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# THE IDENTIFICATION OF FACTORS CONTRIBUTING TO FIRST-YEAR COLLEGE STUDENTS' MINDSET OF SINGING ABILITY, AND THE RELATIONSHIP OF THAT MINDSET TO INTENT TO PARTICIPATE IN SINGING ACTIVITIES

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RELATIONSHIP OF THAT MINDSET TO INTENT TO PARTICIPATE IN SINGING

ACTIVITIES

By

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Previous research suggests many adults do not believe they can sing, or hold

inaccurate perceptions of their singing ability (Cuddy, Balkwill, Peretz & Holden, 2005;

Whidden, 2010; Wise & Sloboda, 2008). Although the singular belief people have about

their singing ability may seem of little importance, research shows this may have

powerful implications for people's motivation to participate in singing activities (Dweck

& Master; 2009; O'Neill, 2002; Wise & Sloboda, 2008). The purpose of this quantitative

study was to identify what factors shape mindset of singing ability in first-year college

music majors and non-music majors, and to examine the relationship of that mindset to

intent to participate in singing activities. A researcher-designed survey was administered

to first-year college music majors and non-music majors ($N = 426$). The survey questions

explored possible relationships between mindset (beliefs in singing ability as a fixed trait

or potential for growth) and (a) past musical experiences, (b) influence from others, (c)

singing identity, and (d) intended participation (Dweck, 2000). As expected, music

majors tended to reflect more of a growth mindset of singing ability than non-music

majors. Neither gender nor music specialization (voice versus non-voice) were significant

factors related to singing mindset orientation. Results indicated a significant relationship

between students who participated in high school choir, or in other out-of-school singing activities at this age, to an inclination of a growth mindset orientation. Other predictors were having family members or teachers that encouraged them to sing. When participants were asked what previous feedback they had received about their singing ability they reported a high frequency related to "good" or "not good" in both categories of positive and negative feedback. In addition, students with a growth mindset of singing ability were more likely to hold positive self-evaluations of their singing quality, and participate in future singing activities.

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**DEDICATION**

It is through this doctoral experience that I have come to fully appreciate the commitment, perseverance, and cowboy philosophy that "if a horse bucks you off, you get right back on." To my dear and beloved Grandpa John, I only have an inkling of what those words meant for you as you overcame one of life's biggest obstacles. I stand in awe of your journey, and the strength it took you to greet each new day. I am humbled by the love you expressed through the choices you made.

Matthew 19:26

"*uva uvam vivendo varia fit*"

"*the closer I am to fine*"

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**INTRODUCTION TO THE STUDY**

**Statement of the Problem**

Everyone has a voice, yet not everyone uses it to its full musical potential. Many people claim they cannot sing or they cannot sing well. However, researchers suggest that only 4% of the general population truly does not have basic musical abilities due to a neuronal or genetic condition, a disorder called *congenital amusia* (Peretz et al., 2008). Why then are more students in the remaining 96% *not* enrolled in their school choir programs or singing in their communities, churches, or with friends at karaoke? In addition, 17% of adults in the Western civilization claimed they were "tone deaf," yet these same people improved their singing with specific training (Cuddy, Balkwill, Peretz, & Holden, 2005; Wise & Sloboda, 2008).

According to research by Clift and Hancox (2001), people who sing benefit in social, cognitive, physical, and emotional ways. Given these benefits, all people should be encouraged to take advantage of what many cultures believe to be a birthright (Sloboda, Wise, & Peretz, 2005; Smith, 2006). Singing is an activity that can be taken anywhere; it does not cost anything, and it can bring great pleasure and enjoyment. It also allows people to express their thoughts and emotions in a way that communicates much differently than simply speaking (Thurman, 2000). Research has established that young students who are engaged in musical training show an improvement in multiple aspects of learning, as well as in social and personal development (Hallam, 2010). Davidson (2007) identified many social, health, and well-being benefits that are gained by singing such as regulating mood, connecting to one's humanity, providing a sense of community,

and heightening emotional intimacy. Singing also provides psychological and social well-being benefits (Clift, Nicol, Raisbeck, Whitmore, & Morrison, 2010). Students involved in music education tend to outperform non-music peers on many academic achievement measures (Morrison, 1994).

Past researchers have investigated possible causes for this phenomenon of people who believe they cannot sing (Abril, 2007; Austin, Renwick, & McPherson, 2006; Cuddy et al., 2005; Sloboda et al., 2005; Whidden, 2010; Wise & Sloboda, 2008). Many people perceive they cannot sing as a result of the perpetuated perception in Western culture that innate talent is required in order to sing (Abril, 2007; Lamont, 2011; Smith, 2006). There are others who simply do not like the sound of their own voices (Chong, 2010). Because some students are not receiving proper voice training, they might not know what skills are necessary to improve their singing ability (Monks, 2003). These misperceptions deny people the opportunity to express themselves through music (Pascale, 2005).

Adults reported three reasons why they identify themselves as non-singers: they had negative singing experiences in their homes when they were children, negative singing experiences in their schools as children, or had a limited perception of what singing was (Whidden, 2010). These negative experiences cause anxiety while singing and may be compounded by fear of being judged by others (Abril, 2007; Barefield, 1998). These heightened feelings of anxiety and fear while singing may explain why musicians are one of the five occupations with the highest percentages that are admitted into mental health facilities (Wolfe, 1989). Fear has an impact on people's core beliefs (Riley, 1998). Once people make a decision about how they perceive their abilities, they

are likely to remain steadfast in this belief (Wigfield et al., 1997). These factors may explain why many claim to be non-singers.

Beliefs related to singing ability predict participation in singing activities (Chong, 2012; Monks, 2003). The way that children identify as musicians impacts the motivation they have for developing their musical skills (MacDonald, Hargreaves, & Miell, 2009; Randles, 2011). Therefore, further study into aspects of motivation and its influence on singing identity is worthwhile (MacDonald et al., 2009). Clifton Ware, professor, performer, and noted expert on vocal pedagogy, confirmed the complexity of motivation to sing when he stated:

> There is a "mystery quotient" embodied in the singing gesture. Through the ages philosophers have tried in vain to explain it, often with eloquence and astute reasoning. Yet the singing gesture remains essentially one of life's mysteries, forever challenging us to examine why we are compelled to express ourselves in song. (p. 1)

Music educators strive to bring quality education to their students. Understanding how motivation influences students' music participation is valuable information for teachers because motivation reinforces behaviors necessary to be successful in music (O'Neill & McPherson, 2002). Parents, teachers, and peers have a significant influence on students' motivation to sing (Sichivitsa, 2007). Students tend to remain in activities they believe they will be successful in (Wigfield et al., 1997). These choices are shaped by self-efficacy which are people's beliefs related to their perceived ability in a certain activity (Eccles et al., 1983). Because a significant number of adults do not believe they

can sing or sing well, more research needs to be done to understand factors that shape motivation to sing.

One of the National Standards in music education is "Singing, alone and with others, a varied repertoire of music" (National Association for Music Education, 2012). Therefore, all students involved in American public education should be involved in musical experiences that strengthen this skill. Students in learning experiences will likely encounter both successes and failures; which may influence their motivation to persevere. Weiner (1985) studied how students attributed these successes and failures in achievement-related situations. He proposed that the attributions given would predict student beliefs about how well they would do in the future. Students who experienced failure either continued to demonstrate failure on additional tasks, or they were able to use strategies to improve or maintain their performance (O'Neill & Sloboda, 1997). In contrast, when these same students experience success, they perform equally. How students respond to failure provides music educators with critical information about the motivational patterns students bring to their learning environment, which could help inform future teaching.

There may be a connection between the sound of one's voice and the perceptions people have about themselves (Monks, 2003). This connection is often overlooked in today's music classrooms. It may provide a deeper understanding of the relationship between singing identity, motivation, and skill development. Beliefs students have about their singing voice may determine how they engage in singing activities in the future (Austin et al., 2006; Wise & Sloboda, 2008; Woody & McPherson, 2010). Understanding

how students develop beliefs related to their ability to sing may help music educators to effectively structure their lessons, assessments, and feedback.

Many researchers are not only focusing on the product of learning, but also on elements that impact the process of learning. One element is helping students to become aware of how they learn in order to best match appropriate strategies for improvement. Csikszentmihalyi, Abuhamdeh, and Nakamura (2005) stated that human beings have evolved because of the ability to process and store information that is communicated through our senses. This state of awareness, in addition to an understanding of how to use the body efficiently to both produce and enjoy singing, is a skill that may be overlooked by music educators, and by schools in general (Csikszentmihalyi et al., 2005). With this understanding of self in relationship to singing, students could play a powerful role in their skill development. However, without this understanding, the ability to sing can remain out of reach for many students.

The *mindset* people have regarding their singing ability might provide insight into how these elements of learning might contribute to the phenomenon of self-identified non-singers. Mindset is described as a person's belief about their intelligence and abilities in a specific domain (Dweck, 2006; Dweck & Master, 2009). A person's mindset, or *self-theories*, are "built around the idea that people develop beliefs that organize their world and give meaning to their experiences" (Dweck, 2000, p. xi). Dweck and colleagues' model of achievement motivation explains the framework that is first shaped by a person's mindset, which shapes their goals and directs the patterns of behavior that impact achievement. This framework begins with two mindset theories: fixed and growth. A person with a fixed mindset, or *entity theory* of intelligence, views their

abilities or intelligence as a fixed-trait; something they were either born with or they were not (Blackwell, Trzesniewski, & Dweck, 2007; Chiu, Hong, & Dweck, 1997; Dweck, Chiu, & Hong, 1995; Grant & Dweck, 2003; Molden & Dweck, 2006). People with this mindset will be consumed with the need to prove their intelligence or ability to others (Dweck, 2000, 2006). They will find ways to cover up any perceived deficiencies for fear of being judged by others. When faced with a challenge in the learning environment, they would rather pass up an opportunity to learn rather than expose their inadequacies. People with this mindset believe that if they were "smart" at something, then a particular task would come easy to them (Dweck, 2000). If they do not believe they can do something, then that overshadows any potential they may have to develop their knowledge or skill. People who hold a fixed mindset believe that innate talent is required to sing. Singers with this mindset may never stretch their skill development or musical involvement in order to maintain their reputation as being talented and a superior performer in a certain musical genre, instrument, or setting in which they have been successful. Self-proclaimed non-singers may have arrived at this belief because they never thought it was possible they could develop their singing skills. This single belief has powerful lifetime implications and limitations.

In contrast, a person with a growth mindset or *incremental theory* of intelligence perceives intelligence as something that can be grown and developed with persistent effort and practice (Dweck, 2006). In contrast to the other mindset, failure is welcomed as an opportunity to learn and improve. People with this view do not see limits to what they can accomplish and understand that persistence and practice are required to improve. Those with this mindset consider it a waste of time to be overly concerned with how

others might judge their singing, and prefer to spend their time focused on concrete ways

to develop their ability (Dweck, 2000). Fostering this mindset in the music classroom

could potentially shift how people view singing ability, and increase their participation in

singing activities throughout their lifetime. O'Neill (2011) agreed that growth mindset

"provides an interesting framework or lens from which to examine motivation and the

development of young people's music performance skills" and encourages future

research on how to develop this mindset (p. 42). The mindset students hold can set into

motion specific patterns of behaviors and goals they bring to the learning environment,

and can serve as a predictor for their academic achievement (Blackwell et al., 2007;

Dweck, 2000; Dweck et al., 1995; Dweck & Leggett, 1988; Grant & Dweck, 2003).

**Deficiencies in the Studies**

Previous studies support further investigation into what factors may contribute to

people's self-identification as a non-singer. Pfordresher and Brown (2007) proposed four

deficits that cause poor singing: perceptual, motor, imitative, and memory. Hutchins and

Peretz (2011) explored these factors in greater detail and included both motivation and

practice to further understand the poor singing phenomenon. However, motivation was

only examined in terms of whether a person was motivated to sing, not what influenced

their motivation. A deeper analysis of factors that influence motivation may result in a

greater understanding of what causes poor singing.

Much research has focused on motivation and learning to play a musical

instrument. However, little attention has been placed on motivation and improving

singing ability (Hallam, 2009). Singing is free and a basic human activity, yet many

people still believe they cannot sing despite research that suggests otherwise (Sloboda et

al., 2005). Although music researchers have included Dweck's mindset theories of intelligence (a component of Dweck and colleague's model of achievement motivation) to help define general motivational theories, few specific studies have been conducted to determine what factors contribute to mindset of singing ability, nor whether there is a relationship between mindset and participation in singing activities (Dweck, 2000). Lucas (2011) emphasized the need to conduct research to identify why people choose not to participate in singing activities and the effect that attitudes have on this participation.

There is a small amount of past research involving music participation and social and personal development, even though there is an increased interest in how students' achievement has been linked to these developments (Hallam, 2010; O'Neill, 1997). Because mindset has been linked to both social and personal development and achievement, the present study provides a greater understanding of a possible connection to music learning (Cury, Elliot, Ronseca, & Moller, 2006; Dweck et al., 1995; Dweck & Leggett, 1988).

Past research regarding singing development has captured the influence that age, sex, and vocal activities may have on a sample population in a single time period. Currently there is little longitudinal evidence to support the possible effects these factors may contribute to singing development and how it may evolve over time (Welch, Sergeant, & White, 1997). There is also little research that includes how people's beliefs impact this development.

Though Chong (2010) provided insight into perceptions people have about singing, she encourages further research to explore the connection between self-concept and singing. Monk (2003) encouraged more research to explore the complex relationship

between people's perceptions of their singing ability and their sense of self. If students could be taught about growth mindset and skill development, it may have a positive impact on their participation in singing activities since "a deep connection with music both emotionally and intellectually provides the foundation from which an individual may choose to embark on an active, lifelong involvement with music" (Woody & McPherson, 2010, p. 404).

Motivation to persevere in a certain activity is determined by the experience itself (Csikszentmihalyi et al., 2005). While this may be true, perhaps a person's mindset of the activity first determines the chain reaction. This viewpoint, although unintended, is supported by Csikszentmihalyi et al.'s (2005) example of when singers are assigned a new song to sing. While looking through the music, they may determine that they cannot perform it easily. If they do not feel it is something they can have immediate success with, they may not have the motivation necessary to learn it.

This chain of events is reflected in the mindset framework. The difference is that people's mindset, their beliefs about their abilities, first determines the goals they have, which then directs their patterns of achievement-related behavior. In the example mentioned earlier, a person with a fixed-mindset may give up because they perceive the effort that is necessary to learn the song is an indication of their low ability. They would also fear exposing this perceived low ability to others for fear of judgment. Conversely, those with a growth mindset would see the music as a challenge to improve their skills, and would seek out the strategies necessary to do so. Austin (1991) also noted the need for research to identify students with fixed mindsets about musical experiences and to target interventions to develop a growth mindset. Molden and Dweck (2006) encouraged

researchers to investigate how mindset might guide cognition, affect, and behavior in other disciplines. This dissertation seeks to do this in the domain of singing.

## Purpose of the Study

The purpose of this study was to identify what factors contribute to first-year college students' mindset of singing ability, and to examine the relationship of that mindset to intent to participate in singing activities.

## Research Questions

The following research questions guided this study:

(1) Is singing mindset orientation of first-year college students related to the factors of (a) gender and college major, or (b) gender and music specialization?

(2) Are past musical experiences (participation in school music ensembles, and/or singing in contexts outside of school) related to singing mindset orientation?

(3) Do family, teacher, and peer attitudes about individual's singing ability contribute to singing mindset orientation?

(4) Can singing mindset orientation be used to predict (a) self-evaluation of singing quality and (b) current and future singing behavior?

## Definition of Terms

*Mindset, Self-theories,* and *Implicit Theories of Intelligence and Ability*: These terms

describe the beliefs people have about themselves based on how their experiences,

and how they interpret these experiences (Dweck, 2000). These terms are used

interchangeably. Dweck (2000) uses mindset in place of self-beliefs (p. 133).

Dweck's 2006 book is entitled, "Mindset." Mercer and Ryan (2009) chose also to

use the term of mindset rather than implicit theory, to provide a clearer picture of

its comprehensive framework. They cite Dweck (2006) for exchanging the theoretically precise "implicit theories" terminology in favor of the more accessible "mindsets" (Ryan & Mercer, 2011).

*Fixed-Mindset* and *Entity Theory:* Belief that intelligence or ability is a stable trait with which people are born and cannot be changed.

*Growth-Mindset* and *Incremental Theory*: Belief that intelligence or ability can be grown through persistent effort and specific training.

*Singer:* Someone who believes they can sing and does sing. The approach taken in this dissertation is in agreement with Pascale (2005) who stated that singing should "include those who sing for recreational purposes and community enjoyment as well as those who sing for performance and to entertain audiences" (p. 173).

**Theory**

Edwards (1992) reported there are both useful and practical purposes to incorporate models in one area of research, and relate them to the area of music to provide a richer understanding of music education. The conceptual model designed for this study seeks to address multiple facets that may contribute to mindset of singing ability and the possible influence mindset may have on future singing participation. This model maps out the variables used to construct this descriptive study. The model of a study accomplishes two functions: conveys the theory in an accessible manner to the reader, and establishes the framework that guides the researcher. The model can be modified appropriately when new information is gathered (Edwards, 1992). See Figure 1

for the theoretical model used in this study.
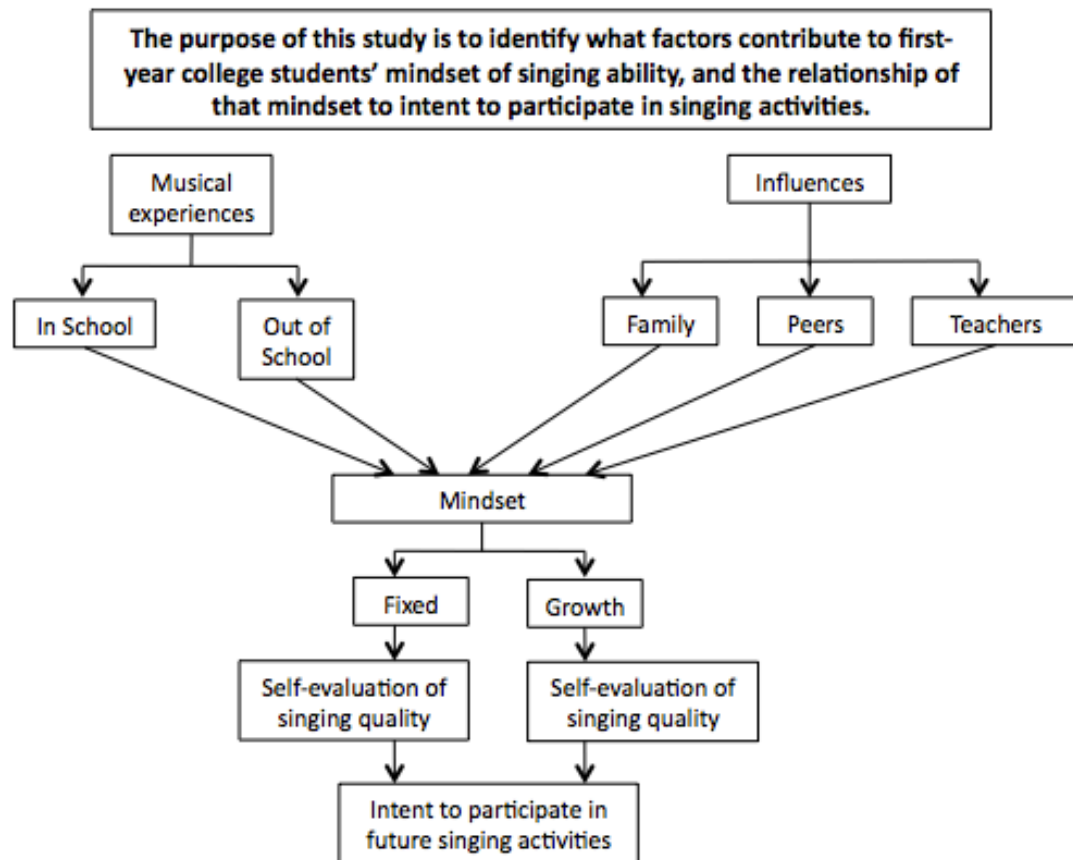


*Figure 1*. Theoretical model: Factors influencing mindset of singing ability development.

This theoretical framework was designed to provide greater understanding of how people's deeply held beliefs about singing are formed, and how these beliefs may impact motivation to sing. The concept of mindset (theories of intelligence), a component of Dweck and colleague's (2000) social-cognitive model of motivation, provides an explanation of how people's implicit beliefs influence their perceptions, decisions, and responses to their life experiences. This has particular focus when encountering failure (Dweck et al., 1995). Dweck (2000) began to use the term *mindset* in place of *implicit theories*, perhaps due to its more readily understandable nature. There are two different

mindset theories: fixed (entity theory) and growth (incremental theory; Dweck, 2006). People's mindsets suggest an understanding of core assumptions that provide a framework for fostering goals and patterns of behavior consistent of that mindset (Dweck et al., 1995; Molden & Dweck, 2006).

It is possible that people could have different theories about different domains of the self (Dweck, 1999; Dweck et al., 1995). Therefore, it is appropriate to apply this theory to singing; especially because singing is a construct where there is a cultural perception that natural talent is required to sing (Pascale, 2005; Smith, 2006). The two mindsets are theorized to present two different paths that may have powerful outcomes for people's involvement with singing.

## Basic Assumptions

1. This study is based on the assumption that everyone can sing (Pascale, 2005; Gordon, 1971).

2. It was assumed that the responses from the college freshmen were honest and accurate reflections of their beliefs. Students had the choice to participate in the survey on their own accord. The participant script informing them of the guidelines of the survey reiterated there would be no negative consequences if they did or did not choose to participate in the survey. This established a safe environment for students to answer the questions freely. Because students had to meet a certain academic criteria to be accepted into the university, it was assumed they could respond accurately to a brief survey.

3. It was assumed that college freshmen can accurately recall past musical experiences, influences, and feedback received about their singing ability. Students were asked to recall experiences that were relatively recent. Again, since they had met the

academic required to enroll in the university, it was assumed that they could accurately recall these factors related to singing ability.

## Delimitations

In agreement with Stephens (2012), the current study was not concerned with quality of singing and subscribed to the notion that singing is a birthright and that all people can sing (Cuddy et al., 2005; Gordon, 1971; Krueger, 2008; Pascale, 2005; Sloboda et al., 2005). The participants that were selected for this study were first-year college music and non-music majors at a midwest university.

## Methodology

This section describes the population, personnel and facilities, materials and equipment, procedure, and design of this study.

### Description of the Population

The participants in this study included 426 first-year college students at a midwest university, consisting of music majors and non-music majors, who were recent high school graduates. Students enrolled in first-year college level music, English, and architecture classes were invited to participate in this study.

### Personnel and Facilities

Permission to distribute the Mindset of Singing Ability Survey (MSAS) was gained from 21 university professors who taught first-year college level courses. The staff at the Nebraska Evaluation and Research (NEAR) Center at the University of Nebraska-Lincoln was employed to guide the data analysis.

**Materials and Equipment**

A survey was developed based on current research and the theoretical framework for this study. The survey was distributed among first-year college level courses. The survey used in this study was divided into several sections to examine factors that may contribute to people's singing beliefs including: (1) general demographics, (2) mindset of singing ability, (3) singing influences, (4) singing behaviors (past experiences and future intent to sing), (5) singing perception, (6) and open-ended responses reflecting on feedback received on singing, past singing experiences, and beliefs about their own singing. A table of specifications was developed for the purpose of directing the researcher in developing the survey instrument (See Appendix A). These included four constructs: mindset of singing ability, past singing experiences, other influences, and future participation.

A series of pretests were conducted to develop the survey. A fifteen-member panel of experts then scrutinized the survey for content and face validity, and to determine if the questions could be completed accurately. Revisions were completed based on the comments and suggestions that were received. An additional pretest was completed to ensure that the survey items reflected the research questions and to ensure clarity and ease of use. After surveys were distributed and collected, the *Statistical Package for the Social Sciences* (SPSS) Version 20.0 was used to run the statistical analysis.

**Procedures**

A researcher-designed survey was used to gather data in this study and piloted with two populations. This established method of collecting data was chosen because it

explores relationships surrounding specific variables when answering questions and hypotheses (Creswell, 2009). The mindset of singing ability section of the survey included 8 belief statements that were modifications of the Theories of Intelligence Scale - Self Form for Adults (Dweck, 2000). They include: *You have a certain amount of singing ability, and you can't really do much to change it, Your singing ability is something about you that you can't change very much; No matter who you are, you can significantly change your potential as a singer; To be honest, you can't really change how well you sing; You can always substantially change how well you sing; You can learn new things, but you can't really change your basic singing ability; No matter how much singing potential you have, you can always change it quite a bit;* and *You can change even your basic singing level considerably*. Participants indicated their level of agreement to eight questions with a 6-point Likert scale ranging from *Strongly Agree* to *Strongly Disagree.* The scores on the items were averaged to establish a composite mindset of singing ability score (Chiu et al., 1997). Thirty-four additional questions were included to determine singing identity, musical experiences (past and future), and singing influences. The same 6-point Likert scale and belief statements were used. This survey was administered in two sessions; the second took place a week after the initial survey in order to run test-retest reliability.

Permission was granted from the University of Nebraska-Lincoln's Institutional Review Board (IRB) for this survey study (See Appendix B). Faculty members who offered to have the survey be conducted in their freshmen-level classes confirmed the date and time. It was estimated that the participants would take approximately 12 minutes to complete the survey, and approximately three minutes to complete the retest.

**Design of the Study**

A descriptive, quantitative design was used in this study for the intent to uncover what factors may shape mindset of singing ability in first-year college majors and non-music majors and whether this mindset has a relationship with participation in singing activities. The theoretical model was influenced by current research published in singing, achievement motivation, and mindset themes. The survey incorporated a modification of Dweck's (2000) Theories of Intelligence Scale - Self Form For Adults to reflect mindset of singing ability as well as other questions designed by the researcher. The original measurement reported a high reliability and validity (Dweck et al., 1995). Dweck (2010) stated this measurement could be modified and transferred to other domains; therefore for the purpose of this study, it was used to measure mindset of singing ability. Precedence for this was established in Smith (2005) where the measurement was also adapted to include musical aptitude, ability, talent, and potential and reported a high reliability (alpha > .74)" (Smith, 2005).

In order to pretest the survey, it was sent to a panel of 15 experts including: music education professors, recent PhD music education graduates, and current PhD music education students. The panel was asked to report on aspects of the MSAS to help: improve clarity of questions, overall presentation, and accuracy in verbiage used to establish face validity. An additional pretest was conducted with university students in order to fine-tune the survey, and appropriate modifications to the survey were done to raise reliability.

**Data Analysis**

The data analyses conducted for this study was designed to represent the general population of first-year college students. A different method of data analysis will be used to answer each of the research questions:

**Research question 1:** (1) Is singing mindset orientation of first-year college students related to the factors of (a) gender and college major, or (b) gender and music specialization? Mindset was scored as a continuous variable, a range of 6-48, called singing mindset orientation. A two-way analysis of variance was used to answer both parts of this question.

**Research question 2:** Are past musical experiences (participation in school music ensembles, and/or singing in contexts outside of school) related to singing mindset orientation? Correlation coefficients and regression analyses were used to discover how past musical experiences predict mindset of personal singing ability. The correlation coefficients indicated the strength and the direction between the relationships of students' mindset of singing ability and their participation in singing activities.

**Research question 3:** Do family, teacher, and peer attitudes about individual's singing ability contribute to singing mindset orientation? A correlation coefficient and regression analysis determined the relationship between these variables.

**Research question 4:** Can singing mindset orientation be used to predict (a) self-evaluation of singing quality and (b) current and future singing behavior? A correlation coefficient and regression analyses were computed to show the strength and direction of the relationship to these variables.

**Significance of the Study**

Because there are many benefits related to singing, an argument could be made that it is an important part of human behavior and the belief that everyone can sing should be fostered and developed. Although there are numerous studies on motivation and singing development, few have yet been conducted to explore a possible relationship that mindset may have on each. "Much of what may be preventing you from fulfilling your potential grow out of it (mindset)" (Dweck, 2006, p. ix). Therefore, if a connection could be determined between a fixed-mindset and people who believe they cannot sing, this would be valuable information in understanding why people do not reach their potential as a singer.

**CHAPTER 2**

**REVIEW OF THE LITERATURE**

The purpose of this study was to identify which factors contribute to first-year

college students' mindset of singing ability, and the relationship of that mindset to intent

to participate in singing activities. The studies in this literature review provided a

foundation for this dissertation. Articles included are specific to how beliefs about

singing abilities develop and aspects of motivational constructs that may be related. This

review is grouped into four main sections: (a) Singing Identity Development, (b)

Motivational Theories, (c) Mindset Theory, and (d) Summary.

**Singing Identity Development**

 **Benefits of singing.**

  Singing is present in every culture. It provides a sense of community and

belonging. Music is a component of cultural identity, and singing is the most

basic musical expression. Once the rudiments are mastered, singing provides

lifelong opportunities for musical experienced self-expression with minimal

expense. Beyond that, singing–like all music–can be a source of joy, comfort, and

emotional sensation. Singing is the birthright of every child with a normal

speaking voice (Smith, 2006, p. 28).

Several studies have explored possible benefits people may gain through

participating in musical activities. Hallam (2010) examined current studies that addressed

participation in music on various developments of intellectual, social and personal

aspects in young children. Many of these studies focused on how music is purported to

affect brain development. She concluded that many studies suggested children who

participated in music over time had changes occur in their brains as learning took place. These changes may cause a shift in other areas of skill development: perceptual and language, literacy, mathematics, intellectual, general achievement, creativity, and social and personal (Hallam, 2010).

Participating in music making activities may also impact lifetime learning. Kokotsaki and Hallam (2011) asked sixty-two non-music university students to identify what, if any, benefits they gained by their past music making experiences. They identified social, musical, and personal benefits as a result of musical participation (Kokotsaki & Hallam, 2011). One of the strongest results of the study was participants' description of the long-term impact making music had on them. Music making was reported to help them concentrate better, improve their confidence levels, persevere in a task, and instill an enjoyment for music that would last throughout their lifetime (Kokotsaki & Hallam, 2011).

Participation in singing activities is also reported to have multiple health benefits. Clift and Hancox (2008) identified six dimensions of singing benefits: well-being and relaxation, breathing and posture, social, spiritual, emotional, and heart and immune system. A study by Bartolome (2013) reported social, musical, and personal benefits through participation in a choral setting. Students, parents, and directors commented that choir strengthened their personal skills by providing: (a) a meaningful activity, (b) a sense of accomplishment and increased confidence levels, (c) encouragement to have ownership for their own learning, (d) commitment to self and others, (d) collaboration with others, (d) an emotional release, and (e) and a safe place to belong (Bartolome,

2013). These studies establish the multiple benefits a child may experience as a result of participation in music and singing activities.

Singing with others is also shown to have great merit. Parker (2011) investigated what philosophical beliefs adolescent students had about singing in a choir. Through a series of interviews, she identified four themes: social growth, expression of emotion, increased self-confidence, and development of personal character (Parker, 2011). Austin et al. (2006) agreed that singing allows students to express their emotions. Clift and Hancox (2008) showed similar findings that participating in choral singing had social, emotional, physical, and spiritual benefits. Pacale (2005) reinforced group-singing benefits in fostering cooperation, teamwork, and a sense of belonging.

There may be advantages that participating in music making may have for aging adults. In a study by Sole, Mercadal-Brotons, Gallgo, and Riera (2010) to evaluate how participation in music may contribute to the lives of aging adults, 83 senior citizens were divided into three music participation groups: choir, music appreciation course, and preventative music therapy course (Sole et al., 2010). Participants were asked questions related to four aspects: physical health, subjective health, psychological well-being, and interpersonal relations (Sole et al., 2010). The results suggested participants benefited by participating in music, and the opportunity to meet new people and increase their knowledge. Continuing with this demographic, DeVries (2012) explored potential benefits that music making with children would have on aging adults. The researchers contended there might be advantages for both young and aging people alike. Benefits specific to the aging adults included: having positive self-esteem, feeling competent and

independent, avoiding feelings of isolation or loneliness, maintaining or building cognitive skills, and fostering socialization (Devries, 2012).

Many researchers endorse that singing is a basic human behavior, and all people should have access to participation in singing activities (Lehmann, Sloboda, & Woody, 2007; Sloboda, Wise, & Peretz, 2008; Smith, 2006; Woody & McPherson, 2010). The 2009 Chorus Impact Study reported people who sang in a choir tended to be good citizens and acquired strong life skills that enhanced academic success. However, the study also highlights a decline in opportunities for students to sing in schools and communities citing:

> more than one in four educators surveyed said there is no choral program in their
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> schools and one in five parents say there are no choir opportunities for their
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> children in their communities (Chorus America 2009, p. 4).

This trend may have important long-standing consequences for students to acquire the benefits related to singing.

Although many studies do indicate possible benefits associated with singing, more research is required to further understand this possible relationship with music. Clift et al. (2010) explored 48 studies related to possible benefits among: group singing, wellness, and health; 80% had been published after 2000. Each study was unique in the methodology and results. However, this also made it challenging to generalize a list of benefits that all studies could agree on. Although they researchers did see indications of numerous benefits, they concluded the need to do more research to draw specific information.

**Past singing experiences.** Beliefs people hold about their ability to sing may be traced back to their earliest musical experiences (Lehmann et al., 2007; Woody, 2004) These experiences, if positive and enjoyable, can be the motivational factor that keeps people involved in music for a lifetime. If the experiences are negative and students feel devalued or experience shame, then it can have a disastrous impact on their relation to singing, which may deter future participation (Abril, 2007). Lamont (2011) reported that adults could recall when a music teacher requested they not sing out loud or to mouth the words during elementary music class. Young children may interpret these, and similar comments, as a sign their voices were not pleasing to hear. She emphasized that some students with these experiences may decide that music class and singing activities were *not* fun.

Beliefs related to singing ability may also be fostered in adolescents. Turton and Durrant (2002) conducted interviews regarding adults' perceptions on past secondary school music experiences. Specific emphasis was placed on participants' attitudes and reflections regarding singing. Sixty participants were randomly sampled consisting of 15 males and 15 females from 20-30 years of age, and 15 males and 15 females from 30-40 years of age. Interview questions were designed to identify if participants: liked singing in high school, recalled what types of songs they liked singing and why they remembered the songs, could describe their music teacher, and recalled anything specific about their voice in regards to the spectrum of singing ability from "cannot sing" to "sing well." Additional questions were asked to assess if participants had sung outside the school environment, if they were currently singing, and if they thought singing was an important activity to include in schools.

Results indicated the main reason people did not enjoy singing in secondary schools was due to the songs teachers chose. Participants noted they did not like the songs because they did not reflect the students' preferred style of music at the time. Instead, they identified singing along with the radio as the most participated musical activity. They specifically appreciated being able to sing outside of a performance setting and without the pressure of an audience. Singing along to the radio eliminated the worry about doing anything that might embarrass them publicly. However, 100% of the respondents also supported singing as an important skill to include in school curriculum. An interesting note in this study is more people, who did not sing back in secondary school, were currently singing than were people who did sing then (Turton & Durrant, 2002). It appears there may be other reasons outside of singing beliefs that may prevent participation in secondary singing activities.

Not only do studies encourage positive singing activities at an early age, but they also suggest the activities occur with frequency. Children who are able to engage in daily musical activities will develop musical abilities at a greater rate than those children who interact with music at intermittent occasions (Lehmann et al., 2007). Students who engage in singing activities, both in school and at home, tend to have positive attitudes toward singing individually and with others in a choral setting (Mizner, 1993). Students who enjoy singing are likely to have sung often, and in many contexts, which strengthens their skill.

**Parents, teachers, and peer influence.** The influence of parents, teachers, peers, and culture may have a great effect on the relationship people develop with music and specifically with singing (Abril, 2007; Lehmann et al., 2007; McPherson & Williamon,

2006). Many researchers agree that parents are instrumental influences on their child's participation in music (Abril, 2007; Davidson, Howe, Moore, & Sloboda, 1996; Hallam; 2009; Howe, Davidson, & Sloboda, 1998; McPherson, 2009; Sichivitsa, 2007). Parents can provide a nurturing musical environment for their children through exposing them to music, modeling music participation, and encouraging their child's participation. Woody (2004) discussed the role parents play in the musical development of their children through giving of their time and providing both verbal and financial support, particularly in the early stages of musical development. The feedback children receive from parents and teachers regarding their singing ability may greatly impact how beliefs about their singing voice develop (Wigfield et al., 1997). These beliefs may establish how children relate to singing in their future.

In contrast to these studies, Lucas (2011) found that family influences were one of the lowest rated contributing factors to why young adolescent men participated in choir. These findings are in disagreement to studies mentioned earlier who have suggested that parental influence plays a large role in their child's music participation. However, these studies all agree that the environment a child experiences music in will determine participation in future music activities (Hallam, 2009).

Teachers also have a large influence over musical development of their students (Jaap & Patrick, 2011). Influential music teachers provide meaningful musical experiences, both in the classroom, and outside of the school structure (Abril, 2007; Sichivitsa, 2007). Teachers often bring in guest musicians to perform at school, as well as take students to local concerts outside of the school day because many school performances occur after normal scheduled school hours. School choirs often perform for

community functions and celebrations. These rich experiences can pique student interest to study music further. Students who do not experience these enriching musical activities may be limited in their perceptions of music.

The characteristics of a music teacher may also impact students' relationships to singing. Personal warmth is an important trait for an elementary music teacher to possess (McPherson & Williamon, 2006; Woody, 2001). Teachers communicate their expectations about students' abilities in both verbal and nonverbal ways. What is communicated about singing abilities has great implications for students (Ashton & Webb, 1986). A teacher can encourage and reward all participation with a smile, or can give a disapproving look that can halt further participation. If a teacher fails to ask a particular student to vocally model a section of music for the class, it can send a message to both student and peers that the voice is not desirable. If a teacher does not feel that a student has the ability to sing, he or she may not put forth the effort necessary to help the student improve (Ashton & Webb, 1986).

The role that peers play as an influencing factor on motivation to participate in music becomes more pronounced as students enter adolescence (Hallam, 2009; Woody, 2004). At this age students may begin to identify as a musician. This musical identity becomes a very important part of who they will become. Because of this search for identification, they become more responsible for their own involvement in music rather than looking to their parents to guide them. Hallam (2009) emphasized that a strong musical identity be established before adolescence in order for it to withstand possible peer pressure that may distract attention to other activities.

Peer acceptance in an ensemble may provide students with a sense of belonging and contribute to the value they place on music participation (Sichivitsa, 2007). A similar finding was reported by Parker (2009) who noted that singing with peers in a choral setting, over an extended period of time, created a sense of teamwork. It also developed a form of interpersonal communication among singers. Neill (1998) identified previous choral experience as a motivational influence of why high school students enrolled in choir. Contrast to the studies mentioned above, however, the researcher suggested the least motivating factor was whether or not their friends enrolled in choir.

**Singing beliefs.** Beliefs people hold about their singing ability may be powerful predictors of future participation. Beliefs can be very motivating and an instigating force towards a path of achievement in music (Wise & Sloboda, 2008). However, some ability beliefs may not be accurate. O'Neill (2002) emphasized the abilities children have and what they actually demonstrate is filtered by their perceptions of their abilities. Therefore, it may be possible for a student to possess singing ability, but because they do not believe they can sing, they would not demonstrate this ability (or in their mind *lack* of ability).

People are likely to have different beliefs regarding singing. Identifying what type of belief a student has about their singing ability could provide clues in predicting their future participation such as: do they perceive singing as an enjoyable task, do they value being good at singing or simply enjoy it, and is singing an activity that is worth the time required to participate in it (O'Neill, 2002). This was the case in Lucas (2011) who identified the majority of students he polled participated in choir because they enjoyed singing, or felt they were good at it (Lucas, 2011). For those that did not participate in choir, the opposite may be true.

Another factor that may influence people's singing identities are the judgments they receive from others on their singing (Lamont, 2011). These judgments can be expressed intentionally or unintentionally. To learn more about this possible impact, Atterbury (1984) explored how music teachers were teaching students to sing in the elementary classroom. After a period of instruction, teachers identified young students who they believed could not sing. The researcher asked how they determined this and the teachers reported two main reasons: either the child did not possess an innate talent for singing, or suffered from a neurological abnormality. Teachers with these beliefs may not feel it is worthwhile to teach these children. These beliefs shape their instruction and may ultimately reinforce these beliefs onto their students. Of note, Atterbury emphasized that even those who are identified as having a poor singing voice can learn how to sing because singing is a skill that can be developed.

**The non-singer.** Although many people find singing enjoyable, there are others who would disagree based on their belief that they cannot sing (Whidden, 2010). Whidden (2010) investigated why some people self-identify as non-singers and whether or not a positive singing experience could change it. She identified three reasons why non-singers may have these beliefs: negative experiences when singing at school, negative experiences singing at home, and adoption a limiting belief of what a singer is. He found that people who claimed to be non-singers could change their belief after engaging in enjoyable singing experiences. However, some non-singers remained un-swayed by these experiences. Once children determine they are not musicians, it is challenging to convince them otherwise (O'Neill, 2002). This study reemphasized the

impact negative singing experiences can have on children, and in fostering negative beliefs about their singing abilities.

Many music educators believe every child has the capacity to learn how to sing (Pascale, 2005). Edwin Gordon in 1971 stated, "anyone can learn to sing, just as anyone can learn to talk" (Gordon, 1971, p. 93). However, many people claim they cannot sing, sing "pitchy," are tone-deaf, or sing out of tune. Out-of-tune singing can be described as "grunting, growling, monotoning, uncertain, and poor pitch singing" (Welch et al., 1997, p. 153). People who cannot sing may have *congenital amusia*, a term most people know as tone deafness. This musical disability cannot be traced to mental retardation, hearing impairments, or deficiency in exposure to a musical environment. Only four percent of the general population is approximated as having this condition (Cuddy et al., 2005; Kalmus & Fry, 1980; Perez et al., 2008).

"Congenital amusia is a musical perceptual deficiency that severely limits a person's capacity to be musical" (Sloboda et al., 2005, p. 257). This disability surfaces at early stages of development, continues through adulthood, and is not a result of little or no musical experience or interactions (Sloboda et al., 2005). While this condition affects how auditory information is processed, a person can still speak with normal ability (Sloboda et al., 2005). Including this phenomenon of non-singers in this literature review is appropriate to contrast the small percentage of the population with this condition to the larger percent of people who inaccurately believe they do (Sloboda et al., 2005).

Congenital amusia is difficult to diagnose, especially through self-diagnosis (Perez et al., 2008). Researchers conducted a study to determine if congenital amusia could be identified by a 15-minute online test. Results confirmed that although congenital amusia

is identified when a person cannot correctly determine a musical pitch, it is not expressed through musical time.

This raises the question of why so many people claim to be tone deaf, when it is extremely difficult to accurately diagnose this condition? Sloboda et al. (2005) speculated this might be the result of many people not having had the opportunity to develop their musical abilities in singing. Over time they may have adopted a belief they could not sing, claiming to be "tone-deaf," even though research indicates the majority of people are "neurologically normal" (Sloboda et al., 2005, p. 255). Through semi-structured interviews, researchers established a general definition of tone-deafness as "someone singing very badly and often very loudly, either not knowing or not caring that they sound bad" (Sloboda et al., 2005, p. 257). It was also noted that participants believed being tone deaf translated to not being able to sing. Three socially-related perceptions emerged as a result of these interviews: people often determined they had a poor singing voice after comparing themselves to others, they perceived those who sang as having certain talent or musical understanding they did not possess, and they lacked an accurate self-assessment of their own voice. The authors suggested these people would greatly benefit from learning they had musical potential and to be informed of the accurate description of tone deafness.

Clarification is necessary to understand the definition of *tone deafness* and its relationship with congenital amusia. Cuddy et al. (2005) polled over 2,000 students at Queen's University and found 17% identified themselves as being tone deaf. Two samples were recruited from this population: 100 students who claimed they were not tone deaf (NTD) and 100 students identified as tone deaf (TD). Participants first

completed the Montreal Battery of Evaluation of Amusia (MBEA), which consisted of tests on musical scale, contour, interval, rhythm, meter, and memory. Afterwards, participants filled out a 27-item self-assessment questionnaire inquiring about their past musical experiences and abilities. Results suggested that self-identification of tone-deafness as a single factor was not a strong indicator of having amusia, nor was it "a reliable indicator of musical difficulty. The label *tone-deaf* reflects different referents, two of which were uncovered here–self-assessment of poor singing and lack of musical interest and exposure " (Cuddy et al., 2005, p. 320). Based on the percentages shared in the previously mentioned studies, 13% of people may inaccurately believe they are tone-deaf, and could both participate in musical experiences and improve their ability to sing with instruction.

Further study has been conducted to investigate if people who self-identify as tone-deaf displayed specific musical challenges and to determine possible explanations. Wise and Sloboda (2008) identified 30 people who either self-reported as being tone deaf or not tone deaf. Researchers measured various aspects of the participants such as musical perception, cognition, memory, production and self-ratings of performance (Wise & Sloboda, 2008). Results showed that, although those who reported as tone deaf did score much lower than those who reported as not being tone deaf, the reported tone-deaf participants did not display the characteristics of someone who suffered from congenital amusia. While congenital amusia is an actual perceptual deficit that is music specific, many of the people who claim to be tone-deaf did not have this deficit. Though the self-reported tone-deaf participants were not as confident in their singing as their counterparts, it did not mean they could not improve over time. In fact, with specific

effort and instruction, they could gain in both skill and confidence. This supports that one's beliefs may have significant influence over achievement.

Some self-identified non-singers could be more appropriately described as *inaccurate* singers. Bradshaw and McHenry (2005) focused on a population of adult singers who do not sing as well as others. They identified 15 participants ranging in 18 to 40 years of age as inaccurate singers. The purpose of the study was to evaluate how pitch, both identification and production, interacted with each other. Results suggested no significant relationship existed. However, it was identified that these singers could be divided into two categories that were the exact inverse of each other: singers who could hear correct pitches but could not match pitch when singing; where others could not hear the correct pitches but could match the pitch when singing (Bradshaw & McHenry, 2005). This indicates pitch discrimination issues may affect pitch accuracy when singing.

A similar study by Pfordresher and Brown (2007) found that "poor-pitch singers" performed equally on items of pitch discrimination accuracy as "good singers." The researchers proposed that perhaps struggles to match pitch are not caused by how a person hears or remembers the pitch, but may be caused by inefficient use of the physicality necessary when singing. Therefore perceived "tone deafness" could be a result of poor singing (Pfordresher & Brown, 2007). Correct teaching and learning how to use the body efficiently to produce sound can help poor singing.

A flaw in the current research of in-tune singers is the lack of longitudinal studies which creates a deficiency in knowledge regarding how singing behaviors grow, what motivates people to continue, and how these behaviors may change as people age (Welch

et al., 1997).  This information could help music educators understand the developmental process of singing necessary to encourage singing for all.

Adults can improve their singing ability with interventions and practice (Mitchell, 1991). In one study, participants reported having reached a very high level of pitch matching ability through specific training (Mitchell, 1991). Teachers who are diligent in assessing singing ability can identify students early on who are struggling with pitch accuracy (Smith, 2006). Identifying students with auditory processing difficulties at an early stage of vocal development can allow the teacher to provide students with appropriate strategies that may help them improve their skill. Without these interventions, students may misidentify why they are not singing accurately and draw other conclusions as to 'why' (Smith, 2006).

People's misperceptions of what a musician or singer are may also contribute to their identification as a non-singer. O'Neill (2002) reported that young people may not feel they are musicians because they (1) did not play an instrument, (2) saw professional musicians on TV and listened to them on the radio and felt *that* was the measure of a musician, or (3) received negative feedback from another based on *the other person's* qualifications of what a musician was (whether accurate or not). O'Neill offered that perhaps it may be the social perception of what a musician *should* be that influences a student's perception, rather than a list of specific traits. People with these misconceptions may believe they are not singers, especially when they do not sing like some of their favorite singers (Barefield, 2012; Pascale, 2005; Stephens, 2012). Stephens (2012) agreed that participants reported that to "be a singer" meant to be someone who sang professionally.

The previously mentioned studies set parameters of how our culture may define singing. An important study to this conversation about "singer" versus "non-singer" is Pascale (2005) who emphasized the Western perspective on singing has narrowed over the past century. Through many interviews with self-proclaimed non-singers, a theme emerged regarding how people identified what a *real* singer was: a certainty they knew what it meant to be a singer, and knew they did *no*t have the necessary talent or ability (Pascale, 2005). In addition, no participants were told directly they could not sing; yet they still remained staunchly committed to this label. Instead they came to this belief because "they never were selected to sing a solo; they could not lead songs; they could not read music; or they sang out of tune. To them, any or all of these meant to them that they "were 'not good,' 'really could not sing,' and thus were a 'non-singer'" (Pascale, 2005, p. 167).

Pascale (2005) provided an alternative view from the traditional perspective of singing as defined by level of music ability; thus creating "singers" and "non-singers." Instead, she offers an alternative to this Western traditional definition of singing on what is produced: good or bad singing. Pascale encouraged greater value be placed on vocal development rather than a polished performance. Instead of excluding people from singing, she offered:

> the present boarders be taken down and emphasizes process and participation, and stresses social values and spontaneous singing. The primary purpose is enjoyment; singing for fun and recreation. Music ability is, in fact, de-emphasized and there are no restrictions about who sings or who is a singer. There are no categories for "singer" (Pascale, 2005, p. 171).

**Hindrances to singing.** Elementary students identified singing as one of their favorite activities in their music classes (Bowles, 1998). However, for some students singing became an activity they no longer desired to participate in as they aged. One factor that may contribute to this is feelings of anxiousness while singing, which can hinder a student from creating a pleasant tone or matching pitch accurately (Barefield, 2012). Students who have experienced this while singing in front of classmates, or in a concert situation, may determine they cannot sing well. What they perceived as poor singing may have been pitch, breath, or other vocal issues caused by anxiety, not their inability. Students may not know the negative impact anxiety can have on singing, nor what to do when they sense their body tensing up. Without intervention from a trained voice teacher, a student can form a habit of experiencing great anxiety while singing. "Fear has the potential to limit a singer's ability to manage his or her own body and vocal mechanism and to create an ongoing sense of failure" (Riley, 2012, p. 61).

Research has been conducted to understand what may trigger these anxieties. Abril (2007) studied the singing anxieties of adults as they participated in a college music methods course. He identified three female elementary music teachers who self-reported having anxiety about singing. The researcher gathered data over 10 weeks through participant journals, interviews, and field notes. It was determined that singing anxieties usually began with negative past experiences in school music and only occurred in situations where participants feared they would be judged by others.

Some people stop singing after comparing their own voice with others. During adolescence, voices tend to mature at different rates. Therefore, when teenagers compare their voices to those of their peers, it may not be a fair assessment of their individual

voice because they may be at different stages of vocal development. In addition, "students have no control over the performance of other students, so comparing themselves to others can be frustrating and de-motivating" (Dweck & Master, 2009). Therefore, it is not only other's negative perceptions about a person's voice that may hinder them from singing, but also their own.

People also have contrasting views on what it means to be a musician. Even active musicians have reported not being comfortable with the "musician" label. They felt *real* musicians displayed other musical qualities they did not possess (O'Neill et al., 1999). Even though these people were engaged in musical activities, they tended to belittle their skill level when compared to others they felt were greater musicians.

Music textbooks may also be a deterring factor from singing development. Some commonly used textbooks designed for elementary grade students do not include developmental exercises to teach *how* to sing. Although students can participate in their school music programs, they may not be receiving adequate instruction on how to sing confidently (Atterbury, 1984).

 Without prior musical experiences and training, one might never gain confidence in their singing (Smith, 2006). This may be an increasing issue for many school children as more schools are failing to include musical instruction in their elementary school curriculum (Chorus America, 2009).

However, having access to early music instruction does not guarantee a person will enjoy singing. Some students may not enjoy their musical practice, causing them to drop out and never reach a sufficient point of singing mastery (Woody & McPherson, 2010). Such was the case in Mizener (1993) who surveyed 542 elementary music

students to identify their attitudes about singing. Although the majority of students felt positively about singing, more than half were not interested in singing in a choir. Not everyone is intrinsically motivated to sing (Hallam, 2009). If people do not enjoy an activity they will not continue with it, for they will not be intrinsically motivated to sustain the activity (Csikszentmihali et al., 2005).

**Assessing singing.** Current singing assessment methods may negatively impact singing identity development. Salvador (2010) compiled current singing assessment tools published after 1994 when the National Standards for Music Education were approved. These tools had been reported in various research articles, dissertations, and music education journals. The researcher polled teachers to examine how and why they assessed singing. She found teachers disagreed on how to rate assessments correctly, or in what setting they would be most appropriate to use: private lesson or music classroom. Salvador also indicated that none of the studies measured aspects of singing-timbre, diction, and posture that were mentioned in the National Standards for Music (Salvador, 2010). The researcher concluded that measuring singing is an end-result of skill development and does not efficiently inform teachers of what strategy to teach next, which was the point of assessment.

As mentioned earlier, current elementary music textbooks may not provide information on how to build singing skills (Atterbury, 1984). In addition, many songs included may not be in an appropriate vocal range for the students, contributing to inconsistencies in vocal assessment (Marshall, 2004). An inaccurate assessment of singing ability could result in students forming a negative singing identity.

Appropriate singing assessments can foster meaningful instruction. Marshall (2004) suggested that teachers should only measured one dimension of singing at a time in order for the rating scale to be most effective. He suggested that teachers assess singing aspects such as pitch accuracy, rhythmic accuracy, or keeping a consistent tonal center, but not all at the same time. Performing scales, as his example, was only effective if the student has first demonstrated the correct use of their singing voice.

**Singing can improve.** People who struggle with pitch accuracy can improve over time with appropriate instruction and support (Cuddy et al., 2005; Mitchell, 1991; Pfordresher & Brown, 2007; Welch et al., 1997; Wise & Sloboda, 2008). These students would benefit from a music teacher who fostered positive support about singing related to "self-concept, goals, expectations, and performances" (Riley, 2012, p. 66). Presenting a more inclusive belief of singing for all may help students become open to singing (Pascale, 2005). Through efficient vocal instruction, students will be able to improve breath support, breath control, increase vocal range, and pitch accuracy with concentrated effort (Phillips & Aitchison, 1997. If these past researchers suggested people can improve their singing ability, then why do so many people still think they cannot sing?

**Motivational Theories**

**Motivation to sing**. There are certain factors that influence why some people are motivated to sing, and others are not. Unfortunately, these aspects of motivation are not common knowledge among many in the music education community (Woody & McPherson, 2010). Motivation is comprised of two types: intrinsic (motivation comes within the activity itself) and extrinsic motivation (motivation comes from outside the activity (Lehmann et al., 2007). Students may be motivated in different ways and at

different times. Sometimes students will be motivated by the intrinsic pleasure they feel when participating in music. At other times, they may require external influences such as parent or teacher expectations that students reach a certain musical goal or skill level. Both sources of motivation may be present throughout skill development (Lehmann et al., 2007; Woody, 2004).

The role of intrinsic and extrinsic motivation may change as students develop musically. Deci and Ryan (1991) established a Self-Determination theory, which looks at the impact of both self-motivation and self-determination on a person's behavior. This theory proposes that students have three basic needs in order to be motivated to learn: competence, relatedness, and autonomy (Deci & Ryan, 2000). Woody and McPherson (2010) adapted this theory to explain a series of transitions young music students experience. The process may begin with extrinsic motivation–influenced by others–to a point where young musicians will make their own choices to be motivated to practice due to internal motivation. Young children, at the start of their training, may initially desire to practice their singing in order to gain a reward, or to avoid being penalized for not practicing from either parent or teacher. They continue with their practice because they do not want to disappoint their parent or teacher by not improving. As they advance in their skill level, they may transition to valuing the musical activity on their own. It has become important to them, and is now worth the time they spend practicing in order to improve. To some extent, however, they are still motivated by making parents or teachers happy because they practiced. The last phase involves becoming fully integrated with intrinsic motivation to practice. They now set their own goals to improve their skill development.

Certain criteria must be present in order for a student to maintain motivation to sing. Students must believe they can sing, or they will not be compelled to continue training (Cuddy et al., 2005). Developing and improving their skills must be of value to them (Smith, 2006). In addition, students must feel comfortable with their teacher and know they are in a safe environment to develop these skills, free from judgment or fear. When these criteria are not met, motivation to sing may decrease.

Music teachers must be able to work with students over a consistent amount of time in order to provide the motivation necessary for students to develop their skills (Smith, 2006). Within this time frame, students can receive support and coaching on specific strategies to help improve their skills. However, past studies reported fewer choral programs exist in today's schools; therefore, less students are receiving the opportunities to develop their singing abilities (Chorus America, 2009).

Teachers who understand what motivates their students to sing can be purposeful about including these factors in their lesson planning and instruction. Adderley, Cecil, and Rutgers (2003) investigated the motivational factors that commonly drew high school students to participate in music. Through a series of 60 interviews of high school band, choir, and orchestra students, they identified students were motivated for musical, academic, and social reasons (Adderley, et al, 2003). Teachers who include these facets in their classrooms may see the benefit of increased enrollment and participation.

Certain environments are more conducive to motivating students to learn. Stamer (1999) reported specific behaviors that 472 students enrolled in high school choir identified as having impacted their motivation to sing. The author utilized Madeline Hunter's six variables to stimulate student motivation as a method to design a survey

instrument. The students' top choice was a teacher who paid attention to the "personal and musical development of their students," thus creating an environment that was welcoming and encouraging (Stamer, 1999, p. 26). The other aspects included a teacher who provided feedback, included interesting repertoire, and presented achievable challenges. Teachers who chose literature that was too easy had the opposite effect on students' motivation; the students preferred to be challenged. The author discussed why it is important for all students to have the opportunity to be successful in the music classroom. If all students were given encouragement, support, and strategies to improve, then they may be motivated to attain their goals for developing their voices. Since not all students receive this, many students may not continue singing.

Although many students feel singing is a worthwhile activity, it does not mean they necessarily want to participate in singing with others. Mizener (1993) surveyed 542 third through sixth grade students to identify their attitudes about singing. Most students had positive attitudes, but fewer than 50% of students were attracted to choral singing (Mizener, 1993). Results indicated no significant relationship was identified between the perceptions students had about their singing ability in comparison to the actual assessment of their skill. There was also no relationship found between their skill assessment and whether or not they liked singing, or hoped to participate in a choir in the future. Students who perceived they did not sing very well performed equally to those students who felt they could sing well. Their attitudes about singing did not seem to be dependent upon how well they could sing. This conclusion is in agreement with Smith (2006) who emphasized students must value singing with others in order to be motivated to participate with group activities.

The use of competition as a motivational tool in music ensembles is a debated topic among music educators. Competition is prevalent throughout society and exists in spelling bees, extracurricular sports, cheerleading competitions, and the focus of many reality TV shows. It also exists in the music education community through marching band and show choir competitions, solo and ensemble festivals, and is present when auditioning for elite performance groups. Austin (1991) studied the impact competition had on students' goals regarding their music participation, musical self-esteem, performance on assessments, and overall motivation. Forty-eight students in fifth through sixth grade band, who had completed at least six months of instrumental study, participated in this research study. Students were randomly assigned and placed into a competitive (encouraged to do well to receive high enough ratings to win an award) and non-competitive (encouraged to do their personal best) goal structures. The researcher indicated that competition to achieve a certain criteria did *not* produce high achievement, or impact student motivation (Austin, 1991). In fact, the non-competitive group was shown to do as well or better in their performances. Although their music self-esteem did have a significant impact on their motivation, it did not influence how well they performed. One could conclude that perhaps competition, related to singing, may actually hinder development rather than enhance it.

The following motivational theories provide a deeper understanding into aspects of motivation related to singing. This review of literature regarding motivation to sing is included in this chapter to understand the role that mindset may have within this motivational framework.

**General motivation.** Motivation is a key component in the development of musicians, and is a growing interest among researchers to understand why some students do well in learning opportunities, while others do not (Austin et al., 2006). Motivation theories have evolved throughout history. Past theories focused on constructs of biology and behavior, where modern theories tend to reflect personal cognition and social contexts (Pintrich & Schunk, 2002). Various aspects of motivation include self-system, social system, actions, and outcomes (Austin et al., 2006). Understanding motivational principles in the area of musical learning may be key to improving individual singing ability:

> While recognizing that there can be real differences between individuals in the speed of their intellectual growth, and without denying that there may be differences in capacity, we suggest that a child's focus on assessing these differences can have unfortunate consequences for motivation. In contrast, a focus on the potential of students to develop their intellectual capacity provides a host of motivational benefits (Blackwell et al., 2007, p. 260).

For the past 20 years, an increasing percentage of motivational research has focused on social-cognitive theories to explain why people have the perseverance to do well in certain domains. O'Neill (1997) suggested these theories, although not specific to the musical domain, provided justification for the value music educators may find in understanding the connections between the motivational processes of their students as it relates to their academic achievement (O'Neill, 1997).

The amount of motivation children have may impact their relationship with music in both "quantity and quality" (McPherson & Williamon, 2006, p. 245). Maehr,

Pintrich, and Linnenbrink (2002) reviewed current research on motivation to assist teachers in understanding the implication it may have on teaching and learning. The authors stressed the importance of considering affective and cognitive components of motivation. Students' feelings about a particular task may provide an indication about their motivation to do this task. Student cognition, or how they *think* about a task, is suggested as having an effect on their motivation as well (Maehr et al., 2002).

Past research on motivation and music learning focused on trying to understand how young musicians adopted the desire to play a musical instrument, how they valued playing, why they continued to practice and at what intensity level, and how they evaluated their progress and interpreted the causes for any success or failures that they have (O'Neill & McPherson, 2002). After a review of literature, O'Neill and McPherson (2002) recommend that it is important for teachers to understand how students perceived themselves, the musical activity, and their performance. The authors suggested this is crucial in creating an engaging learning environment that provides students with appropriate challenges and supports them in continuing to reach their musical goals.

**Self-Worth theory.** Self-Worth theory, another theory related to achievement behavior, operates within the understanding that people's abilities can be judged by how much effort they put towards learning specific information or skill (Covington & Omelich, 1979). If they have to work hard at a task, and do not perform well, they perceive that they must lack the ability to do well. Conversely, people are viewed as having great ability if they perform well without exerting much effort. Teachers can also reinforce these perceptions in their instruction, feedback, and expectations of their students who they perceive as lacking ability. These teacher behaviors and beliefs can

have negative consequences on students' beliefs about their potential in a particular

domain. Students may even try to protect themselves from being perceived as lacking

ability by demonstrating distracting behaviors to avoid it (Covington & Omelich, 1979).

Students may purposely choose to exert low effort in order to "save face" in front of

teachers and peers. If they do not try hard, then others cannot perceive them as failures.

**Flow theory.** Students who experience a state of *flow* become so completely

absorbed in an activity that they appear to lose track of time, are unaware of tiring, and

are oblivious to anything but the activity itself (Csikszentmihali et a., 2005). Many people

who sing have reported experiencing this subjective state proposed by Flow Theory.

Flow is estimated to occur when three conditions exist: the person has a reason for doing

the task, the task is challenging enough to hold attention (neither too hard nor too easy),

and the person is able to measure their progress as they are doing it (which guides them

to respond in order to continue (Csikszentmihali et al., 2005). Students may not

experience flow if they are asked to participate in a singing activity they feel is too hard,

or uncomfortable doing. Experiencing this state of flow may be a strong factor in a

person's motivation to continue with an activity.

**Self-concept.** Researchers have identified that emotional and psychological

blocks may hinder children's ability to sing in tune. However, current musical instruction

may not be addressing these traits. A clue into whether or not children may have any of

these blocks is to assess their self-concept, defined as "the perception the individual has

of himself" (Greenberg, 1970, p. 57). Austin et al. (2006) described self-concept as the

belief a child has about their overall ability in a certain domain. The perceptions that

others have about students can also greatly impact their self-concept about their musical

abilities (Lamont, 2011). In addition, both parental support and previous musical experiences were found to be significant contributing factors to the development of musical self-concepts (Sichivitsa, 2007).

These beliefs shaping musical self-concept may be stronger than in other self-concept domains (Vispoel, 2003). Vispoel (2003) speculated that the domain of singing (and moving) to music might be unique because discrepancies in how people perceive they can sing cannot be explained. The researcher also asserted that people with low music self-concepts, who greatly value music (singing) and admire the skills necessary to sing well, tend to have a much lower self-esteem than those who do not value singing.

Peoples' self-concept of their singing ability may hold important clues about the sound that is produced when they sing. The inability to sing in tune may be a result of a low self-concept regarding the ability to be successful in singing experiences (Greenberg, 1970). This was the case in a study reported by Greenberg (1970). He suggested that self-concepts may be formed by how students have been treated by other people, and of the experiences they have had. Greenberg suggested it is important to not only focus on the musical development of students, but also the development of a positive self-concept in relationship to music. Students with pitch difficulties and low self-concept were able to improve after engaging in a series of positive singing activities. He concluded that students who have positive experiences with singing may result in a positive self-concept, and a positive self-concept may also result in positive singing experiences.

Although there is much research regarding self-concept and aspects of achievement in all academic subjects, finding an accurate way of assessing musical self-concepts of children has proved to be a challenge (Marsh, Craven, & Debus, 1991).

Marsh et al. (1991) found success with an adapted self-concept questionnaire. They concluded that self-concept can be measured at younger ages, and tends to get more personalized as students age and develop (Austin et al., 2006; Marsh et al., 1991).

**Self-Efficacy.** Peoples' perceptions about how well they will perform in certain situations may influence how they interact with the world. This sense of competence, or *self-efficacy*, is described as beliefs people hold about their abilities, which direct their choices to reach certain goals (Bandura, 1977). These beliefs "influence how people feel, think, motivate themselves, and behave" (Bandura, 1993, p. 118). Students' self-efficacy can direct them to be responsible for their own learning. If they do well on a certain task, it will influence what they hope to accomplish, how motivated they will be to achieve it, and what they are able to accomplish in the future (Bandura, 1993).

Bandura (1993) emphasized the actions people take are first played out in their minds. Those who have high self-efficacies will visualize themselves being successful at a given task. Those with low self-efficacies will spend more time imagine scenarios that might reveal their perceived failures to others, rather than working to improve their ability.

Self-efficacy develops as students begin to experience social interactions. Children become more aware of their abilities as they progress through elementary school and compare themselves to the abilities of their peer group, which informs and shapes their self-efficacy. If students determine that their skills are less than their peers, it is also likely that it will contribute to a lowered self-concept (Hallam, 2009).

Research supports the impact that perceived self-efficacy has on musical development. Jaap and Patrick (2011) performed a secondary analysis on data collected

regarding music ability and how it develops. They scrutinized the data to identify a possible relationship between music ability development and the self-efficacy of professional musicians. The researchers identified four conditions of self-efficacy required to develop talent. People needed to be able to judge their own abilities, understand that how well they performed was a result of how much they practiced, be self-motivated to practice, and persevere through challenges and obstacles (Jaap & Patrick, 2011).

Although current research is beginning to focus on the role music self-efficacy has on other aspects of learning, it is still a relatively undeveloped study (Ritchie & Williamon, 2011). Ritchie and Williamon (2011) wanted to provide teachers with an improved music self-efficacy assessment tool to be used with primary children to uncover possible connections with music self-efficacy and other aspects of their lives. A total of 404 children from seven through ninth-grade participated in a modified questionnaire to gather information about their previous musical experiences, time they participated in music-making or listening activities, and time devoted to other non-musical activities. The researchers reported that students currently involved in music learning activities scored significantly higher in self-efficacy than students who did not. They also found that prior musical instrument experiences were the highest predictor of music self-efficacy for learning, and self-efficacy correlated with a child's well-being (Ritchie & Williamon, 2011). The researchers emphasized the importance of identifying students' music self-efficacy prior to their music learning in order to guide appropriate instruction to increase their musical ability.

To uncover variables of self-perceptions specific to singing ability, Stephens (2012) conducted a survey involving 171 university students enrolled in either an undergraduate general psychology course or music appreciation course. She developed the Singing Perception and Participation (SPP) survey to identify how people interpreted their singing perceptions. Stephens suggested the majority of students in the study (*n* = 151) claimed to be non-singers and reported mid to low self-efficacy scores. However, they did report having a general positive attitude towards singing (Stephens, 2012). Home environment and past singing experiences were the strongest predictors related to people's perceptions of their singing ability. In addition, people felt that a person was a "singer" if he or she performed or worked professionally as a singer. Singing for pure pleasure did not fulfill their definition of a singer.

Students' music self-efficacy may be influenced by the music self-efficacy of their past teachers (Bartel & Cameron, 2002). Bartel and Cameron (2002) studied how the self-efficacy of generalist teachers, specialist teachers, and pre-service candidates is formed, and its impact on future students. They reported only 44% of the classroom teachers (78 music specialists and 106 general teachers) identified as feeling generally confident to very confident about teaching music. Two factors that strongly correlated with confidence to teach music in their classroom included: the feedback that these teachers received from their music teachers during their adolescent years, and feedback from current music teachers.

Teachers can increase their students' self-efficacy in music by reinforcing that effort and practice, rather than innate talent, are required to improve their skills (Woody, 2004). Maehr et al. (2002) reported similar results that students with strong self-efficacies

might work harder to overcome their challenges. They proposed that if students' believed in their skills, they were more likely to have the perseverance necessary to achieve their goals.

**Expectancy-Value theory.** The value people place on a certain activity, and how well they predict they will do on that task in the future, is explained by Expectancy-Value theory (Austin et al., 2006; Eccles, 1983; Eccles & Wigfield, 1995; O'Neill & McPherson, 2002). Based on this theory, people who think they sing well will reach a more advanced skill level than others who do not. People must also greatly enjoy the act of singing in order to remain involved in it (Wigfield & Eccles, 2000). Maehr et al. (2002) cited the Eccles model which described value as having four parts related to achievement: attainment value (how important it is to them they sing well), utility (if it is an activity they foresee needing in the future), interest value (whether or not they enjoy singing), and cost (whether the time necessary for vocal development is worth the time away from other activities).

Eccles and Wigfield (1995) questioned what occurred first in the model: did students enjoy the activity in which they found success, or did succeeding in an activity cause it to be more enjoyable? Through a two-year longitudinal study of students between fifth and twelfth grades, these researchers tried to determine the relationship and breadth between achievement-related beliefs that were domain specific, and perceptions of self in regards to the value placed on achievement. Although results did not indicate a casual relationship, they did report that perceptions related to ability, task difficulty, and task value were separate from each other.

**Attribution theory.** Another distinction central to motivation research is in understanding how people interpret their experiences. Weiner's (1974) Attribution theory suggested the reasons students give for successes or failures on a task will determine how they interact with the task in the future. This theory may have great implications on student learning (Weiner, 1985). Weiner (1985) proposed that attribution theory seeks to understand the "why?" human beings ask in order to understand the purpose, situation, or factors that created certain results. He looked at three common attributes or perceived causes of success and failure: locus (internal or external), stability (can they change at different times), and controllability (are they within their control; Weiner, 1985). The most common attributes reported for success were ability and effort, whereas little ability and lack of effort were most attributed to failure (Weiner, 1985). Weiner's theory provided a deeper understanding of the strength motivation may play in areas of achievement (Asmus, 1986).

Similar findings were reported in Asmus (1986) who explored the attributes students gave for their success and failures in music based on locus of control and stability through time. He used Weiner's Attribution theory as the foundation for his study to investigate what factors of motivation are included in explanations people give for why some achieve in music and others do not. Five hundred eighty-nine students from fourth through twelfth grade participated in a questionnaire that asked them to describe five reasons why people were successful in music, and five reasons they were not. The researcher reported that 80% of the reasons given for success and failure were internal attributions; more stable reasons were associated with success, and more external-unstable reasons were associated with failure. These attributions tended to change as

students grew older, transitioning from an effort related attribution to a specific ability (or lack of ability) attribution. Asmus concluded that it might be of benefit to music students if teachers encouraged internal-unstable, effort related attributions with their students to help build the skills necessary to be successful in music.

Austin and Vispoel (1998) wanted to know why student motivation to participate in music tended to decrease as they transitioned from elementary to secondary schools. They also hoped to identify any interventions that could be used to foster positive associations with music, thus decreasing attrition in music participation. As a result of their study, they found that students have different attributional beliefs about how they defined success and failure. Students, who hold a high self-concept in music and are successful in achievement measures, may likely attribute their success to ability. Conversely, they would not attribute the same reason for failure. The researchers also identified that new attributions such as family, teacher, and peer influence, which had not been used in previous research, indicated a strong relationship to musical achievement (Austin & Vispoel, 1998). Students' attributional beliefs about their musical ability had a strong relationship to their musical self-concept and achievement (Austin & Vispoel, 1998). The authors suggested teachers should encourage effort-related beliefs in their classrooms, that students can be successful in music if they work hard work, persevere, set goals, and utilize learning methods that fit their needs.

**Response to failure.** Failure in achievement situations can have profound implications on motivation and student learning. As students interact with learning activities in the classroom, specific patterns begin to emerge that may explain why certain students respond to failure differently than others. O'Neill and Sloboda (1997)

investigated how students reacted when placed in induced failure situations involving music, and how it impacted their confidence level. Fifty-one students from ages six through ten were included in the study. The students began by taking a Melodic Direction Test. Afterwards they passed through three additional trials of an experimental music test and experienced (1) success, (2) failure, (3) and post-failure (O'Neill & Sloboda, 1997). Following each trial, the researchers interviewed students to determine if they believed they had the ability to complete the tasks successfully, and if they had confidence they would be able to do a comparable test at another time.

Results indicated that after experiencing failure situations, most of the students exhibited decay in their performances, even when two of the trials were identical and they had actually done well on the first test. The non-decaying students, in great contrast, either remained at a consistent test level or improved. Students who identified as having low confidence after the failure situations seemed to worsen their performance more than students who had reported a high-confidence level. Implied here is that students who do not have a high confidence in their ability will deteriorate after experiencing failure, and may be more susceptible to behaviors that do not support the skills necessary to improve, even though they actually demonstrated the skills necessary to do well on the test (O'Neill & Sloboda, 1997). The researchers concluded that scores on music performance tests may reflect more than current student knowledge, but are also influenced by students' moods and the way they may respond to testing situations. There may be consequences for students who experience multiple failure situations or conditions. Because of consistent negative feedback, students may not be able to demonstrate skills

necessary to recover from repeated failure, and are likely succumb to their negative beliefs and decaying effort.

Sichivitsa (2007) suggested that singing might have certain implications for failure that is different than other disciplines. If a student does poorly on a test in math or science, the teacher and the student are the only ones that are likely to be aware of the failure. Singing poorly, on the other hand, can be humiliating because one's performance is often judged in a public setting, whether in an informal or formal setting (Sichivitsa, 2007).

**Talent.**  People who sing are often described as being talented. Many perceive having talent as a prerequisite for singing. This perception is a key factor in people's motivation to sing, or not to sing. However, not all researchers agree (Lamont, 2011; Mercer & Ryan, 2010; Smith, 2006). There are others who suggest a different view of talent, or giftedness, seeing it as a culturally reinforced notion of "folk psychology" (Sloboda, Davidson, & Howe, 1994, p. 349).

Terms like *talent* and *giftedness* have many meanings and are used in a variety of different contexts. Due to this ambiguity, there may be confusion in the general population about what the terms actually mean (Gagne, 2003). Gagne (2003) defined giftedness as "exceptional competence in one or more domains of ability," whereas talent is "exceptional performance in one or more fields of human activity (Gagne, 2003, p. 87). He emphasized that the distinguishing aspect between the two terms are the roles of competence and performance. McPherson and Williamon (2006) further defined Gagne's definitions of giftedness as the potential to do well in a certain domain based on natural

ability that greatly supersedes others, whereas talent is the result of training in a certain skill that results in a higher performance level compared to others.

Some suggest other factors may contribute to a person's ability to sing, such as the musical environment they grow up in (Austin et al., 2006). McPherson and Williamon (2006) contend that there is "folklore" behind the terms of giftedness and talent (p. 239). They emphasized instead that much practice is required in order to reach a high level of skill. They cited Mozart as an example–a composer/musician who has been largely viewed as having been gifted with musical talent at birth. They provided an alternative theory that Mozart's skill and music ability were the result of much support, training, experiences, and countless hours of practice.

Wise and Sloboda (2008) also supported this notion. They looked into several studies that cited innate talent as the necessary factor in high music ability. They pointed out fallacies in the research citing there where other determinants of musical ability that were overlooked such as the home environment, early musical training, and support for music participation that students experienced. The researchers discussed that what people perceived as "talent" may actually be someone who has had the good fortune to have early experiences with music. It may be easier and culturally acceptable to assume giftedness. Wise and Sloboda addressed the lack of evidence of "talented" children who were successful that could not be explained by other aspects. The authors stated that believing in talent could be oversimplified and exaggerated. Evidence of large amounts of regular practice was found to be essential for excelling.

Being musical may be an innate ability in all humans. Babies demonstrate a variety of musical traits, which develop throughout their early childhood even without

formal musical training. Therefore all children, with the right support, training, and opportunity, could possibly reach a high level of musical ability (Lehmann et al., 2007). Researchers suggest that all children of normal functioning should be able to develop musical abilities (Lamont, 2011; Lehmann et al., 2007). This may imply, then, that it is the lack of opportunity to be engaged in musical opportunities, rather than lack of talent, that inhibits a person to view themselves as musical.

Smith (2006) introduced the question that if innate talent were truly a prerequisite in learning a skill, then schools would not require all students to participate in math and spelling. She suggested, instead, that singing should be taught in the same way that spelling and multiplication should be taught; by learning how, and then providing the opportunity to practice the skill in order to strengthen one's ability.

People may observe musical skills and behaviors in others that they may not possess themselves. Often these differences are interpreted through perceptions of innate talent. In musical performances audiences may view a musicians' flawless performance as an indication of great talent, instead of the result of hours committed to learning the music, and mastering the techniques (O'Neill, 2011). A similar misperception may be found in some parents who were not involved or interested in music prior to having children. They may find themselves switching into musically supportive roles if they perceive their children demonstrate natural talent or have a high curiosity for music (Sichivitsa, 2007). Parents may readily accept that their children may have innate talent, even if they do not perceive they possess talent themselves.

Preconceived notions about musical ability may affect how motivated people will be to learn music (Austin & Vispoel, 1998; Austin et al., 2006). Students who believe

music ability is something you are born with, and if they perceive they do not have this ability, then they may not be motivated to participate in musical activities especially since judging music ability is prolific among our culture (Austin et al., 2006; Sloboda et al., 2005). It is a common practice for students in music classrooms to exhibit music ability in front of their peers, as well as in public performances. Because there are multiple opportunities for students to gauge themselves against the ability of their peers, they may see the vast difference in their ability to their peers and incorrectly assume that their peers are more talented.

There are consequences for holding a talent-only belief. As mentioned earlier, Asmus (1986) explored the beliefs that children had about their successes and failures in music. He determined that they were more apt to attribute their success or failure to perceived talent, rather than to how much effort they had exerted towards developing a particular skill. These beliefs can be damaging to student potential. If students do not feel they were born with an ability to sing, they will not put effort into or value improving their skills.

Teaching with a talent-only perspective can be problematic. A teacher with this perspective may, knowingly or unknowingly, direct their instruction to the "talented" students. This is inequitable and prevents the other children from getting the best experience possible (Wise & Sloboda, 2008). Additionally, teachers that believe innate talent is a prerequisite for high achievement, and view some students as not having talent, may likely deny students any interventions or training that would help them improve. A study by Howe et al. (1998) found no evidence to support natural talent in students with

high levels of music ability that could not be explained by early experiences and support. These findings have important consequences for music education because:

Categorizing some children as innately talented is discriminatory. The evidence suggests that such categorization is unfair and wasteful, preventing young people from pursuing a goal because of the unjustified conviction of teachers or parents that certain children would not benefit from the superior opportunities given to those who are deemed to be talented (Howe et al., 1998, p. 407).

Viewing talent differently could help change prevalent beliefs about skill development. McPherson and Williamon (2006) suggested a broader perspective of music talent to include eight different threads: "performing, improvising, composing, arranging, analyzing, appraising, conducting, and teaching" (p. 249). These provide alternative views from talent only existing when one is performing, and encourages music teachers to consider the breadth of skills that can be developed in young musicians. Expanding the view of multiple ways people can demonstrate talent in music could invite more people to participate.

**Practice and effort.** Advances in brain development and its impact on learning have greatly contributed to the shifting beliefs from innate talent, to more controllable factors to increase musical ability. Bennet, Diamond, Krech, and Rosenzweig (1964) were among the first researchers to discover the brain was able to grow and make new connections, a process called plasticity. Before the 1960s, it was believed that the brain was fully formed at the time of birth and nothing could cause physical changes to its internal structure (AllPsychologyCareers.com, 2013).

Fields (2008) highlighted the importance of the brain's myelin, the white substance coating axons, that is responsible for neurons sending messages to other neurons in different parts of the brain, much like phone cables once worked. This matter was of little importance to researchers, but now there is prolific information to suggest that myelin can change as a result of practice. Myelinization is not completed until the age of 25-30 years of age. The thicker that an axon is coated with myelin, the stronger its ability to communicate to other parts of the brain. Myelin thickens when one practices a skill. The more one practices, the stronger the brain connections become and the greater rate of automaticity is achieved to complete a task or perform a certain skill, such as playing a piano. Field's research has introduced an important paradigm shift from the notion that people had to be *born* a musician to the understanding the amount of *practice*, instead, that is necessary to develop strong musical skills. Therefore, Fields (2008) concluded that a person who wanted to reach a professional level of musicianship should begin practicing at an early age to strengthen the myelin necessary to develop those skills.

Shanks (1999) referred to talent as "some innate predisposition to make rapid advances in a particular field" (p. 30). After reviewing various studies on talent and musical development, he suggested that perhaps it is time to eliminate the focus of talent as a sign of certain ability to come, and emphasized the practice necessary in strengthening and improving a skill.

Students' beliefs related to the impact that consistent practice may have on their skill development could serve as a motivator to persist in their studies. Schatt (2011) conducted a two-week qualitative study to explore both the attitudes and perceptions of

practice that were held by junior high school students. Data was collected through semi-structured interviews of band students, their parents, and their teachers to identify these beliefs, how they relate to achievement, and motivational factors associated with these beliefs. All stakeholders identified that practice was a key factor in improving their playing skills, and was predominately the responsibility of the individual student. Pre-adolescent students were more likely to attribute their progress with their practice to internal attributes, such as ability and effort, rather than luck (Schatt, 2011).

Results also indicated that, although parents did understand the role that practice had on their children's improvement on their instrument, the parents themselves lacked interest in learning any strategies that could assist their child as they practiced at home. Schatt suggested that to curb this deficit, music teachers should be encouraged to run programs where both the student and their parent are taught how to practice, and what strategies parents could use to support their child in musical endeavors.

The prominence of effort and ability is noted in research related to musical skill development. O'Neill (1997) addressed innate ability or talent in music that many perceive necessary to achieving musical greatness. She, too, emphasized the persistent effort required to grow musical skills over years of practice. Her study led with the question of why some students who begin learning a musical instrument flourish, and others do not. She looked at 46 students from the ages of six through ten years of age who had not participated in instrumental music prior to their first lessons. Through a series of interview questions and several measures, in addition to a journal the students kept, O'Neill was able to gather information about the students' learning experiences. Students were put into three achievement groups using a Spearman rank-ordering system

from low to high. She reported a significant difference between the high and low groups. The students who spent the most amount of time practicing showed the greatest achievement (O'Neill, 1997). O'Neill suggested that students with parents who had been supportive and involved at the beginning stages of development, showed more improvement than the other students. Therefore, she encouraged that having an open dialogue between the teacher and parent during the first years of training would benefit the child in earlier successes.

Researchers do not dispute there are certain individuals that may hold higher level of genetic origins for musical skill, but emphasize these people also require lots of concentrated effort and instruction in order to advance their skills (Howe et a., 1998). Simply having the ability and interest is not enough (Lamont, 2011).

Students who practiced specific aspects of their musicianship, in a structured manner with certain goals in mind, may be able to improve at a higher rate than those who practice randomly and at will. Barry (1992) agreed with previous researchers of the important role practice has in developing the cognitive and motor skills necessary to play a music instrument. Participants in his study included 55 brass and woodwind students who were distributed into two practice groups: a free practice or a structured practice group. Students had four practice sessions throughout this two-week window. Results of performance evaluations confirmed that "a highly organized and systematic regimen of supervised practice incorporating slow rehearsal, mental practice, distributed practice, and goal setting is an efficient and effective means of improving musical performance" (Barry, 1992, p. 121).

Ericcson (2006) coined the term "deliberate practice" and described it as practicing with a specific purpose in mind, and on specific activities to progress in musical skill development (p. 693). He emphasized that a person cannot just *want* to improve; they must have a specific plan on *how* to improve. Specific concentration is necessary to fine-tune a skill that is currently not mastered by the musician. By focusing on specific aspects, and spending many hours fine-tuning their skills, the musician will likely master that skill. There will be a concrete, measurable result rather than a random hope and wish that one might get better through unstructured and haphazard practice. Musicians who are considered the best in their field at age 20 have been diligent and persistent in practicing for over 10,000 hours (Ericsson, Krampe, & Tesch-Römer et al., 1993). Ericcson (2006) concluded it might not be how talented a student is, but their commitment to persistent in deliberate practice that is the key to skill development.

These studies related to motivation have important implications for music teachers. Teachers who reinforce with students that both effort and practice are necessary to improve their skills, rather than innate-talent, may help strengthen their student' self-efficacy and increase their motivation to continue with their study (Asmus, 1986; Jaap & Patrick, 2011; Woody, 2003)

**Mindset Theory**

**Mindset introduction.** Lamont (2011) cited Austin et al.'s (2006) description of motivation as:

"a raft of individual characteristics including autonomy, resilience, achievement goals, conceptions of ability, attributions and underlying all of these,

motivation, have been used to explain why children and young people continue to be involved with music" (Lamont, 2011, p. 373).

Proposed in this dissertation, as an underlying factor of motivation, is the concept of mindset (Dweck, 2000). The mindset a person holds about their singing ability may influence motivation to participate in singing activities.

The study of human behavior has been an area of research that has a rich history of philosophies and theories. Molden and Dweck (2006) asserted that although past research has been successful in describing the average population, they have not been able to provide substantial insight to the individual person. Earlier in this review of literature, many benefits of singing were described. The following theories, how these mindsets now relate to singing ability, could hold valuable clues to why some people are motivated to sing, and others are not.

**Patterns of behavior.**  Carol Dweck and colleagues have committed 40 years studying the construct of implicit theories of intelligence. Dweck (2000) described "how people's beliefs about themselves (their *self-theories)* can create different psychological worlds, leading them to think, feel, and act differently in identical situations" (p. xi). These beliefs are formed based on how people interpret the experiences they have, and defines how they interact with their surroundings. Beliefs give insight to how people respond differently to learning situations and explain why some will succeed in particular endeavors, and others will not. "Although a single belief about intelligence may seem like a small thing, each of these beliefs creates a whole motivational framework" (Dweck & Allison, 2009, p. 123). These self-theories play a critical component into the

motivation that students bring to learning opportunities, and specific to this study, to singing.

Dweck and Leggett (1988) introduced a social-cognitive approach to motivation to describe the beliefs that people have about themselves that influence their goals about learning, and the patterns that form based on these beliefs. This approach provided an interpretation for how people might process motivational, personality, and social perceptions (Dweck et al., 1995). These patterns are related to reactions people may have when responding to failure that may influence certain types of behavior: helpless response and mastery-orientated response (Dweck et al., 1995, Dweck, 2000). Some people may even choose to exhibit patterns of behavior based on these beliefs that sabotage their chances of growth.

After experiencing failure, some people perceive that there is nothing that could be done to change or control the situation. This describes the *helpless pattern*. These describe the many ways people may respond negatively to failure situations. Often, they will be very critical of their own abilities and declare they are not smart enough to be successful on a particular task (Dweck, 2000). These students will pass up new learning opportunities because they fear they do not have what it takes to successfully complete a task, and they are very concerned and fearful about looking inadequate to others. These patterns can cause their actual abilities to worsen if they approach challenges they perceive are a risk to their self-esteem. The helpless pattern has disastrous implications, for in order to reach many desired goals in life, people will need to overcome multiple challenges, roadblocks, and situations (Dweck & Leggett, 1988). Those who have developed a habit of feeling helpless after experiencing failure no longer feel they have

any control over the situation, see possible ways of improving, and may never reach their potential (Dweck, 1975; Molden & Dweck, 2006).

The alternative to these negative patterns is a mastery-oriented pattern that fosters enthusiasm for new learning situations, and the ability to persevere when initial success is not immediate. People who develop these patterns perceive challenges as an opportunity to grow in their learning. They are focused on what is necessary to improve, and are committed to exerting the effort required to do so. Instead of accepting defeat, these patterns equip the person with the appropriate strategies to improve. After time, they may realize they need to modify their goals in order to achieve them. The mastery-oriented pattern helps people perceive the experience not as a failure, but instead an opportunity to learn and improve their ability.

These patterns are prevalent in the learning environment. Such was the case in the study by Diener and Dweck (1978, 1980) who included older elementary children to participate in a series of problems of a concept formation nature. By design of the study, all students were successful in the first eight problems presented. There were no differences observed in the strategies that the students used. However, the next four problems were intentionally too hard for them in order for researchers to observe what patterns would emerge after failure. Children with helpless responses began to react adversely through negative self-talk, commenting on their lack of ability and knowledge to complete the task. Interestingly, even though they had just recently been successful in the earlier problems, they no longer gave any indication that they hoped to successfully complete the problems. They also began to verbalize negative feelings about the task such as not wanting to continue, claiming boredom and disinterest. In addition, they

began to display off-task behaviors seeming to divert the monitor's attention away from the failure, and focused instead on things the student felt they were much better at. Their ability to utilize the same effective strategies they had demonstrated earlier began to quickly decline.

The most unfortunate implication of the helpless patterns indicated students felt there was no use in trying anymore because they felt they did not have what it took to do well. Therefore, quitting became an option. Past research has identified these patterns are found even in the youngest of learners in preschool and kindergarten children (Dweck, 1991). Failure, as noted by Dweck:

> has a certain meaning for helpless children–a meaning about their adequacy–
> and it is through this meaning that it produces its impact. Thus the medium
> through which it is delivered may be less important than the message it conveys
> (Dweck, 2000, p. 104).

In contrast, the mastery-orientated students, who also experienced the same induced failure problems, at no time perceived they were failing. They looked upon the problems that had yet to be solved as opportunities to persevere until they did them correctly. They were able to identify strategies that were required to improve, coached themselves on their effort, and monitored their own progress. In sharp contrast to the helpless students, approximately two thirds of the students elicited positive statements claiming they were sure they could solve the problems because they had been successful earlier (Diener & Dweck, 1978). These students believed they could find the correct answers, and seemed eager to have the opportunity to do so. Helpless students demonstrated the opposite. When faced with failure, they became crippled by negative

self-doubt. Mastery-orientated students enthusiastically welcomed the opportunity to improve their current ability. As mentioned earlier in this literature review, these same patterns emerged in a study addressing the responses of success and failure in a music learning setting, thus supporting these may be universal patterns related to learning (O'Neill & Sloboda, 1997).

**Goals.** Interestingly, ability level is not the determining factor in who displays which pattern (Dweck & Leggett, 1988). Dweck and Elliott (1983) identified two goals that people have in learning situations: *performance* goals and *learning* goals. These goals were found to be the impetus for the contrasting response patterns (Leggett & Dweck, 1988). They influence how people perceive what is happening and how they will respond in achievement situations. Each goal directs the helpless or mastery-orientated patterns of how people think, feel, and behave (Dweck & Leggett, 1988). Performance goals include a person's desire to be viewed by others as having knowledge, whereas learning goals are simply the desire to learn in order to improve personal knowledge. A person who focuses on performance goals is likely to succumb to the helpless pattern because they are overly concerned with the judgment of others and with revealing any inadequacies. Thus they are concentrating on proving their intelligence or skills to others. In regard to one's emotions, performance goals are gateways to negative self-talk, limiting beliefs, and disappointment (Dweck & Leggett, 1988).

Leggett and Dweck (1986) used a questionnaire to measure how eighth grader students interpreted effort and how they related to goal preferences. The results indicated that students with performance goals believed that if one had a high ability on a certain task, then they would not need to exert more effort to do well. In contrast, if someone had

to work really hard at something, it was an indication that they had low ability. These goals could impede a person from ever coming to value the effort that is necessary to achieve a goal (Dweck, 2000). Those students with learning goals saw effort, instead, as a strategy that would help them to achieve the necessary ability. They viewed effort positively as a necessary strategy to reach their potential (Leggett & Dweck, 1986). The emotions students felt after working hard included pride, happiness, and eagerness towards learning more (Dweck & Leggett, 1988).

The contrasting goals direct how students think and feel will have an impact on their behavior in learning situations (Dweck & Leggett, 1988). Students with performance goals will choose safe tasks they have been successful with before. The tasks serve as a safe boundary that keeps them in a comfortable range, and does not risk revealing any inadequacies to others. Those with learning goals, however, will risk trying something new for they view it as an opportunity to grow as a learner.

Cury et al. (2006) added to the goals framework the distinction of approach and avoidance goals to further define how competence is formed. They proposed a framework of four achievement goals: mastery-approach, performance-approach, mastery-avoidance, and performance-avoidance. The results supported achievement goals as variables that both link together, and explain how implicit theories and achievement results are interrelated (Cury et al., 2006).

Past researchers have disagreed on the manner that performance and learning goals have been interpreted or used. Grant and Dweck (2003) looked into performance and learning goals to discover if these goals effected motivation and achievement, and under what conditions this might occur in. Results indicated that active learning goals

resulted in students using strategies that were necessary to adapt and persevere when challenges were identified. Students who were more focused on performance goals had different results. Ability-linked goals identified students who would give up, or perform at a low level when their ability was challenged. Normative goals showed no differences in lessening motivation or performance. Finally, students with outcome-goals who strove for the top grades were shown to be the same as learning and ability goals. The researchers suggested that both ability performance goals and normative performance goals should be included in future studies since they were found to be so distinct.

**Implicit theories.** Bandura and Dweck (1985) identified *implicit theories* as an explanation for why people have contrasting goals when faced with an identical situation. Although these theories are seldom verbalized, they describe how people can process and interpret information (Chiu et al., 1997). Through their study, they wanted to determine whether theories that people had about themselves would direct them to a particular goal. It was identified that having a belief that a person's intelligence was a fixed trait about themselves led to performance goals, whereas believing their intelligence can be grown and developed reflects learning goals.

*Entity theory* describes people who believe their intelligence is a fixed trait, and views their intelligence as something they were born with; an amount of which cannot be supplemented or increased (Leggett & Dweck, 1988). People with this belief may view that people can learn new things, but their core intelligence is unchanging (Dweck et al., 1995) People with these beliefs are likely to seek performance goals in order to find validation for the intelligence they have, or to eliminate the possibility they will be viewed as having any shortcomings. One consequence for having this view may be that

people approach their life consumed with how much fixed intelligence they possess (Dweck, 2000). Instead of seeing opportunities to grow and learn, they are primarily focused with the outward appearance that they have high ability and intelligence. They are in a state of constant concern of exposing any flaws to others. These students experience "being smart" by doing well on tasks they are certain to be successful at. They work within their comfort level and are reaffirmed of their high ability when they out-perform their peers. "Simply put, entity theorists do not grant people the potential to grow - not themselves and not others" (Dweck, 2000, p. 88).

*Incremental theory,* in direct contrast, perceives intelligence as something that can be developed and improved with effort (Leggett & Dweck, 1988) and is "cultivatable" (Dweck et al., 1995). People with these beliefs tend to have learning goals; they see intelligence as something they can increase. They will seek out new learning opportunities and challenge themselves to grow in their knowledge and abilities.

As mentioned in chapter one, the term mindset, self-theories, and implicit theories will be used interchangeably. Dweck (2000) uses the term mindset to replace self-belief (p. 133) and uses it predominately in her 2006 book entitled, "Mindset," and exchanges the term *fixed-mindset* for entity theory, and *growth-mindset* in place of incremental theory.  Research by Ryan and Mercer (2011) also described Dweck's choice to choose more accessible terms such as "mindset" in place of more scientifically accurate terminology of implicit theories. This same terminology was used in this dissertation.

These theories, these mindsets, are not meant to be viewed as one being right, while they other is wrong. They are meant to provide a possible lens through which people view their world, and to what personal cost or gain (Dweck et al., 1995). Dweck et

al. (1995) emphasized that a person can hold one theory that encompasses the majority of their interactions, but can also have differing theories about certain domains - such as singing or math.

Implicit theories of intelligence have found to be predictors of student achievement. Blackwell et al. (2007) conducted two studies including 373 seventh grade students in a math course. The first study was a 5-year longitudinal quantitative study that followed four rounds of students passing through the seventh and eighth grade. The researchers measured student implicit theories of intelligence, identified their current beliefs about their predicted success, and then measured their actual achievement at the end of their seventh and eighth grade years. Students with growth mindsets improved their grades over two years in junior high school, while students with fixed mindsets did not. Results indicated that students with an incremental theory were predicted to increase their achievement as they passed through their seventh and eighth grade year. The entity theory, in comparison, did not increase.

The second part of the study investigated if teaching students that their intelligence can be grown and developed, through adopting an incremental theory, would have an impact on their motivation and achievement. Ninety-nine seventh grade students identified as having low levels of achievement in math participated in this study. Results indicated that the interventions to develop an incremental theory about their math ability fostered positive motivation and increased their grades. The control group, who did not receive these interventions, continued to see a decrease in their grades. The researchers stated this is a direct impact of their adoption of an incremental theory and "confirms that even a brief targeted intervention, focusing on a key belief, can have a significant effect

on motivation and achievement" (Blackwell et al., 2007, p. 258). Even more powerful was the response of one of the children who learned about how his brain worked, and how he could increase his own learning. He was quoted as saying, "You mean I don't have to be dumb?" (Dweck, 2006, p. 219).

Past studies have confirmed there are noticeable differences in how the brain functions in learning situations, which may impact these different responses to failure. Mangels, Butterfield, Lamb, Good, and Dweck (2006) studied implicit beliefs and goals and whether or not they created certain pathways of neural responses that may inhibit academic success. A sample of 464 undergraduates that met the electroencephalogram (EEG) inclusion criteria participated in this study. They were also grouped based on whether they held an entity or incremental theory. Participants were asked a series of questions from different academic disciplines that would have been considered common knowledge. A red or green asterisk followed each answer depending on their accuracy. An EEG was taken at this time. The second phase of the study consisted of students retaking the questions they missed without the EEG. Results indicated that incremental theorists were able to correct more of their initial incorrect answers. Also, more correct answers were given when they were confident about their response (Mangels et al., 2006). Results from the brain activity may explain why a person with an entity theory (fixed mindset), when experiencing failure, has some interruption in their working memory that does not allow them to get into deep semantic process that is necessary in order hear the feedback in such a way do better on a retest. This could be a result from the brain perceiving the failure as a threat to "self-perceptions about ability, rather than a challenge" (Mangels et al., 2006, p. 84).

**Feedback.** The feedback students receive from their teachers can either help or hinder the beliefs they have about their abilities. Dweck (2007) stated that verbal feedback could reinforce a fixed mindset (entity theory), or encourage a growth mindset (incremental theory). Muller and Dweck (1998) found that providing feedback to students in reference to their intelligence gave young students momentary feelings of pride. These feelings were not long lasting, however, and tended to decay into nonproductive consequences. In contrast, acknowledging students for their effort encouraged the development of a growth mindset. As in similar studies, when the group receiving intelligence-praise experienced challenges in their learning, they quickly resorted to feelings of inadequacy and negative affect about the tasks they had previously been successful in. Even after the questions had been modified to help them be more successful, the intelligence-praise group could not recover. The effort-praise group continued to improve in spite of the challenges, and remained excited about the task, and was willing to persevere.

Perhaps the most devastating find from this study was how students reported how they did on a test. Forty-percent of those students who had been praised on their intelligence, lied saying they received a higher score than they actually did compared to ten percent of students who were praised for their effort. One could conclude that praising students for their effort in learning situations may reinforce what is necessary to be successful, and may help them transfer these skills and understanding into future learning situations. The distinction from this study is that "the growth-mind-set message appeared to unleash students' motivation" (Dweck, 2007, p. 37). After specific

interventions, students were polled and almost all students claimed to have modified their study skills based on what they learned about the growth mindset (Dweck, 2007).

Changing the beliefs people have about themselves is not easy. Teachers who take the time to assess students' self-beliefs will have key information to help teachers understand where students' behaviors and motivations may come from, and what types of interventions need to take place to improve learning (Dweck, 2008). Research has shown that mindsets can be changed (Dweck & Master, 2009). Sometimes it may be as simple as learning about the mindsets themselves. This personal insight may cause people to change their perceptions of themselves, as well as other areas of their lives (Dweck, 2006, p. 216).

The past ten years have seen increased attention on raising student scores in schools. Dweck (2000) asserted there is too much focus on assessing skills and trying to measure potential in the academic world. She suggested instead that more concentration should be placed on identifying ways to help nurture learning for each student; more attention placed at the beginning of what shapes learning, instead of placing so much attention at the end.

**Mindset and other theories of motivation.** Mindset theory offers a unique perspective distinct from other motivational theories. Dweck (2000) maintained that this model of achievement motivation provides more specific and purposeful information that explains certain behavior by adding some "new dimensions to existing theories of motivation and personality" (p. 137). She emphasized that she does not present the achievement model of motivation as an absolute model. Instead, she intended it to be "an example of an approach" (Dweck, 2000, p. 133). I will continue this section by

explaining the distinctions between mindset theory, an important component of this model, and other motivational theories presented earlier in this chapter.

**Mindset and self-concept.** As mentioned in an earlier section, self-concept is an important factor in achievement-motivation because it addresses how people perceive their ability in a certain domain. Although mindset is related, it is unique because it creates the lens that shapes self-concept (Marsh et al., 1991). Dweck and Leggett (1988) contended that each mindset, fixed and growth, reflected two contrasting types of self-concept. Those with a fixed mindset would have a self-concept that would perceive themselves as a package of fixed attributes that could be assessed and critiqued. Those with a growth mindset would view themselves as a being that was constantly changing and growing as a result of their effort. Although similar theories, mindset breaks self-concept down into two very different views.

**Mindset and self-efficacy.** Dweck and Master (2009) explained that one's mindset could impact their self-efficacy. If a person believes that they can improve a certain ability or intelligence, they will have a higher self-efficacy than people who view these as fixed traits. Schunk (2000) also saw mindset and self-efficacy as two theories. He believed the patterns that formed out of each mindset were different than those of self-efficacy. Schunk, a prolific researcher of self-efficacy, endorsed that students of differing entity theories could have high or low self-efficacy for performing well in a specific domain. He explained the contrast between the two entities was that people with a fixed mindset require their self-efficacy be confirmed by being successful. Students with a growth mindset can remain motivated by their confidence that they can learn.

Fixed mindset students maintain motivation only in situations where they experience success, whereas upon encountering failure, they were likely to give up.

In addition, mindsets are also are not classically connected to self-esteem (Dweck, 2000). Self-esteem is not viewed as something one holds within. In the mindset model, self-esteem instead is seen as "a positive way of experiencing yourself when you are fully engaged and are using your abilities to the utmost in pursuit of something you value" (Dweck, 2000, p. 4). Mindsets can serve as a means to identify who will have the self-esteem necessary to persevere through challenges.

**Mindset and Attribution theory**. Attribution theory as proposed by Weiner (1984) provided a foundation that Dweck used in developing her work with learned helplessness (Dweck, 2000). Dweck and Leggett's (1988) achievement motivation model added a specific pathway in the attributional theory. They proposed their model contrasted to attribution theory in two major ways. They identified that although Attributional theory lies at the core of the helpless and mastery-orientated patterns, it is not where the process begins. They maintained the process was a chain reaction beginning with an implicit theory that predicts certain patterns of behavior. After this action, attribution theory comes in to makes sense of what happened. As an example, a person with an entity theory will view their surroundings and their self as possessing fixed traits, which will then provide the framework for performance goals to gain acknowledgement from others to their high abilities. Therefore, they are more likely to attribute results to these fixed traits.

Mindset and attribution theory also differ in the way they view the controllability of factors. Attribution theory views them as "inherently controllable or uncontrollable, so

that ability is considered to be a stable, uncontrollable factor" (Dweck & Leggett, 1988, p. 268-269). External factors are viewed differently between entity and incremental theories. The motivational model proposed that, although both sides could similarly attribute a failure to lack of ability, the difference lies in that an entity theorist feels that the factor was out of their control. The incremental theorist accepts it as a controllable factor and can now choose certain strategies to improve.

Dweck et al. (1995) confirmed the manner in which people attribute a causal effect is first shaped by the implicit theories that people hold. "Although implicit theories and other process-orientate individual differences are conceptually distinct and operationally independent constructs, they may be related to each other in interesting ways" (Dweck et al., 1995, p. 281). Results from Hong, Chiu, Dweck, Lin, and Wan (1999) suggested that one's mindset creates the filter that determines how a person will attribute a success or a failure. Mindset and attribution theory differ, then, in that they occur at different steps in the process of motivation.

**Mindset and other academic disciplines.** The mindset model has been used in other academic disciplines, which has set the precedence for applying the model to singing ability. Rattan, Good, and Dweck (2011) looked at the mindset math teachers had about which students could learn math, and the impact their beliefs had on the persistence students demonstrated to improve their skills. Teachers with a fixed mindset about the abilities of low achieving students passed down their belief that the students did not have the ability to grow their math skills through their instruction and feedback. Therefore, these students interpreted that, if their teachers did not have confidence in their ability to improve and did not challenge them to develop their math skills, then the students

themselves lacked the motivation to improve. This study suggested the manner with which teaching is conducted based on teachers' fixed mindsets related to learning can have a negative impact on students and their own beliefs about learning. It could be inferred, then, that music teachers who perceive certain students as lacking talent and ability in singing, could then transmit these beliefs to students, which may result in similar lack of motivation to improve.

Another dissertation incorporating the mindset theory is Fegley (2010), who reported the high school used in the study claimed to have 100% graduation rate, and 96% of students chose to further their academic career after graduating. The author still purposed that, although these are good results, still more could be achieved through a school-wide initiative to adopt a growth mindset. His study sought to develop a growth mindset amongst high school students, teachers, and administration in hopes that all students could reach their greatest academic potential.

Antink (2010) used Dweck's mindset theory as the basis for her dissertation to improve academic success in geometry for high school-aged students where retention was also an issue. Certain teachers elected to adopt a program that included Dweck's mindset work in addition to other aspects specific to the pedagogy of geometry. Results from this study showed somewhat improvement from students who were already performing well. However, for the rest of the population there were no grade decreases in during the third quarter, but they did show improvements in their last quarter.

Anderson's (2010) dissertation suggested that statistics is a challenging discipline in motivating students to applying themselves in. The researcher wanted to know if students receiving feedback that was framed within a growth mindset would begin to

adopt a growth mindset about statistics. Three layers of feedback were added to a computer program with statistic practice problems. Students involved in the study received feedback on their answers that either a) represented a growth mindset, b) were literal - no growth mindset feedback, c) or received no feedback. Results indicated that the feedback encouraging students to grow their skills with effort actually raised their level of perseverance when faced with challenging problems. These students also increased their testing scores over those who did not (Anderson, 2010).

Romero (2010) utilized the adapted measures from Grant and Dweck (2003) to identify if mindset was an indicator of success for at-risk college students. Results from this study showed there was no difference in mindset between at-risk and advantaged students nor did it effect their academic achievement. The researcher did specify that perhaps it would be hard to generalize that the at-risk students had a stronger sense of academic identity than was anticipated. In addition, since the study only looked at the achievement over one semester, he thought perhaps a longitudinal study would reflect different results.

Miller (2011) sought to discover how the different aspects to the motivation model as described by Dweck (1999) related to each other in the context of college achievement. One hundred fifty-two college students participated in an introduction to psychology course and students were tested so see if their behavior was in-line with the predictions from Dweck's model. All hypotheses were found to be un-confirmable. However, a significant relationship was found between incremental theory of intelligence, mastery goal orientation, and student effort (Miller, 2011).

Ryan and Mercer (2011) established assessing mindset to provide clues regarding student beliefs related to motivation in learning a language. They agreed with other studies that inherent beliefs students have about how they learn can actually hinder them from learning, especially if they believe innate talent is a requisite to learning languages rather than understanding that effort is the necessary key. The authors emphasized that mindset is a worthwhile study in disciplines that have been long associated to be attributed to natural talent. Since singing falls into this category, this supports using mindset theory to explore beliefs about singing ability.

Not all research supports the impact that mindset may have on motivation. Although Sriram (2011) dissertation agreed that raising the motivation for students in academic pursuits is a worthwhile endeavor, they contended that previous research on theories of intelligence failed to assess whether these theories directly raised effort levels. They also did not include students who were considered high-risk of achievement contending they may hold a fixed mindset about their ability to do well in academic situations. The study was designed to compare the academic achievement of college students in a remedial course. One group participated in a four-week online program encouraging the development of a growth mindset about their ability to learn the information. The control group received instruction on their study skills for the same length of time. Results suggested that the condition group significantly increased their perception to adopting a growth mindset whereas the control group did not. In addition, the condition group was shown to exert more effort towards their academic pursuits than the control group. However, no differences were found among either group's GPA scores.

**Mindset and singing.** Past research has provided the foundation to use mindset to identify types of motivation that may be present in the music education environment. Perhaps identifying factors related to mindset of singing ability may also hold these same insights into student behavior that could inform current teaching practices.

O'Neill (1997) established the relationship that Dweck's model may have in musical skill development. She suggested there is a need to look at factors of motivation to understand why some students are able to do well in learning an instrumental skill compared to others. In a 2011 study, O'Neill discussed how some children might have heard they were gifted from a very early age. These students may have adopted this belief, and received further reinforcements that they are talented through many achievement situations and competitions. During this time they may begin to shape a fixed mindset about their abilities and certainty for future success. To ensure this success, these young musicians may begin to avoid participating in new opportunities or music that may challenge their skills. Instead, they prefer to stay within their comfort zone so that they can continue to be viewed as highly talented to others. If they do encounter failure they may begin to find excuses for why they did not do well, or may find some reason to blame their inadequacies. Unfortunately, these students have not yet gained skills to clearly assess their ability, or adapt their practice to improve areas of performance they may be weak in. In worst scenarios, these students may even quit in order to protect their reputation.

Ericcson (2006) stated that

until most individuals recognize that sustained training and effort is a prerequisite for reaching expert levels of performance, they will continue to misattribute lesser

achievement to the lack of natural gifts, and thus fail to reach their own potential

(p. 701).

Introducing mindset of singing ability to students, therefore, may help give them the knowledge necessary to dispel the notion that they *cannot* sing, to one of they could improve if they practiced and received some specific coaching.

In conclusion, research indicates there are many people who do not feel they can sing, and miss out on many benefits related to singing. There are different methods of viewing motivation to sing that interact with self-theories. Mindset provides a specific framework for understanding at a finer level why some people are, or are not, motivated to sing. O'Neill (2002) asserted that "few studies have examined the social-cognitive and affective components of children's motivation to engage in music" (p. 81). Therefore, examining the factors related to mindset of singing ability may provide a richer understanding of how people identify with singing.

**Summary**

There were three over-arching themes that shaped this review of literature: singing identity development, motivational theories, and mindset theory. This information reinforces the complexities surrounding vocal development students may encounter that may impact their motivation to sing.

Mindset theory, as proposed by Dweck and colleagues (2000), offers music educators a thought-provoking option that could have an enormous impact on music classrooms if a relationship could be determined between factors related to mindset of singing ability, and the connection this may have on participation in singing activities. The patterns and goals that emerge through these different mindsets may have particular

consequences for music classrooms. Because prior researchers have shown mindset to be a predictor of academic achievement, it is a worthy study to bring this model into the domain of singing. Dweck and Molden (2006) encouraged continued research to understand how self-theories may guide the thinking, feeling, and doing in other domains. This study attempts to do this related to the domain of singing.

**CHAPTER 3**

**METHODOLOGY**

The survey used in this study was divided into several sections to examine factors that may contribute to people's singing beliefs including: (1) general demographics, (2) mindset of singing ability, (3) singing influences, (4) singing behaviors (past experiences and future intent to sing), (5) singing perception, (6) and open-ended responses regarding past feedback received on singing, past singing experience, and current beliefs about singing ability. Permission was granted by Dweck to modify the questions on her scale from an intelligence domain to a singing ability domain (See Appendix C).

The mindset theory that encompasses the theme of this study was originally constructed to identify beliefs people have about their basic qualities, such as their intelligence or abilities. These theories of intelligence are a part of a model of achievement motivation that shapes the meaning systems people develop to understand success and failures (Dweck, 2000). Through additional studies, Dweck and colleagues determined this is a global model that could be applied to any human attribute (1988, p. 266; Levy, Stroessner, & Dweck, 1998). This study proposes to generalize mindset theory to singing ability.

Previous research suggests many adults do not believe they can sing, or hold inaccurate perceptions of their singing ability (Cuddy et al., 2005; Whidden, 2010; Wise & Sloboda, 2008). Cultural context, family background, and past musical experiences may influence these beliefs about singing ability. People's mindset about singing ability is most likely well developed by their first-year of college. It may be possible that current interaction with singing is related to previous musical behaviors and experiences.

Mindset may also be connected to self-evaluation of singing. These insights could illuminate how singing is both experienced and taught in schools. This study seeks to provide a deeper understanding of these interactions.

## Research Design

This study was designed to identify what experiences and beliefs first-year college students have about their singing ability, how these may relate to outside influences, and if mindset is associated with self-evaluation of singing quality and intent to participate in future singing activities. In a comprehensive review of the literature, Hallam (2010) established that more research is needed to understand how achievement interacts with music participation in terms of both social and personal development. This study may shed new light on these relationships. A review of the literature found no studies had been previously conducted to establish what factors contribute to mindset of singing ability, or if there is a relationship between mindset and participation in singing activities.

The descriptive research method used to conduct this study was a survey. In existing literature, surveys or interviews have been the most common method to gather self-reports (Hallam, 2010). Creswell (2009) stated that a survey design affords the researcher information about the "quantitative description of trends, attitudes, or opinions of a population by studying a sample of that population" (p. 145). A survey was designed in this study to line up gathered data with specific research questions. Participants included first-year college students consisting of music majors and non-music majors, who were recent high school graduates.

The Mindset of Singing Ability Survey (MSAS), was administered during two administrative sessions. The first session, Questionnaire I, included the entire 49-question survey. One week later, students were given a repeat of the 8-item modified mindset questions, Questionnaire II, to establish test-retest reliability.

Participants indicated their level of agreement to the survey items through a 6-point Likert scale to help identify variables that may have a relationship with mindset of singing ability. The questions pertaining to mindset of singing ability were modified from Dweck and colleagues' 8-item Theories of Intelligence Scale – Self Form for Adults to reflect the domain of singing mindset (Dweck, 2000). Dweck and Leggett (1988) proposed that mindset questions could reflect any domain-specific trait. Further, they stated the *process* for identifying mindset, fixed or growth, is the same for any variable.

Smith (2005) modified the same Dweck scale used in this study to determine the relationship of motivational beliefs and musical practice behavior. He reworded the belief statements to reflect the domain of music ability in substitution for intelligence. These same steps were repeated in this study, replacing "intelligence" with "singing ability" and "sing," and replacing "person" with "singer" and "potential as a singer." Cury et al. (2006) also modified the Dweck scale in this same fashion to apply it to the domain of mathematical ability.

### Participants

This survey was given to first-year music majors and non-music majors ($N = 426$) at a large university in the midwest. Students enrolled in first-year level music, English, and architecture class sessions were invited to participate in this study. These classes reflected a cross-section of majors to establish that the sample used for the study reflected

a differentiated population: 60 music students, 312 English students, and 54 architecture students.

**Demographics.** Collected demographic information included: *gender* - males (202) and females (207); *major* - music major (58) and non-music major (351); *major applied performance area* - voice (18), and non-voice (39).

## Procedure

During the first administrative session, consent forms were distributed and the participant script was read (See Appendix D) to the students informing them about the purpose of the study, use of the information collected, and assurance of anonymity (Phelps, Ferrara, & Goolsby, 1993). They were encouraged to keep this consent form for their records. The participants indicated their consent by completing Questionnaire I. A week later participants completed Questionnaire II during class sessions, and forms were collected immediately afterward. As an incentive, students that successfully completed the study were invited to enter a drawing for three iTunes gift cards. Those who chose to participate provided their email addresses on a separate form.

## Instrument Design

The design of the survey was intended to obtain data regarding the singing background of first-year college students, and to identify what factors may relate to their mindset of singing ability. The literature review shaped the questions that were based on three components: (1) singing identity development, (2) motivational theories, and (3) mindset theory. This self-reported measure was designed with the intent that first-year college music majors and non-music majors would reflect on their relationship with

singing, and predict what involvement they intend to have in the future. A copy of the survey can be found in Appendix G.

To determine mindset of singing ability, questions were included to identify individual beliefs about singing ability. Survey items were written to correspond to the research questions through a series of agreement statements. Participants responded on a 6-point Likert scale, ranging from *Strongly Agree* to *Strongly Disagree.* Open-ended questions encouraged participants to reflect on past singing experience, informal and formal feedback received, and self-perceptions of singing ability. The survey was also designed so the amount of time required to complete it would be adequate to gain the required information, without being too long to encourage fatigue or lack of effort by participants.

**Mindset of singing ability.** To establish mindset of singing ability, Dweck et al.'s (2000) Theories of Intelligence Scale - Self Form for Adults was modified. Words that reflected the domain of intelligence were replaced specific to the domain of singing. For example the statement *"You have a certain amount of intelligence, and you really can't do much to change it"*, was modified to *"You have a certain amount of singing ability, and you can't really do much to change it"*; and "*You can always substantially change how intelligent you are"* became *"You can always substantially change how well you sing.*" These eight items were embedded among seven distractor questions since the mindset questions may be perceived as a repetition of the same theme (Dweck, Chiu, & Hong, 1995). The distractor questions were intended to reduce any frustration and increase accurate responses to the mindset scale by lessening the focus strictly on singing.

**Singing influences.** The belief statements created for this construct focused on the positive or negative influence that parents, teachers, and peers might have had on respondent's beliefs about singing. Specific items include: *You had a friend or friends that urged you to sing when you were younger,* and *You had a teacher that encouraged you to sing*.

**Singing behaviors.** Questions designed to address this construct focused on past musical experiences, and student intent to sing in the future. One section of the questionnaire asked respondents to fill in the number of years they participated in singing activities in school and outside of school. In addition, they could also list any years during which they had received private voice lesson. Additional belief statements focused on past singing experiences: *You often sing in the shower or tub* and *You sing along to the radio or to a CD, iPod, and mp3 file.* Statements to identify participant intent to sing in the future included: *If given the opportunity sing karaoke with friends, you would do it,* and *If offered free voice lessons, you would do it*.

**Singing identity.** This construct was based on people's perceptions of their singing ability. Examples of belief statements created for this construct are: *You believe you are a good singer*, and *You have an overall negative opinion about your ability to sing*.

**Open-ended responses.** This section invited students to describe past feedback received on their singing, past singing experience, and belief about their own singing. Questions included: (1) *Recall when someone commented on your singing ability in the past and describe what he or she said*, (2) *Describe the last time you remember singing*

*including: how old you were, what were you singing, why were you singing, etc.*, and (3)

*If you believe you can/cannot sing, describe why you believe this.*

Respondents were also asked to indicate their agreement with four belief

statements about singing: (1) a fixed mindset believing they sing well–*You sing well*

*because you were born with talent,* (2) a fixed mindset believing they cannot sing or

improve their singing–*You can't sing because you weren't born with that talent,* (3) a

growth mindset believing they can sing as a result of effort–*You practice singing in order*

*to improve your voice,* and (4) a growth mindset believing they can sing, but singing is

not important to them–*Although you can sing, it isn't an activity you care much about.*

## Preliminary Procedures

A series of preliminary tests were conducted to develop the survey. Seven

undergraduates and one PhD student, all music education majors, were first asked to

pretest the questionnaire through a cognitive interview technique called think-aloud.

They were asked to complete the survey, speak their thoughts out loud as they completed

it, and provide feedback related to: ease of completion, clarity in questions, errors in

spelling or format, and any additional comments they had (Dillman, Smyth, & Christian,

2009). These comments were noted while the participants completed their survey. Minor

corrections were then made based on these comments such as correcting grammatical

errors, rewriting sentences to improve clarity, and fixing formatting issues with Likert

responses.

A revised questionnaire was piloted with a panel of 15 experts who scrutinized

the measure for content validity, and to determine if questions could be answered

accurately. This panel included music education professors, graduate students in music

education, recent music education PhD graduates, and four researchers familiar with

Dweck's work. They were asked to first identify the potential ease of student use. The

panel was also asked to keep track of how long it took to complete the survey. The panel

was given an instrument assessment form inviting their specific feedback (See Appendix

E). The questions on the instrument assessment form were:

1.    Are the directions provided in the survey clearly stated?

2.    Will the participants fail to answer any questions?

3.    Did you detect any errors in spelling or word use?

4.    Is the format used efficiently in this survey?

5.    Are the statements appropriate for the purpose of the study?

6.    Are the thirty-seven belief statements related to the four constructs
      associated with mindset of singing ability?

7.    If there were a statement that does not match the construct, please list the
      question number below and state what construct you think would be a
      better match.

8.    Any other comments you would like to share about the survey?

The panel indicated agreement to the questions with a yes or no response, and

shared any comments to help improve the survey. Modifications were made to address

panel recommendations to ensure questions aligned with constructs and read with clarity,

correct spelling, and formatting.

To continue to develop the materials, ten university students completed a revised

questionnaire to establish that all items clearly reflected the research questions, and that

the statements were clear. Afterwards, students were asked to identify any issues

regarding ease of use, clarity, and format while taking the survey. After revisions, a final

version of the survey reflected seven demographic questions, 46 belief statements, and three open-ended questions.

## Reliability and Validity

Dweck's original mindset measure, modified in this study to determine mindset of singing ability, was found to have high internal reliability as well as validity. The implicit theory of intelligence measure was shown to have a high internal reliability with an alpha range from .94 to .98 (Dweck et al., 1995). Levy and Dweck (1997) reported correlations between -.81 and -.85 from several validation studies indicating high validity. Therefore, this study proposed this measurement could be replicated and transferred to mindset of singing ability. Smith (2005) also adapted this measurement to reflect musical aptitude, ability, talent, and potential. Through factor analysis he established that the adapted items reproduced the subscales of the original measures and reported high reliability ($\alpha > .74$)" (Smith, 2005, p. 36).

Dweck et al. (1995) also addressed the three-item measurement used to assess which implicit theory a person possessed through a 6-point Likert scale. "Only three items are used because implicit theory is a construct with a simple unitary theme, and repeatedly rephrasing the same idea may lead to confusion and boredom on the part of the respondents" (Dweck et al., 1995, p. 269).

The review of the literature provided the necessary information to establish overall construct validity related to: mindset of singing ability, musical experiences, influences, singing identity, and intended participation. The expert panel reviewed the face validity of the survey, provided evidence of content validity and construct validity, and reported on ease of use. In addition to the scoring of the measurement, panel

members provided additional comments that aided the researcher in final modifications. Participants were timed to get an estimate of how long it would take to complete the survey: an average of eight minutes to take Questionnaire I (MSAS*)*, and two minutes to complete Questionnaire II.

Mindset scale is not correlated with other measures. When reporting the references for reliability and validity data, Dweck (2000) stated that: "Thus implicit theories represent assumptions about the self that have cognitive, motivational, emotional, and behavioral consequences, but are distinct from other cognitive and motivational constructs" (p. 176). This provided the confidence to measure mindset of singing ability through the modified 8-item adapted Theories of Intelligence Scale – Self Form for Adults for this study.

## Data Collection Procedures

Before conducting this study, approval was received from the Institutional Review Board (IRB) to include first-year college students as research. College professors of first-year college classes were contacted requesting the use of their class as a mechanism to conduct the survey. Instructors for two music, one architecture, and 18 English classes gave their approval. Each instructor received a participant consent waiver form (See Appendix F) informing participants about the purpose of the study and how the information collected would be used (Phelps et al., 1993). The survey was administered in two sessions to establish test-retest reliability.

## Data Analysis

The data analysis described the population of music majors and non-music majors in identifying factors that contributed to their mindset of singing ability and the

relationship of that mindset to their intent to sing in the future. Cronbach's alpha was computed to establish internal consistency on the eight mindset of singing ability questions. Descriptive statistics were computed using SPSS Version 20.0 to determine mean, range, and standard deviation. A two-way analysis of variance was used to analyze the demographic factors of students' past experiences with singing. Creswell (2009) identified explicit steps needed when analyzing data to: analyze returns, check for response bias, conduct a descriptive analysis, collapse items into scales, check for reliability of scales, run inferential statistics to answer the research questions, and state how the results were interpreted. Correlation coefficients were examined for possible relationships among relevant variables such as singing experiences, both in school and out of school; family, peer and teacher influences; mindset of singing ability; and self-evaluation of singing quality.

The responses on this 6-point Likert scale range from *strongly agree* to *strongly disagree*. An examination of the raw data found no indications of bimodal distributions. Therefore, viewing the variable of mindset as a continuous variable as modeled by Chiu et al. (1997) and Smith (2005) allowed correlation coefficients to be computed with other continuous variables. In this study when referencing to this continuous variable term *singing mindset orientation* will be used.

Participants' responses to open-ended questions were transcribed for qualitative analysis. Participant responses were assigned an initial code after a precursory glance of the text to gather a general understanding of the data (Hatch, 2002). These initial codes were short, descriptive, and drew from the original language of the participant (Cresswell, 2008). Following this method of coding, the themes and codes were reviewed

and analyzed for similarities and differences (Charmaz, 2006; Stephens, 2012; Zdzinski & Skok, 2000). Codes were further focused and compared to identify emerging themes.

**Descriptive Data**

The data analysis for this study represented a sample of the general population of first-year college music majors and non-music majors. A different method of data analysis was used to answer each of the research questions:

**Research question 1:** (1) Is singing mindset orientation of first-year college students related to the factors of (a) gender and college major, or (b) gender and music specialization? Mindset was scored as a continuous variable called singing mindset orientation with a range of 6 to 48. A two-way analysis of variance was used to answer both parts of this question.

**Research question 2:** Are past musical experiences (participation in school music ensembles, and/or singing in contexts outside of school) related to singing mindset orientation? Correlation coefficients and regression analyses were used to discover how past musical experiences predict mindset of personal singing ability. The correlation coefficients indicated the strength and the direction of the relationships between students' mindset of singing ability and their participation in singing activities.

**Research question 3:** Do family, teacher, and peer attitudes about individual's singing ability contribute to singing mindset orientation? A correlation coefficient and regression analysis determined the relationship between these variables.

**Research question 4:** Can singing mindset orientation be used to predict (a) self-evaluation of singing quality and (b) current and future singing behavior? A correlation coefficient and regression analyses were computed to show the strength and direction of

the relationship to these variables. Simple linear regressions were run using mindset orientation to predict both self-evaluation and future singing behavior.

**Summary**

Elements of this chapter included the purpose of the study, research questions, research design, population and sample, pilot study, personnel and facilities, materials, procedure, reliability and validity, data collection procedures, and data analysis. The purpose of the study was to determine what factors contribute to a person's mindset about singing ability and to identify the relationship that mindset might have on future singing.

Test-retest was used to establish reliability of the instrument. A panel of experts reviewed the MSAS to establish construct and face validity. A second pre-test with university students was then conducted. Four hundred twenty-six first-year music majors and non-music majors at a midwest university were invited to participate in this survey. The responses to the MSAS survey may help explain the experiences and beliefs first-year college students have about their singing ability, how they may relate to outside influences, and if mindset is associated with self-evaluation of singing quality and intent to participate in future singing activities. The data analysis used descriptive statistics to describe the population.

**CHAPTER FOUR**

**PRESENTATION AND ANALYSIS OF DATA**

The purpose of this study was to identify what factors contribute to first-year college students' mindset of singing ability and the relationship of that mindset to intent to participate in singing activities. Four research questions were developed to shape the study. The first question is divided into two parts to determine if singing mindset orientation of first-year college students is related to the factors of (a) gender and college major (music versus non-music), and (b) gender and music specialization (voice versus non-voice). Question number two explored the possible relationships between past musical experiences of first-year college students and their singing mindset orientation. The third research question examined the relationship that family, teacher, and peer attitudes about an individual's personal singing may have on first-year college students' singing mindset orientation. The fourth question regarding the use of singing mindset orientation as a predictor was divided into two parts: (a) self-evaluation of singing quality and (b) current and future singing behavior. A questionnaire was designed to address five areas: mindset of singing ability, musical experiences, influences, singing identity, and intended participation. Chapter four begins with a description about the population and demographic factors. Following this, the results of the individual research questions are presented.

**Demographic Analysis**

Demographic data were collected on all the participants in the study ($N = 426$). Student demographic variables included: gender, major (music versus non-music), and for music majors - their applied music performance area (voice versus non-voice). See

Table 1 for a summary of these data. Any missing values were eliminated from analysis through listwise deletion.

Table 1

*Demographic Characteristics of Participants* ($N = 426$)

| Characteristic | Frequency |
|---|---|
| Gender | |
| Male | 202 |
| Female | 207 |
| Major | |
| Music | 58 |
| Male | 30 |
| Female | 28 |
| Non-music | 351 |
| Male | 172 |
| Female | 179 |
| Major Applied Performance Area | |
| Voice | 18 |
| Male | 12 |
| Female | 6 |
| Non-voice | 39 |
| Male | 17 |
| Female | 22 |

There were almost equal numbers of men and women who participated in the study as well as among non-music majors. Descriptive statistics were not equal among music majors or for music specialization (voice and non-voice). Music specialization was delimited from the original proposed six categories of voice, brass, woodwind, strings, percussion, and keyboard, to two categories: voice and non-voice.

**Data Analysis**

As explained in the previous chapter, the questionnaire used in this study included an adaptation of Dweck's (2000) Theories of Intelligence Scale – Self Form for Adults (see Appendix G – Mindset of Singing Ability Survey [MSAS]). The questionnaire was given in two sessions. The first section of Questionnaire I included the adapted MSAS, scored on a Likert scale, consisting of eight questions and interspersed with seven distracter questions. Questionnaire II consisted of adapted MSAS questions only (See Appendix H).

The questions were based on a six-point Likert scale ranging from *Strongly Agree* to *Strongly Disagree*. Items 5, 9, 13, and 15 were reverse coded (phrased in terms of a growth mindset) on Questionnaire I so that high scores would reflect a stronger growth mindset of singing ability (Cury et al., 2006; Dweck et al., 1995; Chiu et al., 1997; Smith 2005). This coding process allowed negatively worded items to be flipped so that high scores on all items reflected a positive belief. The items were rated on a 6-point Likert Scale ranging from 1 (*Strongly Agree)* to 6 (*Strongly Disagree)*. The same questions were also reverse coded on Questionnaire II. Since this only included the 8-modified items, the question numbers were 3, 5, 7, and 8**.** A high score on the scale indicated an inclination toward a growth mindset of singing ability, a belief that singing ability can be improved through persistent effort and specific training. In contrasting fashion, a low score was interpreted as more closely associated with a fixed mindset of singing ability. Scores from the first MSAS session were used in the statistical analysis for each research question, and will be referred to as singing mindset orientation (dependent variable)

throughout this study. Additional items in the survey were also recoded to so that high values would indicate a positive singing belief.

Of the 426 Questionnaire I surveys that were initially collected, eight were excluded due to listwise deletion. Questionnaire I ($N = 418$) showed high internal consistency (Cronbach's alpha) of .93. After 87 surveys were excluded for listwise deletion, Questionnaire II ($N = 339$) also showed high internal consistency (Cronbach's alpha) of .95.

The test-retest method was used to establish consistency of the MSAS over a period of time (Huck, 2012). The total score showed a high and positive test-retest reliability coefficient (using Pearson $r$) of .87 after one week.

**Research Question 1:** *Is singing mindset orientation of first-year college students related to the factors of (a) gender and college major, or (b) gender and music specialization?*

The means and standard deviations for all treatment conditions related to factors of gender and college major are shown in Table 2.

Table 2

*Descriptive Statistics Comparing Mean Gender Score to College Major*

|  | M | SD | N |
|---|---|---|---|
| Gender (Female) | | | |
| Nonmusic Major | 27.83 | 7.74 | 179 |
| Music Major | 33.00 | 7.33 | 28 |
| | | | |
| Gender (Male) | | | |
| Nonmusic Major | 28.23 | 7.26 | 172 |
| Music Majors | 36.87 | 7.73 | 30 |

*Note. Possible scores ranged from 6-48.*

A two-way analysis of variance design using gender (male and female) and major (music and non-music) as the between-subjects factors was used to discover the effects of the two independent variables on mindset of singing ability. Table 3 contains the analyses results.

Table 3

*ANOVA Results of Gender and Major*

| | Type III Sum of Squares | df | Mean Square | F | Sig. | Par. Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 2500.37[a] | 2 | 1250.19 | 22.07 | .000 | .098 |
| Intercept | 197690.19 | 1 | 197,690.19 | 3490.19 | .000 | .896 |
| gender | 81.21 | 1 | 81.21 | 1.43 | .232 | .004 |
| major | 2401.49 | 1 | 2401.49 | 42.40 | .000 | .095 |
| Error | 22996.51 | 406 | 56.64 | | | |
| Total | 369872.00 | 409 | | | | |
| Corrected Total | 25496.88 | 408 | | | | |

a.   Adjusted $R$ Squared = .094

Equal variance was assumed as a result of running Levene's Test for Equality of Variance ($F = .38$, $p = .77$; Hatch, 2012). Therefore, no violation of equality of error variance occurred. All other ANOVA assumptions of independence, normality, and randomness were met. The partial eta squared effect size for this analysis ($\eta_p^2 = .095$) indicated a medium effect size (Huck, 2012).

The means and standard deviation for all treatment conditions related to factors of gender and music specialization are shown in Table 4.

Table 4

*Descriptive Statistics Comparing Mean Gender Score to Music Specialization*

|  | M | SD | N |
|---|---|---|---|
| Gender (Female) | | | |
| Nonvoice | 33.00 | 7.59 | 22 |
| Voice | 33.00 | 6.93 | 6 |
| | | | |
| Gender (Male) | | | |
| Nonvoice | 35.18 | 8.88 | 17 |
| Voice | 38.75 | 5.56 | 12 |

*Note. Possible scores ranged from 6-48.*

A two-way analysis of variance design using gender (male and female) and music specialization (voice and non-voice) as the between-subjects factors were used to discover the effects of the two independent variables on mindset of singing ability. Because there was not a significant interaction between gender and music specialization, it was dropped from the model. Another two-way analysis of variance was run using gender and music specialization only. The results of analyses can be found in Table 5.

Table 5

*Two-Way ANOVA Results of Gender and Music Specialization*

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Par. Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 244.11[a] | 2 | 122.06 | 2.13 | .128 | .073 |
| Intercept | 60550.15 | 1 | 60550.15 | 1058.58 | .000 | .951 |
| gender | 141.63 | 1 | 141.63 | 2.48 | .121 | .044 |
| music specialization | 53.79 | 1 | 53.79 | .94 | .337 | .017 |
| Error | 3088.77 | 54 | 57.20 | | | |
| Total | 72599.00 | 57 | | | | |
| Corrected Total | 3332.88 | 56 | | | | |

a. Adjusted $R$ Squared = .40

Equal variance was assumed as a result of running Levene's Test for Equality of

Variance ($F = .76$, $p = .524$; Hatch, 2012). Therefore, no violation of equality of error

variance occurred. All other ANOVA assumptions of independence, normality, and

randomness were met.

**Research question 2:** *Are past musical experiences (participation in school*

*music ensembles, and/or singing in contexts outside of school) related to singing mindset*

*orientation?*

Section 4 of the survey included open response survey items for total years of past

singing behaviors in elementary (Grades K-5), middle school (Grades 6-8), and high

school (Grades 9-12) for questions 23, 24, and 25. Correlation and multiple regression

analyses were conducted to examine the relationship between singing mindset orientation

and the various potential predictors of years of past singing behaviors. No violations of

assumptions of multiple regression were observed. A summary for the descriptive

statistics or each variable can be found in Table 6.

Table 6

*Descriptive Statistics for Past Musical Experience (Years of Experience)*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| Singing Mindset Orientation | 28.06 | 7.84 | 415 |
| Years Participating in School Choir | | | |
|    Q23a Elementary (Grades K-5) | 3.20 | 2.58 | 415 |
|    Q23b Middle School (Grades 6-8) | 1.41 | 1.38 | 415 |
|    Q23c High School (Grades 9-12) | .88 | 1.49 | 415 |
| Years Participating outside of School | | | |
|    Q24a Elementary (Grades K-5) | 1.61 | 2.39 | 415 |
|    Q24b Middle School (Grades 6-8) | .87 | 1.26 | 415 |
|    Q24c High School (Grades 9-12) | 1.02 | 1.60 | 415 |
| Years Taking Private Voice Lessons | | | |
|    Q25a Elementary (Grades K-5) | .04 | .36 | 415 |
|    Q25b Middle School (Grades 6-8) | .07 | .37 | 415 |
|    Q25c High School (Grades 9-12) | .35 | 2.30 | 415 |

*Note. Singing Mindset Orientation had a possible score range from 6-48. All other items were scored on a six-point Likert scale.*

The singing mindset orientation score was used to correlate the scores of question items 23a, 23b, 23c, 24a, 24b, 24c, 25a, 25b, and 25c. Pearson correlation coefficients were calculated for all subscales ($N = 415$) and are reported in Table 7. Significant correlations are noted in the table.

Table 7

*Pearson Correlations for Past Musical Experiences (Years of Experience; N = 415)*

|  | Sum_1 | Q23a | Q23b | Q23c | Q24a | Q24b | Q24c | Q25a | Q25b | Q25c |
|---|---|---|---|---|---|---|---|---|---|---|
| a. Sum_1 | 1 | | | | | | | | | |
| Q23a | .09 | 1 | | | | | | | | |
| Q23b | .21** | .47** | 1 | | | | | | | |
| Q23c | .40** | .24** | .48** | 1 | | | | | | |
| Q24a | .11* | .30** | .24** | .22** | 1 | | | | | |
| Q24b | .25** | .21** | .34** | .40** | .62** | 1 | | | | |
| Q24c | .37** | .18** | .31** | .56** | .49** | .71** | 1 | | | |
| Q25a | .06 | .09 | .06 | .10* | .16** | .14** | .10* | 1 | | |
| Q25b | .13* | .14** | .20** | .37** | .14** | .21** | .21** | .49** | 1 | |
| Q25c | .14** | .09 | .14** | .30** | .02 | .07 | .13** | .08 | .57** | 1 |

** = Correlation is significant at the .01 level (2-tailed).
*. Correlation is significant at the .05 level (2-tailed).
a. Sum_1 = Singing Mindset Orientation
Variable Labels: Table 7
       Sum_1 - Singing mindset orientation
       Years of participation in school choir:
            Q23a - Elementary (Grades K-5)
            Q23b - Middle School (Grades 6-8)
            Q23c - High School (Grades 9-12)
       Years of singing outside of school:
            Q24a - Elementary (Grades K-5)
            Q24b - Middle School (Grades 6-8)
            Q24c - High School (Grades 9-12)
       Years of taking private voice lessons:
            Q25a - Elementary (Grades K-5)
            Q25b - Middle School (Grades 6-8)
            Q25c - High School (Grades 9-12)

The pattern that emerged indicated a high correlation between a higher singing mindset orientation score and students who participated in singing activities during their high school years, whether in school or outside of school.

Table 8 shows the multiple regression analysis between participation in school music ensembles and/or singing in contexts outside school to discover how these variables may predict mindset of singing ability.

Table 8

*Summary of Regression Analysis for Past Musical Experiences Variables (Years of Experience) Predicting Growth Singing Mindset Orientation (N = 415)*

| Model | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | *B* | Std. Error | *β* | *t* | Sig. |
| (Constant) | 26.74 | .60 | | 44.94 | .000 |
| Years in School | | | | | |
|    Elementary (Grades K-5) | .04 | .16 | .01 | .26 | .795 |
|    Middle School (Grades 6-8) | .17 | .32 | .03 | .54 | .592 |
|    High School (Grades 9-12) | 1.40 | .33 | .27 | 4.28 | .000 |
| | | | | | |
| Years Outside of School | | | | | |
|    Elementary (Grades K-5) | -.29 | .19 | -.09 | -1.48 | .141 |
|    Middle School (Grades 6-8) | .17 | .45 | .03 | .37 | .711 |
|    High School (Grades 9-12) | 1.17 | .35 | .24 | 3.40 | .001 |
| | | | | | |
| Years Taking Voice Lessons | | | | | |
|    Elementary (Grades K-5) | 1.13 | 1.18 | .05 | .96 | .340 |
|    Middle School (Grades 6-8) | -1.84 | 1.40 | -.09 | -1.32 | .189 |
|    High School (Grades 9-12) | .26 | .19 | .08 | 1.33 | .185 |

a. Dependent Variable: Singing mindset orientation

The multiple regression model with all nine predictors produced a coefficient of determination (adjusted $R^2$ = .18) of $F(9, 405)$ = 11.18, $p < .05$. As can be seen in Table 8, the results indicated that past musical experience was a small, but significant predictor of singing mindset orientation with only (adjusted $R^2$) 18% of the variance in mindset of singing ability being explained by past musical experiences (years of participation in school music ensembles and/or singing in context outside of school). However, it was found *that the years participating in high school choir* ($β$ = .27, $p < .05$), and *years participating in singing outside of school during high school* ($β$ = .24, $p < .05$) were significant predictors for a higher growth mindset of singing ability.

Correlation and multiple regression analyses were also conducted to examine the relationship between singing mindset orientation and the various potential predictors of past musical experiences (activities). Table 9 summarizes the descriptive statistics for each variable.

Table 9

*Descriptive Statistics for Past Musical Experiences (Activities)*

|  | M | SD | N |
|---|---|---|---|
| Singing Mindset Orientation | 29.01 | 7.82 | 415 |
| *Sing the Nat'l Anthem | 2.68 | 1.41 | 415 |
| *Listen 1 Hour a Week to Singing | 1.41 | .77 | 415 |
| *Sing When Driving | 1.55 | .90 | 415 |
| *Sing in Shower/Tub | 2.64 | 1.59 | 415 |
| *Enjoy Singing Competition TV shows | 3.20 | 1.60 | 415 |
| *Sing Along With Radio/CD/iPod, etc. | 1.64 | .90 | 415 |
| Sing Only When Certain No One Hears | 3.58 | 1.38 | 415 |
| *Likely to Sing Sometime in Your Day | 2.08 | 1.18 | 415 |
| *Sing Happy Birthday When Occasion Calls | 1.81 | .91 | 415 |

*Note. Singing Mindset Orientation had a possible score range from 6-48. All other items were scored on a six-point Likert scale. *Items were recoded.*

The singing mindset orientation score from Questionnaire I was used to correlate the scores of past musical experiences question items: 26, 27, 28, 29, 34, 35, 36, 37, and 38. Table 10 shows the correlations among the variables.

Table 10

*Pearson Correlation for Past Musical Experiences (Activities; N = 415)*

|        | Sum_1 | Q26   | Q27   | Q28   | Q29   | Q34   | Q35   | Q36   | Q37   | Q38 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| a.Sum_1 | 1    |       |       |       |       |       |       |       |       |     |
| Q26    | .14** | 1     |       |       |       |       |       |       |       |     |
| Q27    | .09   | .16** | 1     |       |       |       |       |       |       |     |
| Q28    | .17** | .20** | .32** | 1     |       |       |       |       |       |     |
| Q29    | .10** | .26** | .17** | .48** | 1     |       |       |       |       |     |
| Q34    | .05   | .16** | .08   | .14   | .25** | 1     |       |       |       |     |
| Q35    | .14** | .19** | .30** | .83** | .42** | .10** | 1     |       |       |     |
| Q36    | .22** | .17** | .12*  | .19** | .21** | .06   | .21** | 1     |       |     |
| Q37    | .35** | .20** | .29** | .54** | .43** | .18*  | .56** | .22** | 1     |     |
| Q38    | .20** | .28** | .29** | .27** | .23** | .18** | .26** | .22** | .26** | 1   |

** = Correlation is significant at the .01 level (2-tailed).
*. Correlation is significant at the .05 level (2-tailed).
a. Sum_1 = Singing mindset orientation
Variable Labels: Table 10
        Sum_1 - Singing mindset orientation
        Q26 - Sing the Nat'l Anthem
        Q27 - Listen 1 Hour a Week to Singing
        Q28 - Sing When Driving
        Q29 - Sing in Shower/Tub
        Q34 - Enjoy Singing Competition TV Show
        Q35 - Sing Along with Radio/CD/iPod, etc.
        Q36 - Sing Only When Certain No One Hears
        Q37 - Likely to Sing Sometime in Your Day
        Q38 - Sing Happy Birthday When Occasion Calls

The multiple regression model with nine predictors produced a weak coefficient of determination (adjusted $R^2 = $ .15; See Table 11).

  
Table 11

*Summary of Regression Analysis for Past Musical Experiences Variables (Activities)*
*Predicting Growth Singing Mindset Orientation (N = 415)*

| Model | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | *B* | Std. Error | *β* | *t* | Sig |
| (Constant) | 15.07 | 3.23 | | 4.67 | .000 |
| Sing the Nat'l Anthem | .29 | .27 | .05 | -1.07 | .286 |
| Listen 1 Hour a Week to Singing | -.40 | .50 | -.04 | -.81 | .416 |
| Sing When Driving | .81 | .75 | .09 | 1.09 | .277 |
| Sing in Shower/Tub | -.51 | .27 | -.10 | -1.89 | .059 |
| Enjoy Singing Competition TV Show | -.02 | .23 | -.00 | .09 | .093 |
| Sing Along with Radio/CD/iPod, etc. | -1.33 | .77 | -.15 | -1.80 | .072 |
| Sing Only When Certain No One Hears | .82 | .27 | .15 | 3.04 | .003 |
| Likely to Sing Sometime in Your Day | 2.44 | .38 | .37 | 6.36 | .000 |
| Sing Happy Birthday When Occasion Calls | .98 | .44 | .11 | 2.23 | .027 |

a. Dependent Variable: Singing mindset orientation

**Best Fit Model.** To find the best model fit, a correlation and regression analyses was conducted to examine the relationships with the four highest correlated items (from past singing behaviors – years of experience, and past singing behavior – activities) to predict singing mindset orientation. Table 12 includes the descriptive statistics for past musical experiences.

Table 12

*Descriptive Statistics for Top Correlated Items in Past Musical Experiences*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| Singing Mindset Orientation | 29.00 | 7.85 | 417 |
| Years of participation in school choir: | | | |
| High School (Grades 9-12) | 1.04 | 1.61 | 417 |
| Years of singing outside of school: | | | |
| High School (Grades 9-12) | .89 | 1.50 | 417 |
| Likely to Sing Sometime in Your Day | 2.07 | 1.18 | 417 |
| Sing Happy Birthday | 1.81 | .90 | 417 |

*Note. Singing Mindset Orientation had a possible score range from 6-48. All other items were scored on a six-point Likert scale.*

No violations of assumptions of multiple regression were observed. All four variables were found to have a positive significant correlation ($p < .05$) with high singing mindset orientation score: *Years Participating in High School Choir, r = .40*; *Years Participating in Singing Outside of School During High School*, *r = .38*; *You are Likely to Sing Sometime in Your Day*, *r = .34*; and *You Sing "Happy Birthday" When the Occasion Calls*, *r = .20*. Table 13 includes a summary of the correlation coefficients.

Table 13

*Pearson Correlation for Best Fit Model for Past Musical Experiences (N = 417)*

|        | Sum_1 | Q23c  | Q24c  | Q37   | Q38 |
|--------|-------|-------|-------|-------|-----|
| Sum_1  | 1     |       |       |       |     |
| Q23c   | .38** | 1     |       |       |     |
| Q24c   | .40** | .57** | 1     |       |     |
| Q37    | .34** | .31** | .25** | 1     |     |
| Q38    | .20** | .17** | .19** | .26** | 1   |

\*\* = Correlation is significant at the .01 level (2-tailed).

a. Sum_1 = Singing mindset orientation, a possible score range from 6-48. *All other items were scored on a six-point Likert scale.*

b. Variable Labels: Table 13

      Sum_1 - Singing mindset orientation
      Q23c - *Years Participating in High School Choir*
      Q24c - *Years Participating in Singing Outside of School During High School*
      Q37  - Likely to Sing Sometime in Your Day
      Q38  - Sing Happy Birthday

Table 14 shows the regression analysis of the original highest correlated variables

of singing behaviors to predict mindset of singing ability.

Table 14

*Summary of Regression Analysis for Descriptive Statistics for Top Correlated Items in Past Musical Experiences (N = 417)*

| Model | Unstandardized Coefficients | | Standardized Cofficients | | |
|-------|------|------------|------|-------|------|
|       | *B*   | Std. Error | *β*  | *t*   | Sig. |
| Constant | 31.16 | 1.01 |     | 30.84 | .000 |
| Years of Participation in Choir: High School (Grades 9-12) | 1.15 | .28 | .22 | 4.12 | .000 |
| Years of Singing Outside of School: High School (Grades 9-12) | .90 | .26 | .19 | 3.54 | .000 |
| Likely to Sing Sometime in Your Day | 1.40 | .31 | .21 | 4.53 | .000 |
| Sing Happy Birthday | .69 | .39 | .08 | 1.77 | .078 |

a. Dependent Variable: Singing mindset orientation

The best prediction model included questions 23c, 24c, 37, and 38. The coefficient of determination (adjusted $R^2$ = .24) indicated a medium effect, $F(4, 412) = 33.40, p < .05$. The variables *Years Participating in High School Choir* ($\beta = .22, p < .05$), *Years Participating in Singing Outside of School During High School* ($\beta = .19, p < .05$), *You are Likely to Sing Sometime in Your Day* ($\beta = .21, p < .05$) had significant positive regression weights, indicating that students with higher scores on these questions were expected to have a higher singing mindset orientation score. *You Sing "Happy Birthday" When the Occasion Calls* did not contribute to the multiple regression model ($\beta = .08, p > .05$).

An additional open response question was asked to ascertain the last time the participants remembered singing and were encouraged to include information in their responses specific to how old they were, what were they singing, and why were they singing. The results were analyzed and short, descriptive codes were assigned based on the participants' own language (Creswell, 2008, Stephens, 2012, Zdzinski & Skok, 2000). The initial codes were then further focused and compared to identify the themes that are listed in Table 15.

Table 15

*Descriptions of the Last Time Participants Sang* ($N = 426$)

| Themes | Response | $f$ | Response | $f$ |
|---|---|---|---|---|
| <u>Age</u> | | | | |
| | Today | 322 | Middle school | 13 |
| | High school | 40 | Elementary school | 10 |
| | | | | |
| <u>What were you singing?</u> | | | | |
| | Listed a specific song/artist | 72 | Church songs | 7 |
| | Along with iTunes/iPod/ | 71 | Happy Birthday | 7 |
| |    Radio/computer | | National Anthem | 3 |
| | | | | |
| <u>Where were you singing?</u> | | | | |
| | Driving in car | 94 | Participation in a musical | 6 |
| | In choir | 44 | Karaoke | 6 |
| | With friends/family | 33 | Talent Show | 2 |
| | Shower | 21 | Workout | 2 |
| | Church | 11 | | |
| | | | | |
| <u>Why were you singing?</u> | | | | |
| | Because it was my favorite | 34 | Just because | 10 |
| |    Song | | Enjoy/like/love to sing | 10 |
| | Preparing/practicing | 21 | Not sure why | 9 |
| | For fun/enjoyment | 19 | Feels good | 8 |
| | Singing while doing work | 14 | Calming/stress reliever | 4 |
| | Getting ready in the morning | 12 | Express myself | 1 |

*Note:* The frequencies included any time a certain theme was mentioned in the individual responses. Therefore, some participant responses were counted more than one time if their description included more than one theme.

When scrutinizing the points of comparison and differences among the responses, it was found that the majority of the population reported having sung either on that day or sometime within the current semester. Reponses to when they last sang decreased dramatically the farther they went back in age. Two similar activities emerged when identifying *what* participants were singing: *Listed a specific song/artist* ($n = 72$) and *Along with iTunes/iPod/Radio/computer* ($n = 71$). Participants tended to sing more

informally (non-performance) than formally. There appeared to be a balance between singing activities that were done in a social setting and singing done while alone. The responses related to *why* they were singing reflected that singing served a particular function (singing along to a favorite song, preparing/practicing, enjoyment, doing work, or getting ready) or affective activity (singing for fun, just because, for pleasure, relieve stress, or as a means of self-expression).

**Research question 3:** *Do family, teacher, and peer attitudes about an individual's personal singing ability contribute to his/her singing mindset orientation?*

Correlation and multiple regression analyses were conducted to examine the relationship between singing mindset orientation and the various potential predictors of family, teacher, and peer attitudes about an individual's personal singing ability. Table 16 summarizes the descriptive statistics of each variable.

Table 16

*Descriptive Statistics for Singing Influences*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| Singing Mindset Orientation | 28.95 | 7.83 | 415 |
| *Singing Important to Your Parents | 3.08 | 1.55 | 415 |
| *Family Member Encouraged You to Sing | 3.34 | 1.62 | 415 |
| *You Enjoyed Music Class in Elem. School | 4.31 | 1.46 | 415 |
| *Friend Urged You to Sing When Younger | 3.10 | 1.45 | 415 |
| *Friends Thought Singing Was Cool | 4.33 | 1.46 | 415 |
| *Teacher Encouraged You to Sing | 3.68 | 1.65 | 415 |
| Teacher Said to Mouth Words/Can't Sing | 4.95 | 1.23 | 415 |

*Note. Singing Mindset Orientation had a possible score range from 6-48. All other items were scored on a six-point Likert scale. Scores reflect listwise deletion. *Items were recoded.*

No violations of assumptions of multiple regression were observed. The singing mindset orientation score from Questionnaire I was used to correlate the scores of question items 16, 17, 18, 19, 20, 21, and 22. Table 17 shows the correlations among the variables. All variables except one had significant correlations at the $p < .01$ level.

Table 17

*Pearson Correlation for Singing Influences (N = 415)*

|        | Sum_1  | Q16   | Q17   | Q18   | Q19   | Q20   | Q21   | Q22 |
|--------|--------|-------|-------|-------|-------|-------|-------|-----|
| Sum_1  | 1      |       |       |       |       |       |       |     |
| Q16    | . 24** | 1     |       |       |       |       |       |     |
| Q17    | .37**  | .63   | 1     |       |       |       |       |     |
| Q18    | .27**  | .30** | .51** | 1     |       |       |       |     |
| Q19    | .35**  | .42** | .61** | .54** | 1     |       |       |     |
| Q20    | .25**  | .20** | .36** | .49** | .49** | 1     |       |     |
| Q21    | .40**  | .33** | .59** | .48** | .63** | .51** | 1     |     |
| Q22    | .03    | -.04  | .03   | .11*  | -.01  | .20** | .08   | 1   |

** = Correlation is significant at the .01 level (2-tailed).
*. Correlation is significant at the .05 level (2-tailed).
c. Scores reflect listwise deletion
Variable Labels: Table 17
        Sum_1 - Singing Mindset Orientation
        Q16 - Singing Important to Your Parents
        Q17 - Family Member Encouraged You to Sing
        Q18 - You Enjoyed Music Class in Elem. School
        Q19 - Friend Urged You to Sing When Younger
        Q20 - Friends Thought Singing Was Cool
        Q21 - Teacher Encouraged You to Sing
        Q22 - Teacher Said to Mouth Words/Can't Sing

The coefficient of determination (adjusted $R^2 = .18$), $F(7, 407) = 13.85$, $p < .05$, showed a small, but significant strength in predicting singing mindset orientation. It was found that *Family Member Encouraged You to Sing* ($\beta = .16$, $p < .05$) and *You Had a Teacher That Encouraged You to Sing* ($\beta = .22$, $p < .05$) had a significant positive regression weight. This indicated that students with a higher score on this question were

likely to also have a high singing mindset orientation score. No other variables

contributed to the multiple regression model. The results of the multiple regression are

reported in Table 18.

Table 18

*Summary of Regression Analysis for Singing Influences Variables Predicting Singing Mindset Orientation (N = 415)*

| Model | Unstandardized Coefficients | | Standardized Cofficients | | |
|---|---|---|---|---|---|
| | B | Std. Error | β | t | Sig. |
| Constant | 19.63 | 1.81 | | 10.89 | .000 |
| Singing Important to Your Parents | .10 | .29 | .02 | .33 | .745 |
| Family Member Encouraged You to Sing | .79 | .35 | .16 | 2.27 | .024 |
| You Enjoyed Music Class in Elem. School | .08 | .31 | .02 | .27 | .790 |
| Friend Urged You to Sing When Younger | .48 | .36 | .09 | 1.35 | .179 |
| Friends Thought Singing Was Cool | .11 | .30 | .02 | .36 | .719 |
| Teacher Encouraged You to Sing | 1.04 | .30 | .22 | 3.45 | .001 |
| Teacher Said to Mouth Words/ Can't Sing | .05 | .29 | .01 | .17 | .864 |

a. Dependent Variable: Singing Mindset Orientation

Similar to answering question 2(a), an additional open response question asked

participants to recall when someone commented on their singing ability in the past and

what was specifically said. The results were analyzed and short, descriptive codes were

assigned based on the participants' own language (Creswell, 2008, Stephens, 2012,

Zdzinski & Skok, 2000). The initial codes that were then further focused and compared to

identify the themes that are shown in Table 19.

Table 19

*Descriptions of Recalling Someone Who Commented on Singing Ability (N = 426)*

| Themes | Response | | Response | |
|---|---|---|---|---|
| Who | Negative Feedback *f* | | Positive Feedback *f* | |
| | Friend | 23 | Friend | 39 |
| | Parent | 7 | Teacher | 35 |
| | Sister | 6 | Parent | 14 |
| | Family | 2 | Church member | 8 |
| | Brother | 1 | Family | 6 |
| | Teacher | 1 | Judge | 5 |
| | | | Sister | 2 |
| | No one commented on singing | 28 | | |
| Specific Comments | Positive | | Negative | |
| | Nice/beautiful/good/great voice | 109 | Not a good singer/can't sing/sucked/awful/horrible | 51 |
| | Specific musical characteristic | 29 | | |
| | Encouraged to join/study/sing | 26 | Told to stop | 22 |
| | Talent | 6 | Tone deaf | 8 |
| | Admire confidence it takes to sing | 2 | Avoid singing in front of others | 2 |
| | | | No talent | 1 |

*Note:* The frequencies included any time a certain theme was mentioned in the individual responses. Therefore, some participant responses were counted more than one time if their description included more than one theme.

Comparing the responses for any similarities or differences, the role of *Friend*, *Teacher*, and *Parent* were the top three responses given for who gave the participants positive feedback. *Friend*, *Parent*, and *Sister* were the top responses for negative feedback. In both categories, *Friend* was the highest reported response for both categories. The comments to what specifically was said about their voices, predominant in both positive and negative, was the concept of "good" (*n* = 109) or "not good" (*n* = 51).  Both categories specific to what positive and negative feedback had responses related to talent. In contrast, many positive comments were given regarding a specific

musical characteristic about their voice ($n = 29$). Those receiving negative feedback were not given specific comments regarding musical characteristics about their voice; they were just encouraged to or told directly to stop singing ($n = 22$).

**Research question 4:** *Can singing mindset orientation be used to predict (a) self-evaluation of singing quality and (b) current and future singing behavior?*

To answer the first part of this research question, correlation and four simple linear regression analyses were conducted to examine singing mindset orientation as a predictor of self-evaluation of singing quality. The following statements measured this: *You believe you are a good singer; You have an overall negative opinion about your ability to sing; You sing, but do not think of yourself as a singer;* and *You are tone deaf.* Table 20 summarizes the descriptive statistics.

Table 20

*Descriptive Statistics for Self-Evaluation of Singing Quality*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| *Believe You Are a Good Singer | 3.84 | 1.45 | 418 |
| Negative Opinion About Your Ability | 3.39 | 1.47 | 418 |
| You Sing, Don't Think of Self as Singer | 2.75 | 1.33 | 418 |
| You Are Tone Deaf | 4.62 | 1.40 | 416 |

*Note. Items were scored on a six-point Likert scale. Scores reflect listwise deletion. *Item was recoded.*

No violations of assumptions of simple linear regression were observed. Singing mindset orientation was used to correlate the scores of question items 43, 44, 45, and 46. Table 21 shows the correlations among the variables.

Table 21

*Pearson Correlations for Self-Evaluation of Singing Quality (N = 418)*

|  | a.Sum_1 | Q43 | Q44 | Q45 | Q46 |
|---|---|---|---|---|---|
| Singing Mindset Orientation | 1 | | | | |
| Q43  Believe You Are a Good Singer | .52** | 1 | | | |
| Q44  Negative Opinion About Your Ability | .48** | .78** | 1 | | |
| Q46  You Sing, Don't Think of Self as Singer | .20** | .22** | .25** | 1 | |
| Q47  You are Tone Deaf | .33** | .49** | .50** | .27** | 1 |

** = Correlation is significant at the .01 level (2-tailed).
    a.   Singing mindset orientation
    b.   Q43 was reverse-coded

All four variables, *Believe You Are a Good Singer*, $r = .53$, $p < .01$; *Negative Opinion About Your Ability*, $r = .48$, $p < .01$; *You Sing, Don't Think of Self as Singer*, $r = .20$, $p < .01$; *and You are Tone Deaf*, $r = .33$, $p < .01$, showed significant positive correlations with the criterion, indicating that those with higher scores on the variables tended to have higher singing mindset orientation scores.

Four simple linear regressions were conducted for each question pertaining to self-evaluation of singing quality. Singing mindset orientation was used as the possible predictor.  The analyses for each regression are summarized in Table 22.

Table 22

*Summary of Regression for Singing Mindset Orientation Predicting Self-Evaluation of Singing Quality (Four Simple Linear Regressions; N = 418)*

| Model | Unstandardized Coefficients | | Standardized Cofficients | | |
|---|---|---|---|---|---|
| | *B* | Std. Error | *β* | *t* | Sig. |
| a. Believe You Are a Good Singer | 6.67 | .23 | | 28.76 | .000 |
| Singing Mindset Orientation | .10 | .01 | .53 | 12.65 | .000 |
| a. Negative Opinion About Your Ability | .81 | .24 | | 3.36 | .001 |
| Singing Mindset Orientation | .09 | .01 | .48 | 11.00 | .000 |
| a. You Sing, Don't Think of Self as Singer | 1.79 | .24 | | 7.32 | .000 |
| Singing Mindset Orientation | .03 | .01 | .20 | 4.09 | .000 |
| a. You are Tone Deaf | 2.91 | .25 | | 11.70 | .000 |
| Singing Mindset Orientation | .06 | .01 | .33 | 7.14 | .000 |

a.   Dependent variable of each simple linear regression.

The variable singing mindset orientation significantly predicted each dependent variable: *Believe You Are a Good Singer*; *Negative Opinion About Your Ability; You Sing, Don't Think of Self as Singer,* and *You are Tone Deaf*, as indicated by the positive regression weights. However, there was not a practical significance with *You Sing, Don't Think of Self as Singer.*

Participants were also asked to identify whether they believed they could sing or could not sing, and to describe why they believed this. They provided explanations through an open response. A summary of explanations for participants who believed they could not sing is presented in Table 23, and for those that believe they could sing in Table 24.

Table 23

*Participant Explanations of Why They Believe They Cannot Sing* (*n* = 199)

| Themes | Response | $f$ | Response | $f$ |
|---|---|---|---|---|
| <u>External reasons</u> | | | | |
| | No talent | 26 | Wasn't born with it | 10 |
| | Someone told me | 10 | Play an instrument instead | 4 |
| | No training | 13 | | |
| <u>Can sing</u> | | | | |
| | Can sing, but can't sing well | 17 | Can't sing by self | 6 |
| | Can sing, not interested | 12 | Only sing for fun | 2 |
| <u>Judgment of self</u> | | | | |
| | Not good/not the best/awful | 34 | Can't compared to others | 20 |
| | Not interested/no effort | 33 | I am tone deaf | 7 |
| | Sound bad when I sing | 26 | Wish I could sing | 2 |
| | Do poorly | 24 | I am hard of hearing | 1 |

*Note:* The frequencies included any time a certain theme was mentioned in the individual responses. Therefore, some participant responses were counted more than one time if their description included more than one theme. *Eleven participants answered in both responses indicating that they both could *not* and *could* sing. Ten participants left the responses blank. These 21 were not included in *n* = 199.

Table 24

*Participant Explanations of Why They Believe They Can Sing* (*n* = 206)

| Themes | Response | *f* | Response | *f* |
|---|---|---|---|---|
| Supporting Evidence | | | | |
| | Someone told me | 46 | Had a specific musical skill | 15 |
| | Made the top choir/award | 26 | (Strong sense of pitch, clear tone, etc.) | |
| | | | Am not tone deaf | 6 |
| Innate/Part of Self | | | | |
| | Have natural ability/ Innate talent | 24 | Have natural ability + effort | 1 |
| | Singing all my life/ It's a part of me | 17 | | |
| Learned Life Experience | | | | |
| | A result of effort | 25 | Singing is in my family | 10 |
| | Result of training | 13 | | |
| Singing is Basic | | | | |
| | I can sing | 47 | Can sing, but can't sing well | 23 |
| | Every person can sing | 31 | I enjoy it | 20 |

*Note:* The frequencies included any time a certain theme was mentioned in the individual responses. Therefore, some participant responses were counted more than one time if their description included more than one theme. Eleven participants answered in both responses indicating that they both could *not* and *could* sing. Ten participants left the responses blank. These 21 were not included in *n* = 206.

 

The same coding procedures were completed as in earlier questions. From the population of this study (*N* = 426) there were *n* = 199 participants who believed they could not sing, *n* = 206 that believed that they could, *n* = 11 who answered in both categories, and *n* = 10 who left their answers blank. Three basic themes emerged from those who believed they could not sing: external reasons, can sing, and judgment of self. Four basic themes emerged from these open responses explaining why they believed they could sing: supporting evidence, innate/part of self, learned life experience, and singing is

basic. Interestingly, both categories of beliefs of cannot and can sing had the same response given: *Can sing, but cannot sing well* (cannot sing, $n = 17$; can sing, $n = 23$). In contrast, those who did not believe they could sing had a greater number of responses related to judgment of self ($n = 147$). Those that believed they could sing only had one category related to judgment of ability, *Can sing, but cannot sing well* ($n = 23$). Instead, those who believed they could sing had a category for listing evidence that supported their claim ($n = 93$).

Those who believed they could not sing had two common fixed-trait codes emerge: *No talent* ($n = 26$) and *Wasn't born with it* ($n = 10$), which combined was almost equal to the amount for a malleable trait, *No effort* ($n = 33$). This same relatively equal amount of responses was found from those who believed they could sing; a fixed-trait code related to having *Talent* received $n = 25$ responses, whereas the malleable trait of *Effort* received $n = 26$ responses.

For those who believed they could sing, the response *Singing is in my family* ($n = 10$) could be compared in two ways, either they believed they could sing because they were born into a family who sang (an innate trait), or their ability to sing could be a result of the constant exposure and participation in singing activities (a result of effort). Interestingly, only two responses were given related to *Fun* from those who believed they could not sing, whereas $n = 20$ participants who believed they could sing said they enjoyed it. Only seven comments were given related to tone deafness from those who believed they cannot sing, and six responses from those who believed they could sing because they were *not* tone deaf.

To address the second part of the research question to determine if singing mindset orientation could be used to predict current and future singing behavior, correlation and four simple linear regression analyses were also conducted. Table 25 summarizes the descriptive statistics.

Table 25

*Descriptive Statistics for Intended Participation*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| *Sing in Future, Yourself or Others | 4.90 | 1.24 | 418 |
| *Record Self for Research | 3.21 | 1.65 | 418 |
| *Sing Karaoke With Friends | 3.92 | 1.50 | 418 |
| *Take Free Voice Lessons | 3.98 | 1.61 | 418 |

*Note. Items were scored on a six-point Likert scale. Scores reflect listwise deletion.  *Item was recoded.*

No violation of assumptions for simple linear regression was observed. The singing mindset orientation score from Questionnaire I was used to correlate the scores of question items 39, 40, 41, and 42. Table 26 shows the correlations among the variables.

Table 26

*Pearson Correlations for Intended Participation (N = 418)*

|  | Sum_1 | Q39 | Q40 | Q41 | Q42 |
|---|---|---|---|---|---|
| Singing Mindset Orientation | 1 |  |  |  |  |
| Q39 Sing in Future, Yourself or Others | .25** | 1 |  |  |  |
| Q40 Record Self for Research | .37 | .35** | 1 |  |  |
| Q41 Sing Karaoke With Friends | .21** | .24** | .50** | 1 |  |
| Q42 Take Free Voice Lessons | .39** | .32** | .43* | .42** | 1 |

**. = Correlation is significant at the .01 level (2-tailed).
*. Correlation is significant at the .05 level (2-tailed).

All four variable scores, *Sing in Future, Yourself or Others, r* = .25, *p* <.01; *Record Self for Research, r* = .37, *p* <.01; Sing *Karaoke With Friends*, *r* = .21, *p* < .01; and *Take Free Voice Lessons*, *r* = .39, *p* < .01 showed significant positive correlations with the criterion, indicating that those with higher scores on the variables tend to have higher singing mindset orientation scores.

Simple Linear Regression was then conducted for each individual question and analyses is summarized in Table 27.

Table 27

*Summary of Regression for Singing Mindset Orientation Predicting Intended Participation (Four Simple Linear Regressions)*

| Model | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | *B* | Std. Error | *β* | *t* | Sig. |
| a. Sing in Future, Yourself or Others | 3.23 | .23 | | 14.31 | .000 |
| Singing Mindset Orientation | .04 | .01 | .25 | 5.17 | .000 |
| a. Record Self for Research | .95 | .29 | | 3.32 | .000 |
| Singing Mindset Orientation | .08 | .01 | .37 | 8.13 | .000 |
| a. Sing Karaoke With Friends | 2.76 | .28 | | 15.42 | .000 |
| Singing Mindset Orientation | .04 | .01 | .21 | 4.39 | .000 |
| a. Take Free Voice Lessons | 1.67 | .28 | | 19.16 | .000 |
| Singing Mindset Orientation | .08 | .01 | .39 | 8.58 | .000 |

a.    Dependent Variable of each simple linear regression

Singing mindset orientation, functioning as the independent variable for this research question, significantly predicted *Sing in Future, Yourself or Others; Record Self for Research*; *Sing Karaoke With Friends,* and *Take Free Voice Lessons* as indicated by

its positive regression weights. This means that those people who endorse more of a growth mindset of singing ability are likely to engage in future singing behaviors. However, singing mindset orientation showed a very weak strength in predicting *Sing in Future, Yourself or Others* and *Sing Karaoke With Friends* meaning that, although it there was a significant prediction, it was so small to be of little practical significance (Huck, 2012).

 **Additional analysis.** Additional analysis was done to further examine possible variances of mindset of singing ability. These additional questions explored the possible threads of the belief in singing as a fixed trait: if participants believed they were born with the ability or *not* born with the ability. Additional questions were also asked to explore growth mindset with participants who believed that singing ability was something they could improve with effort; some people may value improving their singing ability whereas others do not care about improving and would not exert effort. Correlation and multiple regression analyses were conducted to examine the relationship between singing mindset orientation and four extra belief-related statements. Table 28 summarizes the descriptive statistics.

Table 28

*Descriptive Statistics for Extra Mindset Questions*

|  | *M* | *SD* | *N* |
|---|---|---|---|
| Singing Mindset Orientation | 28.99 | 7.84 | 418 |
| *Sing Well/Born With Talent | 3.94 | 1.31 | 418 |
| *Practice to Improve Voice | 3.70 | 1.59 | 418 |
| Can't Sing/Not Born With Talent | 3.70 | 1.47 | 418 |
| Don't Care About Singing | 3.74 | 1.54 | 418 |

*Note. Items were scored on a six-point Likert scale. Scores reflect listwise deletion. *Item was recoded.*

No violations of assumptions of multiple regression were observed. Singing mindset orientation score from Questionnaire I was used to correlate the scores of question items 30, 31,32, and 33. Table 29 shows the correlations among the variables.

Table 29

*Pearson Correlations for Extra Mindset Questions (N = 418)*

|  | Sum_1 | Q30 | Q31 | Q32 | Q33 |
|---|---|---|---|---|---|
| Singing Mindset Orientation | 1 | | | | |
| Q30 Sing Well/Born With Talent | .23** | 1 | | | |
| Q31 Practice to Improve Voice | .47** | .50** | 1 | | |
| Q32 Can't Sing/No Born With Talent | .61** | .40** | .46** | 1 | |
| Q33 Don't Care About Singing | .44** | .32** | .54** | .54** | 1 |

**. = Correlation is significant at the .01 level (2-tailed).

All four variable scores, *Sing Well/Born With Talent, Sing Well/Born With Talent, Can't Sing/No Born With Talent,* and *Don't Care About Singing*, showed significant positive correlations with the criterion, indicating that those with higher scores on the variables tended to have a higher singing mindset orientation score.

The multiple regression with all four predictors produced significant correlations (adjusted $R^2$ = .42), $F(4, 413)$ = 77.78, $p < .05$. Therefore, these variables account for 42% of the variance in singing mindset orientation. Table 31 shows *Sing Well/Born With Talent* ($\beta$ = -.12, $p > .05$), *Practice to Improve Voice* ($\beta$ = .27, $p < .05$), *Can't Sing/Not Born With Talent* ($\beta$ = .49, $p < .05$), and *Don't Care About Singing* ($\beta$ = .07, $p < .05$) were significant predictors. Table 30 summarizes the regression analyses for these variables.

Table 30

*Summary of Regression for Variables Predicting Singing Mindset Orientation (N = 418)*

| Model | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | *B* | Std. Error | *β* | *t* | Sig. |
| [a]Singing mindset orientation | 20.09 | 1.86 | | 10.79 | .000 |
| Sing Well/Born With Talent | -.71 | .26 | -.12 | -2.72 | .007 |
| Practice to Improve Voice | 1.34 | .24 | .27 | 5.57 | .000 |
| Can't Sing/No Born With Talent | 2.62 | .25 | .49 | 10.64 | .000 |
| Don't Care About Singing | .36 | .24 | .07 | 1.49 | .014 |

a.  Dependent Variable: Singing mindset orientation

**Summary**

Data gathered pertaining to the four research questions was analyzed to determine a possible relationship of variables related to (a) past musical experiences, (b) influence from others, (c) singing identity, (d) intended participation, and (c) singing mindset orientation. Descriptive statistics were conducted to describe the demographic information of first-year college students. The demographic categories included major and gender. In addition, music majors were asked to specify what type of music major they were and what their major applied performance area was. The MSAS was found to have high test-retest reliability.

A two-way analysis of variance was used to investigate both parts of question one to determine if singing mindset orientation was related to factors of gender and college major (music or non-music), or gender and music specialization (voice versus non-voice). The data indicated a significant difference for college majors, but not for gender or music specialization. Music majors scored higher than non-music majors. Only the intercept

was found to be significant in the second analysis model; which means the best predictor of the score was the grand mean.

Correlation coefficients and multiple regression analysis were conducted to examine question two, "is past musical experiences related to singing mindset orientation." Analysis revealed that correlation coefficient scores increased as students continued with singing experiences into high school (grades nine through twelve.) Four predictors were found to be significant: *Years Participating in High School Choir, Years Participating in Singing Outside of School During High School, You are Likely to Sing Sometime in Your Day*, and *You Sing "Happy Birthday" When the Occasion Calls*. These variables accounted for 23.8% of the variance in singing mindset orientation. However, *You Sing "Happy Birthday" When the Occasion Calls* did not contribute to the multiple regression model.

Participants' open responses indicated a larger majority ($n = 322$) of students had been engaged in singing activities sometime within that semester. Responses began to decline the further away they recalled their last singing activity: *High school* ($n = 40$), *Middle school* ($n = 13$), and *Elementary school* ($n = 10$). Participants tended to sing more informally (non-performance) than formally.

Research question three explored whether the factors of family, teacher, and peer attitudes about an individual's personal singing ability contributed to his/her singing mindset orientation. Correlation coefficients and multiple regression analyses were conducted to examine possible relationships. All variables had a significant correlation except *Teacher Said to Mouth Words/Can't Sing*. The multiple regression analysis indicated 18% of the variance in singing mindset orientation was explained by the

variables of outside influences. If a student had a high score on the variables *Family Member Encouraged You to Sing* and *You Had a Teacher That Encouraged You to Sing*, they were likely to also have a high singing mindset orientation score.

The majority of the open responses indicated the participant recalled receiving positive feedback about their voice from categories of *Friend*, *Teacher*, and *Parent*. There were twice as many positive comments that were given than negative. The majority of the types of comments received were based on the perception of good or not good. Some participants ($n = 29$) received positive comments based on a specific musical characteristics, those who received negative comments did not receive comments based on specific musical characteristics. Neither type of feedback included many comments related to the perception of talent.

The last question was divided into two parts: if singing mindset orientation could be used to predict self-evaluation of singing quality and current and future singing behavior. Correlation coefficients and four simple linear regression analyses were conducted to look at the first part of the question. All four variables were significantly correlated to singing mindset orientation. The simple linear regression analyses determined that singing mindset orientation could significantly predict 28% of the variance in *Believe You Are a Good Singer*, 22% of the variance in *Negative Opinion About Your Ability*, 3.6% of the variance in *You Sing, Don't Think of Self as Singer*, and 10.7% of the variance in *You are Tone Deaf*. However, the variable *You Sing, Don't Think of Self as Singer* did not imply practical significance due to the small variance rate.

The open responses revealed that $n = 199$ participants believed they could not sing and $n = 206$ believed that they could. A large frequency of comments related

specifically to *can* and *cannot* sing were given. Those that believed they could not sing had a higher number of responses related to judgment of their own abilities. Both categories had a *Can sing, but cannot sing well* response. Very few responses in either category referenced to tone deafness.

To answer the second part of question four, correlation and four simple linear regression analyses were conducted to examine the relationship between singing mindset orientation and various potential predictors of intended participation. Each variable, *Sing in Future, Yourself or Other; Record Self for Research; Sing Karaoke With Friends*; and *Take Free Voice Lessons* were significantly correlated; indicating that those with higher scores on these variables tended to have higher singing mindset orientation scores. The results of each simple linear regression showed significant coefficients of determination for the variable of singing mindset orientation as a possible predictor for each of the intended participation variables. However, the variables *Sing in Future, Yourself or Others* and *Sing Karaoke With Friends* had small percentages of variance and therefore not practically significant.

Additional questions were added to uncover possible dimensions of mindset of singing ability. When a correlation coefficient was conducted, all four variables scores (*Sing Well/Born With Talent, Practice to Improve Voice, Can't Sing/No Born With Talent,* and *Don't Care About Singing*) showed significant positive correlations with singing mindset orientation. Therefore, those with higher scores on these dimensions of mindset tended to have a higher singing mindset orientation score. The variable *Don't Care About Singing* was the only variable that did not contribute to the overall model. The multiple regression that was conducted revealed that all four predictors produced a

significant coefficient of determination. These variables accounted for 42% of the

variance in singing mindset orientation. These were the highest predictors of any of the

variables included in all of the analysis for this study.

**CHAPTER FIVE**

**CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS**

Several theories of motivation have provided explanations for why people desire to participate in singing activities. Previous researchers from a variety of disciplines have explored motivation through the distinction of Mindset theory, a theory of intelligence related to achievement motivation. However, little research has been done to apply this theory to the domain of singing. The present study explored people's beliefs related to their singing ability and their intent to participate in singing activities from a Mindset theory perspective. Several findings support previous research related to this topic. The results of the current study are presented in this chapter through the following format: (a) summary, (c) conclusions (b) implications for music education, (c) limitations, (d) and recommendations for future research.

**Summary**

The purpose of this study was to identify what factors contribute to first-year college students' mindset of singing ability, and the relationship of that mindset to intent to participate in singing activities. To establish mindset of singing ability Dweck et al.'s (2000) Theories of Intelligence Scale - Self Form for Adults was modified to create the Mindset of Singing Ability Survey (MSAS). The MSAS examined factors that contributed to individuals' singing beliefs including: general demographics, mindset of singing ability, musical experiences, influences, singing identity, and intended participation.

Participants in this study were ($N = 426$) first-year music majors and non-music majors at a midwest university. The survey was administered in two sessions.

Questionnaire I ($N = 418$) showed high internal consistency (Cronbach's alpha) of .93.

After 87 surveys were excluded for listwise deletion, Questionnaire II ($N = 339$) also

showed high internal consistency (Cronbach's alpha) of .95. The test-retest method

indicated a high and positive test-retest reliability coefficient (using Pearson $r$) of .87

after one week. Content validity was established through a review of the literature that

contributed to the design of the table of specifications for the survey. A 15-member panel

of experts reviewed the face validity of the survey, provided evidence of content and

construct validity, and reported on ease of use. The data collected in the survey were

analyzed using a two-way analysis of variance, correlation coefficients, and regression

analyses. Open-ended responses were analyzed to discover what themes might emerge

that related to previous feedback received on singing, past singing experiences, and

beliefs about individuals' singing ability.

## Conclusions

Several conclusions can be drawn from the results of this study. The results support

Dweck (2000) who emphasized the concept that mindset could be applied to other

domains. The high test-retest reliability coefficient found for the MSAS supports other

studies that have also reported high reliability (Chiu et al., 1997; Curry et al., 2006;

Dweck et al., 1995; Hong et al., 1999). This study supports Smith (2005) that mindset is a

valid construct to be applied to the domain of music.

**Research Question 1: Demographic Factors**

The first research question explored possible relationships between singing

mindset orientation and factors of college major, gender, and music specialization. Music

majors tended to reflect more of a growth mindset of singing ability than non-music

majors. This was an expected finding because music majors are likely to believe music-related skills can be improved with practice. Consistent with other mindset-related literature, gender revealed no significant results on mindset orientation (Haimovitz, Wormington, & Corpus, 2011; Ommundsen, 2001; Yorkston, Nunes, & Matta, 2010).

Music specialization was not a significant factor for having more of a growth mindset of singing ability. This result indicates that instrumentalists have the same kind of singing mindset as vocalists. Even though many music students' major applied performance area was not singing, it is highly probable they will sing in the future and understand practice is required for that particular skill development.

**Research Question 2: Past Music Participation**

The second research question investigated whether participants' past musical experiences, either in school music ensembles or in contexts outside of school, are related to singing mindset orientation. Analyses revealed a link between both participation in high school choirs and other singing activities outside of high school to a growth mindset orientation. As can be seen in Table 7, a pattern emerged in the correlation analyses suggesting this relationship strengthened as students aged. This supports previous research that suggested peoples' beliefs predict their participation in musical activities (Lucas, 2011; O'Neill, 2002). This premise also agrees with Mizner (1993) who reported students who sing in school and out of school tend to have positive attitudes about singing.

This finding is not surprising since elementary music classes were likely to have been a required part of the curriculum. Therefore, students with negative beliefs about their singing abilities were required to participate in music classes. However, as students

entered middle school many music classes or choirs were offered as elective classes. Similar to the findings of Wigfield et al. (1997), by this age students may already have made up their minds as to whether or not they believed they could sing and may have chosen not to sign up for choir classes based on this belief. Although there are a number of non-musical reasons students at this age may choose elective courses, it is not likely that those who do not believe they can sing enroll in music classes if these courses are offered as elective courses. This results in missed opportunities to learn how to develop and improve singing skills. One of the reasons students enroll in high school choirs are based on their positive beliefs about their singing ability. Thus, it makes sense there would be a stronger relationship to a growth mindset of singing ability in the higher grades.

Regression analyses indicates that both participation in high school choirs and singing activities outside of school are predictive of a growth mindset. Students at this age are likely to have been more involved with singing activities long enough to understand the time commitment and training required to improve their singing skills. Those in high school choirs are likely to engage in daily vocal warm-ups that are designed to strengthen their vocal abilities. This process of making music with peers during adolescence fosters an understanding that making music is a distinctly human ability and increases self-confidence (Stephens, 2011). Singing activities outside of high school, such as singing in church, with family, or in a garage band, are also likely to emphasize the different ways people can enjoy singing in their lives in an inclusive environment. It is likely these activities reinforce a growth mindset of singing ability, and

therefore support the premise that participation in high school choir and singing activities are predictors of growth mindset.

As a result of these experiences, students are expected to have developed strong positive beliefs about their ability to sing, which may also have motivated them to persist in singing during high school. This conclusion is consistent with the study by Wise and Sloboda (2008) who emphasized beliefs can be powerful predictors of music participation. As past researchers suggest, students will not remain in activities they do not enjoy or think they will do well in (Eccles & Wigfield, 1995; O'Neill & McPherson, 2002). Therefore, students who orientate more toward a fixed mindset are not likely to be involved in singing activities in high school.

Although there is a weak correlation between taking private voices lessons in both middle school and high school and mindset orientation, it is not a significant predictor for having a growth mindset orientation. This is an interesting find since the main purpose of taking lessons is to improve singing ability, a belief which is at the core of a growth mindset. The fact that taking private lessons is not a significant predictor may indicate these lessons detract from a growth mindset. Perhaps this may be due to the perspective of who receives private instruction and of the instruction itself. Teachers or parents, who perceive their student or child as talented, will encourage and arrange for private voice lessons in order to see how talented he or she can become. For some with a fixed mindset of singing ability, taking private lessons may confirm their talent to themselves as well as to others. However, the cost as well as the small percentage of people who do take private lessons, compared to the larger population who do not, may also contribute to why taking private lessons was not found to be a significant factor.

The item *You are likely to sing sometime in your day* is a predictor for having a growth mindset of singing ability. People are likely to participate in activities they enjoy, or believe they have the potential to improve in. Interestingly, the factor that could possibly be a daily activity, *Sing When Driving*, shows a weak relationship to a high singing mindset orientation score though 94 open-ended responses reported singing while driving in their car. This discrepancy may be explained by the fact that people are not always alone when driving and many prefer to sing when they are by themselves.

When participants were asked to describe the last time they remembered singing, 76% reported singing either "today" or sometime within the current semester. The majority of the responses reflected singing informally to a specific song by a certain artist or along with their iTunes, iPod, radio and/or computer. The results of these open-responses support similar findings by Stephens (2012) who reported the majority of people sing on a fairly regular basis. Interestingly, 47% of students in this study reported they could not sing, yet as mentioned above, 76% of the responses reported singing. Again, perhaps this discrepancy can be explained by a preference by some people to sing while they are alone without fear of being judged by others (Lamont, 2011). This finding could also be reflective of a prevalent belief among Western society that has certain criteria for what a singer is one who sings in a choir or is skilled at singing solos (Pascale, 2005). This belief may explain why many people reported they could not sing, yet were singing in a variety of ways.

**Research Question 3: Influence of Others**

The third research question examined the possibility that family, teacher, and peer attitudes about an individual's personal singing ability may have contributed to his/her

singing mindset orientation. Students who received encouragement from family members or teachers to sing, at some point in their lives, are more likely to have a growth mindset of singing ability than those who were encouraged by friends. This result is similar to previous research by Abril (2007), McPherson and Williamon (2006), and Wigfield et al. (1997) who also reported parents and teachers have a large influence on student musical achievement.

Open-ended response data indicate friends were reported to have provided the majority of both negative and positive feedback. Interestingly, perceptions of the voice being "good" and "not good" were most prevalent from feedback in both categories of positive and negative feedback. These descriptors are similar to themes found in Pascale (2005) and are largely ability-related comments. Few comments were made regarding effort or specific musical qualities that would explain what was "good" or "bad" about their singing. This may reflect a cultural acceptance that singing is a talent one does or does not have (Pascale, 2005; Smith, 2006). In addition, the majority of the participants reported singing in an informal manner. This expected result is similar to a previous conclusion; many people do not sing in front of others because they are concerned with being judged (Lamont, 2011).

**Research Question 4: Self-Evaluation and Intended Participation**

The fourth research question had two parts. First, this study examined whether or not singing mindset orientation could be used to predict people's self-evaluations of their singing quality. The second part of the question explored whether or not singing mindset orientation could be used to predict current and future singing behavior. In answering the first part of this question, singing mindset orientation significantly predicted each

dependent variable of self-evaluation as demonstrated by the significant beta weights. Those with a growth mindset orientation tended to have a positive self-evaluation of their singing ability while those with a fixed mindset orientation reflected a negative self-evaluation. These results align with the nature of each mindset.

Similar to Stephens (2012) who found a large majority of students considered themselves non-singers, this study identifies ($n = 199$) "Can't Sing" and ($n = 206$) "Can sing," yet 322 responses indicated people were singing the day of the survey or within the current semester. This difference may be a reflection of people's perceptions that "to be a singer" means they have to sound like professionals heard on the radio or TV or what they feel a "real musician" would sound like (O'Neill, 2002; Pascale, 2005). As presented earlier, this reinforces that people report singing daily, but did not identify as a singer.

When participants were asked if they believed they could sing, both non-singers and singers reported the theme of "can sing, but can't sing well" in their open-ended responses. This may support findings by Lamont (2011) who suggested that people have a preconceived notion of what singing is. Pascale (2005) also found people who identified themselves as a "non-singer," yet still sang. The highest frequency of responses for those that believed they could *not* sing, stated they lacked the talent necessary to sing and were not "good" at singing. The highest frequency of responses from those who reported they believed they *could* sing was due to someone telling them they could. As predicted, participants who believed they could sing provided more responses regarding "effort" than those who believed they could not sing.

In answering the second part of this question, growth mindset orientation is found to be a significant predictor for all the variables of intended participation in singing

activities. These are expected results because people with a growth mindset of singing ability are likely to participate in singing activities. It is not surprising to find people with a tendency toward a growth mindset of singing ability would engage in singing opportunities where others might judge them. They may see these experiences as opportunities to improve and gain constructive feedback rather than as an obstacle to avoid.

**Additional Questions**

Additional items were included that reflected possible variations of mindset of singing ability: whether people who believed they could sing had a fixed or growth mindset about their singing ability, if improving their skill was important to them, or if they had a fixed mindset and did not identify as a singer. These variables have the highest rate of variance to a growth mindset orientation than any others included in this survey. The most important conclusion from these additional items is the results reinforce that someone who endorses talent as a prerequisite for singing align with a fixed mindset orientation; whereas those who believe singing can be improved as a result of effort, reflect a growth mindset of singing ability.

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**Implications for Music Education**

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The results from this study have specific implications for music educators. The following suggestions are specific to (a) reinforcing a growth mindset, (b) providing a variety of singing, (c) modeling growth mindset in the classroom, (d) assessing student singing, and (e) providing feedback related to student effort and strategy.

**Reinforce a Growth Mindset**

The results of this research have multiple pertinent implications for music

educators, especially those working with young children. Teaching a growth mindset of

singing ability to students at every level of instruction would benefit teachers and

students. Introducing this in elementary schools might have a marked influence on the

relationship students will have with singing throughout their lifetimes. Results from this

study indicate that having a growth mindset related to one's singing ability has been

shown to predict whether or not someone has a positive self-evaluation of their individual

singing. Middle and high school teachers would likely see increased participation in their

programs if elementary teachers reinforced this mindset in their classrooms. This would

also strengthen the possibility of interacting with students who were excited about

learning music and were not thwarted from setbacks.

As a result of this mindset development, students would receive the benefits

associated with singing, and could enjoy this skill throughout their lifetime. Instead of

being avid consumers of music, which is so prolific in this country, they would be avid

*participants*. In addition, reinforcing this growth mindset foundation in elementary

schools would have long-term benefits throughout their school experiences by

influencing autonomy over their own learning. These implications support Ritchie and

Williamon (2011) who endorsed the value in identifying student self-beliefs at the very

beginning of their musical training in order to create a strong foundation that would last a

lifetime.

Assessing student mindset of singing ability will help inform teachers of the core

beliefs students have about their potential to learn and to improve their singing ability.

Mindset provides clues for what may help or hinder student progress. This insight can assist teachers in choosing appropriate interventions and teaching strategies necessary to improve students' understanding and skill development. Without these interventions, students will miss out on the benefits of instruction because they truly believe they cannot improve their ability to sing.

Since past researchers have suggested people can shift into a growth mindset, those students with a fixed mindset about singing who *do* believe they can sing would also benefit from this assessment (Dweck & Master, 2009). Students with a fixed mindset have specific goals and patterns of behavior. Teachers could preempt possible negative consequences of a fixed mindset with application of appropriate interventions and teaching strategies to reinforce a growth mindset.

Teachers should educate students of the power their beliefs have over their potential to improve their individual singing ability. Helping students to identify their beliefs, explore what may have influenced those beliefs, and eliminate any inaccuracies that may have shaped these beliefs, will increase student confidence in their singing ability.

**Variety of Singing**

Perhaps teachers should consider providing multiple singing examples, in a variety of contexts. This may expand students' views of what singing looks and sounds like. Students also might benefit from multiple opportunities to engage in informal singing experiences aside from the traditional formal choral singing that occurs in many schools. While these experiences are important, exposing students to other means of singing may help them to understand that singing is a basic human ability and can serve a variety of functions. Perhaps these experiences could help students feel free to pursue their own

singing interests without feeling pressure to sing the "right" kind of music in the "right" manner. Providing multiple examples for students to experience how humans use singing to express emotions, celebrate, communicate, show respect, display national pride, and other examples of non-classroom singing will help students understand there are many legitimate ways to sing, both in formal and informal ways. Expanding the perceptions of what a *singer* is will have powerful implications for students.

It is also important to remind students their voice is unique and that comparing their voice to other students may hinder their ability to enjoy their own singing (Dweck & Master, 2009). If teachers were successful in providing a wide range of singing opportunities, perhaps students would come to appreciate their individual voices.

Teachers should also examine what singing varieties are provided in their current curricular model. Students could engage in singing activities in school that differ from the traditional choral model. Including more opportunities to sing vernacular music would likely have multiple benefits. Not only would more students likely enroll in these courses, but they could also study the unique voices of past and current musicians and explore the many dimensions that made their music appreciable. Exploring the different nuances when singing songs from different countries would also provide students with another opportunity to experience the range of singing from a global perspective.

These research findings reinforce the value of singing in a variety of ways throughout the K-12 school experience and are especially critical in elementary school. Beliefs regarding singing ability can be traced back to people's earliest musical experiences, thus exposing elementary students to the different ways singing can be experienced is crucial (Lehmann et al., 2007; Woody, 2004). Since students who were

likely to sing during their day were more likely to exhibit a growth mindset, incorporating a variety of singing styles among the daily activities in elementary classrooms is critical.

**Modeling Growth Mindset in the Classroom**

Teachers may have more success if they reflect on which mindset they endorse in their classroom. Evaluating their own teaching could provide clues to which strategies may unintentionally endorse a fixed mindset. For example, consistently calling on students with the best voices to model singing for others, sing solos, and participate in choral festivals may reinforce a fixed mindset for the singers who are never chosen. Instead, teachers should consider providing an opportunity for any student who volunteers, not just the "best" singers, to sing in front of others at some point in the semester.

Teachers should also consider the impact that audition-only ensembles have on students who are not selected for membership. This is a challenging issue for today's music educators. A certain hierarchy of choirs, prevalent in today's school music programs, communicates to students which choirs are the best or more important. Although there is merit in providing musical opportunities to engage high achievers, there are other social and educational ramifications as a result. Teachers who are purposeful in creating a sense of choral community throughout the entire department may help alleviate this perceived hierarchy. Students would benefit from opportunities where all choirs sang together in formal and informal ways. Fostering pride in being a part of this singing community would communicate all voices are important and valued.

Reevaluating how students are presented at concerts, in terms of which choirs have specific performing attire and which choirs are consistently the last to perform, could also provide teachers with opportunities to reinforce this sense of community in their programs. Teachers could redesign current course offerings to provide students a variety of musical style choices to sing. With greater emphasis placed on musical learning, rather than performance, students may have the opportunity and time to fine-tune their singing skills in comparison to ensembles that often are pressured by nearing performances to polish specific songs. Teachers who reflect on their current teaching strategies and procedures can identify ways to model a growth mindset of singing ability to their students.

Modeling this mindset in the classroom is a key strategy for educators to reinforce with students that singing is a skill improved with practice. Providing students with possible scenarios and mindset education related to singing skill development will help them to understand the outcomes of each mindset. Helping students focus on strategies to be successful will increase their likelihood to improve and enjoy their singing experiences. Providing students with examples of a fixed mindset related to singing ability can help them to understand how unproductive and wasteful it is to negatively judge or criticize their voices, and of the many opportunities they will miss out on as a result.

Teachers also should consider being purposeful in creating a sense of teamwork in their classrooms and ensembles to foster a safe learning environment where all ideas are valued. Fostering this environment is necessary in order for students to feel comfortable

trying new things with their voices, the freedom to make mistakes necessary in learning, and help students to understand how to recover from any setbacks.

**Assessing Student Singing**

Researchers emphasize that without specific feedback, students come up with their own interpretations of their performance in an achievement setting (Dweck & Master, 2009). Students in music classes and ensembles will benefit if they are assessed individually during vocal development, so they can measure their own progress and increase autonomy over their own learning. Assessment can help eliminate the mystery of why some people sing well while others may struggle. For example, if a singer were told he/she tended to be under pitch in the phrases that are higher in the tessitura, then it provides an example of where the student's skill is currently and provides an area to improve. The teacher could intervene with some strategies to increase the breath support through those higher phrases. This provides clear and specific feedback related to a musical skill. When teachers provide specific and accurate criterion-referenced feedback after assessing student singing, students are more likely to come to understand their current skill level and the strategies necessary to improve. This process can also help students train their ears to specific musical nuances that impact tone production. If students understand how to create a pleasing tone, they will be able to reproduce this in the future. Video and audio taping students during different stages of singing development are effective mechanisms to provide students with examples documenting individual growth.

Student autonomy will likely increase when student and teacher work together as a team to establish personal and individualized goals. It may also increase students' self-

evaluation of singing ability. Goals challenge students to keep stretching and growing musically no matter what ability level. When students achieve a goal, they are likely to experience a sense of satisfaction, which also helps associate positively to learning situations. Again, having a growth mindset related to their singing ability can help students concentrate on their individual growth rather than comparing themselves to their peers. If they feel good about their own ability to improve their singing, they are also likely to continue singing in their future.

The challenge in providing this meaningful assessment in today's schools is that choirs are often evaluated as a group rather than as individual voices forming the ensemble. Because there are many benefits of assessing individual singing that may ultimately increase the quality of singing in the ensemble, perhaps teachers should consider fewer large-group performances to allow more time to focus on skill development during class.

**Provide Feedback Related to Student Effort and Strategy**

Therefore, because students are likely to encounter challenges or obstacles in the learning environment, teachers can help prepare students to persevere by reinforcing effort and providing appropriate strategies to help students succeed (Dweck & Leggett, 1988). Students will benefit from teachers who provide feedback in the music classroom that is related to students' effort rather than their ability (Austin et al., 2006; Dweck, 2000, 2007; Lehman et al., 2007; Woody, 2001). Without this key distinction, the profession may unwittingly contribute to a nation's fixed mindset indicating innate talent is necessary for singing.

Within a growth mindset perspective, reinforcing skill development and musical concepts will give students the tools necessary to improve their vocal development. Teachers who model this in their classrooms can help shift students into viewing singing ability through a growth mindset. In a choral rehearsal, teachers who are purposeful about providing feedback specific to skill development will help students understand how to replicate these effective techniques in the future. Students should also be asked to reflect upon their effort in improving their voices to help them be accountable for their own learning.

Teachers who reinforce a growth mindset will also help their students provide peer feedback that is accurate and constructive. Open-ended responses gathered in this study supported others that identified teachers, peers, and friends as having a significant influence on students' future music participation. Therefore, guiding students in how to provide peer feedback through the lens of a growth mindset will increase the likelihood of these peer interactions being positive influences. Students who are taught how to support and encourage each other through constructive criticism would perhaps decrease the possibility they will make uninformed and hurtful comments. Teachers who foster this safe singing environment for students will likely see an improvement in students' willingness to try new things to grow their musical ability. It would also be beneficial to educate parents and about a growth mindset so they can reinforce this at home and to help support their child throughout his or her vocal development.

## Recommendations for Future Research

The current study provided evidence that a growth mindset of singing ability is a significant factor in student motivation to participate in singing activities. Because there

are few studies that investigated the relationship between mindset and musical skill development, there is much that can be learned with further study. The following recommendations for future research are provided.

Future research should attempt to identify teacher feedback in the choral classroom consistent with each mindset of singing ability. This might provide insight into student enrollment in choral classes. Many researchers support providing appropriate feedback related to student effort, yet few have provided specific examples framed to reflect each mindset. These examples may be beneficial for teachers to help them adopt growth mindset related feedback in their classroom in order to encourage future participation in singing activities.

Previous studies have shown a fixed mindset of a specific ability can be changed after learning about mindset and the impact it has on achievement and skill development. Dweck (2007) reported that student motivation and effort improved as a result of learning about growth mindset in the math classroom. Future studies could explore if these same results could be replicated with the domain of singing. A dissertation by Anderson (2010) suggested that statistics is a challenging discipline in regards to student motivation. The researcher wanted to know if the students were to receive feedback framed within a growth mindset, would help students adopt a growth mindset about statistics. Transferring this same process to singing may provide interesting insight to determine if those with a fixed mindset of singing ability can come to adopt a growth mindset. This would be especially informative if it included a population of aging adults who spent the majority of their lives with the belief they could not sing, but wished they would have had that ability and encouragement along the way.

New studies related to first-year college music majors and retention of these students would also provide value to the profession. Exploring the mindsets of incoming first-year college music majors and tracking how many of those students remain in the program after their first year may assist college music programs and to maintain student enrollment. For many students, this may be the first time they receive criticism about their voice. Investigating how students react to "failure" situations may help provide information of the relationship each mindset may have for which students remain in the program.

Studies are also encouraged to assess the mindset of first-year music education majors as part of the application process for acceptance into college music programs and then track those students to graduation. This may provide insight into which mindset is more predictive of academic success.

The results of this study shed new light on an important contributing factor for why some people sing and others do not. Mindset of singing ability provides a valuable perspective to individual motivation to sing. This simple but key distinction can allow music educators to reinforce a growth mindset in their current teaching practices that will support positive beliefs related to learning and singing development. Students who benefit from this instruction are likely to enjoy singing throughout their lifetime.

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**APPENDIX A: SURVEY SPECIFICATIONS TABLE**

**Mindset of Singing Ability Survey (MSAS)**
**Specifications Table for the Survey**

Survey constructs:

| Mindset of Singing Ability | Singing Identity | Musical Experiences | Intended Participation | Influences |
|---|---|---|---|---|
| 2 | 43 | 23 | 39 | 16 |
| 4 | 44 | 24 | 40 | 17 |
| 5 | 45 | 25 | 41 | 18 |
| 7 | 46 | 26 | 42 | 19 |
| 9 | 49 | 27 | | 20 |
| 11 | | 28 | | 21 |
| 13 | | 29 | | 22 |
| 15 | | 34 | | 47 |
| 30 | | 35 | | |
| 31 | | 36 | | |
| 32 | | 37 | | |
| 33 | | 38 | | |
| | | 48 | | |

**Total # of questions for each construct:**

| 12 | 5 | 14 | 4 | 8 |
|---|---|---|---|---|

# APPENDIX B: INTERNAL REVIEW BOARD LETTER OF PERMISSION

Nebraska
Lincoln

October 17, 2012

Susan Cogdill

School of Music

6100 Vine St. #S113 Lincoln, NE 68505-2869

Rhonda Fuelberth

School of Music

347 WMB, UNL, 68588-0100

IRB Number: 20121012879EP

Project ID: 12879

Project Title: The identification of factors contributing to college freshman's mindset of singing ability and the relationship of that mindset to intent to participate in singing activities.

Dear Susan:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46). Your project has been approved as an Expedited protocol, category 7.

Dates of EP Review: 09/26/2012 & 10/16/2012

You are authorized to implement this study as of the Date of Final Approval: 10/17/2012. This approval is Valid Until: 10/16/2013.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:
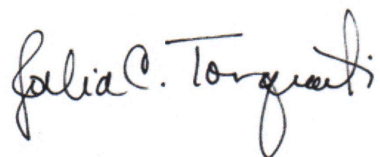
* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;

* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;

* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;

* Any breach in confidentiality or compromise in data privacy related to the subject or others; or

* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

For projects which continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued by completing the enclosed Protocol Final Report form and returning it to the Institutional Review Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Julia Torquati, Ph.D.

Chair for the IRB

**APPENDIX C: CONSENT TO USE MEASUREMENT**

## Re: Request to use Dweck's Theories of Intelligence Scale

Maureen Sullivan [maureen.sullivan@stanford.edu]
**Sent:** Tuesday, August 28, 2012 4:54 PM
**To:** scogdill@huskers.unl.edu

Dear Susan,

On behalf of Professor Dweck, you may use the Theories of Intelligence Scale as you have indicted below.

Maureen


On Aug 24, 2012, at 11:36 AM, scogdill@huskers.unl.edu wrote:

> Mrs. Sullivan,
>
> I was wondering if you could please forward this request to Dr. Dweck. I would like her permission to use the Theories of Intelligence Scale Self Form For Adults in my study for my dissertation modifying it to identify the mindset of singing ability of college freshman.
>
> I greatly appreciate your time, and hope you are enjoying the start of another sucessful semester. : )
>
> Susan Cogdill
> PhD Music Education
> University of Nebraska-Lincoln
>

# APPENDIX D: PARTICIPANT RECRUITMENT SCRIPT

## Participant Recruitment Script

My name is Susan Cogdill. I am currently a doctoral student in music education at the University of Nebraska-Lincoln. The study is investigating musical perceptions and behaviors of college freshman. This research is part of my dissertation for the Ph.D. in music education at the University of Nebraska—Lincoln. Dr. Rhonda Fuelberth and Robert Woody are my advisors.

**PURPOSE OF STUDY:**
Your participation in this study is requested in order to gain a deeper understanding of what influences and experiences may shape a person's musical beliefs and behaviors. The researcher will ask you to complete a brief survey about your current musical beliefs and past experiences. The survey will take place in two sessions: today's will take approximately 12 minutes to complete, and next week I will return with a short, approximately two minute survey. You will be allowed to complete this survey during this class time. There are no known risks or direct benefits associated with taking part in this study.

The principal investigator will be the only one to have access to the information that is gathered in the survey. No individual will be identified in any way once the study is completed and results are established.

Participating in this study is voluntary. Your decision to participate or not to participate will not affect your relationship with the researchers or the University of Nebraska-Lincoln. Your decision will not negatively affect your grades. You have the right to decide not to participate in this survey without jeopardy to your academic status, GPA or standing with the University of Nebraska-Lincoln. If you choose to answer the following survey questions, it indicates your consent to participate in this research study. Please fill out the following pages if you agree to participate in this survey. A consent form has been provided with this information. You are encouraged to keep this consent form for your records.

Three $15 iTunes Gift Cards will be awarded to three participants as an incentive to completing this survey. Your email address will be collected at the conclusion of next week's survey only if you wish to participate in this drawing, and will not be used for any other purpose than for the drawing. The participants will be randomly selected from all participants who complete the survey. These students will be notified by email if they are the winners of one $15 gift card within two weeks after all surveys have been completed. You will detach the section including your email and turn it in separate from your responses. The odds of winning the gift cards are 1 in 140.

If you have any further questions or concerns about participating in this survey, please contact me at scogdill@huskers.unl.edu or by contacting the Westbrook Music Building at (402) 472-2503 and asking for Ms. Cogdill. You may also direct questions to my advisor, Dr. Rhonda Fueberth at rfuelberth2@unl.edu or by calling (402) 472-3349. If you have any questions concerning your rights as a research project participant that may have not been answered by the investigator or to report any concerns about the project, you may contact

the University of Nebraska—Lincoln Institutional Review Board, (402) 472-6965.

Sincerely,

Susan H. Cogdill
Graduate Teaching Assistant/Music Education
University of Nebraska-Lincoln

## APPENDIX E: INSTRUMENT ASSESSMENT FORM
### Mindset of Singing Ability Survey (MSAS)

Instructions: Please read the survey. The researcher invites your feedback about the survey by checking the appropriate responses.

1.  Are the directions provided in the survey clearly stated?  ☐ Yes ☐ No

2. Will the participants fail to answer any questions?  ☐ Yes ☐ No

3. Did you detect any errors in spelling or word use?  ☐ Yes ☐ No

   If yes, please describe where:

4. Is the format used efficiently in this survey?  ☐ Yes ☐ No

5.  Are the statements appropriate for the purpose of the study?  ☐ Yes ☐ No

6.  Are the thirty-seven belief statements related to the four constructs associated with mindset of singing ability: (1) Mindset of Singing Ability, (2) Past Singing Experiences, (3) Other Influences Shaping Singing Beliefs, and (4) Future Participation?

   ☐ Not related

   ☐ Moderately related

   ☐  Closely related

7.  If there were a statement that does not match the construct, please list the question number below and state what construct you think would be a better match.

   Four constructs
   1) Mindset of Singing Ability

   2) Past Singing Experiences

   3) Other Influences Shaping Singing Beliefs

   4) Future Participation

8.  Any other comments you would like to share about the survey?

# APPENDIX F: PARTICIPANT CONSENT FROM

**Nebraska** Lincoln
UNIVERSITY OF

IRB# 20121012879EP
Date Approved: 10/17/2012
Valid Until: 10/16/2013

School of Music

**Informed Consent Form**

**Introduction**
This study attempts to collect information about past influences, experiences, and current beliefs that shape perceptions of singing ability.

**Procedures**
You have been invited to participate in this study because you are a freshman at the University of Nebraska-Lincoln. This study will be conducted in two sessions: (1) today's survey consists of 49 questions which will take approximately 10-12 minutes to complete and (2) next week's 8-item survey will take approximately 2 minutes to complete. Questions are designed to identify your singing beliefs and behaviors.

**Risks/Discomforts**
There are no known risks associated with this project.

**Benefits**
There are no direct benefits for participants. However, it is hoped that through your participation, researchers will learn more about what influences beliefs in one's singing ability.

**Confidentiality**
All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than then primary investigator will have access to them.

**Compensation**
There is no compensation for your participation in this survey. However, students who choose to participate in the study can enter a drawing for one of three $15.00 iTunes Gift Cards. After completion of the second survey given next week, you will be invited to provide your email address on a separate form if you choose to participate in the drawing. After all surveys have been collected, three email addresses will be selected as the winners. Students can expect to receive an email within two weeks of the date they completed the second survey if they won the drawing. iTunes gift cards will be provided electronically. Participants will have a .71% chance of winning one of the gift cards.

**Participation**
Participation in this research study is completely voluntary. If you choose to answer the following survey questions, it indicates your consent to participate in this research study. Please fill out the following pages if you agree to participate in this survey. You may keep this consent form for your records. You have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your academic status, GPA or standing with the university.

**Questions about the Research**
The information that is obtained in this study may be published in journals or presented at meetings but the data will be reported using pseudonyms assigned at the outset of the study. If you have questions regarding this study, you may contact Susan Cogdill (principal investigator), at (402) 472-2503, scogdill@huskers.unl.edu or Dr. Rhonda Fuelberth (faculty advisor) at (402) 472-6041.

**Questions about your Rights as Research Participants**
If you have questions you do not feel comfortable asking the researcher, you may contact University of Nebraska-Lincoln Institutional Review Board, (402) 472-6965.

Susan H. Cogdill, Ph.D. Candidate · Graduate Teaching Assistant
School of Music · University of Nebraska-Lincoln
356 Westbrook Music Building · Lincoln, NE 68588-0100 · (402) 472-6041 scogdill@huskers.unl.edu

# APPENDIX G: MINDSET OF SINGING ABILITY SURVEY (MSAS)

# Questionnaire I

**Participant Code: _____** (first two letters of last name + last four digits of cell phone number, ex. Br4499

## Questionnaire I

**GENERAL INFORMATION** (Check one)

**Please list your major:** _____

**Please specify gender:** ☐ Female    ☐ Male

**If music student, please specify major:** ☐ Music Education    ☐ Performance    ☐ Composition    ☐ Other

**Specify major applied performance area:** ☐ Voice    ☐ Brass    ☐ Woodwind    ☐ Strings

☐ Percussion    ☐ Keyboard

## MUSICAL BELIEFS

**Directions:** Read each statement. Circle the answer that shows how much you agree or disagree with the following statements. There are no right or wrong answers. I am interested in your ideas about aspects of music.

**1. You prefer to listen to the same style of music as you did in middle school.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**2.  You have a certain amount of singing ability, and you can't really do much to change it.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**3. While listening to music, you focus on the instruments being played more than the lyrics being sung.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**4. Your singing ability is something about you that you can't change very much.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**5.  No matter who you are, you can significantly change your potential as a singer.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**6. You would rather listen to live music than a recording.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**7.  To be honest, you can't really change how well you sing.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**8. You would prefer to work backstage for a professional music group rather than master an instrument to perform onstage.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**9. You can always substantially change how well you sing.**

> Strongly Agree       Agree       Mostly Agree       Mostly Disagree       Disagree       Strongly Disagree

**10. You would enjoy learning more about the aspects of the music business.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**11. You can learn new things, but you can't really change your basic singing ability.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**12. You enjoy playing video games such as Guitar Hero and Rock Band.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**13.  No matter how much singing potential you have, you can always change it quite a bit.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**14.  You would enroll in a music appreciation course if it focused on your favorite style of music.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**15.  You can change even your basic singing level considerably.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

## SINGING INFLUENCES

**16. Singing was important to one or both of your parent(s)/guardian(s).**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**17. As a child, you had a family member that encouraged you to sing.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**18. You enjoyed your music classes in elementary school.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**19. You had a friend(s) that urged you to sing when you were younger.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**20. In middle or high school, you had friends that thought singing was cool.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**21. You had a teacher that encouraged you to sing.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**22. Your music teacher told students who *couldn't* sing well to mouth the words at a concert.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

| SINGING BEHAVIORS |
|---|

**Directions:** Fill in the blank

**23. In each of the stages of childhood below, how many years did you participate in school choir?**

        Elementary (Grades K-5)   =   \_\_\_\_\_  out of 6 years

        Middle School (Grades 6-8)  =   \_\_\_\_\_  out of 3 years

        High School (Grades 9-12)  =   \_\_\_\_\_  out of 4 years

**24. How many years did you sing _outside of school_** (example: church/community choir, music group with friends, sing with family on a regular basis? **(Fill in the blank)**

        Elementary (Grades K-5)   =   \_\_\_\_\_  out of 6 years

        Middle School (Grades 6-8)  =   \_\_\_\_\_  out of 3 years

        High School (Grades 9-12)  =   \_\_\_\_\_  out of 4 years

**25. How many years have you taken private voice lessons? (Fill in the blank)**

        Elementary (Grades K-5)   =   \_\_\_\_\_  out of 6 years

        Middle School (Grades 6-8)  =   \_\_\_\_\_  out of 3 years

        High School (Grades 9-12)  =   \_\_\_\_\_  out of 4 years

**Directions:** Read each statement. Circle the answer that shows how much you agree or disagree with the following statements.

**26. You sing along when the National Anthem is sung at sporting events.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**27. You spend at least one hour each week listening to someone singing on your computer, stereo, iPod, etc.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**28. When you are driving and listening to music, you often sing along.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**29. You often sing in the shower or tub.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**30. You sing well because you were born with talent.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**31. You practice singing in order to improve your voice.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**32. You can't sing because you weren't born with that talent.**

    Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**33. Singing isn't an activity you care much about.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**34. You enjoy watching reality television singing competition shows such as American Idol, The Voice, X-Factor, or Nashville Star.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**35. You sing along to the radio or to a CD, iPod, mp3 file, etc.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**36. You sing only when you are certain no one will hear you.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**37. You are likely to sing sometime in your day.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**38. You sing "Happy Birthday" when the occasion calls for it.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagre

**39. You are certain to sing sometime in the future; either by yourself or with others.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**40. If a researcher were trying to identify favorite songs of college students, you would be willing to make a recording of yourself singing 10 seconds of your favorite song.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**41. If given the opportunity to sing karaoke with friends, you would do it.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**42. If offered free voice lessons, you would do it.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

## SINGING IDENTITY

**43. You believe you are a good singer.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**44. You have an overall negative opinion about your ability to sing.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**45. You sing, but do not think of yourself as a singer.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

**46. You are tone deaf.**

Strongly Agree     Agree     Mostly Agree     Mostly Disagree     Disagree     Strongly Disagree

---

**Directions: Write a brief response to each of the following statements in the space provided.**

**47. Recall when someone commented on your singing ability in the past and describe what he or she said.**

**48. Describe the last time you remember singing including: how old you were, what were you singing, why were you singing, etc.**

**49. Respond to <u>one</u> of the following statements that best describes you:**

a. If you believe you CAN'T sing, describe why you believe this.

b. If you believe you CAN sing, describe why you believe this.

# APPENDIX H: QUESTIONNAIRE II

**Participant Code: _____** (first two letters of last name + last four digits of cell phone number, ex. Br4499)

## Questionnaire II

**Directions:** Read each statement. Circle the answer that shows how much you agree or disagree with the following statements. There are no right or wrong answers. I am interested in your beliefs about singing.

**1. You have a certain amount of singing ability, and you can't really do much to change it.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**2. Your singing ability is something about you that you can't change very much.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**3. No matter who you are, you can significantly change your potential as a singer.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**4. To be honest, you can't really change how well you sing.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**5. You can always substantially change how well you sing.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**6. You can learn new things, but you can't really change your basic singing ability.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**7. No matter how much singing potential you have, you can always change it quite a bit.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree

**8. You can change even your basic singing potentials considerably.**

Strongly Agree    Agree    Mostly Agree    Mostly Disagree    Disagree    Strongly Disagree