specific way, as Ivan illustrated. He said, “I can anticipate what the voice is going to feel like in its optimal conditions related to the sequence of music that I want to sing.” Conversely, several vocalists found that over the years they tended, as Louis stated, “to rely more on mechanics and more on the science of vocal technique rather than on sensation.” Instead of kinesthetic feeling, Louis preferred more
informed technical imagery for singing. It seemed that as vocal skill developed, imagery preferences changed. These two elements of vocal skill and imagery interacted and grew during the course of a vocalist’s career.

In producing vocal sound, nine participants mentioned using imagery to feel ease or comfort in various areas of the body, and particular parts of the vocal apparatus. In specifically striving for relaxation in the neck and jaw, Ophelia maintained, “you should never think about having a voice box, having a neck at all.” To this end, Gerald wanted to experience “the sound of the passage being easy, the image of freedom and free flow.”

Imagery was particularly useful in creating the feeling of effortlessness of singing. Louis explained, “I do try for a gentle, easy sound, but oftentimes it’s difficult to interpret mechanically. Instead you just do it sensorily [sic] and you try to experience a little gentler, easier style of singing.” These singers believed that creating the image of singing ease produced the proper vocal sounds and a comfortable feeling in their bodies.

Imagery for skill learning also involved the development and maintenance of breath support for seven participants. Four singers talked about breath support by imagining their breath deepening while they sang an ascending vocal line. Gerald illustrated his use of imagery to gain more breath support. He stated, “I would go back to breathing and visualization. When I am taking a breath or using a breath, imagining the air filling places where oxygen really doesn’t go but you want to find expansion.” This example also incorporated Gerald’s kinesthetic use of imagery in gaining more control in vocal production.

Kinesthetically imagining in vocal execution arose for six participants who described a physiological feeling of producing the ideal sound image. Anna exemplified
this aptly, and said, “It’s a combination of the feeling and what sounds you’re going for.

You get that exact thing in your head and then you breathe into what you’re already imagining.” More specifically, Eloise imagined parts of her body in creating a strong sound, saying:

I think of that through my back, and a weight trainer body, I imagine a very strong body. . . I create this huge instrument in my mind and then in my body, just actually feel the muscles and gauge them with the depths of the voice, which is what carries.

Nicholas tried to imagine the feeling of sound being “well grounded from deep in my body.” Francine experienced this deep placement in executing lower notes when she said, “what I feel is a relaxed letting myself go and letting the sound just drop in the middle of my body. . . So I have that image every single time I go into my chest voice.” Vocal production for these singers was rooted more deeply in their entire body than just the vocal apparatus of the head, neck, and upper torso.

Regarding integration of both optimal vocal production and body awareness, Ophelia was one of two who mentioned kinesthetic imagery in relation to gaining automaticity and forming proper habits for performance. She said:

[A] lot of it comes with doing it again and again and just getting it into the body and getting that kinesthetic memory, so that when it comes down to performance, honest to God, you’re not thinking about it, because you have so many other things to think about, that you want it to just be rote memory. But there are occasionally those spots that are very difficult and even in performance you need to think about it, when you have to focus on the kinesthetic memory.
Kinesthetic imagery in learning through the body seemed to facilitate the movements and skills becoming more automatic and habitual.

The last three elements in this section on vocal production were audiation, extending note durations, and projecting the sound. Eloise heard the sound she wanted to make before she sang it. She said, “It was to audiate, so to hear it, listen to it, mentally so to speak, before you try to actually make the sound.” Imagery in audiation often improved pitch accuracy and proper mental and physical preparation to produce the sound in the specific context of the music. Extending note durations began with breath control and mental thought processes in preparing that sound. Ophelia described using imagery to help learn this technique. She said, “if I have to sing a high C of 16 beats, then I would just keep thinking of an image that would lengthen the note.” Anna used imagery slightly differently to achieve the same effect:

> [E]ven if you have a note that you need to hold. . . if you imagine while you’re singing that you’re breathing in at the same time, so you actually are breathing in at the same time. . . . it restructures your body without out using valuable energy and voice.

Not only do singers have to find ways to hold extensively long notes, but they have to make their sound carry through a large theatre or venue without the use of microphone. Josephine mentioned singing to the “old lady in the back row” as a mental image to help her voice carry all the way through the theatre. Dorine would “envision a small point on the wall and I sing to that point.” She imagined the sound touching or going beyond that chosen point in the back of the theatre. Singers used different kinds of imagery to find better ways of producing their sound. These accounts included many instances of
imagery use in improving various aspects of vocal skill and technique. This next section examines metaphorical imagery in the technical aspects of singing.

All participants gave accounts of using metaphors in connection with vocal production. Although several singers preferred not to use metaphors, they were all familiar with them and how they were used in achieving proper vocal technique. Metaphors were connected with vocal production in seven distinct areas: (a) support including breath, (b) throat opening, (c) execution of high notes, (d) singing through the vocal registers, (e) creating resonance, (f) changing sound quality, and (g) connecting the vocal line.

Supporting vocal sound was dependent on breath control in diaphragmatic breathing and was vital for classical singing. Metaphors were plentiful in this area and were reported by 11 singers (e.g., Gerald: “smelling a rose for inhalation,” Francine, “a steel rod coming out of my feet and going all the way through the core of the earth”). In order to relieve muscular tension, Anna imagined “making everything really relaxed [like] a puppet, you’re a dummy on top, where everything would be happening underneath like the anchor.” Eloise created the image of “a three-dimensional pyramid that goes out from my body, out behind me, very wide. . . . Your voice goes effortlessly through the peaks of the pyramid because it has such wide, wonderful support at the base.” Many singers mentioned that using metaphors greatly aided in establishing support and controlling the breath, however as they developed as singers these skills became more automatic and many began to prefer anatomical images of the actual vocal mechanism.
In classical singing training, one of the first techniques most students were taught was to lift the soft palate in the back of the throat to create more space in singing. It was most easily accomplished by maintaining the feeling of a yawn during singing. Six singers in this study mentioned various metaphors to help them achieve that continuous feeling (e.g., Nicholas: “egg in the back of my throat,” Dorine: “plum in the mouth,” Louis: “imagine I have a capitol ‘I’ in the back of the throat”).

In order to secure high notes and to keep the sound light and pleasant, three sopranos used metaphors. Dorine provided a vivid example of this. She stated:

[W]hen I’ve taken a deep enough breath, or if I’m going for higher notes, then I want my breath to stay strong beneath me. . . . I pretend that I’m sliding down a banister, moving down physically while the voice is moving up, and it helps to deepen, it helps my breath to stay deep.

This idea of singing high while thinking low was repeated several times. To achieve a more delicate sound, Josephine felt that the metaphor of birdsong was the “perfect imagery for a soprano, high sounds, like something that’s pretty and easy and floating.” Josephine imagined supported high notes when she spoke of placing the notes on a shelf as previously quoted. The image of a shelf helped her think of her high notes as having a place to rest, rather than mentally pushing her sound higher. Singers consistently found metaphors to create the sound they needed.

Regardless of the vocal category, singers’ voices were considered to have vocal registers that were delineated by “breaks” in separating the high, middle, and low parts of their voice. Singers needed to develop and maintain consistency through these areas or risk “cracking,” or a vocal shift, in passing from one register to another. Two singers
mentioned metaphors for contending with this. Gerald felt “the voice narrowing, that sort of feeling that my voice registers blend there.” In order to successfully deal with this, Francine described her metaphorical images as if they were:

‘a thread of chest, a thread of head.’ So what we’re constantly trying to accomplish as singers is making our voice consistent from low to high and all the way through the middle. . .but it’s never 100% just straight chest, there’s always a thread of head in that. And then as you go up through the middle, how does that shift on every note as you go up into the high register. So if you visualize a dial, you have a high level of chest and a low level of head, and then it slowly and gradually shifts up until the high registers where you have a high level of head and a low level of chest.

Consistency through the vocal registers was facilitated with metaphorical imagery as well as other aspects of the voice production.

After an extensive training was achieved in securing a foundation of vocal production, these singers also concentrated on shaping the quality of their sound as was expressed in nine of the transcriptions. Four singers mentioned the connection of human sound capabilities such as a sigh, a grunt, a groan, or a yawn with providing a variety of vocal possibilities and extending the quality of their sound. This was best exemplified in Eloise’s account when she illustrated the following:

The most nutty metaphor has to do with different noises that we naturally make. But they’re so wacky, like your conscious intellect doesn’t give you permission to make these noises. . . . See, we have the entire orchestral family of instruments right in our bodies, in our voices. Wheew, or quack, waaa, [she demonstrated the
sounds] because you’re really hot. I mean it’s like there’s a whole bunch of really
crazy people inside of you that need to make all of these different noises and they
live in different parts of your body.

In her interview, Eloise provided a detailed explanation of each of these specific imagery
sounds representing all the families of the orchestra. However, due to space
considerations, these are not given here. Although some of these singers had extensive
familiarity with vocal sound varieties, it did not appear as general knowledge in many of
the singers in this study. This aspect of singing could be further investigated.

Similar to imagining the variety of vocal possibilities, Harriet used metaphors to
create more resonance in her voice. She said, “I imagined that the space that one creates
in the cavity, the head, is sort of shaped like a cone, and that the voice functions within
the resonance of the voice is within that cone.” Harriet also used the image of her ribs
acting like fireplace bellows to increase deeper resonance in her torso. Francine achieved
more vocal resonance in her head when she imagined what “it feels like biting into a big
juicy apple.” These metaphors seemed to connect with kinesthetic feeling to facilitate
specific vocal production.

In performing an aria or song, soloists imagined connecting the entire line of the
music and text in performance. Four singers gave many examples of using metaphors to
help them stay connected throughout the song (e. g., Anna: “like the train is already
running and you just need to get on the train;” Dorine: “hanging each note on the
clothesline;” Monique: “my conveyor belt, a constant flowing line”). More specifically,
Barry used a metaphor taken from nature to help control the voice when the melody line
descended:
A lot of times singers crash, and they get lazy when they descend into a line and the sound will go flat. And what I always say is the metaphor of a bird landing on a small branch. You can’t just crash on the branch, you have to gently land on it without cracking it.

Using various metaphors these singers were able to create a smooth and continuous line throughout the song. These participants were exceptionally adept at using metaphors in imagery for developing and perfecting extensive vocal technique. Imagery used for the purpose of sequencing and memorizing musical elements for performance follows.

Memorizing and planning (cognitive general). The cognitive general (CG) function of imagery use was found in responses and resulted in five sections: (a) learning and memorizing repertoire, (b) sequence in song or aria, (c) program planning, (d) sequence for staging, and (e) strategy for characterization.

Learning and memorizing songs, arias, and roles was a skill vocalists developed and perfected throughout their profession. Six singers described various uses of imagery in the process of learning the rudiments of a song. Gerald explained that he would “mentally sing through with all the correct words, correct rhythm, high notes in place, everything is there, voice tapped in the way I want it to, gestures where they need to be.” Catherine imagined herself “singing through an entire piece vocally and singing everything correctly.” Dorine emphasized kinesthetic feeling when learning new music and said, “if there are passages that are difficult or I’m not doing it correctly, I just keep doing it until the feeling is there.” Ivan also used repetition by mentally singing the song “over and over again until it becomes really clear and then as I start to sing. I trace, in effect, that imagery. I follow it. And I do that for most all my music.” Louis preferred
both physical and mental practice to fully memorize and embody the aria. He said, “sub-vocal or trying to learn literature without really singing it, I find takes a lot more time and practice to adequately prepare.” Mentally rehearsing the song served to reinforce all the elements of the song rendering them automatic in the minds and voices of these singers.

For seven participants, memorization was easier when a song they had to learn was grouped in sequences and patterns. Two singers visualized these musical patterns on the page to help them remember the song. Others used movements to assist them in memory, as Harriet was quoted as saying, “I can imagine myself walking through staging. I can see myself on stage going through staging outside of me actually doing it. I use that to memorize things.” Louis ran through the music very quickly to test whether he could “recall the text right to the forefront of my mind very quickly.” When singers used imagery in sequences to frame their songs, memorization came more easily.

Elements in songs and arias were imagined in ordered sequences in order to give optimal performances, as found in five responses. Josephine thought it was necessary to anticipate “what’s coming up next, and how much energy, and how much vocal power and breath, and all that it requires” in order to properly perform the song. Singers specifically planned out how the song was to be executed. Harriet demonstrated this by saying, “I’ll mark spaces where I’ll give a little less intensity. I’ll give myself a little bit of a break here.” Ivan found it was important to “anticipate what the voice is going to feel like in its optimal conditions related to the sequence of music that I want to sing.” Two singers mentioned sequencing in terms of pacing, especially if the song was long. For these arias, Ophelia found that “there’s a sequence that’s followed [that allowed her] to
go back to previous images or moods or colors [within the song] that . . . draws the
audience in.” In order to keep the song interesting and make it appealing to the listener,
these singers imagined sequential rudiments to deliver a cohesive and interesting aria.

For singers who were involved in giving concerts, one of the most obvious
applications of imagery in sequencing was in planning recital programs. Ten singers
reported mentally preparing these performances and elaborated on the details. In the case
of song cycles, where the composer has provided the connection between each song,
Karen described her treatment of this by saying:

Each piece had its own mood, and so you would do one, and the next one. You
would have to prepare in between. You got in the moment, it was almost like
opera because you went into this next character, and the whole mood and
character, and everything. . . . But that sort of imagery had to happen very quickly
because, of course, you stopped the one piece and then you were in another
characterization for the next one.

In practicing song cycles, Dorine said she “pictured the whole thing from start to finish. .
. . singing each piece through, and then singing in my head and making sure each piece
was correct.” In this case, sequence imagery facilitated memorizing the entire song cycle.

Some recitals required the vocalist to choose the sequence and create some
element to link these songs together in a logical progression. Francine said she had to
“come up with some kind of a story that makes sense in order to sequence through them.”
For Monique, planning her programs was very specifically arranged, as she illustrated:

[Y]ou build your program so that you pace yourself by what you’re singing. . . . I
plan my program so that, especially my solo recitals, that whatever I’m singing
first is really pretty easy to sing so that I can get over my nerves. Then the program builds from there, and the biggest piece being just before the interval [intermission]. And then you come back after the interval. And I always end my recitals with something amusing, something light. So I guess it builds to a certain height and then I go down again.

Connecting one song to another and creating the entire recital to be, as Catherine described, “an organic whole,” took planning and the ability to imagine the effect of whatever element the singer chose.

Sequences in staging involved mentally organizing the physical movements that had to be synchronized precisely with the music. Seven participants reported using imagery for sequencing performance movement. Ophelia explained that “you have to prepare ahead of time, where you’re singing on stage, and prepare your singing ahead of time to get all of those aligned correctly so you get the right effect.” Louis illustrated his imagery of staging when he said, “it will include everything from blocking, to text, to pitch, to my particular vocal approach through to the music.” He was able to include many aspects of his performing experience in imagery. Some singers had to physically practice the staging prior to imagining it. Louis discovered that “because I have a lot of practice on the stage things now, that I can imagine, imagery was good.” Harriet also provided an excellent example of this in the following quote:

I have to see things I physically did for things to physically work in my body before I can imagine myself walking through staging. [Then] I can see myself on stage going through staging outside of me actually doing it. I use that to memorize
things. That and the sequence of the scene... the order of staging for a scene or the opera itself.

These singers connected these sequences with the physical aspect of performing.

Staging sequencing also was connected with the subtext and motivation of the character of song. For example, Francine found that “the moment to moment reality is very much again about ‘Why am I doing this?’ and the subtext, what’s not being said... the motivation... every single moment has to be justified.” For Ivan, staging and memory was very easy:

I rarely have to write my staging in the book because what I do is that when I go through something, immediately, I am replaying it in my head over and over again. The directions, where I was going, why I was going, everything, the music I was going on.

The sequences in movement and music in staging were deeply connected for these singers and further assisted them in memory of both staging and singing the song or aria.

In performing a role in opera, strategies were used to help the singer embody the character. Six singers mentioned motivation and clarifying the underlying reasons for acting out the role. Monique said, “I try to find out who my character is. And therefore my character is the motivation for virtually everything I do in an opera.” There were several ways that singers suggested in order to accomplish this. One was through understanding the strategies of how to feel emotions. Nicholas explained, “once I have music learned, or a role learned, then I will plot out an emotional path through the aria or the role, and think of different emotional directions I would like to take it.” Barry elaborated, “the basic premises for acting is ‘What do I want to achieve?’ or ‘How do I
want to make you feel?’ as the other person. . . . Those are strategies that you experiment with during the rehearsal process.” Eloise eloquently presented reasons subtext was vital for her acting:

   It really does have to be internalized. Like walking for a role. I have to be able to feel the motivation. Why am I doing this walking? Why is this physical thing necessary? What is it expressing? And I have to feel it, and then my body is going to respond. . . . So that it doesn’t interrupt the flow of the story and the emotion. It actually supports it and contributes to it.

For Eloise and many others, using imagery in understanding and working out the strategies for the character was essential in feeling or embodying the essence of the character.

   These examples represented the variety of cognitive uses of imagery provided by the singers’ responses. They included execution of skill, sequencing and strategy and seemed to be an essential element in vocalists’ efforts to achieve their desired objectives in performance. The responses of the motivational functions of vocalists’ imagery is now provided.

   Motivational Reasons

   Motivation reasons for using imagery were three-fold: (a) motivational specific (MS) in goal setting and attainment; (b) motivational general-arousal (MG-A) in regulating arousal, anxiety, and energy; and (c) motivational general-mastery (MG-M) for self-confidence and mastery (Paivio, 1985; Hall et al., 1998). Categories and subcategories of findings in motivational reasons can be found in Table 20.
Table 20

*Vocal Participants’ Motivational Reasons for Imagery Use: Categories and Subcategories*

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<thead>
<tr>
<th>Motivational Reasons</th>
<th>Categories</th>
<th>Subcategories</th>
<th>Number of Participants</th>
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<tr>
<td>Motivational Specific (MS)</td>
<td>Goal Attainment</td>
<td>Long-term</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short-term</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Issues</td>
<td>5</td>
</tr>
<tr>
<td>Motivational General-Arousal (MG-A)</td>
<td>Arousal/ Energy</td>
<td>Calming</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breathing</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Body Concerns</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Focus &amp; Concentration</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparation</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-talk</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Psyching-Up</td>
<td>13</td>
</tr>
<tr>
<td>Motivational General-Mastery (MG-M)</td>
<td>Confidence</td>
<td>Self-Efficacy</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Successful Images</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-talk</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mastery</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixing Problems</td>
<td>7</td>
</tr>
</tbody>
</table>
Goal attainment (motivational specific). The motivational specific (MS) imagery reasons included identifying goals in order to inspire the singer to continue to strive to achieve ideals or specific roles. This purpose for using imagery in participants’ responses resulted in three categories: (a) long-term, (b) short-term, and (c) other issues regarding motivation in goal imagery. The discussion of imagery content goals of outcome, performance, and process has previously been provided. Further concerns involved distinguishing goal imagery from daydreaming and relative value and success of goal attainment.

Differences arose between long-term and short-term goals for many participants. Thirteen singers had long-term goals, mostly replicating those already described in outcome goals, which inspired them to improve. Louis entertained a general long-term outline of goals to motivate him in his future plans:

I do tend to try to goal-set for myself, and tell myself where I would like to be. . . .

If I have a five or a ten year accomplishment that I would like, I do make a note of that goal and I do recognize that that’s something that I want to achieve. . . .

Eleven singers imagined attaining their desired roles in succession and relied more on a step-by-step process, as in achieving a given series of short-term goals. Ivan would break down the long-term goals and asked himself, “How did I arrive at this goal? That’s what I did, okay. How did I arrive at that place? . . . just kind of come like that in reverse order for me.”

In contrast, several participants had concerns about the usefulness and benefit in imagining short-term goals to help inspire them. Harriet stated, “the minutia is not something that I ever imagine. I don’t imagine me in rehearsals or coaching a certain
role. Actually, I sort of skip over all of that in my imagery.” Similar to this sentiment, Catherine said, “all the steps between my one-year goal and that are ridiculously unimaginable for me.” Eloise also became frustrated with short-term goals, and said, “I found it more discouraging to see my projected timeline get interrupted by things beyond my control.” Therefore these singers preferred a broader approach to goals in imagery.

Other issues and concerns with imagery emerged in goals changing over the years, and how goals were affected by parenting children. Eloise and other participants experienced marked changes in their work in goal attainment imagery as they progressed in their careers and became more accomplished. In describing her experience of finally being invited to join a renowned professional singing organization after years of auditioning for them, Monique said:

I came back and sang for them, didn’t care anymore, got straight in . . . because I didn’t care so much anymore. . . . But it was a wonderful feeling, getting into the [company] that I’d so desperately wanted to be in. But once I went to the first rehearsal, I thought, as I listened to them, I thought, ‘I’ve moved beyond this.’

Francine agreed, “goals change as you start to become aware.” The decision to raise children was a major consideration in how two singers allowed themselves to imagine achieving their goals. Ivan felt, “It’s difficult as a father and a husband, because you have to consider your kids, you affect your kids as well.” Josephine, who also had children, wanted to progress in her career, but had “made the choice not to be away from them for six weeks or eight.” As a result she was satisfied with regional engagements. Both singers had to make adjustments in their careers goals and consequently in their imagery.
Concerning goal imagery, some of the participants also commented on the distinction between goal imagery and daydreaming, the effectiveness of imagery, and the benefits of refining and increasing goal imagery. In describing his experience of imagining a specific goal, Ivan said, “It’s not so much a wishful sense of ‘Oh, I wish this might happen.’ But, I allow myself to completely feel it as if it’s real.” In analyzing her use of imagery to secure a particular role which she finally won after years of effort, Monique came to realize that “imagining it is like this expression: ‘See it, be it.’ You see yourself in it. And I think I was longing to be in it, but not seeing myself in it.” Monica distinguished that goal attainment involved specificity in imagery; longing for something begets continuing the feeling of longing, while seeing and embodying the goal help manifest that image. These singers varied as to their efforts and applications in goal imagery, but generally felt that the more clearly the goals were imagined, the better their chances were of experiencing that image.

Several singers elaborated on the successes they had experienced with clearly and elaborately imagining goal outcomes functioning motivationally. Francine secured several of her roles using this method, wherein she said, “they offered me a contract in the audition, because I had already gone through the whole process in my brain of having already performed it.” Francine’s imagery was as though she was actually acting in that role, convincing herself it was a present reality. Likewise Harriet gave an account of achieving two different roles. She stated, “maybe a year ago I said . . . I wanted to be singing Traviata and Lucia. And I imagined myself in that role, and I can imagine myself on stage, and I had it.” As a result of his years of success with goal imagery, Barry suggested:
[T]he more specific you can be, the more, I use the word, visualization, the more you can visualize what the actual end product is, and articulate it, write it down, say it, get really it out of your body on to something concrete, a piece of paper, then, it becomes, it materializes itself much more easily.

For these vocalists, goal imagery was a vital part of their motivation and their professional success. As a result of these accomplishments, they increased their goal imagery, however it was not clear how they initially began and developed this.

This desire to engage in more goal imagery emerged in three of the singers. In considering using imagery to achieve his goal to sing at the MET, Nicholas said, “I’ve used that a little bit to imagine myself singing there. . . . I haven’t really gotten into any detail into it yet, although it could possibly be helpful. It’s more of generalized idea at this point.” When asked if she imagined achieving her goals, Catherine replied, “I don’t think I’ve ever actually done it, but it sounds like a good idea, to imagine myself in the position I want to be in.” Some singers who shared less experience with imagery in achieving their goals did not feel as strongly about using goal imagery as a tool of motivation.

All these singers used goal imagery to motivate themselves in their profession but valued goal work differently. Those who spent a great deal of time engaged in imagining their desired results did so because they were convinced of its effectiveness. Others imagined with much less intent and hope for results. In any case, goal imagery was used as a tool to help these singers move towards optimal performance.

_Arousal and energy (motivational general-arousal)._ Motivational general-arousal (MG-A) imagery comprised the second reason or purpose for which vocal professionals
used imagery. Singers’ responses describing this imagery function resulted in the sole category of efforts to calm anxiety or tension and energy for psyching up, for which the same images could achieve optimal arousal levels for performance.

Imagery methods to regulate arousal and energy to maintain appropriate levels for singing revealed seven subcategories, which were (a) calming efforts, (b) managing the breath, (c) coping with body concerns, (d) focus and concentration, (e) preparation, (f) self-talk, and (g) psyching-up. The ability for a singer to calm anxiety and arousal levels and control nerves was regarded as essential in performing excellence. All participants described using imagery for calming, which they practiced most particularly before and during performance and valued highly in performance.

Managing breathing was considered a vital element in calming nerves and anxiety. High arousal levels often severely diminished a singers’ ability to breath. In describing how her breath was affected during times of intense performance anxiety, Monique said, “it’s very hurtful, and it affects my breathing badly.” One of the primary methods fourteen of these singers suggested to achieve calmness was gaining proper breath control. Nine singers used their breath to specifically calm down (e.g., Harriet: “a lot of stress and anxiety and things like that can be harnessed when you just get a hold of your breath”). Several mentioned the physiological benefits of slow, relaxed breathing. Nicholas said, “I’m breathing slowly and I’ve found that that helps control or helps me control my adrenalin and my heart rate a little bit.” Three singers were reluctant to attribute the calming effects of breathing to imagery. For example, Gerald stated that “using and moving the air through my body to calm down. I’m not sure if that’s as much an image as a natural phenomenon.” Imagery might have been instrumental in causing
the physical body to breathe in a way that calms nerves, especially when that was the performer’s intention. Learning to control breathing was possibly a result of extensive practice to make this skill automatic and fully accessible to the professional vocalist. Adding to the benefits of good breathing, Ophelia said, “If I can’t breathe fully then I don’t feel like the performance would be as satisfactory for me, or the audience.”

Singers also shared their use of imagery in dealing with physiological concerns and the effects of nervousness. Over the years, six participants discovered ways to use their nerves for improving their performances. Eloise reframed her experience of anxiety and said, “It’s not so much nerves as adrenalin.” Changing the way a singer regarded nerves seemed to facilitate calmer feelings during performances. Ivan said, “[I] stopped resisting against the nerves and started embracing them. . . . and just understand that this is something my body did for whatever reason and I didn’t view it as a negative.” Two singers identified specific bodily reactions to stress they eventually accepted and found ways to cope with it. Eloise would locate the area of tension in her body and feel it relax. She said, “imagine a fist, and that’s the tension, and – tension is not bad. It’s just in the fist, so that the hand is open and the energy can flow.” Physical manifestations of nervousness and stage fright were often alleviated or resolved by mentally imagining their solutions.

Contending with the debilitating effects of performance anxiety was sometimes overwhelming especially considering the enormous stress singers had to endure. Karen illustrated this clearly in the following quote:

[I]magery saved my life in stage fright. . . . this particular season, and I think it was coupled with getting my graduate degree, and I actually had a baby that I was
nursing at the same time, and I think I did have a little bit of pressure on me. I
think the combination of all that probably entered into it. . . . I decided that I
would use the imagery to back down the anxiety. . . . it was just a matter of
visualizing the worst and how I could pull it off. And it was just that exit door that
I never had to use.

Often performers were able to regulate arousal when they could identify specific mental
thoughts and feelings that cause fear and those that calmed them.

Maintaining focus and concentration was another method of imagery used by 13
singers to feel the ideal levels of arousal during performance. Specifically, eight singers
mentioned focusing on the task at hand. Some developed skills to deal with their thoughts
wondering during singing by practicing concentration exercises. Staying positive and not
entertaining any negative thoughts was a solution for four singers. Josephine suggested:

[I]f you feel nervous about a performance. . . . focus only on the image of the
music, to focus only on the picture of the music of what you’re singing, not to
allow other thoughts to come into your head. . . . and shut down all the thoughts
that are negative while you’re performing.

Anna and Eloise felt that thoughts of connecting with the audience helped her to more
completely focus on her performance. Eloise described her experience in the following
excerpt:

I picture the audience and try to imagine what they’re hoping for. And when I
remember that they came for something good and to feel good, and that they’re
not there to pick me apart, then I calm down, because then I feel like they’re on
my team.
Concentrating and focusing were best practiced in rehearsal so controlling mental thoughts could be easily achieved on stage.

Obviously, a singer prepared by learning all the aspects of executing songs, however, they also used imagery to visualize the perfect performance, mentally plan its execution, and imagine technical excellence. Ten singers cited the importance of sufficiently preparing roles and arias prior to performing to alleviate performance anxiety. Louis’ response clearly exemplified this when he said, “I think I am more calm because of my advanced preparation, mentally.” Five singers expressed the importance of visualizing the perfect performance to calm their nerves. Ivan illustrated the difference in preparedness between roles he knew and ones he did not by saying:

If I am not able to visualize clearly what I want, then what happens is that inevitably my nerves will increase a little bit. I’ll feel a little unsettled. New roles are this way for me. . . . If, for pieces that I repeat and I know, I just know to the point that I can just hear it, I can feel it, feel myself singing it, see every production detail and staging, then the level of stress decreases greatly.

Six singers felt more secure when they mentally planned the details of a performance. For example, Karen declared, “I don’t like surprises, so I pretty much have in my mind everything that I’m going to do.” Imagining as many details as possible in the entire performance calmed performers minds and allowed them to concentrate on executing the song.

Similar to athletic competitors, 10 vocalists used self-talk in calming nerves and adjusting their anxiety, or motivational drive. Four singers used self-talk in alleviating self-doubt. For example, just before stepping on stage, Monique heard:
a little Satan inside me. As I’m breathing for the next line, saying, ‘You’re going to forget this line.’ . . . And as the curtain opened, this devil in me said, ‘Oh, what’s your first line?’ And at least I had time to say, ‘Go away, just relax. This line will come.’ And it did.

Louis recognized his anxiety and would mentally respond with self-talk when he said, “I picture myself on stage, I picture myself nervous, I picture myself ready to give the performance. But then I follow through and say that even though I am nervous or apprehensive, I will perform well anyway.” Other singers repeated phrases to strengthen their motivation, such as Eloise who continually said to herself, “adrenalin is fantastic energy, it’s flowing through you, you’re a lion, and you’re about to go on stage and possess the stage and own it.” Similarly, Barry said, “if I’m nervous because I’m not at 100% and I’ll close my eyes and say a mantra, if you will, that allows me to relieve some of the stress.” Self-talk was another form of imagery these singers used to successfully calm them when they experienced different forms of performance anxiety.

With regard to imagery use in calming arousal, the other elements emerging from the interviews involved grounding, meditation, thoughts of family, flow, and balancing energy. Anna said, “I’ll try to imagine my feet growing into the ground” to relax and stabilize her nerves. Two performers practiced meditation and one entertained warm thoughts of family for feeling peaceful and ready to go on stage. Another two singers imagined being in a flow with the audience (e.g., Anna, “that flow that comes through me and back out to them, and that infinity thing”). These performers strove to achieve the proper balance between high and low energy. Eloise explained:
If I’m too hyper, again, if I just think about that flow, for some reason that’s a balancing thing. It kind of works in both directions. If it’s frenetic or if it’s stopped up, if I just kind of let it, keep it flowing steadily, then it either calms down what’s too hyper or it energizes what’s comatose.

Singers seemed to find their individual balance for optimal performance, which usually required calming.

At certain times performers needed to increase their energy and psyche-up as 13 participants reported. Eloise illustrated the need for feeling more motivation and her remedy in the following quote. She stated:

When I have to perform and I feel kind of low energy or maybe even down emotionally . . . you get it flowing and to free up any negative feelings so that they’ll go away, because you just can’t perform with negativity. . . . [It] is like waterfalls or rivers flowing, and it’s just this cleaning, this clean flow.

To psyche up, Anna thought about the efforts the audience expended to attend the theatre. Two singers were motivated by the privilege they felt by being able to sing. Francine would tell herself, “I get to do this, this is a treat, this is a privilege. Many people work their entire lives to be able to do this.” Eloise would say, “This is what I love to do. I get to do what I love to do, which makes me happy.” Gerald created the metaphor of “the energy of a volcano eruption” to feel more energy for performing. Conversely, three participants did not think they used imagery to psyche up, using primarily physical activity to achieve this. As an example, Louis declared:
I don’t think that’s an imagery or visualization issue. I think that’s just a physical issue. You just have to get to the practice room when you need to, whether you want to or not. You just do it.

For these singers, psyching up was gained by dedication or rigorous physical activity.

Using imagery to control nerves, relax, and calm down were more critical than employing those to increase energy to perform on stage. This may have been a distinct difference from how arousal and energy were regarded in the more physical activities involved in sport and dance. It is also possible that too much energy especially aggressive energy could have adversely affected the intricacies of vocal performance for these singers.

*Self-confidence and mastery (motivational general-mastery).* The self-confidence and mastery imagery category included managing difficulties, staying positive, and mastering situations. All participants reported using images of confidence and mastery, resulting in five subcategories, (a) self-efficacy feelings, (b) successful image, (c) self-talk, (d) mastery, and (e) fixing problems.

Imagery to gain and maintain confidence was important to all participants and was separated between images of self-efficacy (eight singers) and imagining successful outcomes (nine singers). Confident images of self-efficacy were primarily feelings of being strong and self-assured. Several mentioned such images as getting “a diva attitude, like I just know I look good on stage” (Eloise). Josephine preferred to use the modeling method, and suggested, “imagine yourself as [being someone] . . . you really look up to. Who do you see as very successful and a very good performer?” This helped her embody the appearance and feelings of the self-efficacy and confidence she wanted to portray on
stage. Other singers combined confident images with successfully imagining a performance. For example, Karen offered, “I certainly imagine myself as a winner. I imagine what I could do to make the performance better, I guess, or to make it really, really good.” Other singers such as Anna believed “If I could imagine through the whole thing without singing, I felt more secure.” Realizing the importance of directing her own imagery, Francine reflected:

I think that goes back to definitely imagining a successful outcome as opposed to an unsuccessful outcome. And that’s a hard thing to do because I’ve become more and more aware how we do subconsciously project to people our own insecurities. And if we’re not keeping that stuff in check, you really can convey all of your fears as opposed to all of your confidences.

Many singers recognized the value in making sure their imagery and thoughts of future performances reflected excellence.

Another motivational method of achieving confidence and mastery in singers was self-talk. Nine singers’ responses revealed the use of self-talk in performing songs and general feelings of confidence. Three singers reported using self-talk to execute songs successfully. Gerald would mentally say, “This is going to be fine, this is going. I’m going to be successful. I’m going to sing everything correctly. I’m going to remember my words, and it’s going to be great.” In singing challenging passages, Monique said:

[W]hen there’s something very difficult coming up, a very high note or difficult passagio note, or something like that, I would say, ‘I can do all things through Christ.’ Or I would cut out the Christ part and say ‘I can do all things,’ so that I
saw that immediately just before I was going to sing it and it just sort of girded my loins.

Self-talk, religiously oriented or otherwise, was used to secure notes that were potentially troublesome for this singer, which also strengthen feelings of self-efficacy in mastering its execution. Self-talk was also used by six singers to instill general feelings of confidence. Examples of these included such repetitive affirmations such as, “you are a wonderful singer. You are a beautiful” (Anna). Just before stepping on stage to perform, Monique declared to herself, “I AM the Queen!” This helped strengthen her self-confidence and facilitated performance excellence.

Related to confidence were feelings of mastery in singing performance, especially when singing was exceptionally challenging or when problems appeared or persisted. Five singers described using motivational imagery for mastery in more general terms. Nicholas stated, “I use imagery to . . . master the elements that are within my control, the ones that I have responsibility for.” Karen expanded this idea by saying:

Being focused, thinking through what I’m going to do and how I’m going to do it, and all from knowing that I can do it. ‘All right, I have done it. I’m capable of doing it,’ and the only reason I won’t do it is that I do myself in. So, in order not to do myself in, then I know I have to be right on top of my game.

Feeling completely competent and clearly practicing the performance helped her to translate these images to the stage.

Seven singers used mastery images specifically to prepare for difficulties or to fix problems that arose while performing. Mastery imagery for dealing with difficulties included vocal execution, managing change, and prior preparation. In classical singing, it
was common for singers to switch from one voice type to another during the course of their career due to physiological changes. Executing higher or lower notes than what the singer was accustomed to could present problems, as Ivan illustrated:

I had switched from baritone to tenor. . . anything that any note above the staff freaked me out. . . . I started really visualizing specifically being more confident and approaching it with confidence and not being so either apologetic, or fearful, or concerned about it. So as I approached those notes . . . then I was visualizing specifically just the confidence of the sound. . . [in] my approach to those pitches. Ivan used imagery to remedy this particular problem and was able to gain mastery.

Singers often had to revise methods of executing the song and craft more appropriate ways, as Anna related, “it’s easier to go, ‘Okay. I know that I have that issue,’ and to work through it. It’s almost like a re-knitting of the fabric in your head.” Part of mastering the voice was recognizing when a technique was no longer appropriate. Anna realized this and used imagery to re-pattern her skills for the next performance.

Similarly, Louis felt that preparation was vital in mastery and said:

Just the pure advanced repetition of going through the event mentally. I find that in the moment of performance, if one has not anticipated that moment properly, it’s very challenging to calm the situation, or to get a mental grasp over what you’re going through. That work has to be done before you arrive there. At the moment of performance, it’s almost too late, for me anyway.

Imagery used for mastery assisted these singers in building strong beliefs and self-efficacy that they were capable and prepared for the task of singing and overcoming any difficulty that arose in the process.
Artistic Reasons

The category of artistic reasons was borrowed from the four Ws framework of Nordin and Cumming (2005) in dance imagery research and was found to be appropriate in reporting vocalists’ interview responses. Artistic reasons for using imagery in optimal performance in this study emerged slightly differently than those of dance. For these singers, preparing to perform a song or role was considered primarily artistic when their imagery extended beyond the technical or cognitive and motivational functions. These resulted in four imagery categories: (a) vocal quality, (b) appearance, (c) character development, (d) flow, and (e) communication with the audience. Artistic reasons for singers to use imagery, the categories, details, and frequency of responses are presented in Table 21.

Vocal quality. Achieving optimum vocal quality was one of the primary artistic reasons vocalists used imagery. All singers mentioned imagery of some ideal quality of how they wanted their sound to be heard. Imagery in singers’ vocal quality resulted in four sections: (a) color, (b) modeling, (c) ideal sound, and (d) sound characteristics. Eleven singers in this study reported experiencing vocal quality combining the two senses of seeing visual colors and hearing tones and phrases. These had been divided into two contexts, visual color and color as timbre or emotion of different vocal sounds. Two responders spoke primarily of the visual aspect of color as it relates to tones. In striving to produce the most accurate pitch, Anna reported that for her “different notes have different colors and different phrases have different colors, reds or greens or blues.”
Table 21

_Vocal Participants’ Artistic Reasons for Imagery Use Categories_

<table>
<thead>
<tr>
<th>Artistic Reasons</th>
<th>Categories</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal Quality</td>
<td>Color</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Modeling</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Ideal Sound</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Sound Characteristics</td>
<td>6</td>
</tr>
<tr>
<td>Appearance</td>
<td>Look On Stage</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Posture</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Fitness</td>
<td>10</td>
</tr>
<tr>
<td>Character Development</td>
<td>Modeling</td>
<td>14</td>
</tr>
<tr>
<td>Preparation</td>
<td>History &amp; Culture</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Appearance</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Past Experiences</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Metaphors</td>
<td>2</td>
</tr>
<tr>
<td>Character Development</td>
<td>Being in Character</td>
<td>15</td>
</tr>
<tr>
<td>Staging</td>
<td>Emotion</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Kinesthetic</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Sound</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Zone</td>
<td>4</td>
</tr>
<tr>
<td>Communication with</td>
<td>Ideas &amp; Emotions</td>
<td>5</td>
</tr>
<tr>
<td>Audience</td>
<td>Intimate Feelings</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Flowing Energy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Spiritual Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>
Eloise described her experience of vocal quality in color imagery when she said, “you’ve got your chest voice or your low voice is red, and your high voice is yellow, and they need to mix, so you have all these different beautiful oranges constantly going on.” The image of yellow or gold in the higher tones was also found in responses from Ivan, whose quote was included in the previous section on sense imagery. These singers used visual color imagery to execute the precise vocal quality and tone in the musical context. Six participants related color in terms of timbre and the emotional aspects of expressing a song as in Dorine’s experience:

I do use imagery in terms of color, relating color or images to tone. Some songs require different timbre than other songs, or a different quality to the voice than other songs, for example with songs that are more melancholy or more sultry or more passionate or more sad, I’ll envision things like velvet or chocolate or something rich.

Descriptive terms combining sound and color have often been used in vocal pedagogy to moderate vocal quality in achieving artistic variety in singing.

Modeling the sound of other more experienced singers was a tool 11 singers said they used to improve their own sound quality. Several vocalists recalled the sounds of specific singers that inspired them. For example, Barry said:

[I]f I hear something that totally inspires me to question my technique. . . I actually try and imagine what their tongue is doing or what their body is doing, or what the sound that they created and try and recreate that in my own practices.

Anna would imagine replicating the kinesthetic production of an ideal singer’s sound, as described in the following quote:
I can listen to Joan Sutherland and I feel where the vibration is. I’m not even honestly sure if the vibration really is occurring or we’re just doing imagery for it, but you have the points on your head where you feel that buzz, and so when I listen to people, I put that into my body.

Catherine struggled with modeling because she used the mental image of a singer’s voice that was inappropriate in that it did not match her own instrument. She said, “I have other people’s voices in my head. I have Jessye Norman’s sound in my head [but] nope, you have a Barbara Bonney sound, and make sure that you don’t try to sing like Tosca.” Ophelia recalled, “I’ve run into a lot of problems by trying to copy others.” These singers may have tried to replicate the vocal quality of expert singers with extensive experience and characteristics differing from the natural abilities of their own voice. Four singers mentioned that modeling was something they did more when they were younger, but as they became more secure and found their own voice, the need for modeling diminished.

Nine of these singers retained an ideal image in their mind of a sound quality they aimed to recreate in their own voices. Three participants spoke of invoking a wide variety of human vocal capabilities in their singing, as reflected by Josephine who said, “the human voice mimics so many different sounds and has such capacity to do so.” Eloise described an array of sounds that mimicked all the families of the orchestra that she imagined emanating from various parts of her body. Several singers felt their sound quality was directly linked to its mental origins. Ophelia endeavored to create “an image of what you want to come out, how you want it to sound.” Barry’s vocal efforts were determined or modified more by internal choices than by applying mechanical efforts, as he aptly illustrated:
[You] don’t do a sound, you do the image. . . . You let your mind go to somewhere, you don’t actually affect the sound directly. There’s something else in the sound that comes off natural as consequences to that thought.

It is possible that Barry had many of the techniques solidly incorporated in his singing and now concentrated on executing specific vocal qualities. Singers used their imagery to affect and change the quality of their vocal sounds in a variety of ways.

Other artistic reasons singers mentioned in their imagery concerned characteristics of sound and maintaining or changing individual vocal qualities, as reported in nine responses. Six singers offered illustrations of imagery to achieve greater depth and richness in their sound. However, Monique felt that a singer’s individual vocal quality was meant to be consistent. Gerald concurred, “I usually don’t think of the sound changing from aria to aria. The sound is always the same.” For many singers, vocal development involved finding your individual sound, which some considered as unique as your thumbprint.

Notwithstanding, three singers had to cope with changes in their vocal quality as a result of getting older. Josephine said, “I started out with a very light, sweet sound. And it’s grown as I’ve grown older. And it’s become warmer and richer. And I’ve had to try to figure out how to manage change in my sound.” Not only did the sound quality change for Nicholas as he matured, but he had to change his vocal quality for certain songs. He recalled, “I’ve got to rework it just a little bit, so I’m looking for a little more focus and ring in the upper part of my voice.” Monique shifted her voice quality as needed for the production. She felt, “it depends on what I’m singing. . . .I have a flexible voice and I can sing straight or I can sing curly, as I call it, depending on what the
conductor wants, I will do it.” There seems to be certain qualities of the voice that are maintained, others that can be consciously altered, and some that change with age.

Imagery maintained a primary role in the intentions of these singers to manipulate vocal quality, which may be a consequence of extensive, highly technical experience in singing, as many of these participants had.

Appearance. All the participants used imagery to change and improve their appearance, which is hardly surprising given that vocal professionals usually give live performances on a stage where they are fully visible to the audience. Results from this category revealed three subcategories of (a) look on stage, (b) posture, and (c) fitness concerns.

Look on stage comprised how the vocalist imagined the audience viewed him or her in performance and was cited in all of the responders. This involved the need for a feedback mechanism, level of imagery detail, and preferred perspective. In order for singers to know how they appeared on stage, some sort of feedback system was required, such as a teacher, coach, director, mirror, or video. Anna illustrated this by saying:

[S]ometimes I’ll look in the mirror to see what I’m doing right then, and then to create what I want it to look like in my head instead. . . . But, if there’s a focus too much on the external, you will look contrived. . . . or you need to get the feedback from the director, or you need somebody to be your eyes.

When other people are not available to give feedback, singers had to rely on experience, a mirror, or video. Ophelia, one of the younger participants, said, “the only way you get good at this is practice because how you mean to portray yourself may not be how you’re actually perceived.” In order for some performers to better imagine how the audience
viewed them, several participants specifically mentioned using external visual imagery perspective to gain information on their appearance. Harriet stated, “I can see myself, I guess from the audience perspective. I’ll imagine certain gestures and things like that. And I’ll decide what reads better to the audience versus others.” Aligning the ideal appearance in imagery with the actual look on stage was the goal for singers who wanted to portray themselves in a certain way.

Singers imagined their posture in how they appeared to hold their body, the position of their head, shoulders, chest, and arms, as 10 of these singers mentioned. These participants described being inspired by images of metaphors, stereotypical people, and elements from special training to achieve their optimal posture. In learning to hold her body erect but relaxed in singing, Dorine explained, “my teacher used to say, ‘Pretend you’re on a pole, a posto, the Italians say, that your body is on a pole, it should act straight.’” Using a different metaphor, Dorine imagined “a string coming out of the top of my head helping me stand up straight” to imagine her posture more aligned.

Some singers imagined themselves resembling people with excellent posture. Karen imagined “always looking refined. . . . and it would include head up and confident, and more in the kind of regal category,” when she performed. Likewise, Monique envisioned, “’I AM the Queen!’ Now you cannot say that sentence without holding your head up high, throwing your chest out.” This worked particularly well when she sang concert and oratorio performances. As a boy, Ivan’s grandmother encouraged him to stand proudly. She told him, “You have to stand like a bullfighter in the ring,” which was an enduring image for him even to the present. Even using the image of a stereotypical person helped these singers stand in the way they felt best for proper vocal production
and appearance on stage. Posture was learned in the early stages of life and if developed incorrectly, singers benefited from retraining to stand properly. One singer found great assistance in this type of training. Ophelia shared, “I think the most helpful imagery that a coach gave me recently had to do with alignment of the body. . . in that you need optimum posture.” Part of achieving excellent posture for these singers was in staying physically fit.

Fitness for 10 of these singing professionals was an important element in stage presentation. Monique recognized this and said, “Singing is an extremely athletic pursuit, because you’re using your stomach, and your back, and your breathing mechanism, and you can’t have tension in your neck or your jaw.” Several of these responses reflected their opinion that this was more a physical matter of just exercising than an imagery issue. Catherine illustrated, “I’d like to lose some girth, but I go exercise. . . . I don’t sit around and say, ‘I wish I looked better.’ I either make myself look better, or don’t worry about it.” Others recognized that imagery could be used to shape how they appeared on stage. Harriet mentally maintained her ideal body image:

If I’m not feeling 100% in shape, or feel like I need to loose five or ten vanity pounds here or there, I will imagine myself in the physical condition that I want to be in order to get back in shape next role. . . that’s my of sort of staying in shape or preparing that way physically for a role. I’ll use that . . . to manifest how I work out and what I need to do in order to get to that. I use it as my building block to get back in shape physically.
Harriet used imagery to help her identify what kind of body she wanted personally and for performances. This imagery also inspired her to achieve it through exercise and healthy habits.

Singers used appearance imagery to project and maintain an ideal look for stage presentations. Vocalist’s appearance, attitudes and gestures, posture, fitness, and body image all comprise the elements of how an audience perceives him or her while performing. This next section encompasses singers’ use of imagery in developing the character for performance.

**Character development.** All of the vocal participants mentioned character development as a significant component of their imagery to achieve optimal performance. Character development was often a process that extended from the early stages of learning the role past the last performance, especially when singers repeated their roles throughout their career. For this reason, character development was divided between character preparation and character staging. Character preparation represented gathering the components for embodying the role or qualities of a song to be performed. Character staging involved elements of the actual performance of a role.

All singers reported using imagery in various aspects of character preparation. Singers had to prepare the character or artistic quality of their repertoire whether it was an entire role in an opera or a single song presentation. Responses for preparing the character revealed five sub-categories: (a) modeling, (b) appearance, (c) history and culture, (d) past experiences, and (e) metaphors.

For 14 singers, the use of modeling, or observing exemplary performers who had successfully performed their roles, facilitated character development and preparation.
Modeling use for these participants ranged from catching glimpses “as inspiration” (Harriet) to pretending to be that model performer entirely (e.g., Anna: “when you’re up there, you actually picture that you’re that person. . . . you actually embody that person”). Ophelia also reported, “I’m guilty of watching a movie and liking a character and identifying with that character and then having it rubbing off on me. Then I’m acting like that actor or something in certain situations.” She and others cautioned that modeling use should be limited. Eloise was inspired by another professional’s presentation and “kind of tried to feel it and internalize it in myself, and then make it my own.” Francine also illustrated this by saying, “I think of the things that they did successfully and I try and use them. . . [This] helped me learn and understand stylistically, how to approach things, and understand what the result is that people are looking for.” Modeling also served singers in eliciting images and intentions often used by performers of greater experience, as Louis explained, “I don’t try to mimic that but I certainly respect the artistry and the performance involvement that they create. I then try to create something that is just as that significant in my own singing.” Since singing was considered primarily a profession handed down from generation to generation, modeling continued to be a viable imagery method to use in grasping characterization in the vocal repertoire as represented in these singers’ responses.

In the character preparation stage, singers often began by researching the historical and cultural background of the opera or song. This represented a major part of creating a foundation for understanding the character for 14 singers. Anna’s account defined some of the details and reasons she used in imagery of the character, “You do a lot of history work on where . . . the clothing they wore in the 1800s or the 1600s, and
how that affects you as a person. And it all helps create this whole living character.”

Being thorough in her research was key to successful rendering the character according to Dorine, who added, “I have to do the research before I can create the images to go with it.” This practice also helped Eloise “to imagine myself there, and in all kinds of different roles . . . what motivated them, and to feel the culture.” Details of the history and culture helped the singer to recreate the character in relation to their environment.

Creating the mental image of the character’s appearance was a natural element and benefit of researching the history and culture. For 12 singers, differences regarding stage presentation also arose in relation to the venue in which the singer was performing (e. g., operatic, concert, or audition). These vocalists imagined their characters’ physical appearances with varying degrees of detail and in various settings. After doing preliminary research, Catherine would, in her words:

[I]magine what each character looks like as me, what color hair I have, how long my hair is, what type of makeup I wear, how much makeup I wear, what kind of clothes I have, how I walk, how I stand . . . I imagine myself in the costume.

When Karen performed on the concert stage she had already secured how she wanted to execute this. She described this process:

I have to imagine first what that character would look like . . . I sort of decide who I want to be at that time, how I want to look to the audience. Do I want to be somebody very regal, or what, and a lot of it is the music that I’m doing.

Karen took time to carefully craft the image and appearance appropriate to each character.
Since mezzos often perform as both male and female, Francine had to use imagery to quickly change between the genders during auditions, as she described:

If I’m wearing a dress and I’m singing a boy, I have to make a mental image of that fact that, okay, now I’m a boy. And how does that affect the way that I stand, in the way that my arms express themselves. . . . imagining that I’m wearing a suit, or very specifically, imagining that I am in armor [to sing Caesar] . . .

Whereas, Dorabella, if I’m in a dress, that pretty much helps me do Dorabella. In embodying the character of the song, singers used imagery to recreate the look and external feeling to enhance the presentation. Appearance imagery also depended on the type of performance and whether it was operatic, concert, or an audition.

Eight singers reported using their own past experiences to elicit emotions and feelings in preparing their roles and songs. Gerald used his past experiences to connect with what “the character has experienced or something that would elicit the response that I am trying to get, and reliving that, in other words, I’m trying to capture that feeling.” Dorine concurred, adding that using her own experiences often provided “a much more believable performance for the audience.” When past experiences were not sufficient, singers used those of other people they knew or had seen somewhere. The most important element of employing images of these experiences was the connection with its accompanying emotion and appropriateness to recreating that character.

Only two participants mentioned using metaphors in creating their character. These images were specific to some of the roles these two singers had performed in the past. In performing the role of Mimi in La Boheme, Josephine used “imagery of a wounded animal, a wounded bird, or . . . someone who was wounded, and physically
crippled and disabled” to help her more completely portray this character. Harriet described, “Gilda in Rigoletto . . . as a trapped bird that wants to fly. . . . But then she’s in a cage and her house is the cage that her father keeps her in.” Both of these examples represent simple acting metaphors to help the singer feel the conflicts in the characters.

Ideally, when all the necessary elements of character preparation were incorporated, the performer was ready for staging rehearsals. Character development in staging involves aspects of using imagery to bring the character to life while performing before an audience. The five sub-categories emerging from the interviews were: (a) being in character, (b) emotion, (c) kinesthetic, (d) sound, and (e) being in the zone.

All singers mentioned that they imagined being in character and performing in ways that encompassed all dramatic aspects of human behavior. In trying to make the character more real to him, Nicholas used imagery in, as he said:

[S]etting myself within the text of the plot of the opera and letting the motivation of the character, and getting ideas that the character would be having. . . . picturing myself in the scene, not necessarily in the operatic stage, but trying to imagine if it were real life, how the character would be seeing, and feeling.

Some singers went to great extents to create all the details of the character in their imagination, as Anna illustrated:

You have to go through and do your whole history of that character. So you’ve imagined . . . everything that led up to who they are today. You already have that implanted in your head, and you walk out with all the baggage loaded up on your shoulders, so that you have, it’s almost like arsenal, ready to use at any minute,
based on the kinds of experiences that you’re gonna walk through with this character now from that point on.

Monique’s characterizations centered more on artistic and scenic images:

I think very deeply about each piece I sing. . . . it’s my acting, I try to put myself in the scene of the picture that that song is painting. . . . so [I become] that person, involved in those emotions, the lost love, the whatever. I am that person.

For these singers, imagining being in character included choosing methods that best suited their personal preferences.

All these vocalists mentioned the importance of recreating the emotion to bring the character of a song or role to life, particularly in performance. “You always have to go back to the foundation, which is the emotional, human experience” (Anna). This was also reflected in a quote by Barry, who said, “your goal as an artist is to live the moment and . . . the emotion of your character.” Dorine considered emotion to be critical to performance because “You can’t convey that to an audience unless I think you’ve felt that emotion.” The inner motivation of a character was depicted in how the performer recreated the emotions. According to Nicholas, emotions changed throughout the aria or the entire opera and this helped him more effectively deliver the proper intent to the audience. He stated, “I think of the emotional changes as I’m maneuvering around the emotional pathway of the character. The bigger and stronger I can hit each emotional change the more effective I think it’s going to be.” Emotional imagery in recreating a role was considered critical to performance and communicating with the audience.

Furthermore, all the participants recognized the natural connection between emotion and singing, not just in character development in roles for opera. As Josephine put it, “It’s
hard to separate emotion and singing because . . . singing is emotion . . . . set to words and music. . . . it’s just organized emotion.” These singers felt emotional imagery was inseparable from proper delivery of every song.

Although emotion certainly was considered vital in creating the proper mood, nine singers had specific words of caution in applying excessive feeling in performance. Many singers recalled specific experiences that taught them to be careful not to pour too much passion into their performances. In a recent audition that he described, Barry said he “allowed it to get too emotional, i.e., [sic] cross the line. You can cross the line where, especially vocal technique-wise, you get verklempt. If you get verklempt as a singer, you’re dead in the water.” Francine had to adjust her emotions so she could technically execute certain songs. She stated, “if your emotions get in the way, you won’t be successful at it. So I had to learn how to adapt it and make it still functional but not allow it to overwhelm me.” In illustrating the importance of balancing emotions in singing performance, Francine said:

I’ll often compare myself with a figure skater. A figure skater has to constantly be reminding themselves [sic], technically, of what their body needs to be doing in order to accomplish that triple axel, because if they don’t do that, they will fall and kill themselves.

Monique recognized the dangers of being overcome with emotion in singing and said:

[Y]ou mustn’t be the emotion, because it will tear your voice apart, but you must be a spectator of the emotion. Stand aside because if someone is crying out in agony, if you did that you would loose your voice. . . . Where you cry is where you sing from.
The singers with more experience were able to find the proper balance between expressing the emotion of the song and maintain technical excellence.

Along with emotion, eight singers connected this to a bodily feeling in order to ground the experience physically in characterizing a song or role. Many of these participants felt the need to feel qualities of the character in their body. In discovering the various aspects of her character, Karen incorporated the kinesthetic feeling when she said:

I guess it’s visual first, then how that visual fits into the auditory part of it, and then just movements, of course, any kind of movements. Would they be slow, would they be fast. If you’re heavy you’re going to be probably slower. I just have to imagine the body, I guess, and the person, too.

Others mentioned the importance of physically staging the character first in order to more completely imagine the characters’ movements. Nicholas shared a recent experience of this when he was performing. He described staging a specific scene:

[In] *A Barber of Seville* . . . there’s a complicated shaving scene that happens very quick and . . . I practiced imagery with it, but if I hadn’t done [that] probably the physical timing of it then actually the physical movements were more important than the imagery of that particular thing.

Barry also used movements and behaviors of a specific man he had seen on the street. He said, “I can use that to create my character, and use the body language, the facial expressions, or the way somebody says something” in creating the details of acting out the role. Using imagery to understanding the character kinesthetically assisted these singers to more successfully embody their songs and roles.
Singers had the opportunity to choose from a variety of sound qualities to best represent the individual aria and character. In creating the appropriate sound for a rough character she portrayed, Karen said, “Her voice would have to project her body. The body was easy enough to pad, but her voice would have to project that body and the crudeness, and so forth. I had to just really feel the heaviness.” This practice did not always display the best qualities of her singing voice but was necessary to better depict that particular character, as Karen further explained:

[In] these wonderful roles in opera, you’re being judged on just how wonderful you are in singing. But really, in many cases, you should be in kind of a character on that. It wouldn’t necessarily be the most refined singing that you would do if the character was [sic] not that type.

Anna concurred, by saying, “you want a character to come through.” Sound imagery was used to portray the specific qualities required in each character.

Although the experience of being in the zone or the feeling of flow in performance only appeared in a four singers’ responses even though it was not included as a separate question in the interview guide. Flow is worthy of including here since it is part of what would be considered an optimal performing experience. For these singers, being in the zone did not emerge as a reason or separate purpose as it had for athletes (Munroe et al., 2000) but as an experience that culminated after all separate components of singing the character were incorporated. These were specific times when a singer performed a song, all the effort faded away and the present experience became all encompassing, involving different kinds of imagery. Louis experienced this early in his career. He recounted:
I was singing a certain passage that I’d been struggling with maybe in lessons or weeks prior to and it was really working. And I sang several minutes in sort of a groove where I was just singing pretty effortlessly and it was working. She [his teacher] said that she could equate that maybe to a basketball player in the middle of the game that just got into the zone. And the basket looks wide. She said sometimes in your singing, the basket will look wide and you know that it’s working. You can just sort of accomplish things that you might not at other times be able to do.

This example showed that experiencing flow was possible in a small span of time after working on a specific skill or technique in a song.

Other singers recounted feeling flow during performances. Nicholas described this and said, “when I’ve really nailed something, in my mind it will make me laugh, it might make me cry a little bit, but I may feel in my whole body.” While acting out her character, Ophelia’s experience of being in the zone was also quite poignant, when she said, “there’s a magical moment on stage where there’s no audience, there’s no performer, there’s just the music. And in order to get there I really think you have to move beyond this whole thing [religious conviction].” Being in the zone to Ophelia was an experience that transcended any religious beliefs and took place when she was clearly singing as that character. Harriet also felt this flow feeling when she fully immersed herself in the character. She recalled, “when I start a performance, my self checks out, just, I get into the zone, and I’m just that character. . . . cause it’s no longer about me, and I’m in my character.” It could have been that all the imagery used to secure techniques, skill, emotion, and the kinesthetic aspects of portraying the character help made these
elements so automatic that the singer could just enjoy being that character. This may be part of what constituted the experience of singers being in the zone or in flow.

Communication with the audience. All but one of the 15 participants shared thoughts of interacting with the audience in their imagery. This emerged as a separate category under artistic reasons. Vocalists used imagery to communicate specific ideas to the audience in four specific areas, which consisted of: (a) communicating ideas and emotions, (b) sharing intimate feelings, (c) flowing energy, and (d) spiritual interaction.

Some images were used in helping the audience to understand the meaning of what was being performed. The effort to share specific elements of the composition with the audience was important to Harriet, who said, “I will take specific moments and especially with text or something that needs to be communicated. . . . I intend for certain things to be conveyed to the audience.” Other singers felt it was important for the audience to understand and appreciate their genuine portrayal of the character. Louis explained, “I’m looking to communicate authenticity. I’m looking for them to experience my sincere thought and connection to the music in a way that expresses reality rather than something that seems contrived or artificial.” Three singers mentioned communicating emotions and feelings to the audience. Dorine felt that, as a singer, one of her best assets was her passion. Barry also felt that a major element in singing was conveying emotion through his singing. He offered, “your goal as an artist is to live the moment and . . . the emotion of your character.” Sharing emotion with an audience was accomplished using imagery in a number of ways. Anna illustrated her particular method:

[W]e’re instilling emotion and feeling into other people, and in doing that, they are getting visual stimulation too, they’re getting imagery. We’re implanting
imagery into them by the way that we’re singing. So we need to start with our
own.

These singers communicated their ideas and emotional feelings with the audience
through the vehicles of their songs.

For some singers, the idea of touching the audience went beyond the physical
tactile sense and represented the image of connecting with the audience. It is included
here because Josephine and Ophelia directly answered the 33\textsuperscript{rd} question in the interview
guide, “To what extent do you use imagery relating to touch?” using this meaning. While
performing, Josephine intended to mentally contact all the members of the audience. She
said she would “use the image of while you’re standing on stage, to touch or reach the
person in the last row.” She felt she could touch the audience with her vocal sound or an
inner feeling or thought. For Ophelia, touching the audience concerned shaping the voice
in a way that deeply impacted the members of the audience. She illustrated:

[I]t’s about the intimacy and using your voice to touch people both in a feeling,
but also physically getting the voice to reach them in a way. . . . You can’t touch
someone just by singing loud all the time. You have to shape things and in order
to do that, how you touch people through the shaping of the phrase.

Ophelia used a combination of sensory imageries to achieve this intimate and multi-
faceted method of communicating with her audience.

Three participants in this study were sensitive to their personal interaction with
the audience. These singers used imagery to share deep feelings of intimacy with the
audience. Dorine felt keenly aware of her vulnerability in performing as a singer when
she stated:
There’s nothing between the audience and the singer. With instrumentalists, it’s like they’re able to be hiding. They can hide behind an instrument. But when I’m on stage, there is nothing. I’m completely exposed. My heart is completely exposed to that audience. And I’m baring my soul to them. My chest is exposed, because, in actuality, there’s nothing between me and them, and so it’s as if my heart’s exposed. They’re seeing my heart. So I need to give to them and to let them feel what I feel, too.

She used her sense of feeling exposed as an opportunity to share her innermost feelings.

Ivan and Josephine had images of good feelings going out into the audience that helped them achieve greater connection with their listeners. Ivan’s image was intimacy that involved healing energy he shared with his audience. He described:

[It’s] a sense of, this gets into a little bit of metaphysical thing, but if sound, in some ways [had] an ability to caress the listener in a way, energetically. And so I would think it is much like healing, that way. . . just peace, calm, invitation to participate. Not going at them, but inviting participation. . . . It’s an invitation for them to come sharing in the embrace. . . . It’s not going out to embrace them but rather just opening arms to let them meet somewhere in the middle.

This endearing image helped Ivan give him the feeling of drawing his audience more deeply into his performance. Josephine’s imagery also helped her share good feelings and a sense of being conveyed to another place together with the audience. She related:

I try to imagine that what I’m doing is giving them so much joy and happiness . . . I do imagine just like a blanket, I guess, a blanket of joy or bliss reaching out over the audience while I’m singing. It’s sort of something, I guess, I feel transported
to a place, to a different place in between. I’m saying I feel transported that’s between me and the audience. And I just don’t feel on the stage, I feel somewhere between me and them.

Dorine, Ivan, and Josephine imagined offering a deep connection and sense of intimacy to the audience.

Three singers imagined a constant flow of positive energy between themselves and their audience. During her performances, Dorine imagined the following:

[T]aking all of the good energy that these people are sending me out of the ground . . . through my feet, and then I’m going to pull it up through my body and give it back to them. So, it’s just a circle of goodness.

Imagining that the audience gave back energy was important to these singers. Anna also envisioned being involved in this constant cycle of flowing energy in stating:

[The] infinity symbol is such a precise visualization for me for what happens between you and the audience . . . because you have to have two whole solid halves interacting with each other. You can’t have a wimpy side. It just won’t flow back. . . . I believe that if I’m more open to the audience and to being with them and the love that goes back and forth. . . . it gets me out of it being about me.

Eloise also was inspired by her metaphorical imagery of continuous cyclical activity with the audience:

I imagine how ocean waves actually roll under against the ocean floor, and that’s why then the water peaks on top. . . . it’s the circular thing that keeps, it’s just rolling. That’s how I see what’s going on between me and the audience. It’s this rolling wave of energy and mutual love, and we all want each other to have a
good time. They’re supporting me, and I’m giving them something in return, or visa-versa. It’s like you can’t even tell where it starts and ends. That’s what I love. I just like that, unspoken conversation. And that’s what makes me want to perform all the time.

During performance, these singers used imagery with this intention of being a part of flowing goodness with the audience, which inspired them to perform better and more meaningfully.

Four participants illustrated their communication to the audience as spiritual sharing. In discussing her motivation for singing, Monique said she imagined herself as:

[A] channel and the energy comes through me and out to the audience. . . . I want to be a blessing. . . . And that’s your purpose as a singer, too, that that audience leaves feeling better than when they came in.

Ivan also felt that the spiritual aspect was a vital ingredient in singing. He said, “what we ultimately get to share is love, and we must be willing to open ourselves to sharing that love, and taking part in love. And the art, as a whole, is an ultimate dimension of spirituality.” Along with this idea, Eloise imagined:

picturing God filling up the space. . . between the audience and the stage and all the space left in the air to the ceiling . . . with love, with a capital L, like an active, conscious, mindful love, that’s alive, and embracing all of us.

Josephine felt a deep spiritual sense of responsibility to her audience:

I really do feel like I’m pastoring [sic] to people when I’m singing. I really do feel a spiritual connection. I feel like a lot of times I feel like a real spiritual leader while I’m singing to people, that I really am feeding their souls with my singing.
And that’s actually one of the biggest parts of what’s gratifying what singing I do right now. . . . And I get that back from them and I feel like I’m giving it to them as well.

To these performers, spiritual interaction as well as responding to their need to provide something very precious was intrinsic to their singing and communication with their audience.

For these singers, interacting with the audience involved the intrinsic reasons why they became performers, the elements they actually imagined communicating to and with the audience, feeling a sense of intimacy with each audience member, imagining a flow of energy with them, and spiritual components. This emerged as a significant and separate theme of why singers use imagery in their singing.

*Healing Reasons*

Healing reasons for using imagery were cited in 13 singers’ interviews. These results included the two main issues of overall health and healing oneself, and more specifically, vocal health. Table 22 shows singer’s healing reasons for imagery use including categories, and number of participants.

*Overall health.* Maintaining optimal health was vital to a singer’s performance, since the body was the exclusive instrument used in vocal singing. Thirteen participants used imagery in relation to their health and self-healing. This category included: (a) simple mental processes in staying positive, (b) body checking systems, and (c) using alternative healing methods to achieve holistic balance. Francine said, “sometimes when you’re fatigued or when it’s just not happening, you need to then rely on imagery.”
Table 22

_Vocal Participants’ Healing Reasons for Imagery Use Categories_

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<tr>
<th>Healing Reasons</th>
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<td>Silent Practice</td>
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Gerald said:

I don’t wait to get sick to heal myself, feeling what my voice feels like when I am healthy, before I even get to that place, telling myself that I’m healthy, so that my body functions at its optimal level.

This also exemplified Gerald’s use of imagery in self-talk and the memory of previous fitness to maintain good health for singing.

There were ten participants who mentioned the use of kinesthetic imagery to check physical conditions and alignment in the body for ideal singing and performing.

Barry employed a method of checking his body for functioning excellence in singing, as he illustrated in the following quote:

[B]y the time you get to the performance level, you go through and identify your sticky parts, the parts of you that are locking up, or physically not operating at a
peak level. So in performance you do have to go back to some of the relaxation techniques.

Singers spent time and effort to make sure their bodies and its various parts were healthy and active in facilitating performance excellence. Ophelia spoke about training in this specific area, and said, “I actually read a book recently and that imagery is focused on, in that you need your posture optimum. . . . It’s called the Egoscue Method.” This was part of a training program her vocal coach had provided in using imagery for good posture.

Similar to relaxation and posture techniques were two alternative healing modalities that appeared in the interviews. Catherine and Ivan mentioned using Reiki, or energy work, and three other singers used **chakrah** balancing techniques, or East Indian healing, to stay healthy, as Ivan illustrated:

> I have used a lot of that when I’ve been sick. I connect to Mother Gaia, clear out the **chakrahs**, directly to the core of the earth. . . . First it’s always the earth for me, and then out, reaching to the center of the universe. Always two points though. Always connecting to the center of something, the center of earth as a grounding cord, and then to the center of what I would image the center of the universe looks like.

These meditation techniques were completely immersed in imagery use and these performers seemed to find value in the results.

**Vocal health.** Seven singers included responses specific to vocal health in their imagery. Three singers used imagery to contend with singing during bouts with illnesses. Four vocalists reported using imagery to practice while their voices rested due to fatigue.
and sickness. Karen and Ivan had to contend with periodic symptoms of colds or allergies and found imagery useful in identifying and implementing ease in breathing and singing.

Several singers also used imagery as an alternative to singing when their voices could not physically sing. Being able to use imagery to practice beyond what the voice could physically sing was a considered an added asset. For example, Louis used imagery in this way and said, “if I am not well or the voice is not healthy, then I’ll use imagery as an alternative to real singing, because the instrument might not be functioning properly so I can’t physically sing.” Anna also used supplement mental practice and expressed:

And the great thing about it is you could do it without ruining your voice, because you can’t sing all day. You just can’t. So you have to be able to keep your mouth shut, and do this work. It’s imperative that you do it, or you’ll wreck your voice. These vocalists considered silent singing a great asset to continuing practice when it was not advisable to vocalize.

Fatigue, or lack of rest, mentioned by several participants, was particularly damaging to vocal quality. After traveling extensively to perform, singers used imagery to increase feelings of health, as Nicholas illustrated:

[G]etting enough rest. That’s usually the biggest determination of whether I feel that my voice is healthy or not. . . . I imagined myself what Sherrill Milnes, a retired baritone [would do] . . . I’m sure he was in situations where he was still tired and had to perform. . . . to his optimal best, in trying to keep my energy about me and do the best I could do. . . . Sometimes you’ve just got to make the most out of what you have and make it through, not push vocally, but endurance-wise it’s more a matter of keeping yourself focused.
Nicholas’ use of modeling imagery inspired him to continue with his performing oversees engagement. Several other singers cautioned against pushing the voice during critical times of stress and illness. Preventing and treating sickness and fatigue could be facilitated by specific applications of imagery as these vocalists attested.

Summary

This chapter included characteristics of the participants, interview protocol issues, description, categorization, and analyses of the data taken from the 15 vocalists’ interviews. In answering the four Ws questions of where, when, what, and why, a full description of singers’ use of imagery emerged. These vocal professionals were found to use imagery around the performance venues, at home, and other places. Times included primarily during practice, prior to performance, in bed at night, and commuting and driving. Content of vocalists’ imagery included types and characteristics. Types of imagery singers used were senses and abilities. Imagery characteristics included vocal execution, metaphorical, body-related, musical sound, and character images. Reasons why, or purposes, singers used imagery included cognitive, motivational, artistic, and healing reasons. Audience interactions emerged as an additional artistic reason for using imagery in these performers. Other findings revealed specific uses exclusive to solo singing professionals.

Emergent themes of imagery uses were often consistent with those found in sport and dance research. Many of the themes reflected more dance imagery uses than those of sport. Several themes emerged as exclusive to solo singing professionals. In Chapter 5, these commonalities and differences warrant further discussion in relation to the findings from sport and dance research and related literature. A singers’ framework for the four
Ws of imagery is presented, as well as limitations, implications, and suggestions for further research.
Chapter 5

Summary of Findings, Implications, and Conclusions

This chapter provides a summary of the results of the study, interpretation of the findings as related to the research questions, and compares the results to the four Ws framework of imagery use in sport (Munroe et al., 2000), dance (Nordin & Cumming, 2005), and related research. Based on the analyses of the data, a new four Ws framework of imagery use for singers is proposed. Limitations are reviewed and implications of the findings examined. Suggestions for further research are also offered.

Summary and Interpretation of Significant Findings

In this study, the data of where and when professional solo singers used imagery, what they imagined, and why they used imagery were gathered, analyzed, and reported. In analyzing the results of the study, many similarities and contrasts with sport, dance and related music imagery research were identified, and new categories and findings emerged. Subsequently a conceptual framework was created. A discussion of each of these questions is presented individually and the resulting singers’ imagery framework is offered.

Where Vocalists Used Imagery

Findings of the results regarding where vocalists’ imagery was carried out, included practice and stage areas, at home, outside, and anywhere, which replicated findings in dance (Nordin & Cumming, 2005) and musicians (Carter 1993; Trusheim). All 15 vocal professionals in this study reported using it in practice and even more in
performance venues. This supported reports of athletes using imagery more in competition for performance enhancement than learning situations in practice (Barr & Hall, 1992; Hall et al., 1990; Munroe et al., 2000). Outside of their formal training and stage settings, reportedly engaged in imagery at home and primarily in bed, commuting, in places where they were alone, exercising, or anywhere. These findings were also reported studies including dance (Nordin & Cumming, 2005), music (Bellon, 2006; Carter, 1993; Trusheim, 1987), and sports (Salmon et al., 1994; Munroe et al., 2000).

When Vocalists Used Imagery

Regarding times, or when, singers reportedly engaged in imagery during practice and even more prior to performance, which was similar to the findings in athletics (Barr & Hall, 1992; Rodgers et al. 1991; Munroe et al., 2000) and dance (Nordin & Cumming, 2005). However, the singers’ responses revealed a considerable difference between practice and rehearsal for musical performers with regard to times of imagery use. Other performance studies mentioned this distinction (Carter, 1993; Nordin & Cumming, 2000; Trusheim, 1987), particularly the importance of auditions and rehearsals on future careers. In this investigation, as well as Carters’ (1993), vocal practice was identified as a private time of study and singing in a studio or private space, whereas a rehearsal was a formal session to prepare an entire ensemble for an upcoming performance for which singers were expected to be prepared. While all vocalists regularly engaged in imagery during practice, fewer participants reported imagining during rehearsals. This distinction emerged as a new consideration with regard to both where and when singers used imagery and should be considered in future studies with regard to performance preparation.
Some confusion regarding breaks and holidays arose during the interviews as a result of the specific word “holiday” in the singers’ interview guide, which required immediate clarification. Singers in this study performed more during the holidays (i.e., Christmas and New Years) than at any other time of the year. The word “break” was substituted, meaning an extended period of time (such as days or weeks) away from work. Participants reported using little if any imagery during this time. Conversely, Munroe and others (2000) reported break results only with regard to rest periods throughout the day rather than extended time off work.

Other times when vocalists used imagery were during quiet times when they could think or when there were few distractions, breaks throughout the day, commuting and driving, any or all the time, and especially in bed at night just prior to sleeping. This was similar to what was found in many studies in sport (Munroe et al., 2000; Salmon et al., 1994) and artistic performance (Bellon, 2006; Carter, 1993; Nordin & Cumming, 2005; Trusheim, 1987).

*What Imagery Types Vocalists Used*

The results of what singers imagined were divided between imagery types, or content of the image, and imagery characteristics in how they produced the images. Generally, singers’ use of imagery seemed to reflect more of the elements reported in dance (Nordin & Cumming, 2005) and somewhat less of those in sport (Munroe et al., 2000). The six imagery types were categorized as: (a) execution, (b) metaphorical, (c) context, (d) body-related, (e) musical sound, and (f) character/role, as adapted from the dance imagery framework of Nordin and Cumming (2005). These represented the
significant areas of singer’s imagery content, while the category of musical sounds emerged from the responses.

* Execution images. Execution images involved the technical aspects of singing, including strategies and planning for practicing and performing, as well as goal identification and attainment. Skill learning encompassed vocal production, breath support, text, and diction. Singers extensively engaged in all kinds of images, such as raising the uvula with a yawn, lifting the palate, and maintaining proper positioning of the mouth and throat for proper singing. They described many images of expanding the ribs, back, and lowering the diaphragm for breath control and support. These participants also imagined text and diction execution as well as phrasing words of the song. These images were consistent with those of other singers (Bellon, 2006; Gregg, 1998), particularly in building vocal technique in elite professionals (Carter, 1993). These findings also support the idea of Vennard (1968) and Arieti (1976) that musical sound and words fused in song through imagery. The intermingling with skill learning of language and motor behavior provided some support for Annett’s (1986, 1994) dual coding in motor applications, action-language-imagination (ALI) imagery model. Furthermore, replicating the exact motor behavior in imagery reflected the preparation and execution of that task could support some of the findings of functional equivalence (Decety, 1996b; Halpern & Zatorre, 1999; Holmes & Collins, 2002; Jeannerod, 1994; Meister et al. 2004).

Participants used sequence and strategy images in songs, entire concerts, recitals, and operatic roles. Images of strategies and sequences were connected with processes of learning and executing musical requirements of performance, which were also images of other vocalists (Carter, 1993). The six participants who had to plan their own recitals
used sequence and strategy imagery to develop a cohesive program, which was similar to findings in sports (Fenker & Lambiotte, 1987; Rushall, 1988; White & Hardy, 1998). Furthermore, three singers created stories to connect songs they sang in their own concerts. This use of stories and plans in imagery also appeared in several of the musicians in the Bellon (2006), Carter (1993) and Trusheim (1987) studies. These vocalists imagined strategies and plans in organizing their practice and pre-performance routines, specific performance sequences, methods of handling difficult passages, and ways of coping with distractions which reflected the results of musicians’ use of imagery in other studies (Bellon, 2006; Carter, 1993, Trusheim, 1987). Singers also used sequence imagery to facilitate memory of songs and phrases, which seems to support Sackett’s (1934, 1935) “mental blueprints” which were complete concepts stored in the brain.

All singers used goal images, which primarily comprised outcome and process with less performance types as described in Weinberg and Gould (1995). These results were similar to other music performers’ imagery (Bellon, 2006; Carter, 1993; Trusheim, 1987). Participants imagined outcome goals of performing successfully in auditions and performances, and single songs, arias, and entire roles in opera. This supported the study by Woolfolk, Murphy, Gottesfeld, and Aitken (1985) who found that athletes who imagined their desired outcome subsequently influenced that same activity. Several participants described their discovery that ambiguous daydreams yielded unintended results while consciously directed and detailed goal imagery more consistently affected specifically desired outcomes. This issue was addressed in Ungerleider and Golding (1991) in the dreams and goals of Olympic athletes.
The vocalists also imagined various process goals such as accurately executing sounds, phrases, proper breath support, and other skills, which were also found in Carter’s (1993) study. It seemed that process goals were used when singers needed to incorporate various skills into becoming automatic or habitual, as examined in Fields (1972). The fact that singers discussed how goals evolved over the years further supports how images change as well. Jackson and Csikszentmihalyi (1999) recommended employing goal images of whole and parts for achieving performance excellence. While athletes (Munroe et al., 2000) and dancers (Cumming & Nordin, 2005) were found to use all these goal images, they used more performance goals than singers in this study.

**Metaphorical images.** All the participants shared descriptions of metaphorical images in relation to vocal production, the findings of which were similar to those used by singers in studies by Bellon (2006) and Carter (1993) and to a lesser extent in brass instrumentalists (Trusheim, 1987). Just as some athletes used metaphors to help enhance performance in different sports (Ruiz & Hanin, 2004), singers and dancers used metaphors to learn and secure vocal technique and enhance performance, particularly in creating characters and roles (Carter, 1993; Hanrahan & Vergeer, 2000; Nordin & Cumming, 2005). Specifically, singers reported imagery of objects not present and imaginary actions, which was similar to dancers’ metaphorical imagery (Hanrahan & Vergeer, 2000; Nordin & Cumming, 2005; Vergeer & Hanrahan, 1998). Metaphoric images of actions (e.g., bellows opening and closing; ball balancing on a fountain; stretching a rubber-band) used to facilitate vocal production in this study were similar to those in the literature (Fields, 1947; Freed, 2000; Lehman, 1945/1985; Ware, 1992). Just
as in Carter’s (1993) study, participants felt that using metaphorical images diminished the need for elaborate explanations of vocal mechanics.

Singers in this study were divided as to their preference of metaphoric or technical and anatomic images regarding vocal production. Some singers felt that metaphorical images helped in achieving comfort and ease in sound production without requiring extensive technical understanding. Other singers employed more metaphoric imagery when they were younger and when they gained a better understanding of the vocal mechanism, they began to also incorporate anatomical imagery. As singers continued studying the voice over the years, they became more familiar with the anatomical workings and were able to accurately visualize them, as advocated by various voice pedagogues (Dayme, 1982, 2005; Reid, 1983; Vennard, 1968). Similarly, singers in Cleveland’s (1989a) study preferred anatomical to metaphoric images, as a result of viewing their own voices through laryngeal image biofeedback (LIB) medical imaging system. Two sopranos and all the men in the study were familiar but indifferent to metaphors and preferred a more scientific technical approach to imagery in vocal production. Singers in the study varied in their choices of whether to use metaphorical or anatomical imagery and their preferences often changed over time, usually in favor of anatomical imagery. Whether images were metaphorical, technical, or anatomical, they had to serve the intended function as has been suggested in previous studies (Carter, 1993: Freed, 2000; Moorcroft, 2002; Ware, 1998).

Several participants associated colors with sounds, particularly in vocal production whereby different colors were attached to different sounds (Lehmann, 1945/1985). While some singers used various colors to represent different timbres of
vocal qualities, several vocalists described very specific applications of visual color with specific sounds. A few singers were very explicit in illustrating the connection of visual color with tones and phrases, which was a type of multi-sensory imagery known as chromesthesia (Polzella & Kuna, 1981). Trusheim (1987) also reported brass professionals who saw different colors associated with the ideal sounds they aimed to produce on their instruments. Conversely, dancers’ color images were more often connected with the movement in their performances rather than musical sound (Nordin & Cumming, 2005). More research could be conducted in this area.

**Context images.** Singers’ use of context images included scenarios of the environment or venue, the audience, and imaginary people, including auditioning panelists and friends for whom they were performing. All participants imagined performing on stages, for audiences, or specific people, and included details of the venue, which were reflected other musician’s imagery (Bellon, 2006; Carter, 1993; Trusheim, 1987). This finding was similar to sport and dance in that the singers were imagining the venues in which they generally or specifically performed (Munroe et al., 2000; Nordin & Cumming, 2005). These context images facilitated performance best when they were as detailed as the actual experience employing multisensory aspects, providing further support for the functional equivalence theory (Holmes & Collins, 2002). One singer aptly described this in her account of imagining a previously unfamiliar theatre in which she had hoped to sing. This imagery method of the Soviet Union’s elite athletic trainers using photographs of the Montreal Olympic facility to familiarize athletes with this new venue had been described in Vealey (1986) and Raiport (1988).
Furthermore, singers in this and Carter’s (1993) study imagined the details of mentally created scenarios they devised for the settings of recital songs and arias. Sometimes singers argued that the images needed to support certain songs were imbedded in the text or the music, as in Lehmann’s (1945/1985) argument for the tradition of creating the “right” image for performing a specific song. Conversely, singers said that the content of the image was immaterial as long as it produced the right effect in delivering the song, which reflected the views of the singers in Carter’s (1993) study who supported the use of private images.

**Body-related images.** Vocalists’ images relating to the body concerned regulating arousal and kinesthetic feelings particular to performance. Thirteen singers mentioned arousal images directly dealing with the specific parts of their body most affected by nerves. This was often related to relaxing the body, focusing attention in areas of tension, and deepening the breathing, as mentioned by singers in other studies (Bellon, 2005; Carter, 1993).

Kinesthetic images also included physical posture, alignment, appearance, and health, which seemed to reflect vocalists’ recognition that their bodies were a significant concern in singing optimally. This was reported in the imagery of elite singers (Carter, 1993) and dancers (Nordin & Cumming, 2005), and vocal texts (Averino, 1989; Ware 1998). Participants used the mirror and other methods for direct feedback on the look of their performances so that their ideal appearances, body positions, and movement could be grounded in their kinesthetic imagery, as found in Carter’s singers (1993). Since singers performed with their full body visible to the audience, it was understandable that appearance images were reported in 11 singers’ responses.
Singers’ body-related images also encompassed the physically imagined feelings of how they produced, executed, and memorized vocal sound and in characterizing the song or role, which was consistent in singers’ interviews in other studies (Carter, 1993; Hines, 1982; Moyer, 1992). This lends support for Ahsen’s (1984) triple code theory, image, somatic response, and meaning (ISM) all must be rooted in the body. Participants in this study were keenly aware of their physical bodies in relation to their vocal mechanism and its relationship to physical posture and alignment for singing optimally. Singers in Carter’s (1993) study also reported employing these body-related images. These findings also support Leyerle’s (1986) five theoretical categories of organic imagery in singing, which consisted of posture, respiration, phonation, resonation, and use in vocal or psychological problem areas. The ideal sounds singers intended to make were directly connected with the physical positions and kinesthetic feelings used to secure those tones, especially since singers argued that they could not trust their ears in achieving proper sound. This provides some support for the idea of securing sound in anatomical feeling rather than hearing it through the ears (Carter, 1993; Geraldine Farrar cited in Brower & Cooke, 1996; Lamperti cited in Brown, 1931/1973). Several singers mentioned employing visual anatomical images as well as feelings of the vocal mechanism in connection with singing production. This strengthens the argument in support of using anatomical images over metaphorical imagery for vocal production purposes (Leyerle, 1986; Miller, 1996; Vennard, 1968).

Bodily movement and kinesthetic imagery was also used to facilitate memory, rhythmic expression, and dynamics of music, which was also found in the literature (Carter, 1993; Jaques-Dalcroze, 1920/1972; Laban, 1975, 1984). This supported the
argument for including simulated movement with motor imagery for increasing performance execution in athletics (Holmes & Collins, 2002), dance (Hanrahan et al., 1995) and piano (Highben & Palmer, 2004). Sound production was intrinsically connected to the kinesthetic feeling of where vocalization originated in the body, as was also found in Carter (1993). Trusheim (1987) reported that brass instrumentalists experienced sounds kinesthetically in their embouchure and throughout their body as well.

Musical sound images. A major category that emerged from the interviews was images of musical sound. This extended beyond hearing sounds in relation to imagined venues and those specific to their performance activities reported by athletes (Munroe et al., 2000) as well as some singers in this study. More specifically, musical sounds were reported in dancers imagery (Nordin & Cumming, 2005) and were a major imagery element of all vocalists in this study. All the singers reported hearing internally their beginning pitches and 14 of the 15 participants said they heard the accompaniment while practicing either silently or out loud. Auditory images of musical accompaniment were also found in Carter’s (1993) study, particularly for singers that had keyboard training. Participants also mentioned mentally seeing the notes on the page in front of them, as did singers in Carter’s (1993) study. Gordon’s (1976, 1999, 2003a) music learning theory extensively described the phenomena of hearing musical sounds and elements internally, or audiating, in musical development.

Other musical sounds in imagery encompassed modeling expert vocalists and developing an internal ideal sound image. Ten singers used modeling of other outstanding singers to achieve performance excellence. Perfecting the art of singing by
observing experts has been promoted in vocal pedagogy in a number of sources (Fields, 1992; Günter, 1992a, 1992b; Tosi & Galliard, 1723/1968; Ware, 1998). This lent support to the observational studies of Fadiga and others (1995) in neuroimaging and functional equivalence.

Seven of the vocalists heard ideal sounds in their head to help them produce excellence in vocal quality, an element that also appeared in other music studies (Bellon, 2006; Bonpensiere, 1953; Carter, 1993; Hines, 1982; Trusheim, 1987). Miller (1996) and others (Averino, 1989; DeLay cited in Stockholm, 1975; Fields, 1972; Ware, 1998) supported the practice of developing a storehouse of strong ideal sounds in which singers could compare and align with their own personal vocal sounds. During silent practice, four singers said they heard the ideal sound of their own voices rather than those of other outstanding professionals. Given their extensive musical training and performance experience, it was not surprising that all these singers had developed this faculty. This connection between ideal sound images and vocal execution may provide support for functional equivalence studies in neuroimaging, in which brain activity of hearing and imagining music was found to be similar (Kosslyn et al., 2001; Zatorre & Halpern, 2005). Musical sounds emerged as a distinct category in this study since singers’ imagery content in this area was so extensive and diverse, and differed markedly from the environmental and sport specific sound images most athletes reported (Munroe et al., 2000; Salmon et al., 1994).

*Character/role images.* Singers’ images of character development included behavior, emotions, and appearance, which also followed the imagery content category set by Nordin and Cumming (2005). These images reflected vocal professionals’
requirements, movements, and efforts in dramatics from performing a simple aria to an entire role in opera. All the interviewees expressed the idea that characterization, emotion, and memories of past experiences were essential elements to expressive singing (Craig, 1992; Emmons & Sonntag, 2002; Lehman, 1945/1985). Vocalists’ character and role images were much more detailed and specific to acting than what dancers reported in this category (Hanrahan & Vergeer, 2000; Nordin & Cumming, 2005). Singers in this study and those in Carter’s (1993) began methodologically recreating their individual characters with the words of the song, the melody and rhythm, the context and background, emotion, and identification of past personal experiences in the effort to embody the character or song. This supported the methods suggested in a number of vocal texts (Barten, 1992; Emmons & Thomas, 1998, 2008 Emmons & Sonntag, 2002; Lotte Lehman, 1945/1985; Ware, 1998). This also concurred with Lang’s (1977, 1979a, 1979b) bio-informational theory of effective imagery, including specific details of stimulus, response, and meaning propositions as related to both the individual singer and the character being portrayed.

What Imagery Characteristics Vocalists Used

Imagery characteristics represented qualities of sense, perspective, ability, deliberation and direction, and amount and duration. These vocalists’ responses reflected many similarities of athletes and dancers use of sense imagery and general abilities (Munroe et al., 2000; Nordin & Cumming, 2005; White & Hardy, 1995). Munroe and colleagues (2000) categorized sense imagery as imagery types. However, the distinction was made between specific content categories of imagery (as detailed above) and function in the subsequent dance imagery investigation of Nordin and Cumming (2005).
These investigators relegated sense imagery as a characteristic of imagery, and more a vehicle by which performers experienced certain images, which more closely represented the findings of this study.

*Senses.* The results of these singers’ ranking of their sense imagery practices (from highest to lowest) were visual imagery, auditory imagery, and kinesthetic imagery, which accurately reflected Betts’ (1909) results gathered exactly one hundred years ago in his vividness studies of musicians (e.g., 93% vision, 88% sound, and 83% kinesthetic imagery). Other musical performers were reported to use the same three sense modalities in their profession (Bellon, 2006; Carter, 1993; Holmes, 2005; Moyer, 1992; Ross, 1985; Trusheim, 1987). However, Carter’s (1993) ranking differed in that elite singers use kinesthetic, followed by aural, then visual sense imagery. The use of these three main senses were also discussed in Seashore (1938/1967) and Farnsworth (1958) who recognized that musicians experienced kinesthetic and visual images interacting with auditory imagery.

Athletes have acknowledged the reciprocal nature of kinesthetic and visual imagery interspersed with auditory environmental and sport specific images, including olfactory, gustatory (Munroe et al., 2000; Salmon et al., 1994), and tactile senses (Vealey & Greenleaf, 2006). Similar to dancers (Nordin & Cumming, 2005), singers’ auditory abilities were centered on musical elements rather than environmental sound images as was found in athletes (Munroe et al., 2000). Vocalists in this study included touch and to a lesser extent smell and taste, the reports of which appeared primarily with participants who enjoyed cooking. The use of these three senses was also limited to the dictates of the text and character of the song. The inclusion of all these varied senses, or what Vealey
and Greenleaf (2006) termed, the *polysensory* experience, served to strengthen the recommendation that athletes (and performers) use as many sense modalities as possible in their imagery to increase effectiveness (Moran, 2004; Morris et al., 2005; Murphy et al. 2008; Vealey & Greenleaf, 2001).

The difference in terminology between the senses of touch or tactile and kinesthetic feeling was the source of some confusion for seven of these singers. When asked to rate their three primary senses in imagery, many included touch. However, when the definitions of both tactile and kinesthetic senses were given, they all changed their answers to kinesthesia. From subsequent conversations with vocal singers and professors, the term, kinesthesia, was not as common in voice training as touch or tactile in referring to the feeling in the body (Ware, 1998). Tactile imagery was not included in the four Ws framework for athletes (Munroe et al., 2000) but touch did emerge in dancers’ imagery (Nordin & Cumming, 2005). Brass professionals in Trusheim’s (1987) study did employ tactile imagery to a moderate degree, which was related to manipulation of their instruments. This difference in use of tactile and kinesthetic terms should be considered for any reference to bodily feeling concerning sense imagery use by singers and possibly in other musicians as well.

*Perspective.* The use of perspective in imagery connected singers’ employment of the visual sense with their preference and ability. Vocalists primarily used internal perspective, believing it to be the most valuable, as had been reported in sport studies (e.g., Lane, 1980; Mahoney & Avener, 1977; Rotella et al., 1980). Imagery in internal perspective was helpful for understanding the feeling of actually performing, which supported findings that internal perspective was more highly correlated with motor
movement than external perspective (Hale, 1992; Harris & Robinson, 1986). Singers’ use of external perspective allowed the performer to comprehend the audience’s viewpoint, as also reported by dancers (Nordin & Cumming, 2005). However, Ungerleider and Golding (1991) and Holmes and Collins (2002) found that more successful athletes used external perspective. Earlier studies had revealed no significant differences between the effectiveness of internal and external imagery (Barnes, 1982; Highlen & Bennett, 1979; Mumford & Hall, 1985). More recently sport researchers (Hardy, 1997; Moran, 2004; White & Hardy, 1995) have argued that imagery perspective preferences relied on the needs of the individuals and type of sports in which they performed. An internal viewpoint was found to be more useful for perception in execution and external perspective was used more for skills involving form (Hardy, 1997). Five singers visualized externally, and some switched between internal and external, as was preferred by some athletes (Gould, Weinberg, & Jackson, 1980; Jowdy, Murphy, & Durtschi, 1989). One of the tenors in this study, as well as a singer in Bellon’s (2006) study, thought that using both perspectives were required in determining the success of the outcome. Both execution and form were incorporated in vocal performance imagery, strengthening the argument for using each perspective appropriately for the specific needs of the performers as previously advocated (e.g. Caldwell & Wall, 2001; Emmons & Thomas, 1998; Holmes & Collins, 2002).

An unexpected finding that emerged from these singers’ interviews was the issue of perspective in auditory imagery of musical sounds. Previously, perspective had only been considered to be a quality of visual imagery in studies of athletes (Hale, 1982; Hardy & Callow, 1999; Munroe et al., 2000; White & Hardy, 1995) and dancers (Nordin
Singers reported hearing their own vocal sounds internally, especially when it was associated with kinesthetic feelings. They also described mentally hearing themselves from an external perspective, as in listening to themselves singing on stage from the audience’s point of view. A singer imagining another vocalist executing a song, as in modeling, could be considered external auditory imagery as opposed to when the singer imagined being in the act of producing vocal sound. Bandura (1977) argued that when individuals internalized the modeled behavior as their own, performance of the desired behavior was enhanced. Furthermore, the internal hearing of instrumental accompaniment, especially during mental rehearsal, implied that it was an external emanation of musical sounds outside of themselves. This is distinctly an external hearing perspective since other people played these instruments and these were not vocal sounds experienced internally by a singer. Vocalists imagining themselves singing arias while internally hearing instrumental accompaniments could be considered to employ both internal and external auditory perspective. More investigation is needed to determine the effects of each perspective on performance outcome and its correlation with ability and expertise of the performer.

**Imagery ability.** Imagery abilities encompassed the degree of accuracy, vividness, deliberation, ability to manipulate and control images, and amount and duration of imagery engagement. The participants’ assessment of their individual imagery abilities was generally favorable in accuracy, vividness, and being able to manipulate the images. Elite athletes were also found to have clear and accurate images (Barr & Hall, 1992; Isaac, 1992; Orlick & Parrington, 1988; Salmon et al., 1994; Ungerleider & Golding, 1991; Vadocz et al., 1997). Some singers said their images were extremely vivid and
accurate while a few others felt they needed improvement (e.g., Nicholas reported that some of his images were “veiled”). Athletes also reported that their images were controllable (Weinberg & Gould, 2003; Vealey & Walter, 1993), however Munroe and others (2000) argued that this was not important in the athletes they interviewed. More experienced singers in this study said that the images they used were accurate since they had become accustomed to them. The findings suggested that singers were aware that they could improve their imagery accuracy, vividness, and learn to control their images more directly. Athletes had improved their imagery abilities after a 16-week training program (Rodgers et al., 1991), suggesting that these abilities were modifiable and trainable. More research regarding imagery ability pertaining to musicians is needed.

It was interesting to note that those singers in the study that reported high self-assessment in imagery ability, accuracy, vividness, and detail also shared a number of instances in which their images were associated with successful outcomes such as getting an award or a role in an opera. Francine and Ivan imagined all the aspects of singing in an audition and the specific part they intended to perform and were subsequently given the appointment. Ivan even drew himself “with the award in hand.” Other singers whose imagery was less accurate or detailed often reflected that they wanted to increase their practice and get better at the details. Those participants who devoted a significant amount of time in developing their imagery used it more and reported more successful results, as was reflected in imagery of athletes (Vadocz et al., 1997). It was previously reported in sport imagery research that more proficient imagers enjoyed more benefits in performance and skill learning (Goss et al., 1986; Isaac, 1992). Similarly, athletes reported that the more experience they gained in imagery, the higher the effectiveness of
that imagery became (Hall et al., 1990; Vadocz et al., 1997; Vealey, 1986; Weinberg & Gould, 2003). Martin and others (1999) determined that these abilities could moderate the various outcomes to which imagery had been applied.

Imagery direction in assessing whether images facilitated or debilitating performance, as defined by Short and others (2004), was also addressed in this study. Generally, singers reported that their images were positive and helpful, as found in sports investigations (Gould et al., 1980; Hall et al., 1990; Powell, 1973; Short et al., 2004; Woolfolk, Parrish et al., 1985). Most participants positively imagined the outcomes of their performances, which they reported yielded beneficial effects. Several singers grappled with negative imagery prior to performance and felt their confidence and execution was in danger of deteriorating. This supported the previous findings that positively imagining the desired outcome improved athletic and artistic performance, particularly during competition, while negatively imagining the task seemed to be detrimental (Munroe et al., 2000; Woolfolk, Murphy et al., 1985). Some participants included the caveat that the degree to which imagery was helpful or hurtful depended on the appropriateness of the image to the task, which was described in performance studies of musicians (Emmons & Thomas, 1999; Ristad, 1982) and athletes (Murphy & Martin, 2002). If the image was debilitating in some way, they simply adjusted the image.

Singers’ imagery of their performances was generally controlled and directed to a positive and desirable outcome. These ranged on a continuum of spontaneously arising images to those fully controlled, as described in Murphy and others (2008). Participants who enjoyed greater ability to control their images reported greater positive effects on
their performances, which supported the findings of athletes’ imagery use (Clark, 1960; Isaac, 1992; Mackay, 1981).

Amount, duration, and speed of image engagement varied widely among the vocalists. Imagery sessions lasted between fleeting seconds and all night mental rehearsals. Frequency of imagery practice varied by individual mental as well as vocal experience. Those singers who had learned to use imagery early in life more regularly employed imagery in their professional pursuits. Professional singers and instrumentalists reported using a significant portion of their practice time in mental imagery (Bellon, 2006; Carter, 1993; Trusheim, 1987). Participants reported their images as both replicating and exceeding the actual execution times especially with regard to securing memorization of the material. This supported the findings of other musicians’ compressed mental rehearsal (Bellon, 2006; Carter, 1993; Trusheim, 1987), while dancers engaged in slow, actual, and accelerated imagery speeds to aid memory for routines and sequences (Nordin & Cumming, 2005). Singers briefly mentioned mentally slowing down images when they were engaged in the early stages of learning a skill, piece, or section of music. However, most imagery took place in real time, which could be attributed to the temporal nature of the musical activity and the importance of matching the speed of imagery to the actual timing of the motor skill as neural equivalents (Holmes & Collins, 2002). Sport researchers generally have agreed that real-time was superior to slow-motion imagery (Holmes & Collins, 2002; Gould et al., 2002; Moran, 2004; Reed, 2002).
Why Vocalists Used Imagery

The purposes for which solo professional vocalists used imagery were similar to those reasons in sport and dance while other themes emerged from the data. The cognitive and motivational reasons as found in athletics (Paivio, 1985; Hall et al., 1998; Munroe et al., 2000) were supported, as was the artistic and healing purposes as revealed in imagery of dancers (Nordin & Cumming, 2005). Within these categories additional reasons emerged for singers which were specific to their profession.

Cognitive reasons. These vocalists used imagery for cognitive specific (CS) purposes in many aspects of vocal production including technique, efforts to sing easily and comfortably, supporting the breath, and using the body and vocal mechanism to produce the desired sounds, which was also found in other musicians’ experiences (Carter, 1993; Trusheim, 1987). Imagery functions of building and strengthening skill have been recognized in many studies (e.g., Feltz & Landers, 1983; Driskell et al., 1994; Hall et al., 1990; Hall et al., 1994; Mahoney & Avener, 1977). Purposes of using imagery for skill learning and technique development differed in vocalists based somewhat on technical expertise, specific performing requirements, years of singing experience, and level of imagery ability (Driskell et al., 1994). For example, younger singers reported using more imagery to gain breath support and lifting the palate than more mature singers, who, it could be assumed, had already made these techniques a intrinsic part of their performance behavior. This lent support to the argument of Fields (1972) and Marks (1977) that conscious use of imagery was used to render motor action automatic. It is possible that the more experienced singers no longer needed to use imagery for acquiring
skills that they had already incorporated into their performance behavior, which supports the Holmes and Collins (2002) assertion that skill imagery uses changed over time.

All singers in the study reported mentally practicing performances, particularly after learning the rudiments of the musical composition. Singers combined mental with physical practice in achieving optimal performance. This supported the finding that combining mental and physical practice facilitated performance success in studies such as piano (Coffman, 1987, 1990; Highben & Palmer, 2004; Lim & Lippman, 1991; Lo, 1976; Rubin-Rabson, 1941), voice (Theiler & Lippman, 1995), various instruments (Coffman, 1987; Ross, 1985a, 1985b; Theiler & Lippman, 1995), and dance (Hanrahan, Tetreau, & Sarrazin, 1995). Similar findings were reported in the sports literature (Driskell et al., 1994; Feltz & Landers, 1983; Hinshaw, 1991; Richardson, 1967a, 1967b).

Singers in this study used the cognitive general (CG) functions of imagery, strategy and sequence, in ways that were somewhat different than what had been described in sports. Those singers who had planned and performed many recitals reported using imagery to practice strategy and sequence and to carefully project the proper artistic experience they intended to provide for their audiences. Vocalists in this study and in Carter (1993) and instrumentalists in Trusheim (1993) reported similar uses of imagery, particularly to execute conductors’ directions and plan routines. Using imagery in planning and strategizing was also found in athletes (Fenker & Lambiotte, 1987; MacIntyre & Moran, 1996; Munroe et al., 2000; Murphy et al., 2008; Rotella et al., 1980; Rushall, 1988) and dancers (Fish et al., 2004). Vocalists were concerned more with finding strategies to contend with difficulties in performance, as had been found in other musicians (Bellon, 2006; Carter, 1993; Trusheim, 1987), gymnasts, and figure skaters.
Operatic singers also mentioned using more imagery for sequencing and staging than concert vocalists who sometimes created individualized stories to connect their recital songs. Singers in Carter (1993) and orchestral brass professionals in Trusheim (1987) also imagined stories in their performances.

Those singers primarily involved in operatic performance in this study used imagery of sequencing memorization of a song or role. Dancers, like athletes in artistic sports, also used imagery in sequencing to assist in memorization (Nordin & Cumming, 2005). These findings supported Sackett’s (1934, 1935) symbolic learning theory of creating representations for memory task. Singers’ constant interaction with memorization of text also provided some support for Paivio’s (1986) dual coding since this type of singing involved both pictorial and verbal imagery.

**Motivational reasons.** Participants used extensive imagery for the motivation specific (MS) function of goal identification, setting, and attainment, which reflected findings in studies in imagery in sport (Hall et al., 1998; Munroe et al., 2000) and dance (Fish et al., 2004; Monsma & Overby, 2004; Nordin & Cumming, 2005). These singers’ responses reflected goal motivation, which varied by the type of repertoire they were singing, years of experience as professionals, perceived level of master (Lacaille et al., 2005), and self-efficacy beliefs (Bandura, 1982). Vocalists combined outcome and process goals in imagining a variety of desired results from executing the ideal sounds they intended to produce to aspiring to secure a difficult operatic role. Participants who had a high degree of success with goal imagery used it more often and in more detail, providing increased motivation in their professional endeavors. Several singers mentioned their goals had changed over the years particularly with regard to the
development of their vocal technique and as a result of achieving past goals. This seemed to imply that singers had a fairly high regard for the effects their imagery had on their professional efforts. Regardless of the singers’ varying levels of use and understanding of its effects, goal imagery for motivational reasons seemed to be an intrinsic part of singers’ efforts to achieve optimal performance.

The motivational general-arousal (MG-A) imagery function of modifying arousal and energy in these singers was closely related to reports of dancers (Hanrahan & Vergeer, 2000; Nordin & Cumming, 2005; Vergeer & Hanrahan, 1998), athletes (Hall et al., 1998; Munroe et al., 2000; Paivio, 1985; White & Hardy, 1998), and other musicians (Bellon, 2006; Carter, 1993; Trusheim, 1987). Singers’ efforts of using imagery to maintain appropriate levels of arousal to achieve optimal performance varied by participants’ individual needs and specific performance requirements.

The majority of the responses focused on efforts to calm states of arousal, particularly in the younger, less experienced singers. Nine singers adjusted their nervous feelings by using imagery to focus on breath management, which was similar to other musicians’ imagery (Bellon, 2006; Carter, 1993; Trusheim, 1987), especially in lowering their heart rates, as found in athletes (Hecker & Kaczor, 1988). Singers reported using alternative relaxation techniques such as meditation and creative visualization (Benson, 1987; Gawain, 1978, 2002; Harris, 1986). Other methods of using imagery to calm nerves included prior preparation, focus, and concentration. Ten participants mentioned the importance of thorough prior preparation and the knowledge that they were fully ready to perform, which helped to alleviate their anxiety. Musicians in the studies of Trusheim (1987), Carter (1993) and Bellon (2006) also mentioned the direct correlation
between extensive preparation and level of anxiety in their performances. This
corresponded with the findings in Fish and colleagues (2004) that dancers used cognitive
specific imagery of strengthening skill level to alleviate anxiety. Thirteen singers gave
accounts of focusing and concentrating on the task at hand to calm their nerves, which
also supported Landers (1980) and Murphy, Woolfolk, and Budney (1988), who found
that focusing on task-relevant cues helped athletes achieve the proper arousal levels for
the actions they performed.

Vocalists described accepting their nervous conditions as a natural part of being a
performer and using this energy to benefit them in performance. Singers in Carter’s
(1993) investigation distinguished between the positive feelings of anticipation and
working tension and the negative unwanted tension with which they had to learn to
contend. Participants described spontaneously appearing negative images of “devils” that
sometimes caused distraction, anxiety, and nervous tension. Learning to reframe these
feelings had been previously promoted in various performance texts (e.g., Dayme, 2005;
Emmons & Thomas, 1998; Green, 2002; Green & Gallway, 1986; Leyerle, 1986; Ristad,
1982) as well as studies in dance (Fish et al., 2004) and sport (Munroe et al., 2000;
Vadocz et al., 1997). Several singers reported used a similar ways of calming their fears
by various methods found in general psychology, including dealing with stress with self-
talk (Meichenbaum, 1977, 1985) and response propositions as found in bio-informational
theory of Lang and his colleagues (Lang, 1977, 1979a, 1979b; Lang, Melamed, & Hart,
1970).

Thirteen participants, especially those with more years of experience, described
employing imagery to psyche themselves up for performances. Trusheim (1987) reported
similar responses in his older brass professionals. Higher levels of energy were required when more physical movements were involved as in sport and dance (Harris, 1986; Landers, 1980; Murphy et al., 2008; Orlick, 1990; Oxendine, 1980; Vadocz et al., 1997). Schmidt’s (1982) theory of attention-arousal set was supported in that each participant identified and embodied the optimal arousal state for each specific performance.

Achieving optimal levels in imagery for the given task supported Holmes and Collins’ (2002) position that imagery should include the specific affective responses and arousal levels used in the desired performance. Most singers agreed that they required a certain degree of arousal or calm readiness, which precluded energy levels above relaxation, in order to successfully perform. The Yerkes-Dodson Law stating that tasks with more complexity or difficulty required lower levels of drive or arousal was supported (Oxendine, 1980). This went counter to the assertions of Jacobson (1957) and Suinn’s VMBR research (1976, 1980a, 1980b, 1980c, 1983, 1992) both of whom maintained that pre-relaxation imagery facilitated its effectiveness in performance. Matching arousal levels and emotional affect in imagery with preparation and execution of performance lent support to the functional equivalence theory (Holmes & Collins, 2002; Jeannerod, 1994).

Motivational general-mastery (MG-M) reasons of imagery use in these singers included thoughts and feelings of self-confidence and mastery. Specifically the findings included (a) being mentally tough and positive, (b) focus and concentration, (c) self-efficacy and confidence, and (d) modeling.

Vocalists’ mental toughness and efforts to be positive was exemplified in the way many of them handled distractions and resolve to pull through difficult situations. These
issues were often connected with maintaining proper arousal levels particularly just prior to performance. Singers used self-talk to reestablish and maintain feelings of high confidence and being competent to perform (Gammage, Hardy, & Hall, 2001; Hardy, Gammage, & Hall, 2001). Negative thought stopping methods, being positive, and maintaining positive self-images and expectations helped to stifle inner judges and counteract negative self-criticism that undermined confidence and performance excellence (Emmons & Thomas, 1998; Kohut, 1992; Ristad, 1982). This grappling with self-confidence was reported in participants of a wide range of professional experience, a finding that supported those of other studies (Bellon, 2006; Carter, 1993; Trusheim 1987).

Many singers used imagery to confidently motivate themselves by practicing focus and concentration on the task at hand. Several participants even mentioned that they concentrated solely those elements over which they had control and which could readily change. Debilitating distractions decreased when performers focused on the specific tasks of the performance, characterization, and communication with the audience (Carter, 1993; Trusheim, 1987). Orlick and Parrington (1988) found that Olympians’ best focus was achieved by concentrating on factors within their control. Fields (1972) found that concentration levels affected performers’ involvement in their presentations. Csikszentmihalyi (1990) observed that sustained task involvement directly correlated with optimal performance experience.

Participants regularly used imagery to feel high levels of self-efficacy and confidence as a method of motivation in their profession. It appeared that these vocalists were well aware that their beliefs and patterns of self-assessment greatly affected the
success of their performances, as stated in Bandura (1997). Furthermore, singers who had enjoyed success over a longer period of time also had increased self-efficacy concerning their own expectations to continue performing than those with less experience, which was also reported by other musicians (Bellon, 2006; Carter, 1993; and Trusheim, 1987). Feelings and images of enjoyment, mastery of technique, and performance excellence seemed to undergird how these vocalists regarded their professional abilities and efforts, which reflected the ideas offered by various pedagogues (Fields, 1972; Stedman, 1985; Vennard, 1971) and sport researchers (Callow & Hardy, 2001; Martin et al., 1999; Mills et al., 2000-2001; Moritz et al., 1996; Vadocz et al., 1997; Vealey, 1986). High self-efficacy and strong confidence beliefs and images were factors that distinguished elite from less successful athletes (Gould et al., 1981; Woolfolk, Murphy et al., 1985), and allowed for more facility in developing, maintaining, and regaining confidence (Moritz et al., 1996).

Many of these participants described modeling expert performers as a method of motivation especially in establishing feelings of self-efficacy (Bandura & Jefferies, 1973). Singers described the development of modeling from observing elite vocalists, to imagining themselves as though they performed as experts, to finally embodying these desired skills as an automatic habits as illustrated in Bandura (1977, 1986, 1997) and Fields (1972). Feltz (1984) had maintained that mental rehearsal of successfully performing a task served to motivate and strengthen athletes’ beliefs in their abilities.

Artistic reasons. In creating the four Ws imagery framework for dancers, Nordin and Cumming (2005) included the cognitive and motivational reasons (Munroe et al., 2000) and identified two new categories of imagery reasons: artistic and healing.
Vocalists’ imagery for artistic purposes differed from dancers’ due to the nature of the art and included vocal quality, appearance, character development, and communication with the audience. While these categories had been discussed previously in imagery types, they are addressed here because singers used imagery for other purposes as well as the specific image itself. As researchers had established, one image could be used for several reasons as readily as several types of imagery could be used for a single purpose (Callow & Waters, 2005; Fish et al., 2004; Murphy et al., 2008; Nordin & Cumming, 2005; Short et al., 2004; Short et al., 2006).

All 15 singers imagined to artistically improve their vocal quality which encompassed changes in their color or timbre, modeling, hearing an ideal sound, and increasing depth and richness. Vocalists often imagined certain colors, which were associated with specific sounds and phrases. This use of imagery was very similar to those singers who held an ideal sound in their minds to match in vocalizing. Many mentioned this in trying to achieve a certain depth and richness to their voice. Two singers felt that each individual had their own sound, however they also admitted it sometimes took years of training to achieve this. These concerns were also discussed in the other music imagery studies (Bellon, 2006; Carter, 1993; Trusheim, 1987). Singers recognized the need to continually develop as a professional, regardless of experience levels, and relied on imagery more as a result of their ever-developing background.

Eleven singers used modeling to achieve mastery of different aspects of vocal production. Participants used imagery of techniques, vocal sound qualities, and performance practices they had observed in expert singers to affect more successful behaviors and feelings of mastery. These were elements included in Bandura’s self-
efficacy theory (1977, 1986, 1997), as well as vocal pedagogues (Tosi & Galliard, 1723/1968; Ware, 1998). Musical performers in other studies also mentioned many different aspects of modeling use in solidifying, developing, and perfecting their musical efforts and production (Bellon, 2006; Carter, 1993; and Trusheim, 1987).

Singers also used imagery to affect their appearance on stage. Ten singers described images to achieve and maintain appropriate posture and execute staging in connection with the character or a song. Several singers who performed specific songs in recitals mentioned using imagery to achieve the right stage movement and gestures, which more reflected how appearance imagery in dancers was employed (Nordin & Cumming, 2005). Athletes in synchronized swimming, artistic gymnastics, and figure skating also reported using imagery to secure their artistic appearance and form in their particular sports (Hays, 2002; Murphy et al., 2008). Professional vocalists recognized the importance of their onstage image as perceived by the audience as a vital element in their success (Lehmann, 1945/1985).

Character development emerged in the interviews in two distinct areas of preparation and staging. For character preparation, vocalists imagined the backgrounds, history, culture, and appearance of their characters (Emmons & Sonntag, 2002; Lehmann, 1945/1985). All but one participant recalled being inspired by either live or recorded images of other professional singers performing in the roles and characters these participants were engaged to play. Eight singers used images of their own past experiences to prepare their portrayals.

Character development in staging included imagery purposes to engage in emotion, the body, vocal sound, and being fully in the character. All singers used various
images for feeling the emotions and being in character, which reflected other singers’
accounts (Averino, 1989; Carter, 1993; Hines, 1982). Ahsen (1984) underscored the
importance of including emotion in his triple code theory, ISM, image, somatic response,
and meaning. Similarly, Lang’s (1977, 1979a, 1979b) emphasis on emotion was
incorporated in his bio–informational theory of stimulus, response, and meaning
propositions. Participants also used emotion and imagery in achieving characterization
through vocal production and interpretation as had been discussed in the literature
these character elements were also consistent with how Craig (1993), Lehmann
(1945/1985), and Emmons and Sonntag (2002) suggested vocalists prepare and imagine
themselves in embodying a song. Brass players also reported creating images of
characterizing elements in the symphonic works they performed (Trusheim, 1987).

Several issues arose for some singers concerning being in the zone, or in flow
(Csikszentmihalyi, 1990). Munroe and others (2000) categorized flow as one of the
motivational functions of imagery in athletes. Flow was not included in imagery for
dancers (Nordin & Cumming, 2005). Similar to Bellon’s (2006) musicians, singers in this
study reported either being in the zone as a result and requirement of their profession or
only rarely achieving the experience of flow. Others described being in a magical moment
where nothing else existed but the music or feeling a responsibility as a performer to be
in the zone as much as possible in order to benefit the audience. Furthermore, the flow
state seemed to be an experience that happened as a result of proper preparation,
reflecting Bellon’s (2006) findings that being in the zone was synonymous with
professionalism. Participants’ responses often reflected that being in the zone was
tantamount to embodying the character in the performance. This idea supported Carter’s (1993) finding that elite vocalists achieved flow as a result of surpassing the experience of synthesized text, music, and character. More research is needed to find how imagery and being in flow interact for performers.

Another artistic reason for using imagery was the variety of regard these singers held for the audience, as initially categorized in dancers’ imagery (Nordin & Cumming, 2005). Nordin and Cumming (2005) identified many of the previously mentioned artistic reasons as part of dancers’ motivation in communicating with the audience. However, singers in this study distinguished most of those artistic reasons separately from their specific intentions to communicate more directly with the audience than had been identified in dancers’ imagery. Participants further recognized that mastery of technique, music, and embodying the character was a prerequisite for mentally engaging with the audience. Therefore the audience communication category was redefined for this study and included: (a) sharing musical intent, (b) flow of energy, (c) sharing love and joy, (d) spiritual engagement, and (e) spiritual responsibility. These findings supported and extended Carter’s (1993) reports of elite vocalists interacting with their audience with feelings of flow, vibrations, and love.

Several participants focused on the audience members to feel engaged and supported in their performances, which was analogous to the other vocalists’ mental regard for the audience (Bellon, 2006; Carter, 1993). Most singers imagined ways of communicating with the audience, ranging from making sure the audience understood the intentions of the composer and the text to engaging members of the audience in a flow of energy, the findings of which were consistent with other professional vocalists (Carter,
Several participants imagined the audience feeling their love and joy, while others shared a more spiritual engagement with those in the theatre. The reasons for specific audience interaction were often tied to singers’ purpose for which they initially became professional performers. Several participants spoke of feeling spiritually responsible for being a beneficial or healing force for their audience. It was possible that presenting songs directly facing the audience, as has been the tradition in classical singing, could have inspired certain vocalists to feel this for the people that came to see them perform. Furthermore, many of these singers were well experienced in liturgical and oratorio performances, which precluded a spiritual or religious context. These findings were not addressed as such in instrumentalists or athletes’ imagery and were far more personally directed than audience communication imagery of dancers (Nordin & Cumming, 2005). These specific results also elaborated and extended the findings of Carter (1993), and underscored the importance of audience interactions in these professional singers.

Healing reasons. Healing reasons for using imagery by these vocal professionals varied in the interviews and reflected some of the findings in dancers (Nordin & Cumming, 2005). Most singers’ healing images focused on efforts to maintain good physical and mental health to be able to optimally perform. Ten singers described some kind of method to check their physical body, the alignment, and status of the vocal apparatus prior to and during performance, as found in other musicians (Carter, 1993; Trudheim, 1993). Some participants maintained health by immediately responding to initial symptoms of sickness or during illness and injury by engaging in healthy images and feelings, which replicated imagery of other musicians’ (Trusheim, 1987) and athletes (Calmels et al., 2003; Orlick, 1990). Singers also used imagery in healing methods such
as Reiki and other visualization techniques to maintain health (Gawain, 1978, 2002; Sheikh, 2003; Sheikh & Jordan, 1983; Sheikh & Korn, 1994; Simonton et al, 1971; Simonton et al., 1978). Singers often employed mental practice when they were sick or needed to preserve their voices, as was also found in imagery uses by musicians (Bellon, 2006; Carter, 1993; Trusheim, 1987) and dancers (Nordin & Cumming, 2005).

Vocalists in this study reported using imagery to contend with having to sing while they were excessively tired, during times of illness, and outbreaks of chronic physical ailments. Nicholas used modeling in recalling how another famous singer would have dealt with the same stress he experienced. Sickness and fatigue were also times when these professionals practiced mentally in silence to preserve their voices, which was also reported in Bellon (2006), Carter, (1993), and Trusheim (1987). These participants seemed to be consciously connected to how their bodies and voices were feeling and responded readily with imagery to maintain optimal health for performance excellence.

*Four Ws of Imagery Use Framework for Singers*

The singers’ four Ws of imagery use framework was designed as a result of analyzing the responses of the interviews deductively from imagery research in sport, dance, music, and inductively from themes and categories that emerged directly from the participants’ interviews. Figure 3 gives the details of this framework including *where*, *when*, *what*, and *why* singers imagine, which was adapted primarily from the frameworks shown in Figure 1 of athletes (Munroe et al., 2000) and Figure 2 of dancers (Nordin & Cumming, 2005).
Figure 3. FourWs of Imagery Use Framework for Singers
This proposed singers’ framework differs from the four Ws of imagery framework for athletes (Figure 1) and dancers (Figure 2) in a number of important ways. The landscape of the dance framework has been maintained in favor of the levels presented in the athletic framework since a fuller description of singers’ imagery use could be represented. Singers as well as dancers frameworks extended the areas of where and when imagery was used. Furthermore, in the dancer’s framework content areas were more fully represented to include specific image types and characteristics that were also present in singers’ imagery. Additions to the dance framework included vocal production, musical sounds, and an extended area of communication with the audience.

The four Ws of imagery framework for singers is offered here for several reasons. It is hoped that the singers’ framework would be used as a guide in future studies of imagery use in vocalists, instrumentalists, and other musicians. It could also be used to inform students and professionals in possible ways they could develop and employ their own imagery in their artistic endeavors. Furthermore, teachers and vocal professors could use this framework to train singers and possibly musicians to incorporate and develop imagery applications in their practice and performance. It is further hoped that future research and applications would serve to improve this framework in any way that would more perfectly reflect singers’ use of imagery in achieving optimal performance.

Limitations of the Study

Several limitations emerged as a result of the exploratory nature and design of this investigation and were worthy of consideration. Seven limitations were cause for concern and included: (a) sample size, (b) sample configuration, (c) instrumentation, (d) pilot study, (e) interview responses, (f) data analysis, and (g) researcher bias.
**Sample Size**

The first limitation concerned threats due to sample size. The small number of participants in the sample restricted the ability to generalize to the entire classical solo vocal professional population in the United States. However, extensive effort was made to secure the widest range of professional vocalists that qualified for participation and included soloists residing throughout the United States. Professional vocalists and teachers and professors of voice were invited to recommend qualified singers to participate in the study. Generalizability was sacrificed in order to gain an in-depth and a rich data set from highly qualified and experienced professionals. It was determined that this population provided the most complete responses to the research questions, which allowed the results of study to contribute to the growing body of research in the use of imagery in vocal professionals.

**Sample Configuration**

Another limitation was the sample configuration. The use of snowball sampling limited the generalizability to those singers who participated in this study. The exploratory and in-depth design of the study limited the number of participants that could be included in the interviews. Snowball sampling also was limited to those singers who were known to the researcher or recommended by other vocalists and singing teachers and professors who the researcher knew. Due to the researchers’ prior experience in opera and liturgical singing, many of the vocalists were involved in these performance areas which possibly limited representation for other types of solo classical vocal professionals in this study.
While generalizability is not possible with this small sample, attempts a broader representation were made through a sample selection that included (a) male and female singers, (b) a wide range of ages, (c) a wide range of professional experience, (d) a variety of vocal types, (e) varied geographical locations across the United States, and (e) an extensive variety of classical singing genres. Two-thirds of the participants were female, with sopranos’ average age of 37.4, mezzos’ average age of 58.5. Of the five men, four were tenors whose average age was 40 and one was a baritone. Sopranos represented the least experience with mezzos the most, including two who had over 40 years of professional experience each. In spite of many efforts to personally invite bass singers to participate, none responded. Also missing were singers representing the Midwest and Northwest regions of the United States. The limiting factors of the sample populations may have influenced the results.

The wide variety of classical singers’ genre served to represent a broad range of the general employment options for professional vocalists, however it revealed an even broader use of imagery and differences between the singers. There was also a high number of singers who performed primarily in operatic roles, which may not represent the entire profession of classical solo singers who sang other styles such as concerts, recitals, and oratorios. Usually the acting requirements of staging and physical movement in opera were not the same as concert singing. These issues may have influenced the findings of imagery content and function for these participants.

*Instrumentation*

The third limitation was the threat of instrumentation (Onwuegbuzie, 2003). The singers’ interview guide was the initial instrument used to collect data for this study. This
interview protocol was borrowed from the dancers’ interview guide of Nordin and Cumming (2005). Each item in this guide was scrutinized and adapted for the purposes of this study using related literature and music research pertinent to the use of imagery in vocal performers. Other efforts to control for this threat included the use of member checking (Johnson & Christensen, 2004), whereby participants were each sent their transcribed interviews for editing or including any pertinent information. Furthermore, several music researchers analyzed the interview protocol for appropriateness in use by vocal professionals. Although efforts were made to create a guide most appropriate to gathering data from solo singing professionals, several issues arose during the interview process. Terminology concerns, including differentiating between such terms as holidays and breaks, tactile and kinesthesia, and sequencing and planning, caused some confusion for a few of the participants. In addition, the first three sections of the singers’ interview guide included inquiries that gathered less relevant data relative to the research questions. These three sections proved inadequate in acquiring necessary demographic and descriptive data on the participants. Therefore the participant survey instrument had to be designed and implemented, which proved adequate for gathering this information.

Pilot Study

The fourth limitation addressed threats in the administration of the pilot study. It became apparent during the course of the study that the use of only one participant for the pilot study was not sufficient to identify and clarify several terminology concerns in the singers’ interview guide. Interviewing more pilot study participants would also have clarified the inclusion of appropriate probes in the protocol questions. It is possible that
including more participants in the pilot study would have prevented these problems and
given the researcher further practice in the interview process.

*Interview Responses*

The fifth limitation involved the participants’ responses during the interview.
These self-report and personal introspection responses were subjective at best but
represented a viable method in an exploratory study such as this. In order to control for
this threat, the identities of the individual participants were kept confidential.
Interviewees were given pseudonyms for reporting purposes and any personal
information, which could have identified them, was omitted. This helped ensure that the
participants had nothing to lose or gain by falsifying or inflating their answers. It was also
assumed that the responses of the participants were as honest, candid, and forthright as
could be expected in describing their experiences with imagery, since they had no reason
to protect their reputation. Furthermore, in reporting the demographics of the participants,
only enough general information was provided to allow the reader to understand basic
background and experience of each individual but not enough to specifically identify him
or her.

*Data Analysis*

In the sixth limitation concerning the data analyses, methods were used to reduce
threats of bias. In coding, four researchers with advanced degrees in music research and
training in data analysis were employed in coding one of the transcriptions, which
resulted in an inter-coder agreement of .83. Furthermore, peer debriefing (Lincoln &
Guba, 1985) was conducted in order to expose the researchers’ implicit mental
assumptions so that data coding more adequately reflected the theoretical framework, the
related literature, and the responses of the participants. In the effort to allow the reader to understand the researcher’s coding process, specific descriptive quotes from the participants were provided in the results section of this study.

Research Bias

The final threat of researcher bias was a major consideration even though the researcher was considered an instrument in this exploratory study. The researcher’s familiarity with imagery and the vocal profession offered a unique understanding to these two fields. This background assisted the investigator in understanding and interpreting the data in explaining the meaning of their quotes involving the experiences specific to the vocal profession and imagery. However, the researcher’s prior experience may have created certain expectations and influenced the direction and interpretation of the interviews. In the effort to maintain objectivity and reduce bias, the researcher divulged her training and related experience to another researcher throughout the course of this study. Furthermore, peer debriefings were conducted throughout all stages of the research process (Lincoln & Guba, 1985). Additionally, at the end of each interview, the participants were asked if they were influenced in any way. Only one responded positively and offered suggestions to alleviate this problem in future interviews. This participant felt that she was being probed to answer in a way that sometimes confused her and suggested that I could patiently wait slightly longer for the answers. This change was immediately implemented with the remaining ten interviews. Subsequently, all other participants reported that they had not been influenced in their interviews. Many vocalists recalled that the interviewer helped to clarify concepts and provided ideas to help them identify and remember what specific imagery they used.
Implications of the Study

Since there were no known models of imagery use that have connected sport psychology and musical performance, particularly in voice, this study represented a unique and novel approach. Since these performers found imagery to be useful and effective, it could be assumed that other singers and musical performers may already be employing many of the same techniques in their artistic endeavors, even if their imagery use was not specifically identified as those practices identified in sport psychology research. The results of this study have served to distinguish these vocal professionals’ use of imagery in achieving optimal performance as they relate to the findings of sport psychology imagery. Implications for vocal and music education on all levels, private and class music instruction, and general education are discussed. These areas included: (a) location and times, (b) developing mental capacities, (c) matching imagery content with function, (d) mental practice, (e) metaphorical and anatomical images, (f) context imagery, (g) goal attainment, (h) modeling, (i) musical sound imagery, (j) use of the senses, (k) body-related imagery, (l) healing imagery, (m) arousal modification, (n) self-efficacy and mastery, (o) character development, (p) communication with the audience, and (l) using advanced technology to facilitate imagery development.

Location and Times

Participants reported using imagery most prior to performances and during practice, the finding of which was revealed in athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005). Other places and times included being at home, traveling and commuting, exercising, and any time or place. Becoming comfortable with using imagery in a variety of settings is something that could be trained in student and
professional singers as a way to use imagery in augmenting practice and developing concentration and focus. The more vocal participants could concentrate, the longer they were motivated to engage in imagery. However, singers varied in their imagery times from flashes to hours of mental engagement. It would be advisable that in training, imagery times should begin with short durations and in quiet places then proceeding to increased time lengths and levels of distractions as indicated by these singers’ responses. Ultimately, with practice, directed, successful, and effective imagery would take place in a wide range of times and settings.

**Developing Mental Capacities**

It is generally acknowledged that imagery ability appears as early as infancy and is a skill that can be taught and developed (Arieti, 1976). Participants in this study have described the development of their imagery from memories of playing creatively as very young children. Valuing and incorporating this important skill could begin in early childhood musical and preschool programs and possibly provide innumerable benefits in the academic and creative life of the individual regardless of their profession. Singers and performing musicians in training programs of all levels including the private studio, the general music classroom, and undergraduate and graduate private and group classes in conservatories or universities could benefit from instruction and development of mental imagery skills. Professional musical performing skills would be incomplete without mental training and development. This is a strong implication for a holistic approach to vocal and musical performance training (Chapman, 2006; Kohut, 1992).

Understanding the actual experiences and development of professional vocalists, particularly in their use of imagery, could serve to guide vocal pedagogy, just as sport
psychology research has positively influenced athletic training programs (Martin et al., 1999, Morris et al., 2005). Even though singing training is considered to be an oral tradition, teachers with minimum vocal experience continue to teach vocalists, which may impact how imagery is incorporated into their educational practices. It is possible that teachers with or without professional singing experience may have preconceived opinions concerning imagery applications and could inadvertently omit some aspects of mental training vital to the performance success of their students. While it may be ideal for all voice teachers to be successful vocalists, teachers should at least be knowledgeable in as many aspects of singing performance as possible. Sport psychologists and coaches may not have been top athletes, but they seek to provide the tools to equip elite sport competitors with excellent mental skills and techniques. Singing teachers may greatly benefit not only themselves as educators but the future success of their students if they learned the various applications of imagery to musical and particularly vocal performance development and excellence. Even though only a few students may reach professional status, all students deserve the best training available, including those in mental skills.

For these participants, imagery was used in cognitive functions for learning and securing vocal technique and execution, motivational reasons of maintaining arousal and energy balance, and artistic purposes of developing the character and emotional elements of a song or role. It was also used to augment practice through mental rehearsal, check and resolve execution problems, generate artistic interpretation, sustain optimal health for performing, and much more. Given these findings, it is possible that other musical performers might use similar imagery content and purposes in their artistic processes. While many music pedagogues have recognized that developing the mental side of
performance is intrinsic to training (Caldwell & Wall, 2001; Chapman, 2006; Emmons & Thomas, 1998; Ware, 1991), current methods of guidance, training, and education in this area may be insufficient and may not be addressed in ways to achieve optimal performance.

Matching Imagery Content with Function

Sport psychologists have recognized for years that mental training was vital to athletic success (Hall, 2001; Morris, 2005). Vocal teachers could be guided by research such as this to provide all their students with excellent and thorough preparation. The major components, functions, and purposes of imagery, as identified in the proposed singer’s imagery framework, could allow vocalists and performers to learn to systematically connect and apply appropriate imagery to their intended purpose. If imagery components were brought out during training by the assistance of astute vocal teachers, singers could learn to consciously direct their use of imagery, which may allow for more autonomy and natural development in vocal development. Given the extensive skills and techniques the singer must learn, training in imagery could facilitate building, securing, and refining these efforts. Furthermore, the teacher could use a variety of methods in helping the student learn to integrate, mentally and physically, many of the other skills involved in being a professional singer. The use of software, graphic, video, and audio media, and the Internet and can all assist in building the repertoire of sensory and technical imagery upon which the singer could develop a career.

Mental Practice

Many of these singers said that they initially used and developed their imagery in mental rehearsal primarily during quiet times when there were minimal distractions,
which served to augment their physical practice efforts. Implementing a program to
develop mental practice in general and private music programs would require specific
training as well as periods of silence in and outside the classroom or studio to allow
students to imagine recreating and practicing the piece mentally in between their physical
practice sessions. Mixing mental and physical practice was found to be ideal for
memorization and successful practice in a number of music studies (Coffman, 1987,
1990; Highben & Palmer, 2004; Lim & Lippman, 1991; Ross, 1985a, 1985b; Rubin-
Rabson, 1941). More specifically, mental rehearsal was most effective after the rudiments
of the music had been learned, then physical and mental practice was alternated for best
effect. Too often music teachers feel compelled to give their students as much tangible
and active material as possible. Teachers could assist students and children in their own
self-discovery by sensitively calling more attention to their students’ thought processes,
feelings, and mental images throughout the music learning process.

Metaphorical and Anatomical Images

Whether singers use metaphorical or anatomical images in their artistic process
seemed to depend on personal preference and experience, familiarity with the anatomical
features of the vocal mechanism, and the requirements of the specific task. Regarding
vocal production, metaphorical imagery was used to secure technique and execute artistic
interpretation in qualities of singing. These metaphors were also found to facilitate
learning for some singers with less knowledge or familiarity of the vocal anatomy. In her
experience as a vocal performer and a teacher, one participant in this study found that
many young singers regarded their voices as somewhat magical and responded to
metaphorical images in achieving better vocal quality and advancing their technique.
However, as vocalists matured and gained more experience and understanding, they often acquired knowledge of the intricacies of the vocal mechanism in executing their sound. Anatomical imagery assisted singers to connect the kinesthetic feelings of manipulating the voice with images of the corresponding muscles. This finding was consistent with singers’ responses in Carter (1993). If a student was given the mechanical explanations too soon, it sometimes caused confusion and unnecessary tension possibly resulting in vocal injury. Several participants in the present study reported that similar experiences caused them to seek another teacher. Other singers responded to the technical aspects of the vocal production, preferring to know exactly how their vocal mechanism operated so they could learn to understand its functions and manipulate it more precisely. For these participants, especially those with the most experience, this knowledge base grew over time and became quite extensive, which was reflected in several studies of vocal pedagogues (Cleveland, 1989a, 1989b, 1989c; Vennard, 1958, 1961, 1968, 1971).

Therefore, vocal teachers should be knowledgeable in a variety of metaphorical images as well as possess a strong background in the anatomy of vocal mechanics. Providing graphic and video images of vocal anatomy could facilitate greater understanding in singers who preferred these images. In taking it a step further, allowing singers to see their own vocal mechanism by using a flexible fibroscope or a laryngeal image biofeedback (LIB) medical imaging system (Cleveland, 1998a, 1998b) to see the vocal folds could greatly enhance their anatomical understanding. Vocalists’ needs and preferences changed throughout their development, particularly in their imagery use. Therefore with sensitivity and flexibility, teachers should continue developing their own knowledge and understanding of the voice and help students learn how imagery can best
be employed. These results point to the benefits teachers could gain from a full knowledge of vocal anatomy as well as an extensive collection of metaphors to share with their students as needs arise. Teachers’ knowledge of when and how to apply metaphorical and anatomical images could significantly enhance training of vocal students. This highlights the necessity of the teacher to put aside personal preference regarding the uses of imagery in favor of meeting the individual imagery needs of each singer.

**Context Imagery**

Several reported hearing environmental sounds of the performance venue. All these singers imagined themselves in future performance scenarios from upcoming auditions to their most coveted dream of singing at famous venues, such as the Metropolitan Opera House. Many participants shared their extensively detailed images of their future performances, including their affective reactions to the experience and the uses of many of their senses, which helped them prepare for the actual experiences. This method of imagery was found to be a vital element in functional equivalence which linked imagined tasks with the same executed motor activity (Decety 1996a, 1996b, 2002; Holmes & Collins, 2002). Researching the venue by attending, acquiring pictures, or viewing video of the theatre in which the singer planned to perform allowed personal imagery to be more precise thus aided performance outcome. Vocalists, as well as teachers in a private or group singing classes, could easily implement the inclusion of visual media in imagery of various theatres around the world, especially since information is so readily available on the Internet.
Goal Attainment

An important area of imagery use that these participants stressed was their efforts to identify, clarify, and attain goals. These outcome goals were also mixed with performance and process goals (Weinberg & Gould, 1999) and were imagined with as much detail and accuracy as the individual singer was able. Some participants mentioned making lists, writing down details, drawing pictures, and clearly identifying the particulars of what they wanted to accomplish. Several singers continually held in mind the long-term overall vision of their goals while others were more interested in enjoying and artistically crafting each performance. Teachers could help students by encouraging them specifically identify, describe, illustrate, and vividly imagine their immediate and far-reaching goals. Students could be assisted in developing their own outcome, performance, and process goals in their musical efforts as well as ways to use imagery to accomplish them. Allowing students to internalize the music by providing time and training in imagery, and giving students opportunities to direct their own educational and personal goals could significantly increase learning and understanding as well as develop a life-long skill and personal autonomy. This could provide the opportunity for the singer to share the responsibility for their development and eventually assume the full conscious direction and progress of their career.

Modeling

Vocal professionals in this study recalled watching, listening to, and being inspired by outstanding singers. These models provided ideal images in sound, appearance, movement, and characterization for the singers to emulate in their own performances, which supported Bandura’s self-efficacy theory (Bandura, 1977, 1986,
1997; Bandura & Jefferies, 1973). Providing excellent models in various capacities for singers, instrumentalists, chorus, general music, and young children could positively influence their vocal and musical development. Furthermore, the practice of listening to excellent musical performances serves to build a strong storehouse of musical sounds. Often music programs have emphasized playing and physical involvement with performance, however these results indicated that watching and hearing exemplary models of performances could serve to guide a growing musician in ways that would far exceed constant physical practice. Employing expert models as teachers and educators may significantly affect the progress of the student in a variety of fields.

Musical Sound Imagery

Another important finding that emerged in these interviews was that singers mentally heard a wide variety of sounds in their imagery. All singers mentally practiced songs and roles, hearing various elements such as the first attack, pitch, tone quality, text, phrases, entire song, and various parts of the accompaniment. Over the years, many had developed an every evolving ideal sound image, which served to guide vocal production. This individualized sound image developed as the vocalist grew as a professional and incorporated the storehouse of musical sound qualities they had heard and experienced over the years. Building this personalized vocal or musical sound can be provided beginning in infancy and even prior to being born (e.g., Woodward, 1992) and continue throughout childhood, adulthood, and the entire lifetime.

As these singers practiced auditory imagery in music, they became more accomplished in mentally hearing more musical components. The participants’ musical experiences represented imitational aspects of audiation (Gordon, 2007), which involved
“recalling and performing familiar music from memory” (p. 15). While most singers reported mentally hearing the melody and accompaniment, especially with regard to memorization, very few mentioned attending to the musical elements of rhythm, tonality, or context. Even though it could not be assumed that these were not a part of their auditory imagery, the fact that these musical images were omitted may be cause for concern. No singer mentioned hearing any alteration of these phrases or melodies, such as hearing musical compositions in different tonalities or rhythms, which would have provided evidence for more developed audiation abilities as defined by Gordon (1999, 2007). However, learning and applying further training in audiation could provide facility in memorization skills, pitch and vocal production, deeper understanding of musical context, skill in improvisation as well as composition, and other techniques used to develop auditory abilities in music. This has been exemplified in a number of texts on music learning (Azarra, 1992, 1999; Grunow, 2001; Liperote, 2006; Reynolds, Valerio, Bolton, Taggart, & Gordon, 1998).

Another vocal production issue, which emerged from the interviews, was singers’ inability to trust their vocal sounds and therefore their auditory images, preferring to kinesthetically feel the placement for each tone. Several of them purposefully declared that they did not hear musical sounds internally as a result of their teachers preventing them from developing any reliance on their internal auditory images. This dependence on the kinesthetic feeling of the components to produce specific sounds seemed to supplant their use and development of internalized musical sound images, a practice which had been supported in the pedagogic texts (e.g., Farrar cited in Brower & Cooke, 1996; Lamperti cited in Brown, 1931/1973). With the extensive work done in audiation and
music learning theory of Gordon (1976, 1999, 2003z, 2003b, 2007), heavily depending on bodily feeling in vocal production might seem counterintuitive to the natural development of a musician, and particularly a professional singer. While the variety of acoustics in various venues may undermine a vocalist’s confidence in producing correct intonation, developing musical auditory imagery ability would seem to take precedence. If teachers of voice would allow their students to connect both aurally and kinesthetically to the sounds they need to produce, perhaps this would further buttress singers’ skill, confidence, and self-reliance in their performance experiences, while allowing aural imagery skills to develop naturally.

Use of the Senses

Singers’ imagery primarily involved sight, auditory, and kinesthetic senses which were considered to be intrinsic to vocal performance. This has significant implications for music education programs of all kinds to strengthen use of these senses in imagery. Traditional music programs have often focused on music literacy, which developed certain aspects of sight as it related to vocal and instrumental sound. Holmes and Collins (2002) have acknowledged that learning usually begins with visual or auditory imagery (in the case of musical training) and then the kinesthetic sense was subsequently incorporated. Programs that incorporated singing, playing, and movement have helped incorporate more kinesthetic activity in musical development. Orff (Warner, 1991), Laban (1975, 1984) and Dalcroze (Jaques-Dalcroze, 1920/1972; Joseph, 1982) had long recognized the necessity of developing kinesthetic abilities in musical performance. Elementary music methods such as Orff Schülwerk, Kodály, Dalcroze (see Choksy, Abramson, Gillespie, Woods, & York, 2001; Landis & Carter, 1972) and music learning
theory (Gordon, 2007; Reynolds et al., 1998) have incorporated different aspects of visual, auditory, and kinesthetic senses in their programs. Developing these senses in imagery could be incorporated into all general music programs as well as private instruction. Music education text series would benefit children’s music development if they incorporated imagery training in developing these three senses in music play and performance. This would also require the general music teacher to understand how to implement specific strategies in valuing imagery, directing specific mental tasks, and providing time to actively engage in imagery.

Body-Related Imagery

A significant finding included participants’ extensive descriptions of their use of body-related imagery. Their images of the effects of their feelings and experiences had on their physical body were remarkable. These singers were sensitive to the many intricacies of the vocal anatomy as well as how they appeared on stage, whether it was how they wore their costumes, the position and alignment of their body, or how their movements affected the believability of their character. Several of the singers mentioned requiring feedback in these areas so they could incorporate the corresponding kinesthetic feelings in order to reproduce these effects at will. This was accomplished by soliciting the responses of a sensitive friend or teacher as well as observing video-recordings of their practices and performances. These skills in correlating physical appearance, behavior, and movement with kinesthetic images grew over time and with continued experience. Providing these types of performance experience and opportunities for feedback in a vocal training program could assist in building a storehouse of kinesthetic memories and images to be used appropriately for specific performance purposes. This would build
autonomy and effective self-governing behavioral and performance techniques so necessary in a professional singing career.

Healing Imagery

Healing images included both the overall health of the body and, at times more importantly, the vocal mechanism. Participants revealed using imagery to assist them during times of illness, fatigue, and exhaustion. Images of optimal health helped these singers avert illness and take the necessary precautions so that imminent sickness would not take root in their body. Many used mental rehearsal to augment physical practice during times when singing was not possible or advisable. Other singers imagined the release of all unnecessary tension, particularly in the face, neck, and throat, so that injury to the vocal mechanism could be avoided. These imagery practices could be taught to teachers as well as developing and professional musicians. Particular imagery applications could be made so that singers could maintain excellent health and recover quickly from illness or injury. As recommended in the sport literature (Morris et al., 2005), the singer or musician would need to have clear and accurate mental pictures of the healthy state of the specific or affected area of the body. Anatomical pictures or videos of the actual movement of that part of the body could assist in imagery practices.

Arousal Modification

These vocalists used imagery extensively to help calm, energize, and ultimately balance their arousal levels. Most of the participants felt alert and ready to perform on stage and had alleviated most of their problems with stage fright and maintained a comfortable and enjoyable level of arousal in performing. The various methods these singers used to achieve the proper energy balance for optimal performance could be
incorporated into vocal training. Imagining the ease and control of breath, calming anxiety, feeling release of unwanted tension in the body, or brushing the devil off a shoulder were all employed to align the mental and emotional thoughts and feelings for optimal performance. Music students of all ages have had to cope with adjusting arousal levels when they perform. These issues could be addressed and resolved with proper and appropriate applications of imagery, as put forth in Schmidt’s (1982) attention-arousal set theory. The help of a sensitive teacher knowledgeable in arousal imagery could easily alleviate these fears. Teachers could offer their students a variety of imagery applications from which to choose to help every individual they taught learn to embody the optimal arousal levels for each particular performance.

Self-Efficacy and Mastery

These participants all described feelings of confidence, mastery, and high levels of self-efficacy. The process usually began with singers focusing, concentrating, and controlling attention to the specific performance task and diminishing distractions. The use of thought stopping and positive self-talk also greatly contributed to strengthening their confidence, especially during auditions, rehearsals, and performances. More successful experiences seemed to increase feelings of self-efficacy (Bandura, 1997), which also positively affected future performances. Providing developing singers with audition and performance simulations could help them develop the skills in concentration, the use of self-talk to maintain confidence, and build self-efficacious feelings related to the actual experiences of performance. Teachers could also assist students in ways to deal with negative self-criticism and use imagery to strengthen their
self-image, thoughts, and feelings that facilitate optimal performances early in their training.

Character Development

Further implications for developing the many aspects of imagery are directly involved with character development. Participants used imagery to vocally, physically, and artistically embody the character of the role or song. Precisely imagining the desired sound quality, appearance, historical and cultural background, and physical gestures and movement of the character was critical to achieving optimal performance for these professionals. All singers highly valued recreating the emotion of the song or character particularly by using memories of past experiences as described in Craig (1993). More effort in incorporating these imagery elements in vocal training could be made. Learning proper vocal technique represents only a small part of the required skills to become a professional. Often these acting essentials are left for singers to learn much later in their training. Several participants had training in acting, specifically in Method Acting (Stanislavsky; 1961; Strasberg & Morphos, 1987), and found that their abilities to embody their characters increased and deepened immensely, resulting in more expressive vocal performances. Singers as well as voice teachers could greatly benefit from training and experience in acting and dramatics. The sooner young singers incorporate these mental, sensory, and emotional components in their performance, the more adept at embodying them they could become, which could positively influence their work on stage and possibly the course of their career.
Communication with the Audience

Singers in this study were very articulate and somewhat passionate about their imagery of communicating with the audience. This seemed to be more pronounced in professionals with more experience on stage than those with less. It appeared that vocalists were able to engage in this type of imagery when they had achieved a certain degree of automaticity with vocal technique, the music to be performed, and a level of personal comfort in being in front of a live audience. These images varied by the degree of interaction with which the singers were comfortable, their creative images, and the quality of communication in which they saw themselves engaging. Several mentioned very personal, intimate, and deeply spiritual images which directly correlated with their own understanding of why they had become professional singers. This was an interaction that seemed to develop over time and was extremely individualized. However, it could be an area of imagery vocalists could develop either on their own or with the assistance of a caring and sensitive teacher since these images are relatively personal. These images can evolve and mature to a significant level, which could positively engage the singer in a richer experience of singing on stage, promoting further optimal performances.

Using Advanced Technology to Facilitate Imagery Development

Singers regularly reported the benefits they had long enjoyed in using imagery in their profession, employing different kinds of imagery for many purposes. By using advanced technology, such as the flexible fibroscope or the laryngeal image biofeedback (LIB) medical imaging system, singers could view their own vocal mechanism, which could assist them in clearly imagining the healthy state of their voice. It could also facilitate understanding the mechanisms involved in ideal sound production, as Cleveland
(1989a) found in his singers. Furthermore, teachers could incorporate Internet, graphic, audio, and video images in providing excellent models and examples of elite singers for students to emulate. The recent addition of websites such as www.youtube.com and www.expertvillage.com on the Internet has provided a wealth of examples in singing and musical performance that has heretofore not been available. In building ideal images of sound, execution, and variety of images for performers, this could be a potential gold mine and the use of good models from it could be strongly encouraged. With the guidance of knowledgeable vocal instructors, the student singers would use modeling in the effort to find the great qualities of their own voices and avoid the adverse effects of mimicking inappropriate models.

By understanding the specifics of vocal professionals’ use of imagery content and purpose, singers, teachers, vocal professors, and music educators of all kinds could assist their students in incorporating the appropriate applications of imagery in their students’ education, training, practice, and performance. These participants’ responses have provided evidence that imagery use by athletes and dancers compares quite favorably to how vocal professionals have used imagery, even if the terminology and semantics may differ. Teachers, students, and professionals could understand and appropriately use the types, content, and functions of imagery in addressing vocal, musical, and performance issues and requirement. These findings could be implemented in vocal programs, instrumental and ensemble groups, general music education, and even early childhood music. Therefore, the link between imagery use in athletics and vocal performers, as exemplified in this study and the proposed singers’ imagery framework, provides a basis upon which to build this training and methods of implementation.
Recommendations for Further Research

This study provided evidence that extensive future research in the area of imagery in performance is warranted. Specific ideas for further research included nine areas: (a) replication of this study, (b) imagery in the performance process, (c) imagery for vocal production, (d) applications in imagery training, (e) musical performers’ use of imagery, (f) sensory imagery, (g) children’s use of imagery, (h) quantitative studies, (i) music teachers’ imagery, (j) relationship of flow and imagery, (k) functional equivalence of performers’ imagery, and (l) cross-disciplinary studies.

Replication of the Study

Recommendations for replicating this study would involve shortening the first three sections of the singers’ interview guide, as well as adding the changes mentioned previously in this and the previous chapter. It may be advisable to narrow the field of participants to a perimeter limiting the years of experience, genre of singing, or voice classification. Future studies could also be designed to compare imagery of one vocal or instrumental group with another, perhaps older professionals with younger, basses with tenors, mezzos with sopranos, concert performers with opera singers, or string with woodwind soloists to identify differences and commonalities in their use of imagery. It may prove advantageous to limit the interview to a specific area of imagery use by specific populations. This may allow for a larger sample and more in depth data may emerge, providing a more complete understanding of imagery uses to emerge. Acquiring skill in interviewing and psychology of imagery is recommended. Researchers dedicated to uncovering deep feelings and images that are sometimes only barely conscious are needed for this type of research.
Imagery in the Performance Process

Several singers described imagery use in their learning sequences and processes. Researchers could examine individual vocalists or instrumentalists in the methods of imagery they employ in the performance process, beginning with first learning a piece to formal presentation on stage. Furthermore, vocalists in this study reported using imagery primarily during practices and just prior to performances. Investigating the differences in how musical performers use imagery before, during, and after practice sessions, formal rehearsals, and performances could reveal important findings that assist musicians in achieving excellence. Singers’ imagery experience could be investigated by allowing them to journal either in writing or by audio or video recording their thoughts and images as they progress from initial practice through the last performance, which was similar to Kosslyn and colleagues’ (1990) study.

Imagery for Vocal Production

The issue of using metaphors and anatomical imagery in vocal production could be investigated. More details and uses of metaphors could be compiled along with its intended purpose, extending the work of Barten (1992, 1998), Fields, (1945), and Freed (2000). Studies investigating reasons and variables for using metaphor and anatomy in vocal production could provide understanding in matching the type of image with the needs of the singer. Further investigation is also needed to as how to most appropriately train singers in vocal mechanics and anatomy (Chapman, 2006; Vennard, 1968) and apply this knowledge in their imagery through the senses of vision, hearing, and kinesthetic feeling. Knowledge and imagery resulting from singers’ training in anatomy and their personal experiences of viewing their own vocal mechanism through a flexible
fibroscope and a laryngeal image biofeedback (LIB) medical imaging system could also be investigated, extending Cleveland’s (1989a, 1989b) studies.

*Applications in Imagery Training*

Training programs in imagery interventions could be designed, using the singers’ imagery framework, for different musical performers and tested for effectiveness in performance experiences. Changes in imagery use over time as a result of training have been investigated in athletics (Martin et al., 1999), and could be applied and researched in specific populations of musical performers. Specific training programs for imagery applications could be devised and studied in various musical teachers and performers such as solo instrumentalists, small and large ensemble groups, chorus and band, and many more, extending the work of Connolly and Williamon (2004). Studies could also be planned in order that imagery use match the musical needs of the performers and be subsequently tested for perceived effectiveness. Results of these investigations could be compared with those in sport and dance.

*Musical Performers’ Use of Imagery*

The four Ws of imagery use could be explored in singers and instrumentalists in a variety of musical performing genres (e.g., blues, popular, hip-hop, and rap artists). Imagery in musicians in different cultural settings within the United States could be examined and compared with other performers. Furthermore, imagery of improvising musicians, especially jazz artists, could be examined and also compared with imagery used by musicians that memorized or read music in performance. Imagery of musicians in other cultures could be investigated on their own terms and compared with those that are common in the United States.
Sensory Imagery

A potentially rich source of information on imagery resides in future investigation of the various senses. Singers in this study reported primarily using vision, hearing, and kinesthesia in imagery. However, investigations of other musical performers may reveal differences, as were reported by Trusheim (1987). Furthermore, imagery in specific senses could be studied. Kinesthetic imagery in a variety of populations could be trained through movement applications as developed by various experts (e.g., Dalcroze, Laban, Gordon, and Orff) and compared with other applications or a control group. The sense of sight through different skills such as visualizing the musical score or internal images of a keyboard could be studied as to how it is used in development and training in musical performance. Further studies could include the interaction of imagery perspective in sense imagery, particularly in auditory imagery. Continued studies in auditory imagery and audiation research could extend the work of Gordon (1999, 2003b, 2007) and his colleagues (Azarra, 1992, 1999; Grunow, 2001; Liperote, 2006; Reynolds et al., 1998). The interaction of different sense imagery such as chromesthesia (Polzella & Kuna, 1981) could also be investigated as well as many other sensory interactions.

Children’s Use of Imagery

Investigating children’s use of imagery could include a wide array of variables. How imagery is developed, nurtured, and used in children in a variety of age groups could provide a wealth of information. This could extend beyond the music setting, into imaginary play, creative endeavors such as fine art, dramatics, and movement, extending Piaget’s (1962) work. Their use of the different senses in imagery could also be studied longitudinally in these areas. The use of imagery in the general educational setting could
inform teachers as to how to value and develop imagery in a variety of academic applications.

Quantitative Studies

Musicians’ imagery use could be assessed quantitatively in a variety of ways. The Functions of Imagery in Music Questionnaire (FIMQ) (Gregg et al., 2008) adapted from the Sport Imagery Questionnaire (SIQ) (Hall et al., 1998; Hall et al., 2005) could continue to be improved to better represent various performing musician’s imagery applications. Sheehan’s (1972) shortened adaptation of Betts’ (1909) vividness tests could be adapted and administered to singers, teachers, and other musicians. Other imagery surveys and instruments could be designed to gain a more complete understanding of imagery uses and abilities in singers and instrumentalists. Specific terminology would have to be carefully chosen by using a variety of terms (e.g., visualize, imagine, audiate, feel, and think about), providing definitions and examples so that music participants would easily grasp each meaning. Manipulation checks to verify that participants were imagining what they professed to imagine or what they were directed to imagine would have to be implemented. Imagery treatments and protocol would need to be clearly described in order to facilitate replication and comparisons to related studies (Morris et al., 2005). Findings could be compared among musicians, such as soloists with ensemble members, conductors with orchestra members, and students with professionals.

Music Teachers’ Imagery

Music teachers’ knowledge and applications of imagery in the different educational settings could be investigated. Private and general music educators could be
surveyed as to their value for imagery and how they specifically use mental practice, techniques in audiation, and kinesthesia in their programs. Understanding and implementation of imagery skills could be assessed in vocal professors. Training programs for teachers and professors in using imagery and its connections to sport and dance could be devised, implemented, improved, and reported.

**Relationship of Flow and Imagery**

Extended areas of investigation could include several issues that emerged from singers’ responses. Flow experiences in musical performance, especially in relation to imagery use could be examined. More specifically, researchers could interview performers in their actual daily imagery experiences, the practice of which was employed by Csikszentmihalyi (1990). This could be done by a written or recorded journal of imagery during their normal days as a professional or just their experiences relating to practicing and performing. Thoughts and images of audience interactions could be analyzed more closely, especially in relation to performance anxiety and specific performance practices. Vocalists’ personal reasons and purposes in becoming a professional in relation to their performance imagery could also be a topic for a research study. Performers’ spiritual imagery and experiences in relation to flow is also worthy of future investigation.

**Functional Equivalence of Performers’ Imagery**

The data suggest that singers were generally convinced of the usefulness of imagery in benefiting many aspects of their work. These vocalists also found imagery to be intrinsically connected to their physical, technical, and artistic execution. The recent developments in medical imaging have enormous potential to further the studies of
imagery and performance. Functional equivalence studies (Decety, 1996a, 1996b; Finke, 1989; Jeannerod, 1994, 1995, 2006) could be conducted in musical performance, in furthering previous studies in this area (e.g., Alemen et al., 2000; Meister et al., 2004; Halpern & Zatorre, 1999). For instance, singers’ images and thoughts could be mapped using fMRI techniques and compared with those produced prior and during the actual execution, in various aspects of performance and practice. The results of these studies could contribute to this growing body of research in ways that would lend even more credibility to previous imagery studies.

Cross-Disciplinary Studies

The findings in this investigation of vocal professionals’ imagery use seem to support crossing the lines of musical and artistic performance and sport research. Singers used imagery in ways similar to those of athletes (Munroe et al., 2000) and dancers (Nordin & Cumming, 2005). In this study, music research was guided successfully by findings in dance and sport psychology. Connections to many other areas emerged in the data as pertinent to singers’ efforts to achieve optimal performance. Several vocalists had specific training in acting in which they used imagery to create intentions and emotions of their character. Other participants were trained in visual art and mentioned drawing and creating specific graphic images that were created internally. Singing, as in other professions, was not an entity unto itself, especially with regard to imagery use, but interacted with other skills chosen, developed, or previously experienced by these participants. Therefore it is reasonable to suggest that different areas could be researched and compared as to their uses of imagery and effects on performance. For example, sports research in kinesthetic imagery could assist singers in body-related imagery; artistic
applications for healing purposes in the health professions could inform performers perhaps as effectively as athletic and musical performers’ healing and arousal imagery could provide information to the medical and psychology community. The possibilities in correlating these seemingly diverse areas could be quite promising in revealing important aspects heretofore unidentified in imagery and performance research.

Summary

This chapter has presented the findings of where, when, what, and why 15 solo vocal professionals used imagery based on the four Ws framework from sport and dance. The results in each of these areas were summarized and discussed. Limitations included sampling of the population, generalization, researcher bias, terminology concerns, self-report responses, and confidentiality. Implications of this study consisted of issues involving vocal performers, instrumentalists, vocal pedagogy, imagery content and purposes, goal attainment, arousal modification, character development, imagery training, and other issues of imagery in music training and performance. Recommendations for further research were comprised of replicating this study, imagery of singers, instrumentalists, performers of other genres of music, ways to extend imagery investigations, and cross-disciplinary studies.

Exploring the imagery used by solo vocalists served to broaden the findings and the data pool providing further understanding of performance imagery. These singers were articulate and willing participants, and contributed to the growing link in connecting sport psychology and musical performance. The similarities are remarkable and serve to encourage more of such research.
The researcher hopes that this study will be a stimulus for further cross-disciplinary research among music, sport, dance, psychology and more. Sharing the extensive benefits in this area has potential advantage for all these fields. Further qualitative and quantitative research in imagery involving musical and other types of performance would involve applied and theoretical fields of study and continue to add to the growing body of knowledge in imagery use in performance.
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319


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Appendices
Appendix A

Permission to Publish Imagery Frameworks

HUMAN KINETICS
1677 North Market Street • P.O. Box 5076 • Champaign IL 61825-5076 • (217) 351-5076 • Fax (217) 351-2674
March 25, 2009

Patricia Bowes
School of Music
College of the Arts
University of South Florida
Tampa, FL
patbowesarts@yahoo.com

RE: Request to reprint two figures from The Sport Psychologist in your PhD dissertation study

Dear Ms. Bowes:

Thank you for your interest in material published by Human Kinetics.

We are pleased to approve your permission request for this one-time use of two figures from The Sport Psychologist in your dissertation study. This is your confirmation that we are granting nonexclusive print rights in all languages throughout the world, contingent upon your use of the following credit lines adjacent to the reprinted material:

CREDIT LINES:

For figure 1, a conceptual framework for athletes' use of imagery:

For figure 1, hierarchical tree illustrating the dimensions where, when, why, what, and how dancers imagine:

FEE: WAIVED

In the future, should you wish to formally publish this material, please request permission again.

Sincerely,

[Signature]

Martha Gullo
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Champaign, IL 61820
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Email: martha@hkahusa.com

354
Appendix B

Introductory Letter and Scripts: Vocal Professionals

Patricia L. Bowes
6712 Sapsible Lane
Temple Terrace, FL 33617
813 985-1199, cell 561 523-2223
patbowesarts@yahoo.com

December 1, 2008

Dear Vocal Professional

I am a candidate for the Ph.D. degree in music education at the University of South Florida, Tampa. I am currently beginning field work on my dissertation, titled: *An Exploratory Study of the Use of Imagery by Vocal Professionals: Applications of a Sport Psychology Framework.*

You were highly recommended by ______ as having these qualifications

I am looking for male and female participants in all vocal registers from major cities throughout the United States who
(a) hold a four year degree in vocal performance, and
(b) have been working for at least four years making at least half their income as a solo vocal professional
or
(c) if they have no performance degree, they have eight years making at least half their income as a solo vocal professional.

In order to identify vocal professionals who might wish to participate in my study, I am respectfully requesting your assistance. I have contacted you because you are a recognized vocal professional currently working in the field.

If you decide to participate, we will set up an initial telephone conversation to get to know a little about each other, the purpose of the study, imagery definitions, expectations of the participants, anonymity and pseudonyms, interview procedures, intention to digitally tape and transcribe verbatim the interview, procedures to check the written transcriptions, and uses of the results and data. The actual telephone interview itself will last between 30 to 75 minutes at a time and telephone number convenient to you.
Appendix B (continued)

There are a few potential benefits to you and members of the vocal profession. You may learn more about your use of imagery in achieving optimal performance. Your responses may also be of possible benefit to other singers, voice teachers, and music education in general. Unfortunately, there is no pay for your time.

The telephone call for the interview should be free for you since I will call you. All names, locations and identifying references will remain anonymous in order to ensure your most candid and honest responses.

I sincerely hope you decide to participate in this research study, and that it will be a rewarding experience for you. As soon as you have a chance, please send me an email (patbowesarts@yahoo.com) and let me know whether you decide to participate. Furthermore, if you are able to suggest possible participants for my dissertation study who meet the above criteria, please send an email to me that includes the names of singers you recommend, and either their email and/or telephone numbers where they can be reached.

If you would like more information about my study, please take a look at the attached information sheet. If you have additionally questions or concerns, please feel free to email me at the above address. Thank you for your kind consideration. I look forward to hearing from you soon.

Sincerely,

Patricia L. Bowes
Appendix C

Introductory Letter and Scripts: Participants: Vocal Professors

Patricia L. Bowes
6712 Sandscape Lane
Temple Terrace, FL 33617
813 985-1199, cell 561 523-2223
patbowesarts@yahoo.com

December 1, 2008

Dear Vocal Professor,

I am a candidate for the Ph.D. degree in music education at the University of South Florida, Tampa. I am currently beginning field work on my dissertation, titled An Exploratory Study of the Use of Imagery by Vocal Professionals: Applications of a Sport Psychology Framework.

In order to identify vocal professionals who might wish to participate in my study. I am respectfully requesting your assistance. I have contacted you because you are a recognized teacher of successful vocal professionals who are currently working in the field.

I am looking for male and female participants in all vocal registers from major cities throughout the United States who
(a) hold a four year degree in vocal performance, and
(b) have been working for at least four years making at least half their income as a solo vocal professional
or
(c) if they have no performance degree, they have eight years making at least half their income as a solo vocal professional.

I sincerely hope that you are willing and able to assist me in identifying possible participants for my dissertation study. I am asking you to take a few moments to think of singers who meet the above criteria. Then, please send an email to me (patbowesarts@yahoo.com) that includes the names of singers you recommend, and either their email and/or telephone numbers where they can be reached.
Appendix C (continued)

If you would like more information about my study, please take a look at the attached information sheet. If you have additionally questions or concerns, please feel free to email me at the above address. Thank you for your kind consideration. I look forward to hearing from you soon.

Sincerely,

Patricia L. Bowes
Ph.D. Candidate
School of Music
College of Visual and Performing Arts
University of South Florida
Tampa, FL 33620
Appendix D

Singers’ Interview Guide
An Exploratory Study of the Use of Imagery by Vocal Professionals:
Applications of a Sport Psychology Framework
The Four Ws of Singing Imagery

Subject number: _____ Name: _________________________________
Age: _______ Date: _____________________________
Time began: ________ Time ended: _________________________

Section 1: Introduction (not recorded)
Hello, I am Patricia Bowes from the School of Music at the University of South Florida. Thank you for agreeing to participate in this interview! Your anonymity is secured as we have already agreed. In this project I am talking to singers about where, when singers use imagery, of what their imagery consists, and why they use imagery to achieve optimal performance. Optimal performance is also referred to as “the flow state,” “being in the zone,” or “in the groove.” It is a state that you, as an experienced professional, work toward and can control, in which all elements fall into place and it just feels right. It is different from peak performance, which is an outstanding, unforgettable, often a penultimate or once in a lifetime experience. Do you have any questions about optimal performance?

For the sake of clarity, I am going to define imagery to you:

“Imagery is an experience that mimics real experience. We can be aware of [hearing music inside our head], ‘seeing’ an image, feeling movements as an image, or experiencing an image of smell, taste or sounds without experiencing the real thing. It differs from dreams in that we are awake and conscious when we form an image.” (White and Hardy, 1998).

Imagery is not simply talking to yourself, and it is not just watching demonstrations by other people. A lot of the time it is seeing, hearing, and feeling as if you were doing something else. Imagery can be done while performing an aria or during a concert and in an appropriate setting, but just as well while being in a completely different environment, and being completely still.

Do you have any questions about what I mean with imagery? Is this similar to how you would define imagery?
Appendix D (continued)

As we go through the interview, I have definitions and examples of the various kinds of imagery available so please ask if you are not quite clear about what I am asking for. Also, do not worry if some questions seem repetitive. This is partly to make sure that I am covering all aspects of your singing imagery and not leaving anything out, and partly useful to obtain quotes for later analyses.

Section 2: Imagery experience

This section of the interview focuses on some of your experience with imagery.

1) Do you ever engage in this type of imagery to achieve optimal performance? (if yes, go on to #2. If no, ask: Is there ever a time when you see or hear yourself or somebody else singing a song or aria in your mind? If yes, continue to # 2. If no, say thank you and terminate the interview.)

2) What kind of imagery do you remember using when you first began?
   i. Visual, sound, feeling?

3) Why did you first begin using imagery?
   i. i.e., for what purpose?

4) How did you first learn to use imagery?
   i. How did you develop this skill?
   ii. Who taught you?
   iii. Did it come naturally?

5) Describe how your use of imagery has developed over your singing career?
   i. i.e., is it different now in any way from what it was to start with?

Section 3: Singing experience

This section of the interview focuses on your background in singing.

6) How old were you when you first began singing?
   i. types of singing
   ii. what attracted you to singing?

7) How many times per week did you sing then?
   i. types of song

8) Describe what type(s) of singing you are involved in now?

9) How many times per week do you sing now?
   i. if several kinds, how often for each?
Appendix D (continued)

10) Did your teacher ever use imagery with you in connection with your training in achieving optimal performance? (If yes, go on to #11. If no go on to Section 4, # 15.)

11) Describe what kinds of imagery your singing teacher involved in the lessons when you were younger?

i. Elaboration probe:
   1. e.g. suggesting you could imagine an aria in your head?
   2. When was this? / How old were you then?
   3. What did this imagery involve?

12) What kinds of imagery do your singing teachers/coaches involve in your lessons/rehearsals now?

i. What does this imagery involve (content)?
ii. How often does this occur?

13) What kinds of imagery do your teachers/coaches encourage you to use yourself, outside of lessons/rehearsals?

i. Describe some of that imagery that they encourage?
ii. To what extent do you use what they recommend?

14) Where else did you learn to use imagery in vocal performance?

i. Did you read books, collaborate with peers, or suggested by a teacher?

**Section 4: Why**

Imagery use for optimal performance can serve different functions for singers, and in the following sections, I will be asking you to elaborate on the reasons why you use imagery.

15) Describe any imagery you use that is based on **skill learning and execution**?

i. i.e. imagery based on technical instruction and doing things correctly?
   ii. e.g. imagining a certain aria performed perfectly.
   iii. elaboration probes:
       1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
       2. What does it consist of? (content)

16) Describe any imagery you use relating to **sequences**?

i. i.e. imagery based on sections of a programme, or a whole performance?
Appendix D (continued)

ii. e.g. imagining a stage entry going exactly according to plan and practice.
iii. elaboration probes:
    1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
    2. What does it consist of? (content)

17) Describe any imagery you use relating to strategies?
   i. i.e. imagery based on how to do things, order, and planning? (like a game plan in sport, entrances, blocking, exits?)
   ii. e.g. imagining focusing on technique for the first half of a stage entry, and then focusing on form?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

18) Describe any imagery you use relating to arousal and anxiety?
   i. i.e. imagery based on stress, nervousness, stage fright etc.?
   ii. e.g. imagining the excitement associated with performing, imagining handling your performance anxiety or stage fright?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

19) Describe any imagery you use relating to self-confidence and mastery?
   i. i.e. imagery based on being in control, being focused, and/or working successfully through difficult situations?
   ii. e.g. imagining feeling really confident when walking onto the stage?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

20) Describe any imagery you use relating to goals?
   i. i.e. imagery based on what it will be like to work toward your goals?
   ii. How do you break down large and small goals?
   iii. e.g. imagining working hard and the process that will take you to where you want to go?
   iv. elaboration probes:
Appendix D (continued)

1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
2. What does it consist of? (content)

i. i.e. imagery based on what it will be like to reach your goals?
ii. e.g. imagining great applause from the audience for your solo performance, and/or how it would feel to get accepted to a certain company/orchestra, or likewise?
iii. elaboration probes:
   1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
   2. What does it consist of? (content)

21) Describe any imagery you use based on metaphors?
   i. i.e. imagery based on symbolism and imagining being something else?
   ii. e.g. imagining being filled with a color, rising like a bird, singing in an old cathedral, sounding like a certain musical instrument?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

22) Describe any imagery you use for character development?
   i. i.e. imagery based on being somebody else, and identifying yourself with your role?
   ii. e.g. living in the era or place (time, style, or country) in which a performance is set?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

23) Describe any imagery you use based on emotions?
   i. i.e. imagery based on emotions such as happiness, sadness, melancholy, exhilaration?
   ii. e.g. imagining being really excited?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)
Appendix D (continued)

24) Describe any imagery you use based on energy?
   i. i.e. imagery based on feeling energized and psyched up?
   ii. e.g. imagining being really energetic or calming down?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

25) Describe any imagery you use based on appearance?
   i. i.e. imagery based on how you look to others, your body image, posture, fitness, health etc.?
   ii. e.g. imagining looking how you would ideally like to look?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

26) Describe any imagery you use based on your sound?
   i. i.e. imagery based on how you sound to others, your vocal image, fitness, health, quality etc.?
   ii. e.g. imagining sounding how you would ideally like to sound?
   iii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

27) Describe any other kinds of imagery you use to achieve optimal performance, which are different from the ones we have mentioned?
   i. e.g. healing, spiritual imagery?
   ii. elaboration probes:
        1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
        2. What does it consist of? (content)

28) Describe any other reasons that you have for using imagery to achieve optimal performance, that are different from the ones we have mentioned?
   i. e.g. motivating yourself to sing?
   ii. elaboration probes:
        1. What does it consist of? (content)
Appendix D (continued)

Section 5: What

This section of the interview focuses on what senses you involve in your imagery for optimal performance. As you know, you have the five senses of vision, hearing, smell, taste, and touch. Additionally, you can experience kinaesthetic imagery, and the emotion-based imagery we talked about earlier.

29) To what extent do you use imagery relating to vision?
   i. What perspective does that imagery take?
      a. i.e. is it Internal/External/Switching?

30) To what extent do you use imagery relating to sound and hearing?

31) To what extent do you use imagery relating to smell?

32) To what extent do you use imagery relating to taste?

33) To what extent do you use imagery relating to touch?
   i. i.e. imagining what it feels like to be touched, e.g. when a partner touches you or the teacher corrects you.

34) To what extent do you use imagery relating to kinaesthesia?
   i. i.e. awareness of your body position in space
   ii. e.g. knowing how your body feels when singing a high note.

35) Describe any other kinds of sensations that you feel in your imagery?
   i. e.g. heat or other temperature changes? Pain? Body Image?

36) Which of the above would be the primary senses you use in your imagery?
   i. Which would be not so important/by-products?

Section 6: What continued: Imagery details

This section of the interview relates to some of the details of your imagery use.

37) Describe your ability to use imagery to achieve optimal performance?
   i. i.e. how good do you think you are at imaging? Different sense imagery abilities.
   ii. Elaboration probes:
      1. how accurate are your images?
      2. how vivid are they?
      3. to what extent are you able to manipulate your images as you wish?
Appendix D (continued)

38) To what extent is your imagery **facilitative, debilitative, or both**?
   i. i.e. is your imagery helpful or hurtful to you? Examples?
   ii. Elaboration probe: is this always the case or does it vary?

**Section 7: When and Where**

This section of the interview relates to places and times you use imagery.

39) **When** do you use imagery?
   i. Elaboration probes:
      1. Time of day or night
      2. In relation to practice (before/during/after)
      3. In relation to performance (before/during/after)
      4. In relation to performance season (before/during/after)
      5. To what extent does your imagery use differ between rehearsal, performance, and holiday periods?

40) **Where** do you use imagery?
   i. i.e. where are you normally when you are imaging?
   ii. Where do you usually practice imagery, where is your favorite place?

**Section 8: Conclusions**

Ok, this just about wraps up the interview. However, before we finish, let me ask you a few final questions:

41) How did you think the interview went?

42) Did I lead you or influence your responses in any way?

43) Do you think we failed to discuss any important factors?
   i. What are they?

44) Do you have any comments or suggestions about the interview itself?

**THANK YOU** so much for helping out by participating in this interview!
Dancers’ Interview Guide (Nordin & Cumming, 2005)

The Four Ws of Dance Imagery

Subject number: _______ Name: ____________________________________________
Age: _______________ Date: ______________________________________________
Time began: ________ Time ended: _______________________________________

Section 1: Introduction (not recorded)

Hello, I am Sanna Nordin from the School of Sport and Exercise Sciences at The
University of Birmingham. Thank you for agreeing to participate in this interview! In this
project I am talking to dancers about why, when, and where dancers use imagery, and
what their imagery consists of. First of all, I am going to define imagery to you:

“Imagery is an experience that mimics real experience. We can be aware of ‘seeing’ an
image, feeling movements as an image, or experiencing an image of smell, taste or
sounds without experiencing the real thing. It differs from dreams in that we are awake
and conscious when we form an image.”

(White and Hardy, 1998).

Imagery is not simply talking to yourself, and it is not just watching demonstrations by
other people. A lot of the time it is seeing and feeling as if you were doing something
else. Imagery can be done whilst performing a movement and in an appropriate setting,
but just as well whilst being in a completely different environment, and being completely
still.

Do you have any questions about what I mean with imagery? Is this similar to how your
would define imagery?

As we go through the interview, I have definitions and examples of the various kinds of
imagery available so please ask if you are not quite clear about what I am asking for.
Also, do not worry if some questions seem repetitive. This is partly to make sure that I
am covering all aspects of your dance imagery and not leaving anything out, and partly
useful to obtain quotes for later analyses.
Appendix E (continued)

Section 2: Imagery experience
This section of the interview focuses on some of your experience with imagery.

1) Why did you first begin using imagery?
   i. i.e., for what purpose?

2) How did you first learn to use imagery?
   i. How did you develop this skill?
   ii. Who taught you?
   iii. Did it come naturally?

3) Describe how your use of imagery has developed over your dancing career?
   i. i.e., is it different in any way from what it was to start with?

Section 3: Dance experience
This section of the interview focuses on your background in dance.

4) How old were you when you first began dancing?
   i. types of dance

5) How many times per week did you dance then?
   i. types of dance

6) Describe what type(s) of dance you are involved in now?

7) How many times per week do you dance now?
   i. if several kinds, how often for each?

8) Describe what kinds of imagery your dance teacher involved in the lessons when you were younger?
   i. Elaboration probe: e.g. suggesting you could imagine a dance routine in your head?
   i. When was this? / How old were you then?
   ii. What did this imagery involve?
   iii. Was this a regular occurrence?

9) What kinds of imagery do your dance teachers/choreographers involve in your classes/rehearsals now?
   i. What does this imagery involve (content)?
   ii. How often does this occur?

10) What kinds of imagery do your teachers/choreographers encourage you to use yourself, outside of classes/rehearsals?
Appendix E (continued)

i. Describe some of that imagery that they encourage?
ii. To what extent do you use what they recommend?

Section 4: Why
Imagery can serve different functions for dancers, and in the following sections, I will be asking you to elaborate on the reasons why you use imagery.

11) Describe any imagery you use that is based on skill learning and execution?
   i. i.e. imagery based on technical instruction and doing things correctly?
   ii. e.g. imagining a double pirouette performed perfectly.
   iii. elaboration probes:
       1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
       2. What does it consist of? (content)

12) Describe any imagery you use relating to sequences?
   i. i.e. imagery based on sections of a programme, or a whole performance?
   ii. e.g. imagining a stage entry going exactly according to plan and practice.
   iii. elaboration probes:
       1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
       2. What does it consist of? (content)

13) Describe any imagery you use relating to strategies?
   iv. i.e. imagery based on how to do things, order, and planning? (like a game plan in sport?)
   v. e.g. imagining focusing on technique for the first half of a stage entry, and then focusing on form?
   vi. elaboration probes:
       1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
       2. What does it consist of? (content)

14) Describe any imagery you use relating to arousal and anxiety?
   i. i.e. imagery based on stress, nervousness, stage fright etc.?
   ii. e.g. imagining the excitement associated with performing, imagining handling your stage fright?
   iii. elaboration probes:
       1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
       2. What does it consist of? (content)

369
Appendix E (continued)

15) Describe any imagery you use relating to self-confidence and mastery?
   i. i.e. imagery based on being in control, being focused, and/or working successfully through difficult situations?
   ii. e.g. imagining feeling really confident when walking onto the stage?
   iii. elaboration probes:
         1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
         2. What does it consist of? (content)

16) Describe any imagery you use relating to goals?
   i. i.e. imagery based on what it will be like to work toward your goals?
   ii. e.g. imagining working hard and the process that will take you to where you want to get?
   iii. elaboration probes:
         1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
         2. What does it consist of? (content)
   vii. i.e. imagery based on what it will be like to reach your goals?
   viii. e.g. imagining great applause from the audience for your solo performance, and/or how it would feel to get accepted to a certain academy/school, or likewise?
   ix. elaboration probes:
         1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
         2. What does it consist of? (content)

17) Describe any imagery you use based on metaphors?
   i. i.e. imagery based on symbolism and imagining being something else?
   ii. e.g. imagining being filled with a colour, moving through water, holding a beach ball, stretching like elastic, jumping over a hurdle?
   iii. elaboration probes:
         1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
         2. What does it consist of? (content)

18) Describe any imagery you use for character development?
   i. i.e. imagery based on being somebody else, and identifying yourself with your role?
   ii. e.g. living in the era or place a performance is set?
   iii. elaboration probes:
Appendix E (continued)

3. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
4. What does it consist of? (content)

19) Describe any imagery you use based on emotions?
   i. i.e. imagery based on emotions such as happiness, sadness, melancholy, exhilaration?
   ii. e.g. imagining being really excited?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

20) Describe any imagery you use based on energy?
   i. i.e. imagery based on feeling energized and psyched up?
   ii. e.g. imagining being really energetic?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

21) Describe any imagery you use based on appearance?
   i. i.e. imagery based on how you look to others, your body image, fitness, health etc.?
   ii. e.g. imagining looking how you would ideally like to look?
   iii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

22) Describe any other kinds of imagery you use, that is different from the ones we have mentioned?
   i. e.g. healing imagery?
   ii. elaboration probes:
      1. Describe your reasons for using it? (i.e., what are you trying to achieve)? (function)
      2. What does it consist of? (content)

23) Describe any other reasons that you have for using imagery, that are different from the ones we have mentioned?
   i. e.g. motivating yourself to go dancing?
   ii. elaboration probes:
      1. What does it consist of? (content)

371
Appendix E (continued)

Section 5: What
This section of the interview focuses on what senses you involve in your imagery. As you know, you have the five senses of vision, hearing, smell, taste and touch. Additionally, you can experience kinaesthetic imagery, and the emotion-based imagery we talked about earlier.

24) To what extent do you use imagery relating to vision?
   ii. What perspective does that imagery take?
      1. i.e. is it Internal/External/Switching?

31) To what extent do you use imagery relating to sound and hearing?

32) To what extent do you use imagery relating to smell?

33) To what extent do you use imagery relating to taste?

34) To what extent do you use imagery relating to touch?
   i. i.e. imagining what it feels like to be touched, e.g. when a partner lifts you or the teacher corrects you.

35) To what extent do you use imagery relating to kinaesthesia?
   i. i.e. awareness of your body position in space,
   ii. e.g. knowing how your body feels when standing in an arabesque.

36) Describe any other kinds of sensations that you feel in your imagery?
   i. e.g. heat or other temperature changes? Pain?

37) Which of the above would be your primary senses in your imagery?
   i. Which would be not so important/by-products?
   ii.

Section 6: What continued: Imagery details
This section of the interview relates to some of the details of your imagery use.

38) Describe your ability to use imagery?
   i. i.e. how good do you think you are at imagining?
   ii. Elaboration probes:
      1. how accurate are your images?
      2. how vivid are they?
      3. to what extent are you able to manipulate your images as you wish?

39) To what extent is your imagery facilitative, debilitative, or both?
   i. i.e. is your imagery helpful or hurtful to you?
   Elaboration probe: is this always the case or does it vary?
Appendix E (continued)

Section 7: Where and When
This section of the interview relates to places and times you use imagery.

40) Where do you use imagery?
   i. i.e. where are you normally when you are imaging?

41) When do you use imagery?
   i. Elaboration probes:
      1. Time of day
      2. In relation to practice (before/during/after)
      3. In relation to performance (before/during/after)
      4. To what extent does your imagery use differ between rehearsal, performance, and holiday periods?

Section 8: Conclusions
Ok, this just about wraps up the interview. However, before we finish, let me ask you a couple of final questions:

42) How did you think the interview went?

43) Did I lead you or influence your responses in any way?

44) Do you think we failed to discuss any important factors?
   i. What are they?

45) Do you have any comments or suggestions about the interview itself?

   THANK YOU so much for helping out by participating in this interview!
Appendix F

Permission to Use the Dancers’ Interview Guide

Patricia Bowes
6712 Sandscape Lane
Temple Terrace, FL 33617
pbowesarts@yahoo.com
January 26, 2009

Dear Dr. Nordin;

I am completing a doctoral dissertation at the University of South Florida entitled "A Qualitative Study of Vocal Professionals Use of Imagery: Applications of a Sport Psychology Framework" I would like your permission to reprint in my dissertation excerpts from the following:

Interview Guide used in your publication

The excerpts to be reproduced are: a revised version of your Interview Guide for interviewing vocal professionals

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by ProQuest Information and Learning (ProQuest) through its UMI® Dissertation Publishing business. ProQuest may produce and sell copies of my dissertation on demand and may make my dissertation available for free internet download at my request. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own the copyright to the above-described material. If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in a return attachment. Also would you mind sending a signed copy through the mail to the address above?
Thank you very much.

Sincerely,

Patricia Bowes

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

[Signature]

Sanna M. Nordin, Ph.D.
Research Fellow, Laban
Creekside, London, SE8 3DZ, England
s.nordin@laban.org
Date: 3rd February, 2009
Research Participant Request

RESEARCH STUDY PARTICIPANTS NEEDED!

Study Title:
*An Exploratory Study of Vocal Professionals Use of Imagery: Applications of a Sport Psychology Framework*

Researcher:
Patricia L. Bowes  
Ph.D. Candidate in Music Education, University of South Florida  
813 985-1199, Cell: 561 523-2223  
patbowesarts@yahoo.com

Researcher Qualifications:
Ph.D. Candidate in Music Education, University of South Florida  
Bachelors and Masters Degrees in Music in Voice  
Bachelors and Master Degrees in Art and Drama  
Professional experience as solo vocalists  
10 years teaching university classes in arts and music.  
11 years experience as arts educator in public and private K-12 schools  
Florida Teacher Certification: Music, Art, and Drama, to 2013

Purpose of the Study:
The purpose of this study is to investigate and explain the four Ws: where, when, what, and why of imagery use to achieve optimal performances in vocal professionals from a sport psychology framework.

Participants:
The participants must:  
(a) hold a four year degree in vocal performance, and  
(b) have been working for at least four years making at least half their income as a solo vocal professional  
or  
(c) if they have no performance degree, they have eight years making at least half their income as a solo vocal professional.
Appendix G (continued)

**Responsibilities of Participants:**
Study participants will complete and sign the agreement to participate in this study. An initial telephone discussion will clarify the purpose of the study, intention of participant’s anonymity, intention to digitally record and transcribe verbatim the interviews, and the use of their responses. Participants will participate in a telephone interview lasting from 30 to 75 minutes. After the interviews are transcribed using a pseudonym, they will be sent to the participant for clarification or any changes they would like to make within five business days. Upon receiving the responses, the results will be categorized according to the framework of the four Ws of imagery use. Participants can request a copy of the final copy of the results upon completion of the study.
Appendix H

Consent Script

An Exploratory Study of the Use of Imagery by Vocal Professionals:
Applications of a Sport Psychology Framework

Patricia Bowes

Consent Script to be read over the telephone to participants

Invitation to Participate
Hello, my name is Patricia Bowes and I am a Ph.D. candidate in Music Education at the University of South Florida, conducting a dissertation study on the use of imagery by vocal professionals. You are invited to participate because you have been working as a professional vocalist for at least 4 years with a musical performance degree or 8 years without the degree and you make at least half your income in this manner.

Purpose
The purpose of this study is
1. To better understand the questions where, when, what, and why of imagery use by professional vocalists
2. To link the use of imagery in sport psychology research to the use of imagery by vocal professionals.

Description of Procedures
You will be interviewed by telephone in an open-ended interview that will take place between 30 and 75 minutes, and with your permission, it will be audio-taped. The interview will take place at an agreed upon time and date and the interviewer will call you so as to incur no telephone charges to you. It is up to the participant to cover any charges for their own incoming calls, if any. Please make sure that you set up a time when you can concentrate and will not be interrupted for the duration of this interview. Upon completion of transcribing the interview verbatim, you will be emailed a copy for your revision and approval. You will be given 5 business days to return this document. Upon your agreement, the document will be included in the data for the study.

Risks and Inconveniences
There are minimal risks attached to this study. Your interview will be kept confidential: available only to the research team for analysis purposes. If the length of the interview is inconvenient for you, you may stop the interview at any time without any consequence to you.
Appendix H (continued)

Benefits
Although there is no direct benefit to you for participating in this study, I feel your participation will likely benefit vocal teachers, students, and professionals. You may even learn something about your own use of imagery that you didn’t know before. Upon completion of the study, each participant will be emailed a link to a website where they can read and/or download the study for your use.

Confidentiality
Interview tapes will be locked in a safe place. Only the research team will listen and transcribe the information you give to us. Interview responses will not be linked to your name, address, email, or telephone number, and therefore there will be no follow-up sessions. You should know that the University of South Florida Institutional Review Board (IRB) may inspect study records as part of its auditing program, but these reviews only focus on the researchers and the study, not on your responses or involvement. The IRB is a committee that reviews research studies to make sure that they are safe and that the rights of the participants are protected.

Voluntary Participation
Participation is voluntary. You do not have to participate in this study if you do not want to. If you agree to be in this study, but later change your mind, you may withdraw at any time. There are no consequences of any kind if you decide you do not want to participate.

Questions
If you have any questions about this study I will be happy to answer them now. If you have any questions in the future, please contact me Patricia Bowes, at 561 523-2223. If you have any questions about your rights as a research participant, you may contact our Institutional Review Board at 813 974-5638.

Consent
Now that you have been given the details of this study, I need to ask you for your verbal agreement to participate in this study.

Do you understand what is required of you?
Do you understand your rights?
Do you understand that you will be audio-taped and your identity will be kept confidential?
Do you understand that your responses may be used in the study and that direct quotes may be given anonymously?
Do you understand that you will be emailed the transcribed interview for your review?
Do you agree to return the revisions in 5 business days from date sent?
Do you agree to participate in this interview study?
Appendix H (continued)

Great! Thank you so much.

When would be a good time for the telephone interview, which should last between 30 and 75 minutes? _____ time _____ date
What number would you like me to call? ______________________________________
And may I have your email address, please? ____________________________________
That’s great, so I will call you at _____ (time) on _____ (date) at
_________________________________________ (phone number).

I will email you this information so you can verify it. If there are any questions or conflicts you will be able to tell me and we will adjust interview time accordingly. I just want to thank you for taking the time to participate in this study.
Appendix I

Vocal Participant Survey

VOCAL PARTICIPANT SURVEY

NAME: ___________________

Please answer the following questions by checking, or completing the appropriate spaces.

Personal Information

1. Gender: ___ Male ___ Female

2. Voice part (range): ___ Soprano, ___ Mezzo, ___ Counter-Tenor, ___ Tenor, ___ Baritone, ___ Bass, other (please specify) ____________________


Educational Information

4. Undergraduate degree in musical performance: ___ yes, ___ no

5. Undergraduate degree in music other than performance: ___ yes, ___ no

   a. Graduate degree: ___ no, ___ yes: ___ in Music, ___ in another area.

6. Highest degree earned? ___ 4 year degree ___ graduate degree ___ post graduate ___ doctorate.

Professional Solo Singing Experience

7. Number of years of regional experience in Classical solo singing: ___

   a. Region: ___ Northeast, ___ Southeast, ___ South, ___ Midwest, ___ Southwest, ___ Northwest, ___ Mid-Atlantic, other ____________________

8. Number of years of national experience in Classical solo singing: _____

380
Appendix I (continued)

9. Number of years of international experience in Classical solo singing: ______
   a. Nations: ___Canada, ___Central America, ___South America, ___Asia, ___England,
      ___Europe, ___Indonesia, ___Australia, ___Africa, ___Russia, ________________other.

10. Total number of years of experience in Classical solo singing: ______

11. Types of music primarily (most often) performed: ___Opera, ___Oratorio, ___Recital,
    ___Concert, ___Art Song, ___Early Music, ___Liturgical, ________other (please specify).

12. Types of music secondarily performed: ___Opera, ___Oratorio, ___Recital, ___Concert,
    ___Art Song, ___Early Music, ___Liturgical, ________other (please specify).

13. Types of music performed thirdly: ___Opera, ___Oratorio, ___Recital, ___Concert,
    ___Art Song, ___Early Music, ___Liturgical, _______other (please specify).

14. I am now retired: ___yes, ___no
Appendix J

Key of Emergent Codes and Categories/Themes

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<td>WR:GR:QP</td>
<td>Where: General: Quiet/Relaxed Place</td>
</tr>
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<td>WR:GR:EV</td>
<td>Where: General: Everywhere/Anywhere</td>
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<td>WR:OH:CM</td>
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**Imagery Characteristics**

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<td>IA</td>
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<td>IU:SL</td>
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<td>Imagery Use: Skill Learning/Execution: Vocal Production: Metaphor</td>
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<tr>
<td>IU:YS</td>
<td>Imagery Use: Your Sound</td>
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## Appendix J (continued)

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<tr>
<th>Code</th>
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<tr>
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<td>IU:TM</td>
<td>Imagery Use: Terminology Conflict</td>
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Appendix J (continued)

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<tr>
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<td>RI</td>
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<td>RI:CM</td>
<td>Review of Interview: Comments or Suggestions</td>
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<tr>
<td>RI:LA:CI</td>
<td>Review of Interview: Last Additions: Continued Interest</td>
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About the Author

Patricia Bowes has taught music and art on the college level for over 10 years in universities around South Florida. Dr. Bowes has trained pre-service music teachers, instructed Elementary Music Methods and World Music Ensemble classes at the University of South Florida and the University of Tampa. In addition, Dr. Bowes has taught general and choral music, fine arts, and drama from K-12 for over ten years in Florida public and private schools. Dr. Bowes holds a BA in Theatre from Indiana University, a BFA in Fine Art, a BM in Music, an MAT in Music from Florida Atlantic University, and an MFA in Theatre from the University of Arizona. Dr. Bowes has presented lectures and workshops regionally as well as internationally. She has sung professionally in New York City and South Florida in Western Classical and Jazz genres in a variety of venues for the past twenty years.