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Creating Talent: The Effect of Environment on the Development of Musical Skill

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By

Nathan Jeffrey Herfindahl

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Abstract

Despite literature investigating the effects of ecology on student development, very little research has been conducted concerning the influence of the adolescent living environment on the development of musical skills related to music performance. Gaining a clear understanding of adolescent environmental factors' influence on musical skill development will afford more students the opportunity to participate in music education and performance. Through a qualitative research approach, this study aims to investigate the effect of adolescent living environment on musical skill development by interviewing eight professional opera singers. In exploring the findings from this research, similarities in adolescent living environment have been evaluated, their effects on skill development has been investigated. This study illustrates how environmental factors related to the individual's circumstance, opportunity, education, and ideology influences musical skill development rather than innate talent in predicting professional success and expertise. This research provides evidence of the universality of music education for all learners and highlights the capacity of all human beings to develop skills. Utilizing this research, educators across all disciplines can provide data supporting the influence of environmental factors on skill development. Understanding how misconceptions of talent discourage music participation and providing evidence that all students have a capacity towards musical skill development, this research affords music education a valuable tool in advocating for musical opportunities for all learners.

Keywords: Exceptional ability, expertise, gift, innate capacity, music, potential, prodigy, specific ability, talent

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CHAPTER ONE: INTRODUCTION

Overview

As long as human beings have been expressing themselves creatively through music performance, assumptions surrounding the innate qualities of performers have accompanied their songs. Misconceptions of talent have been largely developed upon the iceberg illusion of performance, wherein onlookers, only witnessing a small percentage of the activity involved with performance, conclude that they are the consequence of special gifts.[1] Conversely, performing artists, having been involved in every aspect of the process of music performance and preparation, understand that it is a combination of factors that predict great performance. Author Geoff Colvin argues that many researchers now agree that specifically targeted innate abilities are simply works of fiction. Essentially, no individual is a natural-born instrumental virtuoso, salesman, or surgeon.[2] Scripp writes, "It is hard work, fortunate circumstances, good teachers, and an absolute passionate devotion to one's personal growth that predict great performance and good work."[3] In devising conclusions about the catalyst for musical skill development and quality musical performance, this research has investigated factors in the adolescent environments of professional musicians. The study of ecology, although well-established in identifying the influence of environmental variables on adolescent development, has only minimally been considered in identifying these influences on music and music

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[1] Matthew Syed, *Bounce,* (New York: Harper Collins, 2010), quoted in Lawrence Scripp, Devin Ulibarri, and Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent: Creating Music Education Policy that Advances Music's Essential Contribution to Twenty-First-Century Teaching and Learning," *Arts Policy Review* 114, no. 2 (2013): 64.

[2] Geoff Colvin, *Talent is Overrated: What Really Separates World-Class Performers From Everybody Else,* (New York, NY: Penguin Random House LLC, 2008), 7.

[3] Lawrence Scripp, Devin Ulibarri, and Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent," 74.

performance. This research aims to investigate adolescent environmental factors' effects on the development of professional-caliber musical skills.

Background of Topic

The misconceptions of talent present one of the most pressing challenges to music education policy in the modern era.[4] For music education in the 21st century to develop a new consensus establishing its essential mission and purpose, educators, parents, and education administrators must understand the implications of the myths and misconceptions of talent.[5] Misconceptions of prodigious talent have existed for centuries, yet recently flaws in this ideology have become more apparent. Concerning this topic, Syed writes, "Child prodigies amaze us because we compare them not with other performers who have practiced for the same length of time, but with children of the same age who have not dedicated their lives the same way."[6] Exceptional abilities observed in children and savants are consistent with all the characteristics of acquired skills, most of which can be easily acquired through known training methods. However, some are likely more easily acquired during childhood.[7] Wolfgang Amadeus Mozart, considered by many to have been born with innate, prodigious talent, has more recently been believed to have a musical skill that was "developmentally ordered and benefitting enormously

[4] Lawrence Scripp, Devin Ulibarri and Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent," 56.

[5] Ibid.

[6] Matthew Syed, *Bounce,* 57.

[7] K. Anders Ericcson, Ralf Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance." *Psychological Review.* 100. No. 3 (1993): 396.

from circumstances that supported a prodigious amount of guided practice."[8] Critics, including Schonberg, argue that Mozart developed late as a composer, as he wrote most of his great works after composing for over twenty years.[9]

The same ideologies of innate ability predetermining musical aptitude that exist within the world of musical performance are also present concerning athletic achievement. Professional athletes like Muhammad Ali, Michael Jordan, Babe Ruth, Bobby Jones, Wilma Rudolph, and Jackie Joyner-Kersee were all born unexceptional in their athletic attributes.[10] Each encountered unique challenges in achieving their athletic goals having not been blessed with the physical traits that would exemplify them within their athletic disciplines. Despite their athletic hindrances, each of these athletes transformed themselves by working more diligently than their competition and benefitting from their environments' qualities. Joyner-Kersee stated, "Some might attribute my transformation to the laws of heredity, but I think it was my reward for all those hours of work on the bridle path, the neighborhood sidewalks and the schoolhouse corridors."[11]

Innate talent in distance running has long been attributed to runners from East Africa, specifically Kenya and Ethiopia. However, upon further investigation, this ideology comprises logical flaws as well. Concerning runners from Kenya, a disproportionate number of top-distance runners originate from the town of Eldoret. Within this town, a small district, the Nandi, has

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[8] Lawrence Scripp, Devin Ulibarri and Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent," 67

[9] Ibid.

[10] Carol S. Dweck, *Mindset: Changing the Way You Think To Fulfil Your Potential* (New York: Random House, 2006), 85-88.

[11] Jackie Joyner-Kersee and Sonja Steptoe, *A Kind of Grace: An Autobiography of the World's Greatest Female Athlete*, (New York: Warner Books, 1997) quoted in Carol S. Dweck, *Mindset*, 88.

produced nearly half of the world's elite distance runners, even though it comprises less than two percent of the population of Kenya.[12] Fred Hardy, a former American college track coach, famously said, "If one were to circumscribe a radius of sixty miles around the town of Eldoret, you would get about 90 percent of the top Kenyan athletes. Something special has happened here in the Nandi Hills."[13]

Similarly to their southern neighbors, runners from Ethiopia disproportionately come from a region known as Arsi. This region, although accounting for less than five percent of the population of Ethiopia, claims 38 percent of the country's elite marathon runners.[14] Eldoret and Arsi share a remarkably high percentage of elite distance runners and reside among their regions' highest altitudes. Syed writes, "Altitude training has long been used by endurance runners to improve performance because the thin air forces the body to produce more oxygen-carrying red blood cells, which, in turn, boosts endurance."[15] Alone, living at altitude does not create running success. However, the remarkable fact that most Kenyan distance runners ran remarkably long distances to school, sometimes more than twenty kilometers per day, contributes to a persuasive explanation for their running prowess.[16] Many Kenyan children run for more than eighty minutes per day, seven hours per week, or two hundred fifty hours per year. This extensive running accounts for almost three thousand hours by the time they reach their sixteenth birthday. As researcher Yannis Pitsiladis writes, "Recently, we measured the running economy of Kenyan

[12] Matthew Syed, *Bounce,* 260.

[13] Ibid.

[14] Ibid., 272.

[15] Ibid.

[16] Ibid., 273.

children who use running as a means of transport to a school located in an area of extreme elevation and found values typical of well-trained endurance athletes."[17]

Brazil has long been known for producing many of the most talented soccer players in the world. Traditionally, this phenomenon has been attributed to natural variations in the hereditary of individuals from this region. Simon Clifford, soccer coach and researcher, argues a secondary explanation related to variations in the adolescent living environment. In attempting to capitalize on the methodologies of Brazilian soccer training, Clifford traveled to São Paolo, Brazil to discover something that might explain the aptitude of the soccer athletes from this region. Upon arrival in Brazil, Clifford was surprised to discover a game unknown to him. He watched young Brazilian children playing a game resembling soccer on a small field with a small, heavy ball. This game was played on a basketball-sized patch of concrete, wooden floor, or dirt with five or six players on each side, rather than traditional soccer's eleven. This game, known as futsal, was invented in 1930 as a rainy day training aid by an Uruguayan coach but was adopted by Brazil, who codified the first official rules in 1936.[18]

Further investigation into the player's bios of professional Brazilian soccer stars highlights the impact of this training on the development of athletic skills. Famous Brazilian soccer athletes from Juninho to Ronaldo attribute their skill development to playing futsal in their youth. Coyle writes, "The game is all about looking for angles and spaces and working quick combinations with other players. Ball control and vision are crucial, so that when futsal

[17] Matthew Syed, *Bounce*, 273.

[18] Daniel Coyle, *The Talent Code: Greatness Isn't Born. It's Grown,* (London: Random House Business, 2009), 26.

players play the full-size game, they feel as if they have acres of free space in which to operate."[19]

Misconceptions of innate talent exist far beyond the fields and concert halls of athletic and musical performance, including within the perceived understanding of the utility of the Intelligence Quotient (IQ) Test. The common understanding of the IQ test is that it measures intellectual aptitude or the unchangeable intelligence of an individual. The reality of its intended usage is far different. Alfred Binet, the inventor of the IQ test, created the test to identify children who were not benefiting from the public school system in Paris so that new educational programs could be designed to help get them back on track.[20] Binet believed that proper education and practice could create fundamental changes in intelligence.[21] In one of his most notable writings on educational theory, *Modern Ideas About Children,* Binet writes:

> A few modern philosophers assert that an individual's intelligence is a fixed quantity, a quantity which cannot be increased. We must protest and react against this brutal pessimism. With practice, training, and above all, method, we manage to increase our attention, our memory, our judgement and literally to become more intelligent that we were before.[22]

Hungarian philosopher Laszlo Polgar developed one of the most in-depth studies of the effects of adolescent living environment on the development of skill when he enlisted his children in an attempt to create world-class chess masters. Polgar, an educational psychologist, was one of the first advocates for the practice theory of expertise.[23] As Syed writes of Polgar,

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[19] Daniel Coyle, *The Talent Code: Greatness Isn't Born. It's Grown,* 27.

[20] Carol S. Dweck, *Mindset: Changing the Way You Think To Fulfil Your Potential*, 5.

[21] Ibid.

[22] Alfred Binet, *Modern Ideas About Children,* quoted in Carol S. Dweck, *Mindset: Changing the Way You Think To Fulfil Your Potential,* 5.

[23] Matthew Syed, *Bounce.* 65.

"He lobbied local government officials, arguing that an emphasis on hard work rather than talent could transform the education system if given half a chance."[24] Without the government's support, Polgar created an experiment to prove his theories. During his daughter's formative years, Polgar, aided by master chess instructors, established a curricular regiment to build chess mastery. As a result, each of his daughters developed into chess grandmasters. His story is exceptional because it illustrates the principles of deliberate practice and highlights the influence of variations in the adolescent living environment. Although societally attributed to innate aptitude, the tremendous success that each of Polgar's three daughters enjoyed validated the environment's power on skill development. Given that Laszlo was only a mediocre player, and his wife had demonstrated no chess ability at all, it can be concluded that they did not pass on any innate chess ability to their daughters.[25]

Musician and philosopher John Blacking wrote about the influence of social and cultural contexts in deciding how music is created and contends that music is a universal, species-specific characteristic. Blacking contends that all human beings, not just those deemed talented enough, are remarkable and capable of achieving musically.[26] An individual's culture, and integration within it, have a significant impact on musical taste and musical skill development. According to Blacking, "The nature from which man has selected his musical styles is not only external to him; it includes his psychological capacities and how these have been structured by his experiences of interaction with people and things."[27] Blacking also contends that the most

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[24] Matthew Syed, *Bounce.* 65.

[25] Geoff Colvin, *Talent is Overrated,* 82.

[26] John Blacking, *How Musical is Man?* (Washington: University of Washington Press, 1973), 115-116.

[27] Ibid., 25.

important aspect of a cultural tradition is how its human components relate to each other. Within these relationships, emotional experiences are had and shared, further expanding the impact of the environment.[28]

Hall of Fame Football Coach Vince Lombardi famously said, "Practice doesn't make perfect. Perfect practice makes perfect."[29] Understanding the importance of how an individual practices, author Daniel Coyle has investigated a learning strategy that he refers to as deep practice. Deep practice involves purposefully targeting obstacles and developing solutions for solving them.[30] As Coyle writes, "When you are practicing deeply, the world's usual rules are suspended. You use time more efficiently. Your small efforts produce big, lasting results. You have positioned yourself at a place of leverage where you can capture failure and turn it into skill."[31] This reference provides needed context that variables can exist within the practice of two separate individuals, and although the perception of their practice may appear the same, the resulting development of skill can be vastly different.

Researchers now agree that ten thousand hours of practice are required for expertise in a discipline, regardless of the field. Related to music performance, no known world-class musical experts have not invested this amount of time and effort into developing their craft.[32] Researchers Ericsson, Krampe, and Tesch-Romer designed a study investigating the effects of the length of structured practice on musical performance quality among amateur and professional

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[28] John Blacking, *How Musical is Man?* 73.

[29] Benjamin G. Druss, et al., "The Volume-Quality Relationship of Mental Health Care: Does Practice Make Perfect?" *The American Journal of Psychiatry*, 116, no. 12 (2004): 2285.

[30] Daniel Coyle, *The Talent Code: Greatness Isn't Born. It's Grown,* 19.

[31] Ibid.

[32] John Blacking, *How Musical is Man?* 65.

violinists.[33] This research discovered a direct correlation between the number of hours spent in deliberate practice – purposefully playing an instrument with the intent to improve – and the realized quality of the performance.[34] Among this study's findings is the similarity shared by professional and amateur violinists in their formative years. Both professional and amateur violinists began playing around age five, and during the first years of learning, they practiced for nearly the same duration. However, around eight, the students who would become the best on their instruments began to practice more each year. These data revealed that by the age of twenty, amateur violinists had accumulated two thousand hours of practice, while professionals, having increased the duration of their practice each year, had accumulated ten thousand hours.[35]

Statement of the Problem

When individuals use innate talent to explain musical expertise, it not only perpetuates a misconception of what is necessary to obtain musical success, but also reduces the potential range of impact of the discipline. The effectiveness of an instructor can be directly correlated to whether he or she believes musical ability results from inborn giftedness or impactful environmental exposure and fruitful learning experiences.[36] When individuals are led to believe that they are not musically gifted, they are less likely to not only participate in musical activities but also less likely to advocate on their behalf.[37] Over time, applying talent as an explanation for musical skill leads to a belief that certain individuals, and those genetically connected to them,

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[33] Malcolm Gladwell, *Outliers: The Story of Success.* (New York, NY: Back Bay Books, 2008), 38-39.

[34] Ibid., 39.

[35] Malcolm Gladwell, *Outliers: The Story of Success.*38.

[36] Robert Woody, "Dispelling the Die-Hard Talent Myth," 23.

[37] Carol S. Dweck, *Mindset: Changing the Way You Think To Fulfil Your Potential*, 54.

are unmusical. Woody wrote, "Rather than defending and perpetuating the existence of musical talent, the music teaching profession as a whole would be better served focusing its efforts on not discriminating against students for any reason, including based on predicted potential to achieve musical greatness."[38] Once talent is removed from the list of qualifiers for participation in meaningful music experiences, all individuals will be allowed to express themselves musically without fear of feeling inferior or unwelcome.

Among the contributions toward the misconceptions of talent are ideologies among parents and other influential adults who, in an attempt to foster a passion for a subject, actually hurt this progress. Dweck writes, "Parents think they can hand children permanent confidence – like a gift – by praising their brains and talent. It doesn't work, and in fact has the opposite effect. It makes children doubt themselves as soon as anything is hard or anything goes wrong."[39] Parents whose adolescent musical experiences have resulted in a belief that they do not have talent are not likely to support the presumed pointless and expensive task of providing music education for their 'untalented' children.[40] Ultimately, how parents interact with their children, positive, negative, or indifferent, has a lasting impact on their development.[41]

In addition to the concerns regarding the misconceptions of talent, significant research indicates that biases towards students deemed predisposed towards success manifest in their receiving a curricular priority affording them an even greater opportunity towards success. Regarding this phenomenon, Gladwell writes, "If you make a decision about who is good and

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[38] Robert Woody, "Dispelling the Die-Hard Talent Myth," 25.

[39] Carol S. Dweck, *Mindset: Changing the Way You Think To Fulfil Your Potential,* 179.

[40] Ibid., 54.

[41] Suzanne H. Wasilewski, "Parents' Musical Habitus and its Effects on a Child's Involvement in an Elementary Orchestra Program," PhD Thesis, University of Rochester, 2017, 22.

who is not good at an early age; if you separate the 'talented' from the 'untalented'; and if you provide the 'talented' with a superior experience, then you're going to end up giving a huge advantage to that small group of people."[42] The problem is that the literature has not adequately addressed the influence of these variables. The challenge, therefore, for music education is to reward the work of a student: their commitment, perseverance, and drive, rather than simply assign a label of aptitude and fulfill the falsified destiny by providing them with access to resources not available to other students.

Statement of the Purpose

The purpose of this qualitative research was to provide music education with insight into the effects of adolescent living environment as a tool toward affording more students with the opportunity to participate. This research realizes an alternative explanation to the talent account and works to encourage broad and inclusive music participation. Without new research into this context, music education will witness an ever-shrinking allotment of future participants. Lacking an alternative explanation for differences in performance ability has led many to conclude that there must be inherent differences in individuals and their potential to excel, with some children, but not all possessing innate gifts or talents.[43] Through this research, conclusions may empower music participation by highlighting the work of adolescent living environment on skill development, thereby reimagining the universality of music education. Gaining the understanding that basic performance qualities are malleable, that skill can be cultivated through effort, strategies towards development, and environmental help, allow more students to

[42] Malcolm Gladwell, *Outliers: The Story of Success*, 25.

[43] Michael J.A. Howe, *Genius Explained*, (New York, NY: Cambridge University Press, 1999), 190.

participate in meaningful music performance.[44] This study investigates the role of adolescent environmental factors in the development of the musical skill of professional operatic singers. As Howe writes, "We may know a great deal about someone's physical environment, but that knowledge will not necessarily provide much insight into that person's actual experiences, and it is the latter rather than the former that has a direct influence on an individual's life."[45] By analyzing how ecological factors contribute to musical skill development, this study concludes the impact of variations in the adolescent living environment. Helding writes, "In the end, the worth of talent as a construct is revealed as virtually useless when, in the absence of the training necessary to reveal it and the effort necessary to sustain it, talent, if it exists at all, vanishes."[46] This study aims to provide further evidence of the impact of variations in the adolescent living environment on the development of musical skills by tracking similarities in the environments of professional musicians.

Significance of the Study

For music education, the belief that being good musically is the result of special gifts has significant drawbacks.[47] As Colvin writes, "A God-given gift is a one-in-a-million thing. You have it or you don't. If you don't – and of course most of us don't – then it follows that you should just forget now about ever coming close to greatness."[48] Under this ideology, if one is not

[44] Carol S. Dweck, *Mindset,* 7.

[45] Michael J.A. Howe, *Genius Explained,* 19.

[46] Lynn Helding, "Innate Talent: Myth or Reality?" *Journal of Singing,* 67, No.4 (2011): 457.

[47] Robert Woody, "Dispelling the Die-Hard Talent Myth: Toward Equitable Education for Musical Humans," *The American Music Teacher,* 70, no. 2 (2020): 24.

[48] Colvin, Geoff, *Talent is Overrated: What Really Separates World-Class Performers From Everybody Else,* (New York, NY: Penguin Random House LLC, 2008), 5.

born with innate qualities, becoming musically proficient is not possible: if musical skill can be attributed to variations in environment and therefore grown, it may reimagine the possibilities that all individuals might participate in meaningful musical performance. After closer inspection, nearly every individual who triumphs against the odds is a beneficiary of unusual circumstances.[49] As Ericsson writes, "If genetic factors rigidly determine maximal performance, it is reasonable to assume that these genetic factors cannot be influenced by practice and training and hence remain stable across time."[50] There are significant social implications of the talent account. Among them, the belief that innate gifts are a precondition for high achievement in a particular domain discourages those not deemed as having innate talents from participating.[51] In reconsidering the origins of musical skills and attributing them to environmental variables, music educators can advocate for increased music participation for all since innate traits are not significant factors in determining musical aptitude. Talent is a word with strong roots in 'innatism' and exists primarily within the culture of individualism.[52] As Scripp, Ulibarri, and Flax have argued, a far superior description would be artistry, which evokes the ideals of creative skill, brilliance, flair, proficiency, virtuosity, finesse, style, and craftsmanship but does not imply inborn giftedness.[53] According to their research, musical skill development is accessible to all interested in committing to the effort needed to acquire it.

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[49] Matthew Syed, *Bounce,* (New York: Harper Collins Publishers, 2010), 9.

[50] K. Anders Ericsson, Ralf Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance." 364.

[51] Michael, J.A. Howe, Jane W. Davidson, and John A. Sloboda, "Innate Talents: Reality or Myth?" *Behavioral and Brain Sciences.* 21, No. 3 (1998): 399.

[52] Lawrence Scripp, Devin Ulibarri & Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent," 95.

[53] Ibid.

Research Questions

Within this study, variations in musical skill development as a result of opportunities, instruction, and circumstances, have been investigated. Influences on building professional musical skills are made apparent by investigating the shared similarities in the adolescent ecological factors of professional singers. This research did not aim to track similarities in professional singers from similar backgrounds but rather to track environmental similarities where they are not obvious and apparent. As an exploration of these ideas, this study will seek to answer the following questions:

> Research Question One: What are the effects of the adolescent living environment on the development of musical skill among professional singers?
>
> Research Question Two: What adolescent environmental factors do professional singers share that have contributed to their musical development?

Hypotheses

> H1: The effects of environment on the development of adolescent musical skills among professional singers can include rhythmic proficiency, enhanced vocal technical skills, advanced aural competency, and increased musicianship.

Professional singers recognize that their musical skill is the result of many years of hard work and dedication to the mastery of the art of singing. Their expertise is not developed from an innate collection of traits that only a few are in possession of, but rather from hours of sweating in the practice room.[54] As has been noted in the research findings of Howe, “Even those who are

[54] Matthew Syed, *Bounce,* 23.

believed to be exceptionally talented, whether in music, mathematics, chess, or sports, require lengthy periods of instruction and practice."[55] When opportunities to develop the skills happen shrouded from the perspective of the audience, this creates the iceberg illusion of performance and perpetuates the talent myth. Demonstrating mastery of the technical demands of a professional vocal score requires synthesizing multiple layers of musical skill simultaneously. All of these processes occur in the mind and body of the performer, and if they are successful, the audience should not see any of them. The professional singer's objective is to make performance appear as a simple task, and when done successfully, talent becomes the justification for their ability. This study into the adolescent environment works to reveal the factors that contribute to the professional singer's ability to accomplish these tasks.

> H2: The adolescent environmental factors that professional singers share that have contributed to their musical development include exposure to a variety of music at an early age, early access to musical training opportunities, encouraged participation in musical experiences, and a nurtured appreciation for hard work and self-improvement.

Similarly, to musicians, the abilities of professional athletes are often explained in terms of talent; one such athlete, Matthew Syed, realized that in his youth, he was sufficiently fortunate to be afforded opportunities in which only a very small group of athletes were privileged to participate. He was allowed to develop his craft with expert coaching and professional quality equipment and maintained access to the highest quality clubs and training camps. He believes that his developed competitive edge resulted from these opportunities rather than any singular talent bestowed upon him.[56] As this Olympian illustrates, the opportunities afforded to

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[55] Michael Howe, J.A., Jane W. Davidson, and John A. Sloboda, "Innate Talents: Reality or Myth?" 405.

[56] Lawrence Scripp, Devin Ulibarri & Robert Flax, "Thinking Beyond the Myths and Misconceptions of Talent," 63.

individuals in their adolescent years have a more significant impact on determining future success than innate traits. When one individual is afforded opportunities within their adolescent experience not afforded to hundreds of thousands of their competition, it is not surprising when they achieve beyond their peers.[57]

Core Concepts

In order to conceptualize the variables that contribute to the development of musical skill, once must work to understand the interrelationship of adolescent environmental factors. Towards accomplishing this goal, a consensus must be reach regarding environment within this context. When referenced within this research, environment refers to all factors that contribute to development apart from innate traits or genetic makeup. Regarding this environment, Bronfenbrenner writes, "The ecological environment is conceived as a set of nesting structures, each inside the next, like a set of Russian dolls. At the inner most level is the immediate setting containing the developing person. This can be the home, the classroom, or as often happens for research purposes – the laboratory or the testing room."[58] The relationships essential within this study are those developed within the cultural context of the individual's adolescent living environment. As Blacking wrote, "Since these cultural patterns of expression are always acquired through and in the context of social relationships and their associated emotions, the decisive style-forming factor in any attempt to express feeling in music must be its social content."[59] These social relationships, along with other adolescent living environmental factors,

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[57] Matthew Syed, *Bounce,* 8.

[58] Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design* (Cambridge, MA: Harvard University Press, 1979), 5.

[59] John Blacking, *How Musical is Man?* 73.

help shape the development of skills in a manner that is otherwise hidden from observation. When these experiences culminate in a performance, the simplest explanation is that of innate talent.

Within this study of the ecology of adolescent development, the concept of talent has been thoroughly investigated. Throughout this study, innate talent is discussed within this research; according to Woody, "The concept of talent says that being good musically is a special gift, one that is not a realistic possibility for all people."[60] For this research, talent refers to innate traits, or inborn aptitudes that are granted to certain individuals and not available to all. In creating a framework for the research of this study, having a clear understanding of talent and its common application is paramount.

Definition of Terms

Throughout this research, terminology exists that needs contextual clarification, these words include: adolescence, environment, ecology, talent, innate, and aptitude. Researchers agree that adolescence is the transitional period serving as the bridge between childhood and adulthood.[61] This definition functions as the framework of this research. Urie Bronfenbrenner's unorthodox concept of the environment is that of a set of nested structures, within which social and cultural variables influence the life of an individual or community.[62] In combining these two terms, it can be assimilated that the adolescent environment is the aggregate of the social and

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[60] Robert Woody, "Dispelling the Die-Hard Talent Myth, 24

[61] Angela M. Bayer, et at, "What is Adolescence? Adolescents Narrate Their Lives in Lima, Peru," *Journal of Adolescence,* 33, no. 4 (2010): 509.

[62] Urie Bronfenbrenner, *The Ecology of Human Development,* 3.

cultural conditions that influence the life if a young person while they are developing. Relatedly, ecology is the interaction between the individual and his or her environment.[63] Beginning in the 14th Century, talent has been known as a special natural aptitude or ability, this definition has remained largely unchanged since that time.[64] According to Howe, the concept of innate can be defined as originating genetically.[65] As Gagné writes, aptitudes are, "Innate or natural human abilities that can be observed in young children before they undergo any systematic training or practice."[66] In creating a framework for the research of this study, having a clear understanding of talent, and its common usage, is paramount.

Summary

This investigation into the impact of adolescent living environment on musical skill development is founded upon the ideologies of inclusion. As this research contends, musical ability is not predestined. Individuals do not begin life with a quality of ability towards a specific skill but rather develop through their interactions with their environment. The realization that all students are capable of success in music participation and performance is the variations in the adolescent living environment that dictate the development of musical skills rather than the individual's innate qualities that determine future success. Per this ideology, music education

[63] Malin Eriksson, Mehdi Ghazinour, and Anne Hammarstrom, "Different Uses of Bronfenbrenner's Ecological Theory in Public Mental Health Research: What is Their Value For Guiding Public Mental Health Policy and Practice?" *Social Theory and Health,* 16, no. 4 (2018): 419.

[64] M. Christina Meyers, Marianne Van Woerkom, and Nicky Dries, "Talent - Innate or Acquired? Theoretical Considerations and Their Implications For Talent Management," *Human Resource Management Review,* 23, no. 4 (2013): 306.

[65] Michael Howe, J.A., Jane W. Davidson, and John A. Sloboda, "Innate Talents: Reality or Myth?" 399.

[66] Francoys Gagné, "Constructs and Models Pertaining to Exceptional Human Abilities," *International Handbook of Research and Development of Giftedness and Talent,* ed. Heller, K. A. Mönks, F. J. , and Passow, A. H, (Oxford: Pergamon Press, 1993), 72.

might reconsider how it instructs students, promotes curriculum, and advocates for itself. The application of vocabulary, such as talented, gifted, and even select, produce perceived implications of innateness and presents an inaccurate perspective of the process required for achieving a level of performance intended to be honored by these terms. Music education must carefully consider how it delivers its message because, at present, there are contradictions exist. It is unrealistic and self-destructive to advocate for music for all while utilizing vocabulary that implies predetermined ability and aptitude. Within the music profession, similar to other fields of expertise, accepting the talent account as a basis for musical aptitude implies that excellence is only attainable by those innately talented individuals.[67]

This research is not discovering what is unknown, but rather a reevaluation of what is often ignored. Using the word "talent" to praise achievement is self-defeating if it leads those not receiving the praise to believe they are not musically gifted. Accurate interpretation of the function of the adolescent living environment on the development of musical skills affords music educators valuable perspective and creates a more clarifying picture of the factors contributing to musical success. Since children decide what to believe about themselves, including that at which they are good and not, based on the feedback from their parents, teachers, and other important people in their lives, it is paramount that educators understand the impact of praise.[68] Honoring the hard work and dedication required for musical achievement is paramount in sustainability, but how this praise is delivered can have disastrous consequences. Understanding that individuals are not born with a specific quality of musical ability, and instead that often unseen environmental factors have contributed to the development of musical skill, affords music

[67] Howe, Michael J.A. *Genius Explained*, 191.

[68] Robert Woody, "Dispelling the Die-Hard Talent Myth, 24

education the perspective to accurately advocate that all students have the capacity for quality musical achievement.

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this qualitative study was to examine the effects of variations in the adolescent living environment in the development of musical skill related to expert performance. Although studies have been conducted to evaluate the influence of variations in the quality and quantity of musical practice, few have investigated the hidden elements of the individual musician's musical ecology. The philosophical framework of phenomenology emphasizes the world as lived by a person, not the world or reality as something separate from the person.[69] This inquiry asks what an experience is like, as it attempts to unfold meanings as lived in everyday existence.[70] Through a phenomenological approach utilizing a qualitative study, this research investigates variable factors in the adolescent living environment that contribute to musical skill development. Analyzing relevant literature provides important context for this research, and informs the process of creating a meaningful qualitative questionnaire.

A systematic review of the literature was conducted to explore the factors that may influence musical skill development, including those involving an individual's ecological environment and those innately hereditary. This chapter presents a review of the current literature related to the topic of study. In the first section, the theoretical framework for this research is discussed. The following section synthesizes the recent literature relevant to musical skill development as it relates to the nature versus nurture conundrum of ability, and highlights

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[69] Ron Valle, King, M., & Halling, S., *Existential-Phenomenoligical Perspective in Psychology* (New York: Plenum Press, 1989), quoted in Susann M. Laverty, "Hermeneutic Phenomenology and Phenomenology: A Comparison of Historical and Methodological Considerations," *International Journal of Qualitative Methods,* 2, no. 3 (2003): 22.

[70] Susann M. Laverty, "Hermeneutic Phenomenology and Phenomenology: A Comparison of Historical and Methodological Considerations," 22,

relevant research results. Finally, the chapter concludes with an objective analysis of the literature about the effect of the adolescent living environment on musical skills development.

Theoretical Framework

In establishing relevance for this research, the concepts of nature and nurture related to musical skill acquisition are analyzed in this chapter. Providing the contextual, theoretical framework for this research, the underlying concept of developmental ecology, is the research of Urie Bronfenbrenner. Bronfenbrenner defined the ecology of human development as the study of the progressive, mutual accommodation, through the life course, between a growing human and the changing properties of the immediate setting in which it lives.[71] This process is immediately affected by the relations between these settings and the larger contexts in which the settings are embedded.[72] Transforming Kurt Lewin's classical formula of social psychology, Bronfenbrenner utilizes the concept of development, rather than behavior, as the result of the joint function of person and environment, adding the dimension of time to the equation.[73] Thus, within the context of Bronfenbrenner's theory, human development is the phenomenon of continuity and change in the characteristics of human beings both as individuals and as groups, extending over the life course.[74] By incorporating the dimension of time and substituting words for symbols, Bronfenbrenner translates Lewin's original formula as follows, "The characteristics of the person

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[71] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," *American Psychologist,* 32, No. 7 (1977): 514.

[72] Urie Bronfenbrenner, "Ecological Systems Theory," in *Making Human Beings Human: Bioecological Perspectives on Human Development,* ed. Urie Bronfenbrenner (Thousand Oaks, CA: Sage Publications, 2005), 107.

[73] Ibid., 108.

[74] Urie Bronfenbrenner, "The Bioecological Theory of Human Development," in *Making Human Beings Human: Bioecological Perspectives on Human Development,* ed. Urie Bronfenbrenner (Thousand Oaks, CA: Sage Publications, 2005), 3.

at a given time in his or her life are a joint function of the characteristics of the person and of the environment over the course of that person's life up to that time."[75]

Among the research methodologies pioneered by Bronfenbrenner is the *person-context model*, which takes into account the person and the environment jointly. Perhaps the most significant strength of this design is that it allows the researcher to identify ecological niches or the regions in the environment that are especially favorable or unfavorable to the development of individuals with particular personal characteristics.[76] This methodology contrasts previous scientific conceptions and measures of cognitive capacity characterized by the assumption that abilities are invariant across place and time.[77]

Before Bronfenbrenner, traditional studies into adolescent ecology, while emphasizing rigor, were elegant in design but limited in scope.[78] These limitations derived from the fact that many of these experiments involved unfamiliar, artificial situations and called for unusual behaviors that were challenging to generalize in any other setting.[79] Given the challenges of the nature of experiments in developmental psychology, Bronfenbrenner argued that the understanding of human development demanded going beyond the direct observation of behavior on the part of one or two persons in the same place and instead required examination of larger systems of interaction, systems not limited to a single setting. He also argued that these

[75] Urie Bronfenbrenner, "Ecological Systems Theory," in *Making Human Beings Human: Bioecological Perspectives on Human Development,* ed. Urie Bronfenbrenner (Thousand Oaks, CA: Sage Publications, 2005), 108.

[76] Ibid., 111.

[77] Ibid., 121.

[78] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 513.

[79] Ibid.

examinations must consider environmental aspects beyond the subject's immediate situation.[80] Bronfenbrenner envisioned this ecological environment topologically as a nested arrangement of structures, each contained within the next.[81] Utilizing terminology first developed by Brim, Bronfenbrenner describes these arrangements as four successive levels, the microsystem, mesosystem, exosystem, and macrosystem.[82]

Microsystem

The first nested level is the microsystem or the complex of relations between the developing person and the environment in an immediate setting containing that person.[83] This system is a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics.[84] Bronfenbrenner defines settings as places with particular physical features within which the participants engage in particular activities and roles for particular periods. The variables of time, place, activity, physical features, participant, and role constitute the elements of a setting.[85] Within this setting, a critical term in the definition of microsystem is experienced. This term is applied to indicate that the scientifically relevant features of any environment include not only its objective properties but also how the persons in that environment perceive these properties.[86] As Bronfenbrenner

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[80] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 514.

[81] Ibid., 514.

[82] Ibid., 515.

[83] Ibid., 514.

[84] Urie Bronfenbrenner, *The Ecology of Human Development* (Cambridge, MA: Harvard University Press, 1979), 22.

[85] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 514.

[86] Urie Bronfenbrenner, *The Ecology of Human Development*, 22.

argues, the elements within the microsystem are often under-emphasized. According to Bronfenbrenner, roles other than those of experimenter and subject that are likely operative for the participants are disregarded, and behavior is examined primarily in terms of process rather than content. Bronfenbrenner refers to this feature of the microsystem as activity rather than behavior, which affords this research a phenomenological view to combating this substantive aspect being largely overlooked in research.[87] As this perspective emphasizes, very few of the external influences affecting human behavior and development can be described solely in terms of objective physical conditions and events; these aspects of the environment, those having meaning to the person in a given situation, are often most powerful in shaping the course of psychological growth.[88]

Mesosystem

The mesosystem comprises the interrelations among two or more settings in which the developing person actively participates.[89] Within the context of adolescent ecology, this mesosystem most often comprises the interactions among family, school, and peer groups. Additionally, for some adolescents, the mesosystem's settings may include church, camp, and workplace.[90] The mesosystem is thus a system of microsystems formed or extended whenever the developing person moves into a new setting.[91] The interactions within the mesosystem may assume a number of additional forms, including other persons who participate actively in both

[87] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

[88] Urie Bronfenbrenner, *The Ecology of Human Development*, 22.

[89] Ibid., 25.

[90] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

[91] Urie Bronfenbrenner, *The Ecology of Human Development*, 25.

settings and the phenomenological domain, concerning the extent and nature of knowledge and attitudes existing in one setting about the other.[92]

Exosystem

The exosystem is one or more settings that do not actively involve the developing person as a participant but in which events occur that effect, or are affected by, what happens in the setting containing the developing person.[93] Examples of exosystems affecting adolescent development include a parent's place of work, the network of family friends, a school class attended by an older sibling, and the activities of a local school board.[94] In addition to the variables mentioned above within the exosystem, other factors influencing adolescent development include the distribution of goods and services, communication and transportation facilities, and informal social networks.[95]

Macrosystem

The macrosystem refers to consistencies in the form and content of lower-order systems that exist or could exist, at the cultural or subcultural level informing a belief system or ideology.[96] These macrosystems are examined not only in structural terms but as carriers of information and ideologies. These ideologies, explicitly and implicitly, endow meaning and motivation to specific agencies, social networks, roles, and activities.[97] The priority and

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[92] Urie Bronfenbrenner, *The Ecology of Human Development*, 25.

[93] Ibid.

[94] Ibid.

[95] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

[96] Urie Bronfenbrenner, *The Ecology of Human Development*, 26.

[97] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

responsibility for their care within the setting are significant in the ability of the developing adolescent to interact with others in different settings.[98]

Theoretical Summary

This study, investigating the impact of the adolescent living environment on musical skill development, utilizes Bronfenbrenner's person-context model to establish ecological niches significant to musical skill development. This study aims to identify factors contributing to musical skill development generally hidden within an individual's living environment. By identifying these ecological niches and providing context as to their origin, the discriminating concept of talent can be clarified, empowering more individuals to seek musical experiences.

Related Literature

Studies by K. Anders Ericsson have developed skills acquisition theories about the quantity and quality of practice required to achieve expert performance. This research found no support for innate characteristics that correspond with natural ability and instead determined that it is the type of practice that most significantly influenced the development of the skills required for expert performance.[99] As the researchers have noted, the findings from their study indicate that motivational factors required to persevere in pursuit of expert skills are still largely innate.[100] This research seeks to clarify these findings by providing context to the implications of environmental factors on adolescent motivation.

In performance domains outside of music, talent identification and development (TID) models are utilized as predictors of aptitude in an activity. However, most of these TID models

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[98] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

[99] K. Anders Ericcson, Ralf Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance." *Psychological Review.* 100. No. 3 (1993): 399.

[100] Ibid., 398.

fail to distinguish between current performance and an individual's capacity to develop.[101] Within the context of a social framework, the potential of an individual to learn and develop into a world-class performer is dependent upon factors beyond innate characteristics and includes psychological behaviors contributing to the development of skill.[102] As future studies elaborate upon these findings, the type and quality of the ecological factors most influential in musical skill development might reveal controllable variables in adolescent skill development. If manipulative markers can be identified in skill development, creating an ideal environment might be possible for all learners.

The related literature includes a review of existing knowledge related to musical skill development, beginning with considerations of the genetics of musical ability. Later, investigations into the quality and quantity of practice and the effect of the adolescent living environment, or adolescent ecology, are highlighted relative to their influence on the development of musical skills.

Genetics of Musical Ability

Given the universality of music in human culture and the understanding that listening to music requires no training or education,[103] many studies have investigated the origins of the ability displayed in musical performance. For more than a century, psychologists and brain researchers have worked to discover markers for determining future talent in music performance. Many measurement tools, beginning with the Seashore Tests of Musical Ability, have measured

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[101] Aine MacNamara, Patricia Holmes, and Dave Collins, "Negotiating Transitions in Musical Development: The Role of Psychological Characteristics of Developing Excellence," *Psychology of Music,* 36, no. 3 (2008): 337.

[102] Ibid., 338.

[103] Jaana Oikkonen and Irma Jarvela, "Genomics Approaches to Study Musical Aptitude," *BioEssays,* 36. No. 11 (2014): 1102.

aspects of musicality, including pitch, intensity, time, consonance, tonal memory, and rhythm.[104] Among the prominent representatives as the different measures of music audiation developed by Gordon (1986, 1989), the Standardized Tests of Musical Intelligence by Wing (1939, 1961), and the Measures of Musical Ability by Bentley (1966, 1969).[105] Although these tests can predict a specific capacity towards musicianship in young people, the amount of this aggregation due to genetic or cultural factors is still a topic of debate.[106]

In addition to tests such as the Seashore Tests, measuring innate musical traits in individuals, the hereditability of musical aptitude has also been investigated in studies incorporating twins. One study, the Study of Twin Adults: Genes and Environment (STAGE) cohort, surveyed 32,000 twins born between 1959 and 1985.[107] As a tool of measure within this study, participants were first surveyed regarding the number of weekly hours or practice, and a sum-score estimate was determined towards their lifetime practice hours. Following initial data collection, musical ability was tested utilizing the Swedish Musical Discrimination Test (SMDT), which consists of three subtests testing pitch, melody, and rhythmic discrimination.[108] This study found that the genetic and environmental influences on practice overlapped significantly with the genetic and environmental influences on musical ability. Similarly, this study suggests that twins score higher on music practice and musical ability.

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[104] Jaana Oikkonen and Irma Jarvela, "Genomics Approaches to Study Musical Aptitude," 1103.

[105] Anna Wolf and Reinhard Kopiez, "Developing and Validation of the Musical Ear Training Assessment (META)," *Journal of Research in Music Education,* 66, no. 1 (2018): 54.

[106] Jaana Oikkonen and Irma Jarvela, "Genomics Approaches to Study Musical Aptitude," 1103

[107] Mirian A. Mosing, et al, "Practice Does Not Make Perfect: No Causal Effect of Music Practice on Music Ability," *Pyschological Sciences,* 25, no. 9 (2014): 1796.

[108] Ibid., 1798.

More recently, tests such as the Karma Music Test (2007), the Profile of Music Perception Skills (2012), The Musical Ear Training Assessment (2018), and the measurements of musical sophistication developed by Ollen (2006) have worked to advance the effectiveness of previous musical aptitude tests in identifying gene sequences relevant for the hereditary foundation of acquired musical skill.[109] These tests include a more comprehensive range of terminology, including the use of the terms musical skill and musical ability.[110] Contrarily to the concept of skill development, these tests are still interested in the intrinsic factors of musical potential and the hereditary foundation of acquired musical skill. As research concerning behavioral genetics continues to grow, tests of musical aptitude become increasingly relevant.[111] The validity of these investigations is directly related to the ability to control all variables within the adolescent environments of the subjects. Without control, it becomes impossible to determine what factors, innate or a result of the adolescent environment, have led to musical skill acquisition.

Many of the tests mentioned above rely on quantifying either musicianship or the extent of an individual's musical training to estimate the presence of innate musicality. These assessments fail to account for the fact that musicianship might either be undiscovered or that circumstances have prevented its development.[112] To counteract this limitation, researchers developed the Profile of Music Perception Skills (PROMS) test, which measures perceptual

[109] Anna Wolf and Reinhard Kopiez, "Developing and Validation of the Musical Ear Training Assessment (META)," 54.

[110] Ibid.

[111] Ibid.

[112] Lily N. C. Law and Marcel Zentner, "Assessing Musical Abilities Objectively: Construction and Validation of the Profile of Music Perception Skills," *PLOS One,* 7, no. 12 (2012): 1.

musical skills across multiple domains, including melody, pitch, timbre, tuning, and rhythm.[113] This test varies from prior batteries in that it implements basic sound patterns rather than complete musical compositions, as they inevitably connote a specific musical system or style.[114] This battery was designed to define markers of future musical proficiency as a means of inferring proper training and at present, is not intended to affirm or deny the existence of hereditary musical traits.[115]

In addition to research seeking to determine preordained levels of musical ability, similar tests in recent years have sought to identify critical periods for musical development by analyzing variations in perception and cognition of music in conjunction with experiences of auditory deprivation and musical enrichment.[116] Many studies into critical periods of brain development have been conducted with a range of animals. While not conclusive regarding its impact on human brain development, research suggests that the development of cortical tonotopic maps, essential for pitch recognition, depends critically on the experience of sounds with spectral patterning early in life.[117] As this research expands, it will be essential to determine the influence variations in adolescent living environments exert in developing these tonotopic maps.

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[113] Lily N. C. Law and Marcel Zentner, "Assessing Musical Abilities Objectively: Construction and Validation of the Profile of Music Perception Skills," *PLOS One,* 7, no. 12 (2012): 1.

[114] Ibid., 3.

[115] Ibid.

[116] Laurel J. Trainor, "Are There Critical Periods for Musical Development?" *Wiley Periodicals,* 46, no. 3 (2005): 263.

[117] Ibid., 264.

Investigations into the origins of the absolute and relative pitch in infants have revealed inconclusive results.[118] The earliest of these studies, conducted in the late twentieth century, found that infants six months of age or older processed relative pitch in immediate memory. This way, when two melodies were presented in immediate succession, infants had no difficulty telling whether they were the same or different, even when the melodies were transposed to different pitch ranges.[119] The findings of this research indicate that infants can compare the pitch distances between tones even when the absolute pitches are changed, indicating an innate relative pitch sensibility.[120] Later studies conducted in the early 21st century, reported that infants processed absolute pitch, but the findings of this research suffered from methodological issues and can be interpreted to show that infants process relative pitch.[121] Much of this research, based upon the preference of infants to listen to a song sung in the same pitch as compared to the song sung in a new pitch, can be attributed to variations in the vocal timbre of the singers rather than the modulated melody.[122]

Studies intent on confirming or denying the significance of hereditary traits connected to success in music performance maintain a long history in music education and psychological research. These studies aim to identify specific markers for predetermining who may be successful in music performance. As researchers have suggested, there are two classical perspectives on the origins of skill. One viewpoint implies that experts are born, and although

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[118] Laurel J. Trainor, "Are There Critical Periods for Musical Development?" *Wiley Periodicals,* 46, no. 3 (2005): 269.

[119] Ibid.

[120] Ibid.

[121] Ibid.

[122] Ibid., 270.

training is necessary to reach a high level of performance, innate ability limits the ultimate level of expertise. Contrarily, the opposing view suggests that experts are made and that talent, although present in individuals, is overshadowed by opportunity and training.[123] Research into the influence of innate talent seeks to clarify these opposing perspectives and create a model to future support musical skill development.

One recent study incorporating a meta-analytical approach investigated the relationship between deliberate practice and human performance. This study, the first of its kind, covered all major domains of human performance in which the relationship between practice and performance has been studied, including music, games, sports, professions, and education.[124] This meta-analysis consisted of four steps, including obtaining correlations between the quantity of practice time and performance, searching for extreme values, estimating overall effects and heterogeneity, and performing a publication-bias analysis.[125] The findings of this research overwhelmingly indicated a positive correlation between deliberate practice and performance, with high levels of practice being associated with high levels of performance.[126]

Quality and Quantity of Practice

Studies investigating the impact of variations in the quantity and quality of practice on acquiring expertise have contributed to the debate concerning the role of nature and nurture in skill development. This debate concerning innate talent versus attained performance ability is prominent in many domains. However, it is especially salient in music and music

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[123] Brooke N. MacNamara, David Z. Hambrick, and Frederick L. Oswald, "Deliberate Practice and Performance in Music, Games, Sports, Education, and Professions: A Meta-Analysis," *Psychological Science,* 25, no. 8 (2014):1608.

[124] Ibid., 1609.

[125] Ibid., 1611-1612.

[126] Ibid.

performance.[127] If research can prove a direct correlation between practice and performance, not only can future musical endeavors be greatly enhanced, but misconceptions of the influences of innate talent on performance skill can be clarified.

One such study, Ziegler's Actiotope Model of Giftedness, conducted in 2005, emphasizes the development of efficient individual actions in a talent domain attained through very lengthy, protracted learning processes.[128] This study, intended to investigate the impact of praise on skill development, utilized eleven education goals to track variations in achievement when specific examples of praise were implemented.[129] Within this and similar studies, the attribution of being gifted can only be acquired through attained levels of achievement and expert performance.[130]

The theoretical framework established by Ericsson underscores the importance of the quantity and quality of deliberate practice or effortful activities designed to optimize improvement.[131] As this study aimed to investigate if genetic factors rigidly determine maximal performance, it can be concluded that these genetic factors cannot be influenced by practice and training and, therefore, remain stable across time.[132] In attempting to determine the influence of practice in the acquisition of expert performance, this qualitative study assessed current and past levels of deliberate practice in three groups of adult violinists with differing performance levels.

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[127] Simon Schmidt et al., "Acquiring the Art of Conducting: Deliberate Practice as Part of Professional Learning," *Journal of Advanced Academics,* 32, no. 3 (2021): 355.

[128] Heidrun Stoeger and Albert Ziegler, "Praise in Gifted Education: Analyses on the Basis of the Actiotope Model of Giftedness," *Gifted Education International,* 20, no 3 (2005): 306.

[129] Ibid., 326.

[130] Simon Schmidt et al., "Acquiring the Art of Conducting: Deliberate Practice as Part of Professional Learning," 356.

[131] K. Anders Ericsson, Ralf Th. Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance," *Psychological Review,* 100, no. 3 (1993): 363.

[132] Ibid., 364.

As this study indicates, contrary to the popular talent perspective that asserts that differences in practice and experience cannot account for differences in performance, these data indicate that the amount of a specific type of activity, that being deliberate practice, is consistently correlated with a broad range of performance, including expert level performance, when appropriate developmental differences are controlled.[133]

In a complementary study, expertise is investigated as it relates to orchestral conducting concerning the quantity and quality of practicing with students enrolled in higher education conducting degree programs. This exploratory cross-sectional study examined environmental experiences, discipline-specific experiences, and study experiences of orchestral conducting students to determine the amount and effort of practice.[134] The data highlight the importance of deploying one's learning opportunities to cultivate and elaborate specific abilities and, thus, expedite talent development in various domains, including that of orchestra conducting.[135] The findings from this study indicate that conducting students have a wealth of experience in playing various musical instruments, as well as a range of years of conducting experience, prior to beginning formal conducting training at the collegiate level. In addition, as experience in conducting improves, students attribute more emphasis to score reading than gesture and baton techniques. This indicates an increased relevance of conducting-specific practice activities compared to general music practice activities as the conducting student matures.[136] This research

[133] K. Anders Ericsson, Ralf Th. Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance," *Psychological Review,* 100, no. 3 (1993): 392.

[134] Simon Schmidt et al., "Acquiring the Art of Conducting: Deliberate Practice as Part of Professional Learning," 359.

[135] Ibid., 365.

[136] Ibid., 371.

affirms the significance of deliberate practice in acquiring musical skills. The researchers conclude that innate dispositions cannot be the only explanatory variable for achieving excellence and expert performance.[137]

One study, sponsored by the University of East London, investigated the social context of motivation among adolescent children relating to their interest in and commitment to musical practice. This research aimed to determine the origins of motivation and draw conclusions toward the influence of social context compared to the assumption that motivation is a reflection of innate talent.[138] Among the social influences investigated by the researchers is the influence of parents, teachers, peers, and friends. Parents provide social and emotional support; as data indicate, more able children are likely to have highly supportive parents who provide a stable home environment.[139] In separate but affirming studies, researchers Monks and Van Boxtel (1985) and Freeman (1991) suggest that when parents offer warmth and reason, children show greater respect and trust in their parents' opinions and values.

Additionally, parents of high-achieving children are more likely to support their children rather than simply telling them what to do and are more consistent in providing support in activities regardless of the immediate successes of the endeavor.[140] Conversely, overly demanding parents often inhibit learning. As data suggest, attributing too much parental pressure

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[137] Simon Schmidt et al., "Acquiring the Art of Conducting: Deliberate Practice as Part of Professional Learning," 373.

[138] Derek G. Moore, Karen Burland, and Jane W. Davidson, "The Social Context of Musical Success: A Developmental Account," *British Journal of Psychology*, 94 (2003): 530.

[139] Ibid.

[140] Ibid.

on children towards achievement can often lead to disinterest in the activity.[141] Although research has yet to reveal which aspects of parenting are most significant in influencing future musical success, it is evident that parents can significantly influence children's musical progress.[142] The findings of this research suggest that it is possible to provide an account of the development of musical ability concerning the individual's development of skill and the social factors necessary for skill development to attain musical success as an adult.[143]

The ten thousand hours of expertise concept, introduced by Ericsson and popularized by Malcolm Gladwell, equated expert performance to an accumulation of practice hours. Upon crossing the ten thousand hours threshold, an individual can achieve expertise.[144] Expanding upon this research and investigating the validity of the assumptions within it, a study conducted by the Royal College of Music aimed to determine the influence of the quality of practice within the equation of skill development. Although this research concedes that extensive practice is essential in developing expert skill, it contends that the content and quality of the effort within the practice contributes more significantly to the results.[145] This study aimed to investigate how long an individual must practice achieving expertise and whether or not practice, over an extended period, might inevitably lead to expert performance.[146] According to the Power Law of Practice, which argues that the speed of performance of a sensorimotor task increases as a

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[141] Derek G. Moore, Karen Burland, and Jane W. Davidson, "The Social Context of Musical Success: A Developmental Account," 530.

[142] Ibid.

[143] Ibid., 546.

[144] Malcolm Gladwell, *Outliers* (New York, NY: Back Bay Nooks, 2008), 39-40.

[145] Aaron Williamon, and Elizabeth Valentine, "Quantity and Quality of Musical Practice as Predictors of Performance Quality," *British Journal of Psychology,* 91 (2000): 353.

[146] Ibid., 354.

function of the number of times the task is performed, this research contends that practice can make faster concerning these tasks. However, the researchers are quick to assert that this law does not describe the relationship between practice and performance for skills that require simultaneous execution of complex cognitive-motor tasks, such as those required for expert musical performance.[147] This research investigates deliberate practice within the monotonic benefits assumption that the amount of time an individual is engaged in deliberate practice is monotonically related to that individual's acquired performance capacity.[148] As the findings of this study indicate, the quality of deliberate practice must be examined before the factors which affect the quality of specific performances can be fully understood.

Additionally, the data indicate that the assumption that the accumulation of deliberate practice over several years is a fundamental precursor to expert-level performance is paradoxical and requires clarification. Considering that expert performance is associated with the ability to produce outstanding performances on specific occasions, the monotonic benefits assumption fails to account for how these specific performances are produced. As the researchers conclude, future investigations must look beyond the quantity of practice when elucidating the acquisition of skills required for expert performance.[149]

Adolescent Environment

Influences of the adolescent living environment on the development of musical skill, although researched, have not been thoroughly investigated in the way influences of innate talent or quantity and quality of practice have been studied. As research into the effects of variations in

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[147] Aaron Williamon, and Elizabeth Valentine, "Quantity and Quality of Musical Practice as Predictors of Performance Quality," *British Journal of Psychology,* 91 (2000): 354.

[148] Ibid., 355.

[149] Ibid., 373.

developmental ecology become prolific, the relevance in music performance increases. The studies collected in this review highlight the current research into the topic of developmental ecology related specifically to musical skill development, and represent a summative analysis of the current research.

Researchers Howe, Davidson, and Sloboda investigated both positive and negative evidence related to developmental ecology and the impact of variables in the adolescent living environment in determining excellence. One argument of this research is that the talent account has important social implications, and a belief in innate gifts as a precondition for high achievement denies those deemed without innate talent the help and support necessary to achieve a high level of competence.[150] Within this research, concerning accounts of young children excelling without special encouragement and those born with innate capacities, little evidence exists of early accomplishments that other known determinants could not explain. Additionally, the researchers found no evidence of innate attributes, apart from autistic savants whose exceptionality appears to stem from an involuntary specialization of their mental activities, operating in the predictable and specific manner implied by the talent account.[151] As this research indicates, high levels of accomplishment require lengthy and intensive training, and individuals who are not believed to have any special talent can, as a result of proper training, reach levels of achievement the equivalent of expertise.[152] The implications of these findings work to contextualize the acquisition of musical skill as a result of specific adolescent environmental factors, including quality of practice, and contradict the assumption that expertise

[150] Michael J.A. Howe, Jane W. Davidson, and John A. Sloboda, "Innate Talents: Reality or Myth?" *Behavioral and Brain Sciences,* 21 (1998): 399.

[151] Ibid., 407.

[152] Ibid.

is a predetermined result of innate giftedness. This research argues that the talent account is not wrong but has been vastly exaggerated and oversimplified. Innate talents are inferred rather than observed directly, and the individual differences they work to explain can be accounted for by experiential variables such as training and practice.[153] This research provides much-needed context for the talent account and creates a baseline from which future research might begin to identify specific variables in adolescent ecology that influence musical skill development.

One study, implementing the Goldsmiths Musical Sophistication Index, aimed to assess self-reported musical skills and behaviors across multiple dimensions within the general population. This instrument is designed to measure a broad range of individual preferences among a generalized population and places less importance on smaller pathological groups and highly specialized populations.[154] In addition, the data indicate five key variables in predicting performance with the melodic memory test, musical training, age, occupation, occupational status, and highest educational degree obtained. As this research confirms, heritable traits, although a contributing factor, is minimal when compared to the impact of training within an environment that can enhance learning. Also supported in this research, certain types of musical engagement, especially musical training, are associated with greater wealth.[155] Active musical engagement, such as active music listening, concert attendance, reading, and writing about music, as this study suggests, are significantly more prolific where resources are abundant.[156] As the researchers conclude, musical sophistication, a psychometric construct that refers to musical

[153] Michael J.A. Howe, Jane W. Davidson, and John A. Sloboda, "Innate Talents: Reality or Myth?" 407.

[154] Daniel Müllensiefen, et al., "The Musicality of Non-Musicians: An Index for Assessing Musical Sophistication in the General Population," *PLoS ONE,* 9, no. 2 (2014): 1.

[155] Ibid., 17.

[156] Ibid.

skills, expertise, achievements, and behaviors across various facets,[157] is primarily associated with socio-demographic and socio-economic markers.[158] As this research suggests, a living environment with the economic capacity to nurture musical growth affords individuals advantages in pursuing musical sophistication.

Another study, investigating the effect of an early start of training related to musical skill in adulthood, investigated the influence of age on the onset of training among professional musicians and pairs of twins. This research explored the influence of early training on two measures of expertise, musical aptitude, and musical achievement. As the researchers indicate, parents often initiate musical training in early childhood, which denotes a shared familial influence. Later findings showed that the association between the age of onset of musical training and musical aptitude and the association between age of onset and musical achievement was fully explained by familial factors, including shared environmental influences.[159] Additionally, participation in extracurricular music education and cultural activities is correlated with socioeconomic status.[160] These familial factors, also referenced as ecological influences, are undeniably impacting skill development, both in their potential towards providing unique opportunities and their capacity to create nurturing learning environments. As the data indicate,

[157] Daniel Müllensiefen, et al., "The Musicality of Non-Musicians: An Index for Assessing Musical Sophistication in the General Population," *PLoS ONE,* 9, no. 2 (2014): 2.

[158] Ibid., 21.

[159] Laura W. Wesseldijk, Miriam A. Mosing, and Fredrik Ullen, "Why is an Early Start of Training Related to Musical Skills in Adulthood? A Genetically Informative Study," *Psychological Science,* 32, no. 1 (2020): 9.

[160] Ibid., 11.

the early onset of musical training does predict higher levels of musical aptitude but does not influence musical achievement once total accumulated practice is held constant.[161]

Summary

Recent literature investigating adolescent musical skill development has demonstrated, at the very least, that future research is necessary to identify the impact of variables in nature and nurture. Significant studies have investigated the role of quality and quantity of practice related to musical skill development. In addition, research has explored the significance of specific hereditary traits in equipping individuals with the skills necessary for musical success. Very little research, however, has investigated the specific environmental traits that have contributed to the musical expertise of professional musicians.

Addressing this gap in the literature, this qualitative study investigated the influence of the adolescent living environment on the development of musical skill utilizing Bronfenbrenner's ecological framework as a theoretical model. Following compiling the responses to an open-ended questionnaire completed by professional opera singers, this research identified variations in the adolescent living environment related to musical skill development within the framework of the person-context model.

[161] Laura W. Wesseldijk, Miriam A. Mosing, and Fredrik Ullen, "Why is an Early Start of Training Related to Musical Skills in Adulthood? A Genetically Informative Study," 7.

CHAPTER THREE: METHODS

Overview

The purpose of this phenomenological study was to examine the effect of the adolescent living environment on the development of musical skill related to expert performance among individuals who are described as 'talented.' Chapter three provides a thorough description of the research design, the participant selection process, a description of the motivation to conduct this study, and the interpretive framework and philosophical assumptions that guided it. Additionally, this chapter addresses the research procedures, methods of data collection, analysis and synthesis, and the process by which credibility and trustworthiness are ensured. This chapter concludes with a summary of the alignment of design choice, data collection and analysis strategies, and an overview of data synthesis and ethical considerations.

Research Design

Expanding upon the framework for the study of ecology established by Urie Bronfenbrenner and seeking to expand upon the work of Dr. Carol Dweck in the field of developmental psychology, this study aims to investigate the effect of adolescent environment on musical skill development via a qualitative hermeneutic phenomenology design. The questions in this study cannot be addressed with dichotomously; instead, there is required a more thorough investigation. As such, this study utilizes an in-depth, open interview methodology. The interview research method yields direct quotations from individuals about their experiences, opinions, feelings, and knowledge.[162] When compared a standardized questionnaire, the open-ended interview method affords the researcher greater qualitative insights into individual,

[162] Michael Quinn Patton, *Qualitative Research and Evaluation Methods, Edition 3,* (Thousand Oaks, CA: Sage Publishing, 2002): 4.

personal experiences of the interviewees. Open-ended responses allow the researcher the insight towards understanding the world as seen from the perspective of the respondent.[163]

Research Questions

This research aimed to expand upon the findings of a neoteric study investigating adolescent musical development. This research sought to determine the effects of specific transitions within key developmental periods and understand the influence on future musical aptitude and achievement. Published in 2008, this study interviewed world-class musicians as a means toward determining key transitions within their careers, and the skills and characteristics necessary to negotiate these transitions. The findings from this research suggest that successful transitions between developmental stages is largely characterized by an individual's ability to utilize incident-specific applications of psychological characteristics of developing excellence.[164] These PCDE's include ecological factors such as, time management, motivation, and commitment which are largely developed within the adolescent living environment.[165] This research sought to expand upon these data by identifying specific factors within the adolescent living environment as it relates to musical skill development toward expert vocal performance.

Within the framework of an open-ended qualitative interview, six types of questions can be asked of participants. Distinguishing these types of questions forces the interviewer to be clear about what is being asked and provides context to the interviewee towards responding appropriately.[166] These six question types are: Experience and Behavior Questions, Opinion and

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[163] Michael Quinn Patton, *Qualitative Research and Evaluation Methods, Third Edition,* 20.

[164] Aine MacNamara, Patricia Holmes, and Dave Collins, "Negotiating Transitions in Musical Development: The Role of Psycological Characteristics of Developing Excellence," *Psychology of Music,* 36, no. 3 (2008); 348.

[165] Ibid.,338.

[166] Michael Quinn Patton, *Qualitative Research and Evaluation Methods, Third Edition,* 348.

Value Questions, Feeling Questions, Knowledge Questions, Sensory Questions, and Background/Demographic Questions.[167] Provided that this research concerns the effect of the adolescent living environment on the development of musical skill, the questions have been catered to highlight the most commonly used chronologic definition of adolescence which includes the ages of 10-18,[168] and therefore rely heavily upon experience and background questions. Additionally, Bronfenbrenner's four levels of the ecological environment have been utilized to provide context for the research questions.

Utilizing this structure, and seeking to provide valuable context for the interviewees, the following research questions have guided this qualitative study.

Central Research Questions

Q1: What are the effects of the adolescent living environment on the development of musical skill among professional singers?

Q2: What adolescent environmental factors do professional singers share that have contributed to their musical development?

Sub-Question One

What are the microsystem level effects of the adolescent living environment?

Sub-Question Two

What are the mesosystem level effects of the adolescent living environment?

Sub-Question Three

What are the exosystem level effects of the adolescent living environment?

Sub-Question Four

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[167] Michael Quinn Patton, *Qualitative Research and Evaluation Methods, Third Edition,* 348.

[168] Alexa C. Curtis, "Defining Adolescence," *Journal of Adolescent and Family Health,* 7, no. 2 (2015): 1.

What are the macrosystem level effects of the adolescent living environment?

Setting and Participants

This section identifies the research setting, and the reasons supporting its selection are objectively stated. The participant selection process is also reported. Finally, a description of the study participants is offered.

Setting

Within the framework of this research, reflectively investigating adolescent living environment, a specific, or singular setting is unattainable. Rather, towards establishing credibility to this study, the criteria for participation in this study demands that participants have been members of the Cafritz Young Artist Program, formerly the Domingo-Cafritz Young Artist Program at Washington National Opera. Established in 2002, the Cafritz Young Artist Program provides intensive study with renowned vocal and dramatic coaches and offers voice lessons, language classes, career guidance, and master classes with Washington National Opera staff and guest artists to singers on the verge of International careers.[169] In providing context for the selection of this setting, the Washington National Opera describes itself as offering performances by the greatest talents the opera world has to offer.[170] Additionally, as a budget tier 1 opera company with an annual operating budget of over 15 million dollars,[171] the Washington National Opera is among the most premiere opera companies in the United States. Towards establishing a universal control for this research, and determining the association of descriptions of 'talent'

[169] The Kennedy Center, "Cafritz Young Artists of Washington National Opera," accessed November 29, 2022, https://www.kennedy-center.org/education/opportunities-for-artists/pre-professional-artist-training/wno-cafritz-young-artists/

[170] The Kennedy Center, "History of the Washington National Opera," accessed on November 29, 2022, https://www.kennedy-center.org/wno/home/about/history-and-legacy/history/

[171] Annual Budget FY2020, New York, NY: Opera America, 2020.

among opera performers, utilizing a budget tier 1 opera companies such as Washington National Opera provides a consistent setting.

Participants

Given that this research sought to determine the nature of talent and provide context towards its origins within the framework of adolescent ecology, the participants have been purposefully sampled from a broad range of professional singers who are regular featured performers among the aforementioned budget tier 1 opera companies. As a means towards validating the findings and broadening the sample, the participants chosen for this study share only their experience in the Cafritz Young Artist Program, and the experience of being referred to as 'talented,' shared adolescent experiences are merely coincidental. Participants for this study have been collected from across the United States.

Purposive sampling, utilized in this study, aims to discover a richness of data by focusing on quality rather than the quantity of participants.[172] The concept of data saturation, used as an indicator of an effective sample size in qualitative research, works to establish parameters towards sample size needed to create redundancies.[173] In addition, data saturation has also been defined as the obligation of the researcher to continue to ask questions of the interviewee until their perspective is fully understood. As Legard, Keegan, and Ward write, "Probing needs to continue until the researcher feels they have reached saturation, a full understanding of the participant's perspective."[174]

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[172] Monique M. Hennink, et al, "Code Saturation Versus Meaning Saturation: How Many Interviews Are Enough?" *Qualitative Health Research,* 27, no.4 (2017): 591.

[173] Benjamin Saunders, et al., "Saturation in Qualitative Research: Exploring its Conceptualization and Operationalization," *Quality and Quantity*, 52, no.4 (2018): 1896.

[174] Robin Legard, Keegan, J., Ward, K, "In-Depth Interviews," published in *Qualitative Research Practice: A Guide for Social Science Students and Researchers,* eds. Jane Richie and Jane Lewis (London: SAGE, 2003) quoted

Guest, Namey, and Chen have established an operational definition of saturation as consisting of three elements – the base size, the run length, the new information threshold, or the relative amount of incoming new information. Within this context, saturation is achieved at the point during data analysis at which incoming data points, obtained from interviews, produce little or no new useful information relative to the study objectives.[175] Base size references the minimum number of data collection events, in this context interviews, that should be reviewed or analyzed to calculate the amount of information already gained. Concerning the new information threshold, and in understanding that that most novel information in a qualitative dataset is generated early in the process, and follows an asymptotic curve with a relatively sharp decline in new information occurring after just a small number of data collection/analysis events, Guest, Bunce, and Johnson have proposed that data saturation is achieved after six to twelve interviews by which point 94% of new information is obtained.[176] A sample size of eight achieves saturation and provides the bounty of data needed for this study. When study parameters remain consistent, as empirical evidence has established, the rate at which new information emerges decreases over time and the most common and salient themes are generated early.[177]

Following their tenure with the Cafritz Young Artist Program between the years of 2002 and 2014, the selected participants have maintained successful operatic performance careers. Given the history of the Cafritz Young Artist Program, and understanding that females make up

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in Benjamin Saunders, et al., "Saturation in Qualitative Research: Exploring its Conceptualization and Operationalization," *Quality and Quantity,* 52, no.4 (2018): 1896.

[175] Greg Guest, Emily Namey, and Mario Chen, "A Simple Method to Assess and Report Thematic Saturation in Qualitative Research," *PLoS ONE,* 15, no. 5 (2020): 5.

[176] Greg Guest, Arwen Bunce, and Laura Johnson, "How Many Interviews Are Enough? An Experiment with Data Saturation and Variability," *Fields Methods,* 18, no. 1 (2006): 79.

[177] Greg Guest, Emily Namey, and Mario Chen, "A Simple Method to Assess and Report Thematic Saturation in Qualitative Research," 9-10.

the majority of operatic professionals worldwide, the participants for this study were 62.5% female and 37.5% male, and 35-52 years of age representing a quality cross-section of the profession. In addition, persons of color comprised 17% of the participant sample.

Researcher Positionality

The motivation for this study is grounded in personal experience with the negative effects of misconceptions of the origins of musical proficiency. In the current environment of education, specifically the untruths of who can and cannot successfully engage musically, it is paramount that the nature of musical skill development be investigated. This research study is designed to provide music educators, administrators, and stakeholders with evidence-based information pertaining to the effect of the adolescent living environment on the development of musical skill, and to debunk misconceptions of predestined, innate talent. The research approach originates from an ontological and epistemological philosophical perspective, all of which is grounded in constructivist thought. Per constructivism, research is perceived as being socially constructed through social interaction, focused on the participants' perspectives, attitudes, and lived experiences, and considered all relevant perspectives to identify clusters of meaning through an inductive process.[178]

Interpretive Framework

The researcher's world view concerns ontological assumptions, epistemological assumptions, and assumptions about human nature and agency, each of these are colored by the researcher's values and beliefs which are shaped by their political allegiance, religious faith,

[178] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* (Los Angeles, CA: SAGE Publication, 2012): 84.

gender, sexuality, historical and geographical location, ethnicity, race, social class, and status.[179] As a professional operatic baritone, and former member of the Domingo-Cafritz Young Artist Program at Washington National Opera, I have an extensive history with this phenomenological perspective. It is my position that it is more the accumulation of opportunities, experiences, and practice that contribute to an individual's musical skill than any innate hereditary traits, talents, or bestowed propensities.

Philosophical Assumptions

Philosophical assumptions are a set of beliefs that guide one's actions, the foundation on which one builds reality – the nature of the world, one's knowledge of it, and the role of values in the process of knowledge production.[180] The common ground among the philosophical assumptions within this study exist within the lived experiences of the participants, the view that these experiences are conscious ones, and that their descriptions are the result of the essences of these experiences, and not explanations or analyses.[181] These assumptions influence the interpretive and constructivist framework of this qualitative study, and it would be unwise to underestimate their importance.

Ontological Assumption

Ontological assumptions relate to the nature of reality and its characteristics.[182] Within the context of qualitative research, ontology is discussed in terms of beliefs about the existence

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[179] Andrew Gary and Darwin Holmes, "Researcher Positionality - A Consideration of Its Influence and Place in Qualitative Research - A New Researcher Guide," *Shanlax International Journal of Education,* 8, no. 4 (2020), 1-2.

[180] Renée Spencer, Julia M. Pryce, and Jill Walsh, "Philosophical Approaches to Qualitative Research," *The Oxford Handbook of Qualitative Research, Second Edition,* (New York, NY: Oxford University Press, 2020), 135.

[181] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 77.

[182]John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 20.

of objectivity and universal truth. On one end of this spectrum is a belief that reality is consists of universal truths that can be known, and on the other end is a belief that reality is subjective and a universal understanding of psychological experiences cannot be obtained because they must understood within the contexts within which they are embedded.[183] Within the framework of a qualitative study, different researchers embrace different realities, as do the readers and the individuals being studied.[184] This study shares the ontological perspective that reality is subjective and contextual. This research, therefore, investigated the participant's understanding of their ecological reality, and how best to classify its essence. Regarding the research purpose and questions, the perspective of each participant experienced their engagement in utilizing the intervention is unique. The researcher was, therefore, responsible for accurately identifying and reporting the perspectives as ideas, themes, and concepts developed in the findings within the multiple realities of the participants.[185]

Epistemological Assumption

The epistemological assumption, within the framework of a qualitative study, means that researchers seek to closely attain to minimizing objective separateness.[186] This research is grounded in the epistemological perspective that by understanding the lived experiences of the participants, one can better understand their perspectives. Utilizing open-ended interviews, this

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[183] Renée Spencer, Julia M. Pryce, and Jill Walsh, "Philosophical Approaches to Qualitative Research," *The Oxford Handbook of Qualitative Research, Second Edition,* 114.

[184] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 20.

[185] Ibid., 21.

[186] Ibid., 20.

research relies on quotes as subjective evidence from participants, in an attempt to lessen the distance between the researcher and those being interviewed.[187]

Axiological Assumption

The axiological assumption seeks to understand the role of values within the research. Research in qualitative study is value-laden and therefore biases are present.[188] This research was guided by the values of equity, opportunity, and inclusion, and seeks to clarify misconceptions of talent as a means toward limiting and discouraging participation in musical performance. As is such, the types of questions asked within this research have been influenced by the researchers' worldview, and the analysis of the findings and extrapolation of the themes are likewise influenced by these biases. Participants in this study may not share the same philosophical values or perspectives, but they have experienced the non-inclusive nature of descriptions of talent.

Researcher's Role

In addition to my responsibilities as a music educator and choral director I maintain an active professional singing career throughout the United States. My professional career has afforded me opportunities to coach high school and university students on strategies towards pursuing successful vocal performance careers. The impetus to pursue this research is found in a desire to clarify the origins of musical ability and address the effect of the adolescent living environment, as a means to contribute to the body of work concerning adolescent ecology and the acquisition of musical skill.

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[187] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 20-21.

[188] Ibid.

I assumed the role of researcher and key instrument for the collection of data in this study. Data collection methods included examination of existing literature, relevant documents, and interviewing of study participants.[189] The role of human instrument, a concept first introduced by Lincoln and Guba, stresses the uniqueness of the researcher's role in scientific inquiry. This uniqueness lies in the principle that only people "construct and bring meaning into the world through their qualities of sensitivity, responsiveness and flexibility, making them the most appropriate instrument for inquiries aiming to arrive at understanding and meaning."[190] In focusing on the wholeness of the experiences of the participants while seeking to capture their essence, I maintained my responsibility as researcher. Concerning the interview process, the integrity of the researcher – his or her knowledge, experience, honesty, and fairness – are the decisive most factors contributing to ethical research.[191] In qualitative research, the intent is to explore the complex set of factors surrounding a central phenomenon and present the varied perspectives of the participants.[192] In understanding the responsibilities of the role of the researcher, it is more about learning to see and judge than to universalize and calculate.[193]

Procedures

[189] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 45.

[190] Margarita S. Peredaryenko, and Steven Eric Krauss, "Calibrating the Human Instrument: Understanding the Interviewing Experience of Novice Qualitative Researchers," *The Qualitative Report,* 18, no. 85, (2013), 1.

[191] Steiner Kvale, and Svend Brinkmann, *Interviews: Learning the Craft of Qualitative Research Interviewing, Second Edition,* (Thousand Oaks, CA: SAGE Publications, 2009), 79.

[192] John W. Creswell, and J. David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Los Angeles, CA: SAGE Publications, 2018), 133.

[193] Ibid., 79.

The following paragraphs detail the selection process for participants, data collection, and how the data were analyzed to enhance the credibility of the findings. Permission was granted by Liberty University IRB (Appendix A).

Recruitment Plan

Participants for the study were selected utilizing purposive sampling from a pool of approximately 80 former members of the Cafritz Young Artist Program at Washington National Opera. Concerning the phenomenological nature of this study, participants were selected using a criterion sampling strategy to ensure that all individuals studied represented people who have experienced the phenomenon.[194] Consent forms were distributed to those individuals who expressed interest (see Appendix D). The consent form described the rationale of the study, the expectations of those who choose to participate, a declaration that no compensation or incentives will be offered, the protocol for protecting personal information, and the steps and procedures for withdrawing from the study. Participants were allowed to review the consent form and ask questions about their potential inclusion in the study. For those who expressed interest, a signed consent form was submitted to the researcher indicating their participation in the study (see Appendix D).

Data Collection Plan

The qualitative research interview seeks to understand the world from the perspective of the subject, to unfold the meaning of their experiences, and to uncover their lived world prior to scientific explanations.[195] The research interview is a professional conversation where

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[194] John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Third Edition,* 155.

[195] Steiner Kvale, and Svend Brinkmann, *Interviews: Learning the Craft of Qualitative Research Interviewing, Second Edition,* 1.

knowledge is constructed in the interaction between the interviewer and the interviewee.[196] This research applies a life world interview as a means toward obtaining descriptions of the lived experiences of the participants in order to interpret their relevant meaning.[197]

This research study administered a semi-structured, responsive interview model to gain a deeper understanding of the significant characteristics of the participant's adolescent living environments and vicariously experience their unique perspectives. Within the responsive interview model, the researcher and the interviewee develop the relationship of a conversational partnership that influences the interview process. Central to the responsive interview process is the importance in collecting rich, and thorough data in ways which do not harm the participants or their perspectives.[198] In addition to the utilization of a responsive interview model, this research incorporates a performance analysis, implementing a specifically designed rubric (Appendix B) aimed at identifying specific performance qualities among the participants. When possible, the correlation of these performance qualities to specific aspects of the adolescent living environment are identified.

Responsive interviews are designed according to three types of questions: *main questions* that elicit the overall experiences and understandings of the conversational partner but may not provide the requisite depth to answer the research problem; *probes* which generate the needed detail to enhance the stories and inform the narratives; and *follow-up questions* develop the responses of the interviewee in an effort to get a better and deeper understanding of the

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[196] Steiner Kvale, and Svend Brinkmann, *Interviews: Learning the Craft of Qualitative Research Interviewing, Second Edition*, 2.

[197] Ibid., 3.

[198] Herbert J. Rubin, and Irene S. Rubin, Qualitative Interviewing: The Art of Hearing Data, Second Edition, (Thousand Oaks, CA: SAGE Publications, Inc., 2005) https://dx.doi.org/10.4135/9781452226651

answers.[199] Brinkman and Kvale identify seven stages of an interview inquiry: thematizing an interview project, designing, interviewing, transcribing, analyzing, verifying, and reporting.[200] Each of these stages have been implemented in the responsive interviews of this research study.

The interviews were conducted utilizing Microsoft Teams and live transcriptions were captured and downloaded.

Individual Interviews

Individual interviews were conducted among study participants to generate an accurate depiction of the effects of the adolescent living environment of everyone in expert musical skill development. Questions were formulated to provide sufficient detail, and to identify shared concepts, ideas, and themes that describe the participants' adolescent ecological experiences. The interviews were conducted utilizing Microsoft Teams video conferencing, transcribed, and recorded to maintain authenticity in capturing the perspectives of the participants.

Individual Interview Questions

Each singer was interviewed utilizing a set of open-ended questions aimed at eliciting details about the participant's experiences and their adolescent living environment related to the development of expert musical skill. These questions aimed at investigating the living environment by decoding significant events and qualities within the adolescent ecology of the participants within the framework of Bronfenbrenner's four successive levels of ecology: the microsystem, mesosystem, exosystem, and macrosystem.[201] These questions, although few, were

[199] Herbert J. Rubin, and Irene S. Rubin, Qualitative Interviewing: The Art of Hearing Data, Second Edition, (Thousand Oaks, CA: SAGE Publications, Inc., 2005) https://dx.doi.org/10.4135/9781452226651

[200] Steiner Kvale, and Svend Brinkmann, *Interviews: Learning the Craft of Qualitative Research Interviewing, Second Edition,* 102.

[201] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 515.

specifically designed to initiate broad conversations pertaining to the participants adolescent living environment and each of the four successive levels of ecology.

Microsystem

1. How would you describe the context of your adolescent musical performances?

Question one was designed to investigate the microsystem effects of the adolescent living environment on the development of musical skill by identifying significant developmental events that influence the acquisition of skill.

Mesosystem

2. What are your early experiences in music?

Question two investigates the mesosystem effects on the development of expert skill. This level of the adolescent ecology functions as a system of microsystems all effecting the development of the individual.[202] In posing these questions, this research aimed at compiling the adolescent environmental opportunities and experiences that have worked to influence the development of musical skill.

Exosystem

3. Please describe the context of the musical experiences of your parents and siblings?

Question three investigates the exosystem effects that establish the culture and values system of the developing person. This ecological level includes events that do not immediately influence the developing person but affect the setting containing the developing person, thereby affecting their development.[203]

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[202] Urie Bronfenbrenner, *Making Human Beings Human: Bioecological Perspectives on Human Development* (Thousand Oaks, CA: SAGE Publications, 2005), 46.

[203] Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design*, (Cambridge, MA: Harvard University Press, 1979), 25.

Macrosystem

4. How would you describe your adolescent support system related to your musical skill development?

Question four investigates the macrosystem ecological effects of the adolescent living environment on the development of musical skill. At the macrosystem level, consistencies in the form and content of lower-order systems (micro-, meso-, and exo-) that either exists or could exist, affecting the cultural and subcultural environment of the developing person, are investigated.[204] This level concerns the belief systems of the ecological environment which directly effects the potential of the developing person.

Data Analysis Plan

Individual interviews were transcribed utilizing transcription software included in Microsoft Teams and reviewed by the researcher to ensure accuracy and authenticity. Following this initial review, transcriptions were distributed to participants to verify the integrity of the information utilizing member-checking to ensure that their experiences were accurately represented in the transcribed data. Upon confirmation of the accuracy of the transcriptions, the researcher reviewed the data multiple times, and implemented a thematic analysis model to interpret what the data reveal. The thematic process requires a series of sequential steps from the specific to the general, involving multiple levels of analysis. Creswell and Creswell outline this process as a series of five steps: organizing and preparing the data for analysis, reading all the data, coding all the data, generating a description and themes, and representing the description and themes.[205] Following the downloading, each transcription was reviewed with the original

[204] Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design,* 26.

[205] John W. Creswell, and J. David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 193-194.

recording for accuracy and corrected where required. Finally, the transcript was forwarded to the appropriate participant for approval (member checking). Once member checking was complete, transcripts were uploaded into a Delve Tools coding software for coding.

A thematic analysis was employed to explore primary themes and essential characteristics across all data. These data were analyzed via both inductive and deductive coding. Deductive codes are generated based upon the original research questions and design framework. By contrast, inductive codes are derived from data.[206] The analysis of the codes consisted of grouping them into themes, evaluating, revising, and combining as necessary. This phase was accomplished with careful attention to the context of the research, ensuring that the themes make sense.[207] This process culminated in a written narrative summarizing the findings.

Data Synthesis

Once the data analysis was complete, the findings were synthesized as a coherent body of evidence that addressed the central research questions of this research. This synthesis was accomplished through the writing of the narrative, incorporating, and summarizing the identified themes as related by each of the participants, and is accomplished through four phases.[208]

The first phase, initialization, includes preparing and organizing data to be analyzed and is comprised of three stages: reading transcriptions, highlighting meaning units, noting initial ideas. The second phase, construction, includes reflecting upon the process of organizing codes, comparing them in terms of similarities and differences, and assigning a place to each cluster of

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[206] Mojtaba Vaismoradi, Hannele Turunen, and Terese Bondas, "Content Analysis and Thematic Analysis: Implications for Conducting a Qualitative Descriptive Study," *Nursing and Health Sciences,* 15, no.3 (2013), 401.

[207] Ibid.

[208] Ibid., 402.

codes as they related to the research question; ultimately reducing them to themes. Within the third phase, rectification, the theme is on the verge of full development, at which point, the researcher takes stock and continues to reappraise the analysis process. As a means towards accomplishing this task, the researcher must distance himself/herself from the data for a period to increase his/her sensitivity and reduce the risk of incomplete data analysis, self-awareness, self-reflection, and to allow the themes to emerge. Within the fourth stage, finalization, the researcher of the study will produce a coherent story that connects and identifies themes from the data, as well as connecting the story line to the literature pertaining to the content. It is in this fourth stage that the narration is developed.

Trustworthiness

Four criteria have been proposed for qualitative research in pursuit of trustworthiness: credibility, transferability, dependability, and confirmability.[209] These criteria have been expanded to ensure that the qualitative researcher's study meets the rigorous standards of academic research.[210] This section outlines the steps or procedures inform of rigor applied in meeting these criteria.

Credibility

Credibility represents the extent to which the findings of a study accurately interpret the original perspectives of the participants. According to Lincoln and Guba, this must be perceived as a two-step process. First, to inquire in such a way to enhance the probability that the findings will be found to be credible, and, second, to demonstrate the credibility of the findings,

[209] Egon G. Guba, and Yvonne S. Lincoln, "Epistemological and Methodological Bases of Naturalistic Inquiry," *Educational Communication and Technology,* 30, no. 4 (1982): 246.

[210] Andrew K. Shenton, "Strategies for Ensuring Trustworthiness in Qualitative Research Projects," *Education for Information,* 22 (2004): 63.

considering the ontological assumption, the researcher must have the findings approved by the constructors of the multiple realities that are being studied.[211] Within the context of this research, credibility was achieved through employing triangulation, member checking, and peer debriefing.

Triangulation

Triangulation of data collection was implemented within this research study to inquire towards emerging themes among the participants. Triangulation provides diverse ways of examining a phenomenon and adds credibility to the research by strengthening confidence in whatever conclusions are drawn.[212] Within this research, triangulation was accomplished first through a wide range of diverse informants, affording a triangulation of data sources.[213] Secondly, interviews were reviewed multiple times and open coding was implemented to classify key concepts into themes. Following the assigning of themes, axial coding was implemented to draw connections between these concepts. Follow-up interviews were utilized when necessary allowing the participants to correct, clarify, and enhance the emergent themes from all data sources.

Member Checking

Provided the narrative nature of this research, investigating the adolescent experiences of the participants, providing interviewees the opportunity to review the transcripts of their interviews to ensure the accuracy of their words and intentions is paramount. The activity of member checking provides for the direct test of the findings and interpretations with the human

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[211] Yvonne S. Lincoln, and Egon G. Guba, *Naturalistic Inquiry* (Beverly Hills, CA: SAGE Publications, 1985): 296.

[212] Michael Quinn Patton, *Qualitative Research and Evaluation Methods*, 556.

[213] Andrew K. Shenton, "Strategies for Ensuring Trustworthiness in Qualitative Research Projects," 65.

sources from which they have come, further ensuring the trustworthiness of the research.[214] Following the transcription of the interviews, copies were provided to each participant for their review, and to check for the accuracy of their words and intentions. This process allowed participants to confirm or challenge the veracity of the transcription. When inconsistencies were discovered, follow-up interviews were conducted to provide additional opportunities to confirm the validity of interpretations of the experiences.

Peer Debriefing

Peer debriefing works to authenticate the credibility of the researcher by probing the biases, exploring the meanings, and clarifying the bases of the interpretations.[215] Competent qualitative researchers were engaged to review and evaluate the written transcriptions of interviews and to assess the emerging interpretations and themes of the study.

Transferability

Transferability demonstrates that the findings may have external validity within other contexts. Although the researcher cannot specify the validity of the findings in other contexts, they may provide a thorough description enabling someone interested inquirer to reach a conclusion about whether transfer can be contemplated as a possibility. [216] The potential for these conditions were accomplished by providing rich contextual information about the participants, their adolescent living environments, investigative procedures, background data, and a thorough description of the phenomenon being studied.

Dependability

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[214] Yvonne S. Lincoln, and Egon G. Guba, *Naturalistic Inquiry* (Beverly Hills, CA: SAGE Publications, 1985): 301.

[215] Ibid., 308.

[216] Ibid., 316.

Dependability is needed to show that the findings are consistent and could be repeated. Insomuch as validity requires the existence of reliability, credibility cannot exist without dependability.[217] Within this research, dependability was addressed through rich, detailed descriptions of themes, vigorous member-checks of the findings and their interpretations, and an inquiry audit engaging a third-party reviewer of the research processes applied throughout this study. Employing overlapping methods of data collection and implementing a concise methodological description within this study, supported by the literature, allows for replication.

Confirmability

Confirmability seeks to ensure that the findings of a work are the result of the experiences and ideas of the informants and not the preferences and characteristics of the researcher.[218] Within this study, triangulation was applied to ensure the confirmability of the research by reducing the effect of potential researcher bias and provide a thorough description of the methodology. Utilizing a data-oriented approach, the integrity of this research was confirmed through a carefully examined audit trail demonstrating how the date were collected and analyzed.

Ethical Considerations

In addressing the ethical considerations of this study securing IRB approval from the research institution was necessary. Once the study received IRB approval, study participants were recruited, and informed consent was obtained. All participant identifying information will be protected, and when applicable pseudonyms were applied to preserve confidentiality. All collected data are stored on an encrypted, password-protected external hard drive, maintained in

[217] Yvonne S. Lincoln, and Egon G. Guba, *Naturalistic Inquiry*, 316.

[218] Andrew K. Shenton, "Strategies for Ensuring Trustworthiness in Qualitative Research Projects," 72.

a locked container for three years following the conclusion of the study, and will be destroyed upon expiration of the three-year period.

Summary

The purpose of this study was to investigate the effect of the adolescent living environment on the development of musical skill by examining the lived experiences of professional singers and identifying themes among their perspectives. This chapter provided a detailed description of the research methods implemented in this study and characterized the participants and the setting. This chapter continued with an explanation of the researcher's positionality, inherent biases, and philosophical assumptions. Later, this chapter outlined the research procedures, including the steps to ensure trustworthiness, and those utilized to analysis and synthesis data. Finally, this chapter highlights the ethical considerations of this research, explains all required permissions, and describes the processes implemented to ensure confidentiality and integrity of the participants.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this hermeneutic phenomenological study was to examine the adolescent living environment of professional operatic singers as it relates to their musical skill development. Chapter four begins with a detailed description of the study participants, reporting the findings in three sections. In the first section, themes identified from the participant interview transcripts related to the core attributes of Urie Bronfenbrenner's nested structures of the adolescent ecological environment. The second section explores similarities in themes discovered in the interviews and the performance analysis examples. The final section presents a description of the findings as they related to the central research questions, followed by a summary of the chapter.

Participants

The study was introduced to former members of the Cafritz Young Artist Program at the Washington National Opera. Of the approximately 80 former program members, 13 individuals requested more information and a consent form. Eight individuals returned the signed consent form within the required time frame, resulting in eight participants for this research. Participants were 62.5% female and 37.5% male, with a median age of 42 years. In addition, persons of color comprised 17% of the participant sample, and Caucasians were 83%. Pseudonyms are applied in Table 1 to describe the research participants.

Table 1

Research Participants

Participant	Gender	Age	Race
Aleyna	Female	35	White/Caucasian

2014-2016 Member of the Cafritz Young Artist Program at Washington National Opera. Professional credits include: Lyric Opera of Chicago, Glimmer Glass Festival, and Portland Opera.

Bella	Female	42	White/Caucasian

2006-2008 Member of the Cafritz Young Artist Program at Washington National Opera. Professional credits include: Opera in the Heights, Ash Lawn Opera Festival, and Virginia Opera.

Dewey	Male	52	White/Caucasian

2004-2006 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: Deutch Oper Berlin, the Metropolitan Opera, and Santa Fe Opera.

Ashley	Female	40	White/Caucasian

2010-2012 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: Welsh National Opera, Santa Fe Opera, and Dayton Opera.

Emma	Female	40	White/Caucasian

2008-2010 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: Boston Opera, Cincinnati Opera, and Kentucky Opera.

Duane	Male	50	Hispanic

2008-2010 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: Reinwood Theatre Concert Series, and the Virginia Opera.

Leyna	Female	42	White/Caucasian

			2006-2008 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: Washington Concert Opera, Atlanta Opera, and Palm Beach Opera.
Vernon	Male	41	White/Caucasian
			2007-2009 Member of the Cafritz Young Artist Program at Washington National Opera. Professional Credits include: The Metropolitan Opera, Baltimore Opera, and Opera de Monte Carlo.

Each of the research participants are professional singers, although some divide their time between teaching and performing. Among the individual participants, the majority work exclusively in the United States, although 37% find periodic employment in Europe and Asia. Concerning the geographic patterning of their adolescent living environments, individuals interviewed represent a diverse range from southern California to New York City.

Results

Interview transcripts were analyzed to identify words, phrases, sentences, or paragraphs that described the participants' experiences with the phenomenon. These meaning units were utilized to develop themes related to the core attributes. Results are presented in four sections. In the first section, participant interview transcripts are analyzed. The themes identified by analyzing the participants' journal entries are discussed in the next section, followed by an exploration of similarities in themes discovered in the interviews and the performance analysis examples. The final section presents a narrative of the findings as they related to the central research questions, followed by a summary of the chapter.

Themes Explored in Interviews

In the final analysis, four main themes emerged from the data and were confirmed in the interviews, and were apparent in the performance analysis. Each of the four core attributes served as the main concept header under which themes were deduced. First, the initial interviews

of each participant were analyzed through the application of the Delve analysis tool. Then, employing inductive coding, meaning units (i.e., common concepts, opinions, and impressions) were identified, coded, and organized into themes as each aligned with the respective core attribute.

In the initial analysis, 30 significant main concepts emerged and were coded in the interviews. The first 29 concepts were identified within the first four interviews, interview six generated an additional significant concept, within the remaining interviews no new information was revealed, only confirmation of the themes previously identified in interviews one through six. Table 2 illustrates the process by which the saturation threshold was achieved. The saturation assessment was determined by applying a base size of four and a new information threshold of ≤ 5%, resulting in thematic saturation at 6^{+2} interviews.[219]

Table 2

Thematic Saturation

Interview Number	**1**	**2**	**3**	**4**
New themes per interview	17	8	2	2
# of Base themes				29

Interview Number	**5**	**6**
New themes per Interview	0	1
New themes in run		1

# New themes/run / # Base themes	=	1 / 29	=	3%

Interview Number	**7**	**8**
New themes per Interview	0	0
New themes in run		0

[219] Greg Guest, Emily Namey, and Mario Chen, "A Simple Method to Assess and Report Thematic Saturation in Qualitative Research," 8.

Applying the hermeneutic circle, the researcher continued to examine, revise, and merge these initial themes to create a more detailed and nuanced interpretation of the participants' experiences misconceptions of talent and the origins of musical skill. The 30 identified concepts were combined and reduced to four significant themes aligned with each of Bronfenbrenner's nested structures of the adolescent ecological environment.[220] As an example, concepts such as "school choir," "church choir," and "community choir," where combined into the single theme of "adolescent musical experiences in school, community, and church" aligning with the Mesosystem level of Bronfenbrenner's ecological hierarchy. Another example is the combining of concepts such as "parental emotional support," "parental financial support," "community support," and "support from church community," into the single theme of "parental and community support" aligning with the Macrosystem level of Bronfenbrenner's hierarchy. Table 3 presents the final inductive themes derived from the application of the hermeneutic circle with their respective definitions. Table 3 also illustrates the number of participants whose comments aligned with the identified themes, indicated by an X in the appropriate box, during their initial interview.

Table 3
Main Themes Aligned to Core Attributes

Microsystem - The Individual Themselves								
Theme	*Aleyna*	*Bella*	*Dewey*	*Ashely*	*Emma*	*Duane*	*Leyna*	*Vernon*
	X	X	X	X	X	X	X	X
Music Present within the Adolescent Living Environment								
Comments made about adolescent musical experiences in school choirs and singing as part of a church.								

[220] Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design*, 5.

Mesosystem - All Microsystems within the Ecological Environment								
Theme	*Aleyna*	*Bella*	*Dewey*	*Ashely*	*Emma*	*Duane*	*Leyna*	*Vernon*
Adolescent Musical Experiences in School, Community, and Church	X	X	X	X	X	X	X	X
Comments made about music being present within the adolescent living environment.								

Exosystem - Not Directly Influential to Individual Themselves, but Affects the Setting Within Which the Individual Develops								
Theme	*Aleyna*	*Bella*	*Dewey*	*Ashely*	*Emma*	*Duane*	*Leyna*	*Vernon*
Musical Parents and/or Musical Relatives	X	X		X	X	X	X	X
Comments made about having musical parents or musical relatives.								

Macrosystem - The Belief System of the Ecological Environment								
Theme	*Aleyna*	*Bella*	*Dewey*	*Ashely*	*Emma*	*Duane*	*Leyna*	*Vernon*
Parental and Environmental Support	X	X	X	X	X	X	X	X
Comments made about having parental emotional and financial support as well as support of cultural environment.								

Microsystem

The microsystem refers to the relationship between the developing person and the environment in an immediate setting.[221] This system is a pattern of activities, roles, and interpersonal relations experienced by the developing person within a specific setting.[222] All

[221] Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," 514.

[222] Urie Bronfenbrenner, *The Ecology of Human Development*, 22.

participants referenced concepts directly related to this attribute which are summed up in the theme, “Music present within the adolescent living environment.”

Music Present Within the Adolescent Living Environment

During the interviews, all participants commented about the presence of music within their adolescent living environments, although the variety of musical genres present was extremely eclectic. Duane spoke of the wide range of musical influences in his adolescent living environment saying, “There was always music around, all kinds of genres from classical and Mexican folk music to pop music, from ballads to rock music, you name it. I grew up with that exposure from age six on, that exposure was a major influence for me in developing, not only a taste for, but also a love for all kinds of music.” Later Duane elaborated, speaking of his grandfather, saying, “There was a program in Mexico that was done by the main radio station that you could hear nationally called Serenade under your balcony. Beginning when I was about six, my grandfather and I, who was one of my biggest influences in music, would sit down every evening and listen to this program and just enjoy the music.” Leyna expanded upon this concept saying, “I grew up in the car going on trips with my parents. During our trips, there was always music. The music spanned all genres from operetta to popular, including both American popular music and popular music from Poland. There was always something on.”

Several participants commented about the existence of classical music within their adolescent living environments. Ashley commented about her mother’s profession having an impact on the types and styles of music existing in her adolescent living environment, stating, “My mother was a ballet dancer. I grew up in her studio and taking ballet class. Later I moved into modern dance. While my mom was teaching, as I was a young child, I was always around classical music because I would hear her playing those records when she was planning her

classes at home." Emma expanded upon this thought, saying, "My mom played piano professionally, as a result, I would say, I was around music in utero. My mom played a lot while pregnant with me, as well as taught piano lessons. Throughout my childhood, she played in a chamber music group. In addition, she played for singers, as well as for instrumentalists. She also was the Children's choir director at our church, and so we were around music a lot at church." Bella added another layer to this concept, saying, "My mother loved popular music, so that was often present in the home, but my grandmother played in orchestras, so we would often go see philharmonic orchestras whenever she played."

Several participants spoke of the presence of music within their adolescent environments, although the styles and genres were not directly connected to opera, or classical music. Aleyna commented on the variations in her living environment growing up in a split household, saying, "Where I grew up in my mom's house, music was like exclusively pop music, performers such as Melissa Etheridge and the Indigo Girls. There was some gospel music mixed in there, but we weren't sitting around the piano making music together." Later, she commented on her experiences in her father's house, stating, "My father was a musician, playing in a cover band in Las Vegas. My earliest experiences in music were playing guitar and singing with him. My dad taught himself many different types of instruments, he could play anything." Vernon spoke of his parent's love for music, saying, "Both my mom and dad loved and enjoyed music, neither sang well, but they loved listening to old rock music and folk music, and I listened to it with them often. We listened to groups like Boston, the Cars, The Guess Who, Jim Croce, James Taylor, Bruce Springsteen, singers of that ilk." Expanding upon this concept, Dewey said, "I remember as a child was that music was definitely there, as far as my being exposed to it, but the types of music were not classical. My mother and father loved Saturday Night Live, and we would listen

to Steve Martin and his King Tut album. As a young child, I would play that album over and over again. I loved to listen to soundtracks as a child. I would listen to *Star Wars* and all of the Rocky films. Music played a big role in my life growing up." Dewey elaborated upon this concept further, saying, "I remember as a kid listening to albums over and over again to the point where I memorized it and could tell you how far we were into any album. Listening to all the various types of rhythms and pitches, as well as sounds and textures that came from a gargantuan mix of styles, from Willie Nelson to movie soundtracks, developed in me a sense of noticing patterns that has helped me in my career."

Mesosystem

The mesosystem comprises the interrelations among two or more settings in which the developing person actively participates.[223] Within the context of adolescent ecology, this mesosystem most often comprises the interactions among family, school, and peer groups. All participants referenced concepts directly related to this attribute which are summed up in the theme, "Adolescent musical experiences in school, community, and church."

Adolescent Musical Experiences in School, Community, and Church

All participants commented about adolescent musical experiences in their schools, their communities, and in their churches beginning in their early adolescent years. While many of these early adolescent musical experiences concerned singing in choirs, several individuals commented about playing instruments as their earliest musical experiences. Aleyna said, "I started playing violin at age four, that was my first musical experience exposure." Bella elaborated upon this concept, adding in a familial expectation stating, "There was an expectation, I started taking piano lessons at age four or five, it was just what you do." Ashley spoke of a

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[223] Urie Bronfenbrenner, *The Ecology of Human Development*, 25.

mixture of early instrumental and vocal musical experiences, “In middle school there was a select chamber choir that I sang in. I also took private cello and piano lessons as a kid, occasionally performing in recitals.”

Other participants spoke of participation in vocal performance, including choirs, as part of their church experience. Dewey commented that he attended the, “Trinity Episcopal School of Texas connected to the church,” and that he, “often sang in church.” Later Dewey spoke of a music teacher at his church school who guided him, stating, “She brought me into the music world, learning the technical aspects of music.” Leyna elaborated upon this theme, speaking of an influential member of her church community, she said, “There was a priest at the church that we belonged to who formed a choir for young girls. When I was between six and seven years of age, I joined the choir and eventually recorded some songs with him. In addition, I sang as a Cantor at the church.” Leyna also stated about her young girl choir, “In the evening time, we would gather around the fire and sing and learn new music. We learned everything by ear.” Vernon commented about his adolescent church music experiences, saying, “I used to perform regularly in my church, singing solos as part of the Christmas pageant.” Vernon later elaborated, stating, “When I was three, I would perform for my grandparents at their house, standing on an ottoman and singing all of the songs that a young person learns in Sunday school.”

Other interview participants commented pertaining to this theme by speaking of community musical experiences in which they were afforded the opportunity to participate. Duane spoke of his adolescence stating, “I started singing at age six. At age six, I began competing in local children’s voice competitions in Mexico. Most of that music was regional Mexican folklore music.” Emma said, “I had some choir solo experience as part of a camp my mother directed for myself and three other girls. We did show tunes and other assorted music for

our parents. We worked on the music for six weeks over the summer and then we performed it. That camp was my first taste of singing alone in front of people." Emma later elaborated upon her adolescent musical experiences stating, "When I was eleven, I was in an auditioned touring group, the preeminent group, with the Nebraska Children's Choir."

Each of the participants spoke of the significance of school choir in their interviews. Vernon stated, "I sang in choir throughout middle school and high school. I would sing in all of the school talent shows, sing solos whenever I could, participate in solo ensemble contests, and I loved it." He continued, "In addition, I sang in the All-State choir as a junior and senior and that experience greatly influenced my life." Concerning school choir participation, Emma said, "It was in middle school that that I discovered the chorus. I stayed in chorus throughout high school and into college." Aleyna elaborated upon her adolescent choral involvement, stating. "In seventh grade, I joined the concert choir. I was performing with them in the group, but I was also selected for honors choir and sang solo. At the end of high school, I was the president of the choir. Choir, or the choir, was definitely my musical home in high school." Ashley spoke of her choral experience stating, "I started in the choir at school in middle school. There was a select chamber choir that was auditioned as well." She elaborated saying, "When I was sixteen, I went to the Boston University Tanglewood Institute where we performed in a really large choir and had private voice lessons, the performances were choir concerts and recitals where we performed as soloists." Dewey elaborated on his adolescent choir experience as exerting a significant influence on his development, "I attribute all the experiences to, you know, my big eureka moment was the Texas Allstate Choir performance, that's what really made the decision for me to pursue music."

Exosystem

The exosystem comprises one or more settings that do not actively involve the developing person as a participant, but within which events occur that affect, or are affected by, what happens in the setting encompassing the developing person.[224] Study participants referenced concepts directly related to this attribute which are included in the theme, "Musical parents and relatives."

Musical Parents and Relatives

Seven of the eight participants commented about having musically skilled parents or extended family members and referenced the indirect effect of their development. Several individuals commented concerning musician relatives who specialized in a non-classical musical genre. Vernon commented about his grandfather as well as a great uncle who both demonstrated musical skill, saying, "My grandfather played in a dance band in his youth, they traveled across the Midwest playing dance halls and were relatively popular. Additionally, one of my great uncles on my father's side received a music scholarship to attend college, later majoring in economics." Leyna expanded upon this concept, speaking of both her mother, saying, "My mother was in choir, and always mentioned that it was a positive experience. She mentioned having a really great music teacher who taught them proper diction and solfege." Later of her grandfather, she said, "My grandfather played semi-professionally and was always playing somewhere with his band." Speaking of her father, Aleyna said, "My dad was in a band, a cover band, and was a professional musician." Duane talked about singing in his family, stating, "My grandfather and grandmother were always singing. When we would gather for family reunions, my mother and father would sing too."

[224] Urie Bronfenbrenner, *The Ecology of Human Development,* 25.

Other participants commented about classical musicians with their immediate and extended family. Ashley discussed her aunt, saying, “My aunt trained as an opera singer, although she stopped early on, within her first few years of college.” Bella added further to this concept, saying, “My grandfather’s sister was an operatic contralto.” Emma spoke extensively of the effect of the musicianship within her family, she said, “My mom is a pianist, and not a singer, so she didn’t know about the technical, but she definitely coached me and taught me musicality. Much of my musical instinct – my phrasing, came from my mom in coaching and maybe just imbibing it from her.”

Macrosystem

The macrosystem refers to consistencies in the form and content of lower-order systems that exist or could exist, at the cultural or subcultural level informing a belief system or ideology.[225] These macrosystems are examined not only in structural terms but as carriers of information and ideologies. These ideologies, explicitly and implicitly, endow meaning and motivation to specific agencies, social networks, roles, and activities.[226] All participants referenced concepts directly related to this attribute which are included in the theme, “Parental and environmental support.”

Parental and Environmental Support

All participants commented about parental and environmental support within their adolescent living environments. Among the responses, there was a wide range in the degree to which the support was actively involved in the development of musical skills. This support was not only emotional, but also financial, and varied significantly from individual to individual. In

[225] Urie Bronfenbrenner, *The Ecology of Human Development,* 26.

[226] Urie Bronfenbrenner, “Toward an Experimental Ecology of Human Development,” 515.

addition, some participants commented concerning a perceived expectation of musical performance as part of their environmental culture and familial lifestyle. Bella spoke of this expectation, saying, “It was the expectation in my family, we all played instruments. And so the place to start, as I recall, was piano. Piano is where you learn the language. It's where you learn to read, it’s where you start.” Later, Bella elaborated, saying, “For my mom, I think it was aspirational. It was part of her identity as a mom that each of her children would be musicians.” Emma expanded upon this concept, commenting regarding the expectation of learning an instrument even while not enjoying the process, saying, “Around age seven, I started studying piano with my mother, she taught me during first grade and it did not go well. We fought continuously, and she quickly discovered that that was not a good idea. Later, she sent me to another teacher, and I studied piano second through fifth grade and had recitals every year, sometimes even twice a year and really did not enjoy that at all.”

Several participants commented about the hands-on support within their adolescent living environments and the effect that had on developing musical skills. Leyna said, “I really feel that my parents were the ones who always, you know, pushed me in that direction. I think the fact that they knew that I loved music, and they could see me grow as a young singer. They saw in me that this was something I loved to do, and arranged lessons for me. I had voice lessons every single Sunday after morning mass, my parents would drive me for lessons.” Ashley confirmed this support, stating, “My parents were really supportive in that they allowed me to study music and would let me borrow the car and get myself there. Even before I could drive, they would let me take the train by myself. They were hugely, hugely supportive.” Emma elaborated further, stating, “My mom knew which people to connect me with. She would drive me wherever I needed to go. And would constantly seek out those opportunities for me.”

Other participants spoke of an emotional support system that included not only their immediate family but also the support of their community and churches. Duane commented regarding the support of, not only his mother, but also his grandparents, saying, “My grandfather and my grandmother loved music, and they would encourage me to do it. They encourage me to continue singing and follow a professional career in Mexican folklore music, which I almost did.” Dewey expanded upon this, saying, “My mother, being a single parent, had three children and worked all the time, so, yes, she did a lot by keeping a roof over our heads and giving me unending emotional support. And honestly, she was so busy paying for things she wasn't around often. As a young person, my support system included friends and close family as well.”

In addition to the comments concerning the emotional and physical support, several participants commented regarding their adolescent living environment finances. Vernon commented about the financial support within his adolescent living environment, saying, “My parents knew nothing about music, nothing about music performance, but always support my interests. I remember talking to my parents about wanting to pursue a degree in music, and the next weekend, they drove to Schmitt music and bought a brand-new piano for our house.” Ashley elaborated upon this concept, saying, “I definitely was supported in that my parents were paying for private lessons. I mean, that's a huge support, and sending me to these programs and being willing to allow me to participate in all of the after-school stuff. You know, the things that had a big impact on my development.” Aleyna added further to this concept, saying, “My parents, not only supported violin but made sure I could stay late at school to do acapella practice, they also helped fund my going to Europe with my high school choir. I think between social capital and literal financial resources, I grew up in a welcoming and flexible environment.”

Themes Explored in Performance Analysis

Following the analysis of the interviews, and the application of Delve Tools to code central concepts and themes, a rubric was created, and a performance analysis was conducted to explore evidence of themes in performance samples (See Appendix B). These performance samples, provided directly from the study participants, sought to provide a quintessential representation of the individual's performance aptitude. Given that each of the study participants is a trained, professional singer, extreme scrutiny was implemented in analyzing the performances. Correlations between themes and performance attributes have been identified, applied to the theoretical framework of this research, and are described in this section.

Microsystem

Concerning the microsystem level theme of the presence of music within the adolescent living environment, analysis of Dewey's performance of "Una furtive lagrima" reveals significant findings. As the performance rubric will attest, Dewey's interpretation bares remarkable similarity to famous performances from singers such as Luciano Pavarotti and Placido Domingo. Every melisma, cadenza, and glissando can be traced to performances by these great tenors. From the subtle addition of the shadow vowel [ə] between the syllables of the word 'spun[ə]to,' to the scoop approach to the high A flat in the 'quelle festose giovani,' these are musical traits that are not taught, but rather absorbed from significant hours of listening. Within his interview, Dewey alluded to this concept, saying, "I was mimicking famous singers just to get my senior recital repertoire learned in high school. I was listening over and over again until it was memorized. The power of listening to these tenor arias really made the decision for me to pursue music."

Mesosystem

Concerning the mesosystem level theme of music involvement in school, community, and church, analysis of Vernon's performance from *Don Carlo,* as the performance rubric will attest, explores the effect of musical participation within the adolescent living environment and its potential impact on the development of expert musical skill. The baritone aria from *Don Carlo* is a daunting endeavor, expecting the singer to sing long, flourishing vocal lines while sustaining a tessitura that remains at the passaggio for long durations. In addition, Verdi's dynamic expectations are challenging to the point that they are often ignored. Among these often ignored dynamic requests is the 'ei che premia i suoi fedel,' which asks the baritone to sing a dolcissimo high F in the middle of the phrase. Many singers, lacking the breath technique to accomplish this, opt to sing it full voice, Vernon however, sings a beautifully lyrical high F with a subtle diminuendo before finishing the line with an equally impressive trill. In one vocal phrase, years of vocal study and training are displayed. Later, within the 'io morro' portion of the aria, Vernon demonstrates a remarkable breath control, singing the entire opening verse on one breath. This performance, while subdued, is a masterclass on expert vocal technique, and can only be the result of countless hours of guided training and deliberate practice, which, as research suggests, is consistently correlated with a broad range of performance, including expert level performance.[227] Vernon spoke of this concept in his interview, saying, "I grew up in a small town, isolated from the opportunities found in larger cities. My musical culture included school choir, small town community theater, and singing opportunities within the churches my parents attended. I attended a Lutheran church when with my mom and a catholic church when with my dad. In both churches, music was a significant portion of the worship ceremony. I did a lot of singing as a child."

[227] K. Anders Ericsson, Ralf Th. Krampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance," 392.

When analyzing his performance sample, there is a perceived ease to his singing that can only be accomplished with a substantial understanding of the voice and expert technical skill. Although musical involvement in school, community, and church during adolescence influences musical interest, and develops novice musical skill, it cannot solely explain expert skill development, rather, it works as one contributing factor among a lifetime of vocal study.

Exosystem

Concerning the exosystem level theme of musical parents and relatives, Emma's performance of the Jake Heggie art song, adds to the discussion. As Emma has alluded to in her interview responses, her mother was a professional pianist, and much of Emma interpretative skill is the result of learning from her mother. Emma said, "Music was around me all the time, and then as I got older, there started to be a lot of musical coaching from my mother. I would say 90% of my musicality came from my mother's coaching." In analyzing her performance, the influence of her mother's nurturing is evident. Emma sings with a commitment to every individual word, ensuring that each note is given attention. On one hand, this makes for a committed and artistic performance, on the other, it detracts from the legato vocal line. In considering the origins of Emma's musical training, it is easy to ascertain the correlation between the coaching received from a non-singing pianist, and the overly detailed approach to musicianship. Emma's musical interpretation, and general approach to musicality, include instrumental overtones, undoubtedly a result of years of learning from her mother.

Macrosystem

Concerning the macrosystem level theme of parental and environmental support, Ashley's performances from *Salome* provide a solid example of this concept. Ashley's performance, as the performance rubric will attest, demonstrates a mastery of character and

theatrical presence. The entirety of the performance is committed and consistent, she truly manifests authentically as the character on stage. The staging is physically demanding and pushes the boundaries of what is possible while singing a role as challenging as *Salome*. It is clear from the expert quality of the performance that Ashley has invested significant time honing her theatrical craft. When considering the structure of support within her adolescent living environment, significant correlations between opportunities provided and acquired skills are evident. During her interview, Ashley commended her adolescent opportunities, saying, "I had huge parental support in their sending me to all of these programs, including the Boston University Tanglewood Institute Young Artist Program where we performed in a really large choir, had private voice lessons, and performed in masterclasses and opera scenes programs." The financial support of her adolescent living environment afforded Ashley opportunities not afforded to all young singers. As a comparison, the 2023 Boston University Tanglewood Institute Young Artist Program costs more than $9,000 to attend, this cost is not fiscally possible for everyone.[228] This program provides an intensive and comprehensive curriculum aimed at developing all of the essentials for healthy vocal technique, sensitive and informed musicianship, and convincing performance.[229] Analyzing all factors of Ashley's adolescent living environment works to provide necessary context for the origins of her expert skill.

Research Question Responses

This study was guided by a two central research questions designed to investigate the effect of the adolescent living environment on the development of musical skill. The aim was to

[228] Boston University College of Fine Arts, "Tuition and Fees," accessed on June 13, 2023, https://www.bu.edu/cfa/tanglewood/admissions/tuition-fees/

[229] Boston University College of Fine Arts, "Young Artists Vocal Program," accessed on June 13, 2023, https://www.bu.edu/cfa/tanglewood/program/yavp/

determine what factors may influence the adoption or rejection of the intervention in their future practice. Four themes were identified from the interviews and the performance review in the previous sections. This section associates the emerging themes with the appropriate research questions.

Central Research Questions

This research is guided by two central research questions; Question one: What are the effects of the adolescent living environment on the development of musical skill among professional singers? Question two: What adolescent environmental factors do professional singers share that have contributed to their musical development?

Following the individual interviews and completion of the performance analysis, findings indicate that similarities among adolescent living environments exist, within each study participant, enabling musical skill development. Each of the adolescent environments the participants described, although greatly varied, shared three significant commonalities: The presence of music within the adolescent living environment, musical experiences in school, community, and church, and parental and community support.

Music Within the Adolescent Living Environment

All the participants commented about the presence of music within their adolescent living environments, and although the styles of music varied, its accessibility was undeniable. As Duane said, “There was always music around.” Vernon elaborated upon this theme, he said, “My parents separated when I was quite young, but music was always present in both homes” Leyna confirmed this concept, stating, “There was always music in my house.” Towards developing a musical ear, and gaining an understanding of musical structure and form, this exposure is undoubtedly beneficial. Dewey summarized this concept, he said, “My ability to understand

music, all the various types of rhythms, pitches, sounds, and textures came from listening to a gargantuan mix of music as a child."

Adolescent Musical Experiences in School, Community, and Church

Every participant commented about the existence of music opportunities and experiences in school, community, and church within their adolescent living environments. When accessible, each participant commented about participating in school music ensembles and theatrical experiences. When musical experiences were not available in school, or when more rigorous musical opportunities were needed, participants sought experiences outside of the classroom. Aleyna commented about this theme stating, "In high school, I joined the concert choir. I was performing with them in the group but was also selected for honors choir and I did a lot of solos. At the end of high school, I was the president of that choir." Ashley expanded this concept, speaking about seeking out community experiences, she said, "When I was 16, I joined an auditioned, but amateur, chorus in Philadelphia, and that had a massive impact on me, it was called the Music Group of Philadelphia. Later, while still in high school, I joined the Philadelphia Singers." Leyna elaborated further, alluding to musical experiences afforded her at church, she said, "The priest, at the church that we belong to, formed a choir, an ensemble for young girls, I joined that choir when I was six or seven years old. I continued to sing, and canter, in the church until I was 17."

Parental and Community Support

In addition, each participant commented about financial and emotional support within their adolescent living environments. Although the source of this support varied among participants, it was present in each. In every case, a belief in the individual's ability to develop their musicianship, to improve vocally, and to develop skill was present. When necessary,

familial and community support afforded the participants opportunities to further expand their musical understanding by financing and arranging private lessons, music camps, extracurricular musical activities, and performance experiences. Aleyna commented regarding this concept, she said, “The financial resources for me to be able to take music lessons. When I asked to learn the violin, my parents got me a violin, no questions.” Emma added to this theme, she said, “Whenever I wanted to study music, whether piano or voice, I was always given the opportunity to study with the best teacher.” Dewey elaborated further upon this concept, he said, “I wanted to attend a camp at the Westminster Choir College, but I couldn't afford to go. So a lot of people from my church and community chipped in and helped me go. There was a lot of great support, both emotionally and financially."

Summary

This chapter began with a detailed description of the study participants and reported the findings in three sections. The significant themes identified from the participant interviews were discussed in the first section. These themes were aligned with the four nested structures of the adolescent ecological environment as identified by Bronfenbrenner.[230] The central theme associated with the microsystem level of the adolescent ecological environment was *music present within the adolescent living environment*. The theme associated with the mesosystem level of the adolescent ecological environment was *adolescent musical experiences in school, community, and church*. Thirdly, the theme associated with the exosystem level of the adolescent ecological environment was *musical parents or relatives*. The fourth and final theme associated with the macrosystem level of the adolescent ecological environment was *parental and community support*. Of the four identified themes, three were present in every participant

[230] Urie Bronfenbrenner, *The Ecology of Human Development,* 3.

interview, only one, the exosystem level theme of musical parents and relatives, was not consensus, rather it was present in seven of eight transcripts.

Second, the themes explored in the performance analysis were discussed in the next section. The performance samples were analyzed utilizing an assessment rubric [see Appendix B] designed to differentiate subtle differences in expert performance. The performance analysis revealed correlations between themes identified in the interviews, and performance attributes. Where applicable, specific examples were cited to further confirm these correlations. The relationship of each of the four central themes to the performance samples were explored in this section, and further detailed in discussion. Correlations where further confirmed by direct participant quotes within this section.

The final section presented the responses of the participants and the identified themes to the central research questions. Participant's individual responses to the interview questions pertaining to their adolescent living environments were summarized and associated with one of the central research questions. Through their responses to the interview questions, participants gained an understanding of the effect of the adolescent living environment on the development of musical skill. The four significant themes that emerged from this study were music present within the adolescent living environment, adolescent musical experiences in school, community, and church, musical parents or relatives, and parental and community support.

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this hermeneutic phenomenological study was to examine the effect of the adolescent living environment on the development of musical skill among professional opera singers. The aim was to ascertain the significance of nature versus nurture in music skill development, and to provide needed context to talent terminology. Chapter five begins with a summary of the findings written from the perspective of the themes that emerged in the data analysis. In addition, the theoretical and empirical implications are discussed. The chapter concludes with a discussion of the delimitations, limitations, and future research recommendations.

Discussion

Interpretation of Findings

This section begins with a summary of the four main thematic findings from the analysis of each data source, as discussed in Chapter Four. An overview of the significant interpretation of the themes is included. Finally, two significant interpretations concerning the effect of the adolescent living environment on the development of musical skills are identified: the effect of the quality of adolescent support, and the value of early, and varied musical experiences and opportunities during adolescence.

Summary of Thematic Findings

The interpretation of the research findings is summarized in the sections below. This research aimed to investigate the effect of the adolescent living environment on the development of musical skill among professional opera singers. Following the conclusion of the interviews, and performance analysis, four themes were derived. Each theme aligns with one of the four

nested structures of Bronfenbrenner's adolescent ecological environment.[231] Of these four main themes, two were more significant in their effect on musical skill development, these two themes, and their significance, are further described below.

Music Present Within the Adolescent Living Environment

The first theme, aligning with the microsystem level of Bronfenbrenner's adolescent living environment, focuses on the individual themselves. Each of the interview participants commented regarding the presence of music within their adolescent living environments, although the types and styles of music varied greatly. Several participants commented on the nonexistence of classical music within their adolescent living environments, while others provided commentary regarding the presence of classical genres. Interpretations of these findings conclude that the presence of music within the adolescent living environment – its rhythm, structure, form, and artistic qualities – proved to have a significant effect on musical skill development, regardless of style or genre. In developing the adolescent musical ear, and in providing early singing experiences, music present within the adolescent living environment affects the individual within that environment. As the findings of this research indicate, exposure to music during adolescence, and its presence within the adolescent living environment, may significantly affect future musical skill development.

Musical Parents or Relatives

The second theme discussed within this section, aligned with the exosystem level of the adolescent ecological environment, concerns non-direct influences that affect the setting within which an individual develops. During the interviews, seven of the eight participants alluded to having musical parents or relations. However, among the responses, only one participant

[231] Urie Bronfenbrenner, *The Ecology of Human Development,* 5.

commented about having a professional musician as a parent. Included within these data are comments concerning distant relatives who expressed an interest in music, parents or siblings who participated in music ensembles, or stories passed down about a great aunt or uncle who studied music. Concerning these responses, it was apparent that when the participant's siblings participated in music, it was due more to the culture of the adolescent living environment, that because of a discovery of a hidden innate musical ability. Interpretations of these findings conclude that the existence of musical parents or relatives, while influential when present as a means of building musical skills or providing unique musical opportunities and experiences, is not required in building expert musical skills nor an indicator of future musical success. As this research indicates, the concept of hereditary talent as a predictor of future musical success has more to do with providing the offspring of those deemed musically talented with opportunities and experiences that others, deemed less talented, are not afforded.

Musical Experiences in School, Community, and Church

The third theme, aligned with the mesosystem level of the adolescent ecological environment, concerns the entirety of microsystems that make up the individual's adolescent living environment. This theme becomes a significant interpretation of the effect of the adolescent living environment on musical skill development. During the interviews, each of the participants commented on the presence of musical opportunities and experiences within their adolescent living environments. While the location of these experiences, as well as the level of quality, varied greatly, every study participant was afforded musical experiences that proved significant in their musical development. Whether the experiences were in church choirs, school, and community choruses, on stage with youth theatrical productions, or various singing competitions and festivals, every research participant commented about the life-changing effects

of these opportunities. Interpretations of these findings conclude that among the most significant variables in the adolescent living environment, towards predicting future musical skill, is the involvement in adolescent musical experiences. As these data indicate, not only do these adolescent musical experiences afford opportunities to practice, but they also initiate descriptions of talent that lead to significant variations in future musical opportunities. As this research indicates, those deemed talented at a young age, largely because of building adolescent musical skill through participation and practice, are afforded opportunities and experiences that further develop their skill. In other words, it is a rich-getting-richer paradox that goes largely unnoticed. As the findings suggest, participation in musical experiences in school, the community, or the church during adolescence may significantly affect future musical skill development.

Parental and Community Support

The fourth and final theme developed from this research, aligned with the macrosystem level, concerns the belief systems of the ecological environment. This theme becomes the second significant interpretation of this research and the effect of the adolescent living environment on the development of musical skills. All eight participants commented about the presence of quality emotional and financial support within their adolescent living environments. While most of this support came from parents, multiple participants commented about support, both emotional and financial, within their church and communities as well. Every participant confirmed that without sufficient support, their musical development would not have been possible. Interpretations of these findings conclude that the most significant variable within the adolescent living environment on the development of musical skills is support. The belief structure of the adolescent living environment either enables or inhibits musical skill development, by encouraging and providing musical opportunities, or prohibiting them.

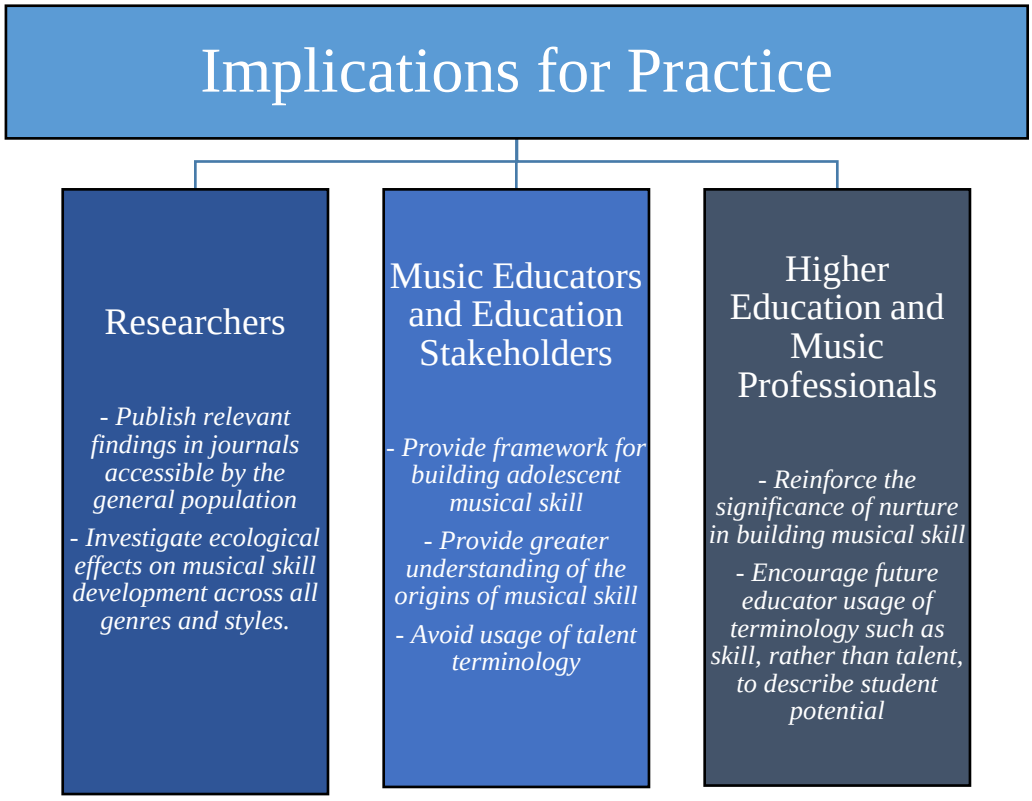
Interpretations of these findings also conclude that misconceptions of talent, its presence or nonexistence, can play a significant role in empowering an individual toward musical growth or preventing them from the necessary experiences to develop this skill.

Implications for Practice

These findings may provide practical significance for various stakeholders, including researchers, music educators, and education stakeholders, and higher education professors and music professionals. In addition, the lived experience of the participants, and the findings of this research, may provide a template for the adolescent living environment towards nurturing musical skill development. Figure 1 illustrates these potential stakeholders.

Figure 1

Implications for Practice



Researchers

There exists a lack of trust in research and researchers, not only among professionals but also within the general population. Often, this distrust results from how research findings are disseminated and shrouded in statistical analysis and academic language. This study revealed that research findings must be easily accessible and respectful of the targeted audience if they are to be successfully and effectively applied. Researchers of this topic should public their findings, not only in scientific and professional journals, but also in sources written for, and read by, the general population as a means towards educating the masses on the origins of musical skill. In addition, to further informing the relationship of nature and nurture in skill acquisition, the investigation into the large-scale, cross-genre, effect of ecology on musical skill development is suggested.

Music Educators and Education Stakeholders

For music educators and education stakeholders, the findings of this research included significant implications. The origins of musical skill have long been misinterpreted, and as a result, generations of individuals have not been afforded musical experiences, having been deemed unmusical. This research seeks to clarify the origins of musical skill and provide necessary insight concerning musical achievement. As this research indicates, variations in the adolescent living environment significantly affect musical skill development, and inversely, by providing similar experiences to a broader student range, more individuals may develop musically. In addition, by removing talent terminology in describing an individual's musical ability, music educators and education stakeholders can begin to inform their students, and communities, of the importance of nurture in musical skill development.

Higher Education and Music Professionals

For higher education professors and music professionals, the findings of this study may inform them of more effective ways to reinforce the importance of nurture in musical skill development among future music educators, and musicians. Encouraging the usage of terminology that reflects the training, dedication, and experience of musicians might enable a broader musical appreciation and participation. When talent terminology is applied to explain an individual's musical expertise, it alienates that individual from the general population and discourages others from attempting to gain similar expertise. As this research concludes, variations in the adolescent living environment exert a more significant effect on musical skill development than any hereditary trait or talent.

Theoretical and Empirical Implications

This section examines the theoretical and empirical implications of the findings. The theoretical implications were investigated from the perspective of Bronfenbrenner's theory of the four rested structures of the ecological environment. The empirical implications were examined through the knowledge derived from the lived experiences of the professional opera singers pertaining to their adolescent living environments and musical skill development.

Theoretical Implications

This study was guided by Urie Bronfenbrenner's theoretical framework; specifically, the four nested structures of the adolescent living environment: microsystem, mesosystem, exosystem, and macrosystem.[232] The findings from this research confirm the multi-layered relationships within the adolescent living environment and expand upon this theoretical construct by applying it to musical skill development.

[232] Urie Bronfenbrenner, *The Ecology of Human Development*, 22.

The findings from this research confirm the effect of the adolescent living environment on the development of musical skill at each of the four levels and confirm the significance of nurture in developing expert musicianship. Specifically, this research has confirmed that variations within the adolescent living environment directly affect not only musical experience but skill development. As the findings suggest, the shared experiences of the microsystem theme of *music present within the adolescent living environment*, the mesosystem theme of *musical experiences in school, community, and church*, and the macrosystem theme of *parental and community support*, all significantly influence on adolescent musical skill development. The exosystem theme of *musical parents or relatives*, although present in several interview transcripts, appears to have a less significant impact on adolescent musical development.

Empirical Implications

This study aimed to examine the lived experiences within the adolescent living environments of professional opera singers as relates to the development of musical skills. Unfortunately, the researcher could only source a small sample of research pertaining to the effect of the environment on musical skill development. Furthermore, a review of the literature found no studies investigating the effect of the adolescent living environment on the development of musical skills. This study is significant because it contributes to the body of knowledge associated with the relationship between nature and nurture in skill acquisition, as well as the effect of the adolescent living environment on the development of musical skills.

In a systematic review of the literature, it was concluded that a significant number of studies have investigated the role of quality and quantity of practice, as well as the significance of hereditary in equipping individuals with the skills necessary for musical success. Very little research, however, has investigated the specific environmental traits that have contributed to the

musical expertise of professional musicians. Furthermore, fewer still research has investigated the effect of the adolescent living environment on the development of musical skills.

The current study has investigated the effect of adolescent ecology on skill acquisition, more specifically, the effect of the adolescent living environment on the development of musical skills among professional opera singers. The findings of this study are significant and advance the body of knowledge in this area. This phenomenological study found that variations within the adolescent living environment can significantly affect musical skill development.

Limitations and Delimitations

The most significant limitation concerns the research scope relative to the potential range of the theoretical implications. The study of the effect of the adolescent living environment on musical skill development is not exclusive to singers, and similar investigations focusing on a wider range of professional musicians would produce broader data. The investigation of adolescent environmental factors and their effect on musical skill development among professional opera singers, while fruitful, cannot account for all environmental factors across all musical disciplines. There are two delimitations of this study. The first is the criterion for recruiting participants. The second is the selection of the hermeneutic phenomenological approach.

Participant Recruitment

Participants were purposefully selected from approximately 80 former members of the Cafritz Young Artist Program at Washington National Opera. Given the exemplary skill required to gain acceptance as a Cafritz Young Artist, the individuals who have auditioned for this prestigious program are among the brightest and best that the opera industry has to offer. This

methodology toward recruitment ensured that each of the individual participants of this study has had experiences with the phenomenon of being labeled as talented.

Hermeneutic Phenomenology

A qualitative phenomenological methodology was selected because its primary purpose is to search for rich meaning in the first-person lived experiences of an individual's or group's involvement with a phenomenon to produce in-depth descriptions of the way these experiences create meaning.[233] Transcendental phenomenology requires the researcher to bracket all personal experiences with the phenomenon under investigation. As a former member of the Domingo-Cafritz Young Artist Program, the researcher maintains intimate experiences with this phenomenon. Consequently, complete bracketing was impossible, making a transcendental phenomenological approach unrealistic.

In contrast, hermeneutic phenomenology values the researcher's experiences with the phenomenon. The researcher maintained an insider's perspective of the phenomenon of talent as an explanation of musical ability. This perspective was beneficial during the interview and data analysis process in understanding the meaning of the participants' experiences. Furthermore, unlike transcendental phenomenology, a hermeneutic approach enabled the researcher to integrate a theoretical framework to study the phenomenon, namely Urie Bronfenbrenner's nested structure of adolescent ecology.

Finally, hermeneutic phenomenology provided a systematic data analysis process. The hermeneutic approach allowed the researcher to examine, revise, and merge themes as they were identified. This process was paramount in creating a more detailed and nuanced interpretation of the participants' lived adolescent experiences.

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[233] Renée Spencer, Julia M. Pryce, and Jill Walsh, "Philosophical Approaches to Qualitative Research," *The Oxford Handbook of Qualitative Research, Second Edition,* 124.

Recommendations for Future Research

This study focuses on the lived experiences of professional opera singers related to their adolescent living environments and the development of musical skills. Future research might seek to replicate this study and investigate the lived experiences of a wider range of professional musicians. Similarly, future research might investigate more specific periods of time within the adolescent living environment, seeking to identify critical periods during which the environmental experiences may have a more pronounced effect on development.[234]

Additionally, future research might seek to investigate how individuals existing within an adolescent environment catered to musical growth mature without either enhanced musical skill or the interest in pursuing its development. As this research indicates, the adolescent living environment has the capacity to nurture musical development. Research investigating why, within the same adolescent environment, one individual develops musical skill and interest, while another does not, would provide valuable insight. Although the adolescent living environments of the participants of this study fostered musical skill development, none of the professional musicians who participated had siblings who were also professional musicians. Greater understanding of how these variants develop, and which factors create these divergences, is needed.

Conclusions

The purpose of the hermeneutic study was to investigate the lived experiences of professional opera singers, relating to their adolescent living environments, and determine its effect on developing expert musical skills. The aim was to ascertain the factors that most significantly contribute to musical skill development and provide an explanation for impressions

[234] Laurel J. Trainor, "Are There Critical Periods for Musical Development?" *Wiley Periodicals*, 262.

of talent by identifying nurtured variables that contribute to skill acquisition. The theoretical framework for this research was guided by Urie Bronfenbrenner's theory of adolescent ecology as a series of nested structures all affecting the individual developing within. This research sought to explain the effect of the adolescent living environment on skill development, its significance in empowering musical growth, and the effect of variations within this environment. Additionally, this research sought to address two central questions concerning the effects of the adolescent living environment on the development of musical skills among professional singers, and which environmental factors professional singers might share that may contribute to their musical development.

While it would be inaccurate to attribute all expert skill development to variations within the adolescent living environments of professional singers, the existence of these shared factors proves significant in the development of musical skills. These shared adolescent variables contribute significantly to skill acquisition, and enable further development, by equipping young people with structures and opportunities to empower future successes. While on the surface it may appear that more talented individuals have greater opportunities, this research indicates that it is greater opportunities that enable individuals to appear more talented.

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Appendix A

IRB Approval

This study was approved under Liberty University IRB-FY22-23-981.

Appendix B

Performance Analysis Rubrics

Criteria	Voice Performance Assessment Rubric				
	Expert	Excellent	Good	Average	Poor
Tone Quality	Even tone quality throughout the vocal range, well-supported, resonant, focused, vibrant, well-projected.	Some inconsistency in the vocal range, mostly supported, mostly consistent breath support, beginning to be resonant.	Much inconsistency between the vocal registers, but beginning to be focused and clear; more breath support needed.	Breathy, unsupported tone in some sections, Lacks focus.	Weak, poor tone production.
Pitch/Intonation	Always in tune with correct notes.	Always in tune with a few incorrect notes.	Somewhat in tune with a few incorrect notes.	Recognizable but rarely in tune with many incorrect notes.	Never in tune.
Diction/Articulation	Articulates clearly and the text of the music is always understandable; shows excellent command of all languages.	Articulates words somewhat clearly and text can be understood most of the time; has a few pronunciation issues in foreign languages.	Sometimes articulates the words but the text is often not discernable; several problems with pronunciation in foreign languages.	Rarely articulates the words and the text is not discernable; very little command of foreign language.	Never clear with no command of foreign languages.
Vocal Technique	Demonstrates mastery of vocal technique. Sings with exemplary breath support, use of messa di voce, and consistent relaxed vocal embouchure.	Demonstrates strong understanding of vocal technique. Sings with good but inconsistent breath support, and use of messa di voce, often utilizes a relaxed vocal embouchure.	Demonstrates some understanding of vocal technique, occasionally sings with supported tone, and occasionally utilizes a relaxed vocal embouchure.	Demonstrates little understanding of vocal technique, rarely sings with good breath support and lacks a relaxed vocal embouchure.	Demonstrates no understanding of vocal technique, completely lacks breath support and sings without a relaxed vocal embouchure.
Musicianship (phrasing, dynamics, rhythmic accuracy musical style)	Dynamic levels are obvious, consistent, and phrasing is always consistent and sensitive to the style of music being sung. Performs with a creative nuance and style in response to the score.	Dynamic levels and phrasing is usually consistent and sensitive to the style of music being sung. Typically performs with nuance and style that is indicated in the score.	Dynamic levels fluctuate but can be discerned. Phrasing is usually consistent and occasionally sensitive to the style of music being sung. Sometimes performs with nuance and style that is indicated in the score.	Attention to dynamic levels is not obvious. Phrasing is rarely consistent and/or rarely sensitive to musical style. Rarely demonstrates expression and style.	No sense of dynamics or phrasing and a low degree of independent musicianship; severe technical flaws overshadow expression.
Performance (stage presence, commitment to text/character)	Shows an excellent command of the stage in all styles and literature; completely committed to text/character.	Shows great potential on stage with an occasional lapse in commitment to text/character; there's room for improvement.	Has potential on stage but lacks consistency in commitment to text/character in some styles; could use more work on interpretation and stage deportment.	Shows a lack of comfort on stage; rarely demonstrates an understanding of text/character.	No connection to text/character and no stage presence to speak of.
Comments: Dewey – (Una furtive lagrima from L'elisir d'amore) Beautiful phrasing, reminiscent of Luciano Pavarotti's performance with hints of Placido Domingo's performance. Same approach as can be heard in Pavarotti performance, identical cupo and cadenza as Pavarotti. Good vocal attack, and lovely legato vocal line.					

Appendix B (Continued)

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Comments: Ashley (Salome – Schlussszene) Incredibly convincing commitment to character. Voice seems slightly undersized for Salome, creating a more limited dynamic range. Dramatic interpretation is incredible, fantastic acting.					

Appendix B (Continued)

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Comments: Leyna (Tchaivosky - Nam Zviozdy) Rich dark vocal color. Darkness of the text tends to cause to get slightly stuck back making upper register more difficult to access. Highest notes seem slightly forced and not as free as in middle register. Focus and characterization are almost there, just a bit of a lack of focus and separation between performer and performance.					

Appendix B (Continued)

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Comments:

Vernon (Per me guinto…io morro – Don Carlo) Top pitches are approached with exceptional ease. Technique is extremely strong, exceptional breath support. Given that this performance is from a recital, it lacks fully committed acting which would be more accessible in a staged production. This baritone voice sings top pitches with what sounds like effortless ease.

Appendix B (Continued)

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Comments:

Emma (Jake Heggie – I Shall Not Live in Vain) Excellent delivery and fully committed performance, excellent characterization throughout. The legato is often interrupted by the "chewy" pronunciation. Each word gets personal attention, and while this is impressive, it takes away from the overall musical phrase.

Appendix B (Continued)

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Comments:

Duane (Augustin Lara – Granada) Sings with a natural freedom, but lacks strong understanding of vocal technique. Understands the style of this piece, "Zarzuela" very well, sings in appropriate style throughout. Needs breaths in less-than-ideal places throughout. Good overall performance, high notes are in tune and accurate throughout.

Appendix B (Continued)

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Comments:

Bella (Quando men vo – La Boheme) Theatrical presence is exceptional. Sings with good support, albeit inconsistent. Brings the character fully to life throughout the aria. Dynamics lack as the voice seems to struggle to cut over the orchestra. Overall, excellent performance although voice is a little undersized for the size of orchestra/performance venue.

Appendix B (Continued)

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Comments: Aleyna (Dolce d'amor parole – Tancredi) Stage presence is a little underwhelming. Focus is clearly on the delivery of the vocal line. Phrasing is excellent, with long fluid legato lines. Body looks stiff and uncomfortable on stage. Breath support is inconsistent, resulting in equally inconsistent phrasing. When supported voice is full and rich.					

Appendix C

Recruitment: Email Prompt

Dear [Recipient]:

As a graduate student in the School of Music at Liberty University, I am conducting research as part of the requirements for a Doctorate of Music Education degree. The purpose of my research is to investigate the origins of musical skill development, specifically as they relate to the adolescent living environment, and I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older, a professional opera singer, and an alumnus of the Cafritz Young Artist Program at Washington National Opera. Participants, if willing, will be asked to participate in a recorded video conference interview. Once transcripts from the interview have been created, participants will be asked to review their interview transcript and the developed themes to check for accuracy via member checking. Member checking consists of the study participants reviewing transcripts of their interviews to check for accuracy, and to ensure the accuracy of their words and intentions. In the event that the member checking process reveals inaccuracies in the words or intentions of the participants, follow-up interviews will be conducted to ensure the accuracy of themes. Additionally, participants will be asked to submit a video- or audio-recording of their choosing, that best demonstrates their singing ability, for review.

It should take no more than four hours to complete the procedures listed. Names and other identifying information will be requested as part of this study, but the information will remain confidential.

To participate, please contact me at [redacted] or [redacted] for more information and to schedule an interview.

A consent document is attached to this email. The consent document contains additional information about my research. If you choose to participate, you will need to type your name and the date on the consent form and email it back to me prior to the interview.

Sincerely,

[redacted]
DME Candidate – Liberty University
[redacted]

Appendix D

Research Participant Consent Form

Title of the Project: Creating Talent: The Effect of Environment on the Development of Musical Skill

Principal Investigator: Nathan Jeffrey Herfindahl, Doctoral Candidate, School of Music, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older, a professional opera singer, and an alumnus of the Cafritz Young Artist Program at Washington National Opera. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to investigate the origins of musical skill development, specifically as they relate to the adolescent living environment.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

Appendix D (Continued)

1. Participate in an audio- and video-recorded, video conference interview that will take no more than 1 hour.
2. Review your interview transcript and the developed themes to check for accuracy via member checking, this process will take no more than 2 hours. (Member checking consists of the study participants reviewing transcripts of their interviews to check for accuracy, and to ensure the accuracy of their words and intentions)
3. In the event that the member checking process reveals inaccuracies in the words or intentions of the participants, follow-up video conference interviews will be conducted to ensure the accuracy of themes. This process, if necessary, will take no more than 30 minutes and will be conducted remotely.
4. Submit via email a video- or audio-recording of your choosing (mp3, mp4, or wav file), that best demonstrates your singing ability, for review. This process will take no more than 30 minutes.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to the literature include a greater understanding of the origins of musical ability, including the effect of the nurtured adolescent living environment on skill acquisition. Benefits to society include deeper understanding of the adolescent factors that determine expert musical skill development. Benefits to the discipline include a stronger understanding of effective methods towards skill development, and a greater awareness of the origins of perceived talent.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

Appendix D (Continued)

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be kept confidential through the use of pseudonyms when applicable.
- Interviews will be conducted in a location where others will not easily overhear the conversation.
- Data collected from you may be used in future research studies or shared with other researchers. If data collected from you is reused or shared, any information that could identify you, if applicable, will be removed beforehand.
- Data will be stored in an encrypted, password-locked external hard drive, maintained in a locked container. Hardcopy data will be stored along with digital data in the same locked container. After three years, all electronic records will be deleted and all hardcopy records will be shredded.
- Recordings will be stored on an encrypted, password-locked external hard drive, maintained in a locked container for three years and then deleted. The researcher will have access to these recordings.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Whom do you contact if you have questions or concerns about the study?

Appendix D (Continued)

The researcher conducting this study is [redacted]. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [redacted] and/or [redacted]. You may also contact the researcher's faculty sponsor, [redacted], at [redacted].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

Appendix D (Continued)

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio- and video-record me as part of my participation in this study.

_____

Printed Subject Name

_____

Signature & Date