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Exploring Female Broadway Performers' Experiences of Singing in Mix

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ABSTRACT

This study explored the lived experiences of 36 top-tier female musical theatre performers, each with at least one Broadway credit, who selfidentify as highly skilled in singing with mix. The aim was to gain a nuanced understanding of their vocal mix in the context of their broader artistic practices. Using reflexive thematic analysis of survey data, five critical areas of focus were identified: the role of the mix in career success and longevity, affective experiences during performance, enduring adversity in professional practice, performers' conceptualizations of mixing, and their methods for achieving a balanced vocal mix. The data suggests that most participants possessed natural skill in mixing prior to formal voice training, introducing the factor of innate talent into the discussion. Their mastery of mix appears to be largely experiential and intuitive, potentially shaped more by inherent ability than by explicit technical knowledge or formal instruction. These themes raise important questions about singing pedagogy and the integration of voice science, highlighting the need for further research into the interplay of innate talent, experiential learning, and formal training in developing top-tier musical theatre performers.

KEYWORDS

Singing; contemporary musical theatre; mixed voice; Broadway performers; Broadway mix

Introduction

This gualitative study examines the phenomenon of the mix in contemporary musical theatre through the experiences of 36 distinguished female performers. By focusing on the nature, production, and environmental influences of singing in mix, the study provides a multifaceted perspective on how mixed voice shapes the singers' identities, influences their emotional and psychological experiences, and contributes to their sense of self and artistic expression. This holistic approach is valuable because the singing voice is not merely a mechanical output, but a uniquely human behavior and process shaped by the complex interplay of cultural, social, and personal factors affecting the performer (Forbes 2024, 171; Hughes 2013, 14). The findings offer valuable insights that could refine pedagogical practices, benefiting educators, performers, and the broader performing arts industry.

Despite advancements in voice science, gualitative research, specifically on mixed voice in musical theatre, remains limited (Roll 2016, 639.e8). Existing literature primarily addresses

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belting and other technical aspects, leaving the subjective experiences of performers underexplored (Forbes 2024, 166). Schmidt (2022, 4) also notes the lack of academic focus on the mixed voice, especially in musical theatre, while D'haeseleer et al. (2022, 292.e2) point to a gap in data regarding vocal practices in the field. While quantitative research has explored physiological aspects of belting and mixing (Roll 2016, 639.e8), it does not address the subjective experience of singing in mixed voice or how top performers achieve it. Maxfield and Manternach (2018, 572) note that acoustic analysis has defined vocal genres but still leaves gaps in how these characteristics are perceived and evaluated. Translating this data into practical singing strategies remains a challenge (S. McCoy 2012a, 528). Furthermore, research often overlooks top-tier professionals. The subjective experience of elite performers is an "irreducible element" of music performance that cannot be fully captured through quantitative methods alone (Holmes and Holmes 2013, 75). The performer's inner cognitive and emotional world—their lived experience—is essential to understanding the full reality of musical performance. This study addresses these gaps by focusing on elite performers and their experiences with mixed voice.

Furthermore, while there has been considerable research interest in musical theatre belt, much less attention has been given to "mix" as a technique which is arguably more sustainable and versatile than belting. "Mix" is defined as both a vocal technique and its resulting vocal quality (see Table 1 for a list of definitions). In the Broadway community, mix is understood as a technique that blurs the boundaries between the chest voice (M1, TA dominant) and head voice (M2, CT dominant), disguising the register from which the sound originates. This enables singers to produce a tone that mimics a full belt, even when it is not. Mix exists along a spectrum, from chest-dominant, defined by its robust and resonant gualities, to head-dominant, distinguished by its transcendent and brighter tones. A chest-dominant mix retains the fullness and power of a belt, while a headdominant mix delivers a defined, vibrant sound with heightened clarity. By employing a mix, female performers can achieve high pitches (C5-F5) with the power of a belt while maintaining vocal sustainability and efficiency (Edwin 1998b, 53). This research conceptualizes mix not as a separate register but as an acoustic strategy, skillfully balancing chest and head voice to produce a desired vocal quality. While most females can sing certain notes in either register (S. J. McCoy 2012c, 68), skilled mix singers subtly adjust the vocal tract, rendering register distinctions nearly undetectable to lay listeners.

The Broadway Mix

The Broadway mix, as defined in this research, represents a unique evolution of mixed voice singing tailored to the demands of contemporary musical theatre. Unlike traditional mixed voice techniques that prioritize vocal beauty or technical precision, the Broadway mix focuses on storytelling and character-driven expression. Singers adapt their vocal quality to suit the emotional and narrative context, using a chest-dominant mix for commanding or dramatic characters or a head-dominant mix for lighter roles like ingenues or Disney princesses. Versatility is essential in musical theatre, where performers must shift seamlessly between styles, often within the same song or show (Kafoa 2025, 16–17). As LeBorgne and Daniels Rosenberg (2019, 132) note, singers without this adaptability are "much less marketable." The Broadway mix goes further by transforming the voice into a tool for embodying characters and aligning vocal choices with text and persona. Not just a technical practice, it is a narrative

Table 1. Definition of terms.

| Term | Definition |
|------------------------------------|---|
| Belt Voice/ | Commonly associated with musical theatre, using the M1 |
| Traditional Belt/ Broadway Belt | (chest) register, singers project their voices with an exceptionally loud and powerful style of singing characterized by a forceful, focused quality. Types of belt include heavy belt, nasal belt, twangy belt, brassy |
| | belt, hand speech-like belt, hasar belt, twalfy belt, bassy belt, and speech-like belt, as described by various researchers (Bozeman 2013; Edwin 1998a, 53; Popeil 2007, 77). Pitches sung in the belt style typically range from C4 to C5 (Roll 2019, 155). |
| Broadway Mix | A vocal technique used in contemporary musical theatre that employs precise resonance adjustments to create the illusion of a powerful, belt-like (M1-like) sound while utilizing the sustainability of M2. Conversely, it can also produce an M2-like quality while engaging M1, creating a head voice sound with the qualities of a belt. Its distinctiveness lies in its prioritization of storytelling and character embodiment, crafting a vocal quality that serves the text and emotion while sounding intensely powerful and piercingly clear while preserving vocal |
| | health. |
| Chest Register/Chest Voice | The range of pitches produced using M1 (mechanism 1 or mode 1) (Roubeau, Chevrie-Muller 1993), a vibratory pattern involving thicker vocal folds with thyroarytenoid (TA) muscle dominance. It is |
| | characterized by a lower, louder, and heavier vocal quality, often associated with the lower part of the cis- female voice. In musical theatre, this register serves as the primary foundation for the belt voice. It is distinct from pitches produced in the head voice, which utilize |
| | M2 (mechanism 2 or mode 2) (Bozeman et al. 2022). Although commonly referred to as "chest voice," the term is considered a misnomer, as the voice does not originate from the chest but rather creates sympathetic vibrations in this area (Doscher 1994, 109; S. J. McCoy 2012c, 66). |
| Full Belt | Singing that strongly engages the thyroarytenoid (TA) muscle or chest register (M1), with the singer exerting peak effort to produce maximum power and volume. It is characterized by high energy and is used to create a forceful, resonant sound for dramatic impact (Hall |
| Head Register/Head Voice | 2006, 25). The range of pitches produced using M2 (mechanism 2 or mode 2) (Roubeau, Chevrie-Muller 1993), a vibratory pattern involving thinner vocal folds with cricothyroid (CT) muscle dominance. It is a higher, softer, lighter quality often linked to cis-female voices and children, and unlike chest voice, it is not typically used for speaking. In musical theatre, this register serves as the primary foundation for the legit female voice (Bozeman et al. 2022, 27). Since M1 and M2 share an overlapping |
| | pitch range between G3 (196 hz) and G4 (392 hz) for female voices, singers may choose to vocalize in either mechanism based on the desired vocal quality (Bourne, Garnier, and Kenny 2011, 440). |
| High Belt/Contemporary Belt | Pitches sung between C5 and F5, closer in style to pop/ rock singing than traditional Broadway belt (Freeman, Green, and Sargent 2015, 493; Roll 2014, 51). |
| Laryngeal Mechanism | Characterized by four distinct physiological mechanisms labeled as M0 (vocal fry), M1 (chest), M2 (head), and M3 (whistle) (Roubeau, Chevrie-Muller 1993). The most commonly used registers in speech and singing are M1 and M2 (Henrich et al. 2004, 1330). ¹ |

(Continued)

Table 1. (Continued).

| Term | Definition |
|---|--|
| Legit Voice | A term in musical theatre referring to female singing primarily using head voice (M2). It can maintain classical elements such as vibrato throughout a phrase and techniques like chiaroscuro and sostenuto while incorporating influences from pop and rock styles (Edwin 2003, 421). The repertoire typically features a narrower range and lower tessitura than opera (Bourne, Garnier, and Kenny 2011, 438). In opera, the voice takes precedence, and performance is centered around the musical elements. In musical theatre, however, the emphasis is on the text, necessitating a speech-like delivery of sung segments (Richardson 2022, 22). While the term 'legit,' an abbreviation for 'legitimate,' remains widely used in the industry, it has faced criticism for implying that other styles of singing |
| Mix: The terms this author has encountered in the literature review include mix voice; mixed voice; mixed register; mixed registration; mix singing; mixed singing. | are less recognized or credible (Delp 2001, 2). This technique is commonly used in contemporary musical theatre to artistically emulate the tonal qualities of different vocal mechanisms. The objective is to achieve an M1-like (chest voice) sound while utilizing M2 (head voice) or, conversely, to imitate an M2-like quality while employing M1 (chest voice). By adjusting the vocal tract and making precise resonance adjustments, a singer can seamlessly conceal the transitions between registers (Bourne, Garnier, and Kenny 2011, 441). |
| | As a noun, 'mix' refers to the vocal technique or sound itself, as in 'l use my mix' or 'My mix is strong.' When paired with words like 'voice,' as in 'mix voice' or 'mixed voice,' it forms an open compound noun that refers to a specific type of vocal quality or technique, as in 'She is working on her mixed voice.' |
| Registers/Vocal Registers | "A series of consecutive homogeneous sounds produced by one mechanism, differing essentially from another series of sounds equally homogeneous produced by another mechanism, whatever modifications of timbre and of strength they may offer. Each of the three registers has its own extent and sonority, which varies according to the sex of the individual, and the nature of the organ" (Garcia and Klein 1911, 8). |

tool, employing a range of timbres to serve the story, enabling performers to inhabit their roles fully and elevate their art through a blend of vocal skill and dramatic intent.

The Role of the Broadway Mix in Contemporary Musical Theatre

The contemporary Broadway musical theatre industry is intensely competitive. For example, the acceptance rate for Carnegie Mellon's musical theatre program in 2018 was just 0.5%, even more competitive than Juilliard, which accepts 9% (Evanicki 2018, 30; The Juilliard School 2023). Aspiring performers face constant challenges from high school onward, vying for program spots, performance opportunities, and agent representation to advance their careers. This fierce competition necessitates the adoption of effective strategies to stay employable. Mastering a reliable mix is critical for performers' self-efficacy, confidence, and well-being, as it is essential for most roles, as shown by the audition requirements in Table 2.

| Broadway Musical | Year | Vocal Requirements |
|------------------------|------|---|
| Death Becomes Her | 2023 | Seeking "Excellent comic chops and a rich singing voice with a strong belt/mix and a clean soprano to C6." Seeking "Dynamic comic with a powerhouse high-belt and a strong mix F#3 to F#5." |
| | | Seeking "Powerhouse belter with a high belt/soprano mix to G#5." |
| & Juliet | 2022 | Seeking "Vocal range: G3 - MINIMUM top D5 belt, strong mix to F5." |
| | | Seeking "Vocal range: needs a minimum D5 in full belt (mix to high F#)." |
| | | Seeking "Vocal range: G3 - top D5 full belt." |
| Back to the Future | 2023 | Seeking "Comedic with a strong belt/mix in the upper register." |
| Suffs | 2023 | Seeking "A versatile singer" for every role. |
| The Last Five Years | 2024 | Seeking "First-class voice. Soprano/Mezzo with powerful belt up to an E; Low: F#; even voice through entire range w/very strong mix." |

Table 2. Casting call vocal requirements for Broadway musicals.

Sources: Data from (C12 Casting 2022; The Public theatre 2023; Tara Rubin Casting 2023a, 2023b; Taylor Williams Casting 2024).

These examples highlight that the ability to mix—a highly sought-after and challenging technique (Bonin 2022, 67)—is crucial for performers aiming for successful careers in contemporary musical theatre.

Expectations and Demands

Broadway singers face high expectations to deliver flawless performances eight times a week, often for extended periods (Willis-Lynam 2015, 64). Their shows demand physically intense choreography and emotional vocal expression (D'haeseleer et al. 2022, 292.e1), while factors like poor ventilation, restrictive costumes, and makeup can compromise vocal quality. Singers without reliable techniques are at higher risk for vocal injuries making vocal health and well-being crucial to their livelihood (Searl et al. 2022, 735.e13). The competitive environment further elevates health risks, including depression and substance use (Innes 2021, 253), and many performers fear disclosing vocal issues due to stigma and employment concerns (Huston 2019, 6). Audience expectations, influenced by cast recordings, add pressure to deliver consistent, high-quality live performances (Hoch and Edwards 2018, 185). To cope with physical and psychological stress, singers must adopt strategies to protect their vocal health and sustain performance quality, as stress can negatively impact vocal accuracy and enjoyment (Flock 2021, 65). This study examines how these challenges shape performers' lived experiences and how they navigate these pressures while preserving vocal health and excellence.

Aim

This study aims to investigate the lived experiences of top-tier female musical theatre performers, focusing on how they perceive and navigate their vocal mix. Rather than examining a single aspect of their vocal performance, this study seeks to capture a holistic view, considering all the factors that influence their experiences. The endeavor was to gain a more nuanced understanding of their vocal mix in the context of their broader artistic practices.

Methodology

This study employed a qualitative approach grounded in an interpretivist paradigm, focusing on the subjective meanings and social contexts that shape human experiences (Scott 2024, 4). The knowledge generated is acknowledged as situated and partial, reflecting both participants' and researchers' perspectives (Braun and Clarke 2024c, 3). This experience-based approach to researching singing offers insights that quantitative methods cannot capture (Forbes 2024, 177). In reflexive thematic analysis, the researchers' expertise and personal reflections actively shape and deepen the interpretation of the data, enhancing the richness and nuance of the findings (Braun and Clarke 2022). This study was conducted by Regina McAllen (first author), who brings 30 years of experience in voice performance and teaching with a deep understanding of the technical and artistic aspects of elite singing. The second and third authors, Melissa Forbes, and Diane Hughes, are established contemporary commercial music pedagogues and researchers. Reflexive thematic analysis was employed by the first author to interpret the data, focusing on a single, reflective coding process. This approach is "artfully interpretative," as Finlay (2021, 103) states, emphasizing the dynamic and subjective nature of the analysis rather than seeking a singular "accurate" coding method (Braun and Clarke 2024a, 2).

Dataset Generation

Responses to 22 open-ended and yes/no questions were gathered using the secure LimeSurvey software, approved by the University of Southern Queensland, Australia. The survey included questions exploring participants' past, present, and current experiences with the Broadway mix. The online format enabled efficient, secure data collection and encouraged broad participation. The survey remained open from May 8 2024, to July 3 2024.

Participants

The University of Southern Queensland Research Ethics Committee approved this study. All participants gave informed consent before participating in the study and were assured that their identities would be protected. No incentives were offered to the participants.

Using Braun and Clarke's (2013, 56) criterion sampling recommendations, participants were selected through purposive sampling, targeting women who self-identify as skilled in singing with a mixed voice. Recruitment posters were posted backstage at 39 Broadway productions, distributed to professional music organizations, and shared with widely used theatre audition venues throughout New York City. Cast lists of Broadway musicals featuring prominent use of mixing were reviewed, and female cast members were privately contacted via social media. The respondents comprised 36 female singers, each with at least one Broadway credit, all self-identified as skilled in mixed voice singing. Participants' credentials were verified through resources such as the Playbill Vault, the Internet Broadway Database (IBDB), and official show Playbills.

The participants were distributed across four age ranges: 26–35 years (7), 36–45 years (17), 46–55 years (11), and 56–65 years (2). Participants had varied experience in Broadway productions, with the number of productions ranging from 1 to 12. Additionally, 17

participants graduated with a degree in Musical Theatre, while the remaining 19 did not. Among the contributors are three Tony Award nominees for Best Actress in a Musical and one Grammy Award nominee. Collectively, the participants have been involved in 162 Broadway productions (as of this publication), including overlap where some performers appeared in the same productions.

Data Analysis

Reflexive thematic analysis was conducted according to the framework developed by Braun and Clarke (2006, 2022). The process began with a thorough review of the data to identify key information relevant to the research aim, along with noting initial impressions, ideas, and emerging patterns. Initial codes were then generated inductively to systematically label data segments interpreted as significant to the research aim. Following coding, themes were developed by grouping these codes into broader patterns of meaning. Each theme was reviewed and refined to ensure it accurately reflected the data and conveyed analytic depth. The final themes were examined to ensure they provided a comprehensive understanding of participants' experiences with singing in a mixed voice, capturing the nuances of their personal and professional journeys. Braun and Clarke's Reflexive Thematic Analysis Reporting Guidelines (Braun and Clarke 2024b) were followed to ensure thorough integration and accurate reporting of this method.

Analysis

The following narrative presents the themes the first author/primary analyst interpreted from the data. Within reflexive thematic analysis, "themes" are more than mere topic summaries; they capture something important in response to the research aim, are usually multifaceted, have a central organizing concept, and capture something meaningful in the data (Braun and Clarke 2013).

Theme 1: Sustaining Long-Term Success: "The Healthiest and Most Sustainable Way to Sing Modern Musical Theatre Scores."

The participants characterized the mixed voice as both exhilarating and powerful, yet safer and more reliable, highlighting a paradox. They noted it as less physically demanding than belting, requiring minimal effort and air while reducing vocal fatigue, despite its association with bold and dynamic vocal qualities. One participant remarked, "my mix feels effortless and easy," while another described it as "the healthiest and most sustainable way to sing modern musical theatre scores." A third singer praised it as a "sustainable way of singing with muscularity without damaging yourself." This view contrasts sharply with belting, which many participants described as excessively physically demanding. One singer observed that "belting is far more costly to my longevity," and another noted that it is "less sustainable long-term." One participant further explained, "belting should be used sparingly (only for a phrase) because it is vocally exhausting." A successful performer in the 46–55 age range also shared, "I generally don't belt anymore at all."

Another distinctive aspect of the mixed voice highlighted by singers is its versatility and adaptability. Singers noted their ability to customize their mix to suit various styles and genres, ranging from pop and rock to traditional Broadway and 1940s-style belt. One singer shared, "Mine can range from 'Disney Princess' to screamy rock." This adaptability underscores that the mix is not a fixed vocal quality but a dynamic tool, adjustable to various musical contexts.

Statements like, "Each song requires something different," "There's not really one sound," and "That depends on which mix I want to be singing in" further illustrate this flexibility. One participant explained, "In my mix, I feel like I'm the DJ; I can turn the knobs and make adjustments to how I want the sound to be produced." Additionally, many participants who appeared in five or more Broadway productions were cast in both traditional and pop/rock musicals, demonstrating their adeptness at adapting and effectively transforming their voices.

Theme 2: From the Inside: Exploring the Emotional Experience of the Mix

While the emotional impact of Broadway productions is widely recognized for its transformative effect on audiences, less is known about how this experience unfolds for the performers themselves. Seeking a more nuanced understanding of the singers' experiences, we inquired about their emotional and psychological responses while performing at the highest level of professional achievement.

The singers conveyed that performing at peak levels feels just as intense, if not more so, than what the audience might perceive. The singers described the act of mixing as an exhilarating and intensely rewarding experience, often likening it to moments of triumph, magic, and euphoria. When the elements align, performing in a mix brings a profound sense of freedom and power, with one singer noting, "it feels like I'm flying, free." Others emphasized the rush they feel, calling it "empowering," while one expressed that she feels "like a complete rockstar when I do it!" The excitement arises not only from the technical achievement but also from the illusion of belting that the mix creates. One singer described it as "Euphoria! Especially when you nail the balance that makes it *sound* like you're fully belting. It's like the greatest illusion. True theatre magic." Another added, "I feel awesome. I also feel like I have pulled a magic trick! Often people don't know what is a belt and what is a mix."

These reflections underscore that when the mix is skillfully executed, it elicits a profound sense of euphoria, artistic achievement, and emotional fulfillment, cultivating pride, confidence, and a sense of freedom. This aligns with the concept of flow—a psychological state characterized by full immersion, heightened enjoyment, control, and self-efficacy (Csikszentmihalyi 2002)—suggesting that performers experience a deep engagement with their craft. Such states not only enhance their performance but also contribute significantly to their overall sense of fulfillment and artistic expression, offering valuable insight into the psychological and emotional dynamics of high-level musical theatre performance.

Theme 3: Persevering Through Challenges: "We Aren't Robots."

The data underscores the considerable psychological and physical challenges of performing under the unrelenting pressure inherent to Broadway. A central concern among performers is the strain of meeting what they describe as "unrealistic demands." Unique to live theatre, singers must perform eight shows per week, often with minimal rest between performances. This grueling schedule, combined with the pressure to deliver flawless performances, creates significant strain. Additionally, the increasing vocal demands and expanded range requirements in modern Broadway productions exacerbate these challenges. As one singer reflects, "the sheer volume of unsustainable music affects me negatively," highlighting the physical toll of demanding vocal scores. Another singer expresses frustration with the "crazy vocal pyrotechnics with little regard for how they are practiced," pointing to the impractical nature of some vocal demands. One singer notes, "they want you to belt to the high heavens eight times a week, and that is not healthy or sustainable."

When singers disregard the signals from their bodies due to pressure from audiences, producers, and their own high standards, they risk vocal injury and long-term damage. For Broadway performers, such injuries can lead to missed performances, financial strain, psychological stress, and reputational harm, all of which can negatively affect their careers and well-being. Many performers admitted to working while ill, fearing that doing so would worsen their condition. One actress, who portrayed an iconic and widely recognized demanding role, shared her regret: "I chose not to call out when I had strep throat. If I could go back, I would've taken better care of myself." She added that she now experiences no vocal issues, attributing her improved condition to "relying on my strong mix." Another singer reflected, "I lost my voice almost entirely this January; it was terrifying. Like someone had taken my arm or leg," underscoring the significant psychological burden and emotional impact of vocal health concerns.

Broadway singers face significant challenges, including audition pressures, fierce competition, rejection, anxiety, social media scrutiny, and financial instability. One singer noted, "Any insecurity can lead to either better or worse singing—we aren't robots, so our instrument is affected by everything." Another shared, "If I'm in a particularly walledup place emotionally, it can make finding the balance in the mix much harder." Stress impacts vocal performance, with one singer stating, "If I'm too nervous, I find my breath is most affected, making it challenging to balance the registers," and another adding, "The anxiety can literally shut down my voice." External pressures, such as disapproval from superiors and the need for financial stability, heighten these difficulties. One singer observed, "If you feel that your superiors don't like what you're doing, it can be devastating," while another noted, "The pressure to book a job (to make money and secure health insurance) gives me audition anxiety and can mess with my voice." To cope, some singers use beta blockers, breathing techniques, or meditation, while others find that experience and age help them manage these pressures.

Theme 4. Descriptions, Definitions, and Personal Interpretations

Mix singing can be difficult to describe due to its significant variability among individuals and its reliance on both technical skill and proprioception. One singer observed that "... it's not an easily defined term, so many teachers and students struggle to understand it." However, the data provided clarification on how singers perceive it, highlighting their unique interpretations and understanding of the process. In general, singers concurred that a mixed voice is defined as "a sound that maintains consistent power and quality across the entire vocal range." The singers also agreed that the goal of mixing is for

"people to not be able to tell where the belt/chest resonance ends and the head voice begins." They rely on the mix to "camouflage the passaggio," the area between vocal registers where the notorious "break" occurs. This goal is achieved when the audience cannot detect subtle shifts in timbre, as one singer proudly noted that her mix is "often referred to as 'seamless.""

To achieve this, the participants consistently described an effort to integrate elements from both head and chest registers: "A mix is truly a combination of your chest and head voice. More technically speaking, it is that balance of bringing the strength and power of your chest sound and the lightness and brightness of your head voice." They emphasize the importance of maintaining balance and control, noting that this equilibrium is dynamic and requires continual adjustment to achieve the right proportion for different musical contexts. One participant described their process as "finding the right balance in a specific sound where the chest voice isn't too heavy and you are not fully flipping to a lofty full head voice."

With respect to the defining sound characteristics of the mix, there was also a consensus among the singers. The terms most frequently used were "bright", "clear", and "strong", indicating that a focused and vibrant sound characterizes a well-executed mix. The singers' descriptions portray the mixed voice as having a sharp, penetrating quality that enables it to cut through orchestration and be distinctly audible, which is crucial in musical theatre. Although clarity and power were frequently noted, several descriptions also characterized the mix as "warm" and "full", suggesting that an effective mix integrates both powerful projection and tonal richness. This duality indicates that while the mix is often associated with a clear and strong sound, it is also valued for its ability to convey warmth and depth, highlighting the balance between a bold presence and a rich, full-bodied tone.

Theme 5: Performer's Perspective on Achieving a Mix

The instinctual nature of mixing was strongly represented in participants' responses, suggesting that for many singers, the process feels natural and effortless rather than technically deliberate. When asked about challenges in mixing, one participant simply replied with a question mark, indicating no perceived difficulty. Most responses were brief, reflecting an uncertainty in articulating the specific mechanics involved. Several singers described mixing as intuitive, with one stating, "For me, mixing comes naturally," and another noting, "Mix is the easiest way to sing for me—the most intuitive and akin to speaking." Others attributed their ability to imitation, explaining, "I just imagine the sound I want to make and mimic it." This sense of ease was echoed by a singer who remarked, "I don't know. I'm not sure I know how to sing any other way," and another who admitted, "I don't actually think too hard about it." One participant described mixing as "an instinctual manipulation of focus and relaxation," highlighting that for these performers, mixing is not a learned or conscious technique but a deeply ingrained, instinctual process. Nonetheless, the responses offered some insight into the physiological processes involved, though these perspectives were largely fundamental. The most frequently cited considerations included sound placement, breath direction and control, minimizing tension, and engaging the body.

"Placement" was the most commonly referenced adjustment, mentioned 21 times, with other terms like "forward placement," "nasal," and "in the mask" frequently used. One participant explained that she puts "all the sound forward in an overly nasal placement to find that forward placement, and once I feel I've found it, I pull back on the nasal quality while keeping the sound forward-focused." Another noted, "I think a lot about vibration and placement as I am singing," while others referenced "a placement that has a forward ping" and described the mix as "a blend of placement in your mask and using your nasal resonators appropriately."

Managing the direction of airflow was frequently mentioned by the singers, with one participant noting, "The direction and control of the breath is the most important aspect for me." Several singers described adjustments to the soft palate and directed airflow toward various areas such as the lips, nose, and cheekbones. One singer explained, "The higher you mix, the more you really feel the air and sound pushing up against the soft palate without raising it," while another shared, "I consciously pull the air forward to resonate just behind the nasal cavity." Another participant described visualizing the airflow: "The air pressure going up and forward and hitting the hard palate or even the space behind my nose and eyes with a very narrow focus." For many, the ability to "direct" sound vibrations toward specific areas, such as the "unicorn horn" (nasal resonators), was essential in achieving the desired sound. The amount of air used was also referenced, with one singer emphasizing the need for "a controlled, not pushed column of breath support." Another participant explained, "the trick (and hardest part) is using the same mouth positioning (open and round) but LESS air on the onset of sound as we move up-which feels counterintuitive because we think we need more air the higher we sing." This sentiment was echoed by another singer who noted, "I think most Broadway singers tend to use too much air as they move higher up the scale."

Managing throat tension was commonly mentioned, with singers stressing the need to keep the throat open and relaxed: "try to open the throat more, not press down", "make sure my mouth and throat are relaxed", and "big opening in the back of the throat." Many singers emphasized the importance of physical relaxation, noting that tension can hinder performance. Phrases like "visualize very little effort" and "the more I tense up, the more unsuccessful I am" underscore the need to minimize physical strain for optimal sound. However, singers also recognized the necessity of active physical engagement to maintain effective breath support across their range. They highlighted the importance of feeling "anchored," "grounded," and "fully engaged" while utilizing "full core strength."

Overall, the most frequently cited method by singers for discovering and maintaining their mix involved vivid, imaginative imagery. While technical advice was limited and fundamental, singers readily offered metaphorical frameworks to articulate their approach. One singer visualized their voice as the shape of the Eiffel Tower, noting, "As I get higher, I am filling a smaller space with air." Other metaphors included the sensation of being "grounded but flying," "picturing the sound coming through the bridge of my nose," "keeping the kite flying," "as if I'm pulling taffy or thinking of a jellyfish swimming upward," "threading a needle," and "painting the sound across the roof of my mouth." Despite the contested view of imagery in voice pedagogy (see Discussion), the primary researcher found these creative descriptions compelling and inspiring, sparking an interest in incorporating them into their own teaching to enhance student engagement and learning.

Discussion

Using a fully qualitative approach, this study illuminated the experiences of female Broadway performers skilled in mix singing. The research also explored the cultural, social, personal, and technical factors that influence these experiences.

One of the core understandings produced from the data in this study establishes the Broadway mix's crucial role in the success and longevity of musical theatre singers, with participants identifying three key reasons for its importance in sustaining professional excellence. First, they emphasized that using the Broadway mix enhances their acting skills by offering timbral flexibility, which allows for the creation of distinct characters and improves storytelling. This approach also enables performers to take on a broader range of roles, thereby expanding career opportunities. Second, the mix provides singers with the ability to reach higher notes without sacrificing power or tone color, thereby increasing their vocal range and control. This versatility allows for a wider repertoire of music to be performed. Finally, while singers expressed confidence in their belt and enjoyed using it, they noted that relying solely on belting often led to vocal strain and fatigue, highlighting the mix's importance for vocal health and sustainability.

Another insight generated from the data is that the emotional and psychological experiences of performing at an elite level confirm that these performers experience what the audience is invited to engage with: power paired with vulnerability, and confidence coupled with sensitivity. Singers described their experiences of mixing as euphoric, empowering, and confidence-boosting, with seamless transitions between vocal ranges amplifying their sense of pride and satisfaction. These elite performers leverage their exceptional skills to evoke emotions that transcend what is typically experienced in other aspects of life, creating a profound and unique experience for both themselves and the audience. This affirms what the primary author has long speculated—that the emotions conveyed by these performers are both genuine and deeply felt. The juxtaposition of vulnerability and strength highlights the complexity of artistry, where performers are both introspective and commanding. This dynamic invites exploration through theoretical frameworks that explain the psychological balance required for such artistry. Csikszentmihalyi's flow theory highlights how performers combine emotional openness with confidence, engaging authentically while maintaining control. Research shows that flow—a deeply engaging and enjoyable state-enhances well-being, linking traits like an autotelic personality to increased life satisfaction and flourishing (Tse, Nakamura, and Csikszentmihalyi 2021, 310–17). For elite Broadway singers, the immersive nature of performance and mastery of their craft not only enriches their artistry but also enhances their overall quality of life.

Achieving the aim of this study, the data provided a detailed understanding of how Broadway performers conceptualize the mix, offering valuable insight into their unique perspectives. Rather than analyzing the mix from a biological or scientific standpoint, this study focused on the lived experiences and professional insights of the performers, placing their voices, artistry, and interpretations at the forefront—a focus that represents a meaningful contribution to current research. The participants showed near-unanimous agreement on the vocal mix's definition and distinct auditory characteristics, recognizing its essential role in their professional success. However, the research did not yield practical, actionable strategies that voice teachers and singers could directly apply. This may be attributed to what was perhaps the most revealing aspect of the study: the notable disconnects between the vocabulary used by Broadway singers and the terminology commonly employed within the voice science and pedagogy communities.

Notably absent from the participants' responses were physiological or acoustic terms such as register, closed quotient, formants, frequency, functional training, glottal onset, harmonics, laryngeal position, overtones, phonation, resonance strategies, subglottic pressure, twang, and vowel modification. Only one participant mentioned the cricothyroid (CT) and thyroarytenoid (TA) muscles, highlighting the disconnect between the voice science community and the world of professional musical theatre practice.

To further illustrate this divide, participants most commonly identified "placement" as the key method for achieving a powerful mix. Specifically, "forward placement" was mentioned 21 times, while "mask" was referenced 14 times. However, voice pedagogue McCoy (2012b, 46) maintains that "placement" is an illusion, as sound cannot be physically localized in areas like the mask or head. While resonance may be felt in these regions due to individual physiology, McCoy points out that these sensations are unreliable for teaching due to bodily differences. These findings suggest that, while voice science is crucial for understanding the vocal mechanism, elite performers rely more on instinct and experience than explicit scientific knowledge or physiological understanding of voice function.

This raises a thought-provoking question: should we expect professional Broadway singers to use scientific terminology, given that they are neither voice scientists nor educators? The participants have emphasized that their entire livelihood—past, present, and future—relies on their voices, which are the foundation of their careers and an integral part of their identities. Given the immense significance of this, one might expect them to pursue a thorough understanding of how their voices function. Additionally, it is important to note that these singers are based in New York City, where they have access to some of the most esteemed resources for vocal training, including innovative pedagogical techniques and the latest scientific advancements in the field. However, despite this wealth of opportunities, they have chosen not to pursue them, likely because they have already achieved professional success without relying on such methods. This choice further highlights their confidence in their voices and success in singing through an embodied, experiential approach, demonstrating that their artistry is grounded in practical experience rather than theoretical knowledge.

In this context, the singers' use of rich imagery and metaphor in place of technical voice science terms draws focus to the long-standing debate between imagery and science in singing voice instruction and its pedagogical implications (DeLillis 2021, 90; Sadoway 2021, 52; Sansom 2016, 157). Critics of imagery-based instruction, such as speech-language pathologist Michael, cautions that it leads to confusion when conflicting or anatomically inaccurate images are used (D. Michael 2010, 550; D. D. Michael and Goding 2012, 167; D. Michael 2015, 319). Leading contemporary commercial music voice pedagogue LoVetri notes that imagery-based instruction techniques may not consistently produce reliable vocal production, as imagery is highly individualized and may take significant time to influence vocal performance or style (LoVetri in Causey 2012, 28).

Esteemed voice pedagogue Richard Miller presents arguments on both sides of the debate. In 1989, Miller acknowledged that imagery has value when used carefully, as hearing an artist-teacher describe sensations and performance attitudes can inspire creative thinking, especially at the interpretive level (Miller 1989, 15). However, in 1998, Miller took a strong stance *against* using vocal imagery, arguing that such actions were physically

impossible. He condemned abstract imagery, like putting the tone "into the mask", imagining "blue tones", or "gliding birds", for causing confusion and embarrassment rather than facilitating effective learning. Miller also asserted that past voice teachers did *not* rely heavily on imagery. Instead, he stressed the importance of clear, precise language that directly addressed vocal function, noting that students felt a sense of relief when given specific instructions (Miller 1998, 2). This position is challenged by Brown (2024, 4), who argues that the persistence of patriarchal systems and an emphasis on quantitative methods in voice pedagogy hinders progress by perpetuating a hierarchy of knowledge that neglects personalized, embodied, and experiential learning approaches. While singing teachers constantly navigate the balance between creative methods and scientific principles, Ware's (2013, 415) survey of 520 voice teachers provides a clear insight into their actual perspectives and practices. The results indicate that 83% of North American voice teachers utilize and support combining scientific insights with imagery, suggesting that the perceived divide between these approaches may not be as significant as often assumed.

Research affirms the centrality of imagery in performance-based disciplines, where it serves as a vital resource for achieving both nuanced artistry and technical precision. Metaphor, too, plays a crucial role, not only in singing voice pedagogy but also in other high-stakes fields. Conceptual Metaphor Theory posits that metaphors are grounded in experiential bases and play a crucial role in understanding complex or abstract concepts such as emotions, aesthetics, and moral practices (Lakoff and Johnson 1980, 103). Brown argues that advancing singing voice pedagogy requires greater emphasis on embodied experiences and validating intuitive knowledge (2024, 4) and advocates for the use of imagery in singing voice pedagogy, framing it as a lens that sharpens perception and enhances understanding rather than simply reflecting past experiences (Brown 2023, 26; Wiltsher 2019, 24). This connection resonates with these singers' reliance on imagery as both a somatic and intuitive resource. Forbes and Cantrell (2023, 334) strengthen this concept through their study of musical improvisation, analyzing the metaphorical language of a professional jazz singer to emphasize the importance of the body-mind interaction. They assert that "metaphor is not simply a decorative accessory...but rather a conceptual tool for structuring and restructuring our everyday reality." In fields beyond the arts, Spiotta et al. (2018, e189) demonstrate how imagery supports elite performance in athletics and neurosurgery by enhancing cognitive focus, emotional regulation, and physical precision. Collectively, these studies affirm the pivotal role of imagery in achieving excellence across diverse disciplines.

These perspectives do not dismiss the value of scientific principles but aim to integrate them with a more holistic approach to voice pedagogy. This approach complements, rather than diminishes, scientifically grounded instruction. It aligns with Maxfield and Ragan's (2021, 543) endorsement of Evidence-Based Voice Pedagogy (EBVP), which integrates teacher expertise, student goals, and current scientific research to guide effective, vocally healthy, and artistically accurate performances. For musical theatre practitioners, adopting student-centered methods that honor and nurture the singer's instincts is encouraged. Helding (2023, 121) suggests, "the ideal constitution of voice knowledge is one that dissolves the aisle, integrates science and art, and creates a constitution that privileges neither but embraces both."

Our final insight, albeit unexpected, pertains to the long-debated topic of innate talent. The objective of this study was not to determine whether the development of the mix voice is primarily influenced by nature or nurture; therefore, our questions did not specifically address this distinction. However, the singers in this study reported intuitively developing their mixed voice with minimal technical guidance, suggesting a potential innate foundation for this ability. Participants came from diverse backgrounds, some from musical families and others not, yet nearly all described singing as a natural instinct. When asked about the onset of their recognition of exceptional vocal ability, the average response was 11.89 years old. Most had not received formal vocal training before this realization, and their decision to pursue professional instruction appeared to be motivated more by external validation of their talent than by a perceived need to address a lack of technical skill.

In 1998, Howe, Davidson, and Sloboda boldly stated that "innate talents are, we think, a fiction, not a fact" (437). Twenty-one years later, the role of innate aptitude in human abilities still remains unclear (Helding 2011, 451). Although Baker and Wattie found broad agreement on the *existence* of innate talent, they acknowledged that its nature, extent, and practical relevance are still debated (Baker and Wattie 2019, 1). An intriguing area for further research would be to examine the number of highly successful singers who were not identified as exceptional at an early age and were perceived as average until they underwent extensive voice training.

The pedagogical implications of this research suggest that, for top-tier performers, the development of the Broadway mix occurs intuitively, often without explicit technical guidance. While some voice teachers advocate for specific methodologies, the data from participant performers indicate that singers do not rely on these approaches. Instead, the ability to achieve and sustain the mix seems to be shaped primarily by experiential learning, innate talent, and individual practice, rather than formalized teaching methods. These perceptions reflect the perspectives of the practitioners and were not validated by independent measures that were beyond the scope of this study. However, this should not be interpreted as diminishing the importance of skilled voice instructors. Although the singers did not directly attribute the development of their mix to their teachers, they enthusiastically and passionately described the significant formative influence these educators had on their musical journeys. Participants reported that their teachers offered invaluable feedback and mentorship, shared an inspiring passion for music, introduced engaging and diverse repertoire, exposed them to a range of performance styles and techniques, and nurtured confidence through consistent support and constructive critique—each of which contributed significantly to the singers' artistic development and self-assurance.

Teachers may find reassurance in recognizing that elite-level talent often has a significant innate component, easing the pressure to transform every student into an exceptional performer. Acknowledging the role of natural abilities fosters a more individualized approach, allowing teachers to help each singer reach their unique potential. As teachers, we recognize that while our guidance plays a critical role, the inherent ability of our students also shapes their development in ways beyond our control. This research suggests that, similar to elite athletes like Simone Biles and Michael Jordan, top-tier Broadway singers possess exceptional innate talent, which, when coupled with dedication to refining their craft, forms the foundation for their remarkable success.

Responding to Sansom's *The "So What" of Voice Research* (Sansom 2021), this study offers a focused examination of the Broadway mix, an essential yet underexplored aspect of professional performers' technique. Through reflexive thematic analysis of singers' experiences, it highlights the invaluable insights of those at the pinnacle of their field. Despite their considerable expertise, Broadway singers' experiences have been largely

absent from academic discourse, hindering a deeper understanding of their unique contributions. By amplifying their voices, this research aims to honor their artistry and ensure their rightful place in scholarly conversations.

Note

1. We acknowledge that there are many different terms in the literature to describe "vocal fry" (Abdelli-Beruh, Drugman, and Red Owl 2016, 11). For example, phoneticians distinguish various glottal settings, including "creaky voice," which is synonymous with "vocal fry" (slow vibrations on the front section of the vocal folds and full phonation on the back section of the folds). This is distinct from "creak" (slow vibrations along the full length of the vocal folds) (Collins and Mees 2003, 620). In using the term vocal fry to define laryngeal mechanism M0, it is not clear whether Roubeau et al. were referring to creak or creaky voice.

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No potential conflict of interest was reported by the author(s).

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References

- Abdelli-Beruh, Nassima B., Thomas Drugman, and R. H. Red Owl. 2016. "Occurrence Frequencies of Acoustic Patterns of Vocal Fry in American English Speakers." *Journal of Voice* 30 (6):.e759.11–. e759.20. https://doi.org/10.1016/j.jvoice.2015.09.011.
- Baker, Joseph, and Nick Wattie. 2019. "Talent: A Contestable, but Not Contested, Concept? Response to Commentaries." Current Issues in Sport Science 4 (4): 108–108. https://doi.org/10.36950/CISS_2019.108.
- Bonin, Christin. 2022. "The Broadway Belt: The Musical Diva and Her Belt Voice from Technical, Ethnic, and Feminist Perspectives." Thesis., Ludwig Maximilian University of Munich. https://doi.org/10.5282/edoc.28744.
- Bourne, Tracy, Maeva Garnier, and Diana Kenny. 2011. "Music Theater Voice: Production, Physiology and Pedagogy." Journal of Singing 67 (4): 437–445. https://go.gale.com/ps/i.do?p=HRCA&sw= w&issn=10867732&v=2.1&it=r&id=GALE%7CA268960838&sid=googleScholar&linkaccess=abs.
- Bozeman, Kenneth W. 2013. *Practical Vocal Acoustics: Pedagogic Applications for Teachers and Singers*. NED-New ed. Boydell & Brewer. https://www.jstor.org/stable/10.7722/j.ctt1mmftb4.
- Bozeman, Kenneth W., Matthew Hoch, Karen Leigh-Post, Margaret Kennedy-Dygas, Denise Milner Howell, Kevin Harris, Kelly Holst, Rachel Goldenberg, and Martha Randall. 2022. "Science-Informed Terminology and Definitions for Voice Pedagogy." In NATS July 2022 Pedagogy Workshop, NATS. https://www.nats.org/_Library/Science_Informed_Voice_Pedagogy_Resource/ Terminology_and_Definitions_1st_update_10-24-22_docx.pdf.
- Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. https://doi.org/10.1191/1478088706qp063oa.
- Braun, Virginia, and Victoria Clarke. 2013. Successful Qualitative Research: A Practical Guide for Beginners. London, England: SAGE.
- Braun, Virginia, and Victoria Clarke. 2022. Thematic Analysis: A Practical Guide. London: SAGE.
- Braun, Virginia, and Victoria Clarke. 2024a. "A Critical Review of the Reporting of Reflexive Thematic Analysis in Health Promotion International." *Health Promotion International* 39 (May): 1–12. https://doi.org/10.1093/heapro/daae049.
- Braun, Virginia, and Victoria Clarke. 2024b. *Reflexive Thematic Analysis Reporting Guidelines (RTARG)*. SAGE Publications Ltd STM. https://doi.org/10.1177/02692163241234800.
- Braun, Virginia, and Victoria Clarke. 2024c. "Supporting Best Practice in Reflexive Thematic Analysis Reporting in Palliative Medicine: A Review of Published Research and Introduction to the Reflexive Thematic Analysis Reporting Guidelines (RTARG)." *Palliative Medicine* 2692163241234800 (6): 608–616. March. https://doi.org/10.1177/02692163241234800.
- Brown, Jenna. 2023. "Imagery and Science in Singing Pedagogy: Redefining Imagination a First Step to Resolving the Debate." *Voice and Speech Review* 17 (1): 26–35. https://doi.org/10.1080/23268263.2021.1999584.
- Brown, Jenna. 2024. "Keep it Clean! A New Approach to Imagery in Singing Pedagogy." *Voice and Speech Review* 1–13. https://doi.org/10.1080/23268263.2024.2347008.
- C12 Casting. 2022. "Auditions: & Juliet (Broadway)." *Theatre News. Broadway World*, August 17. https://www.broadwayworld.com/equity-audition/JULIET–BROADWAY–Juliet-Broadway-LLC-2022-26566.
- Causey, Trish. 2012. "Voice Technique for Musical Theatre Singers." *Stage Directions* 25 (3): 26–31. http://ezproxy.usq.edu.au/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=ulh&AN=73181809&site=ehost-live.
- Collins, Beverley, and Inger M. Mees. 2003. *Practical Phonetics and Phonology: A Resource Book for Students*. London: Psychology Press.
- Csikszentmihalyi, Mihaly. 2002. Flow: The Classic Work on How to Achieve Happiness Rev. ed. London: Rider.

- DeLillis, Antonio. 2021. "Imagery and Science in Singing Pedagogy: A Debate Introduction and Literature Review." *Voice and Speech Review* 15 (1): 89–95. https://doi.org/10.1080/23268263. 2020.1753342.
- Delp, Roy. 2001. "Now That the Belt Voice Has Become Legitimate...." *Journal of Singing* 57 (5): 1–2. https://www.nats.org/cgi/page.cgi/_article.html/Journal_of_Singing/_Now_that_the_belt_ voice_has_become_legitimate_2001_May_Jun.
- D'haeseleer, Evelien, Fien Quintyn, Imke Kissel, Tine Papeleu, Iris Meerschman, Sofie Claeys, and Kristiane Van Lierde. 2022. "Vocal Quality, Symptoms, and Habits in Musical Theater Actors." *Journal of Voice* 36 (2):e292.1–.e292.9. https://doi.org/10.1016/j.jvoice.2020.05.019.
- Doscher, Barbara M. 1994. "Vocal Resonance Chapter 6." In *The Functional Unity of the Singing Voice*, 2nd ed. Metuchen, NJ: Scarecrow Press.

Edwin, Robert. 1998a. "The Bach to Rock Connection: Belting 101." Journal of Singing 55 (1): 53-55.

- Edwin, Robert. 1998b. "The Bach to Rock Connection: Belting 101, Part Two." Journal of Singing the Official Journal of the National Association of Teachers of Singing 55 (2): 61–62. http://ezproxy.gc. cuny.edu/login?url=https://www.proquest.com/scholarlyjournals/bach-rock-connection-belting -101-part-two/docview/1401488/se2?accountid=7287.
- Edwin, Robert. 2003. "A Broader Broadway." Journal of Singing 59 (5): 431–432. https://www.proquest. com/docview/1402492?accountid=14647&cid=CID:20221103153454245:264521&fromOL=true& fromopenview=true&parentSessionId=pLrSn8xPABLVDWiKedrXqI5wVXyHwLIx7iX3Aimviig% 3D&pq-origsite=gscholar.
- Evanicki, Tim. 2018. "The (Less Than) One Percent." *Dramatics*. October. https://editions.mydigitalpu blication.com/publication/?m=24103&i=526740&view=articleBrowser&article_id=3189919&ver= html5.
- Finlay, Linda. 2021. "Thematic Analysis: The 'Good', the 'Bad' and the 'Ugly'." European Journal for Qualitative Research in Psychotherapy 11:103–116. https://ejqrp.org/index.php/ejqrp/article/view/ 136.
- Flock, Lydia. 2021. "Freedom of the Singing Voice: An Exploration of the Mind-Body Connection, Performance Anxiety and Confidence Through Methods of Fitzmaurice Voicework, Organic Intelligence, and Ziva Meditation." *Voice and Speech Review* 15 (1): 64–75. https://doi.org/10. 1080/23268263.2020.1834702.
- Forbes, Melissa. 2024. "'The Full Monty': Taking a Fully Qualitative Approach to Research by Singers, with Singers, for Singers." *Voice and Speech Review* 18 (2): 166–180. https://doi.org/10.1080/23268263.2024.2329421.
- Forbes, Melissa, and Kate Cantrell. 2023. "Choose Your Own Adventure: Vocal Jazz Improvisation, Conceptual Metaphor, and Cognitive Embodiment." *Musicae Scientiae* 27 (2): 332–347. https:// doi.org/10.1177/10298649211062730.
- Freeman, Warren, Kathryn Green, and Philip Sargent. 2015. "Deciphering Vocal Demands for Today's Broadway Leading Ladies." *Journal of Singing* 71 (4): 491–495. http://ezproxy.usq.edu.au/login?url= https://search.ebscohost.com/login.aspx?direct=true&db=cul&AN=101104481&site=ehost-live.
- Garcia, Manuel, and Hermann Klein. 1911. *Hints on Singing*. Translated by Beata Garcia. New and Rev ed. London and New York: Ascherberg, Hopwood & Crew; E. Schuberth.
- Hall, Karen Sue. 2006. Music Theater Vocal Pedagogy and Styles: An Introductory Teaching Guide for Experienced Classical Singing Teachers. New York, USA: Teachers College, Columbia University. https://www.proquest.com/docview/305362639/abstract/A03B846AA3CC42D8PQ/1.
- Helding, Lynn. 2011. "Innate Talent: Myth or Reality? | National Association of Teachers of Singing." Journal of Singing 67 (4): 451–458. https://www.nats.org/cgi/page.cgi/_article.html/Journal_of_ Singing/Innate_Talent_Myth_or_Reality_2011_Mar_Apr.
- Helding, Lynn. 2023. "The Constitution of Voice Knowledge." Journal of Singing 80 (2): 117–121. https://doi.org/10.53830/DSLR8533.
- Henrich, Nathalie, Christophe d'Alessandro, Boris Doval, and Michèle Castellengo. 2004. "On the Use of the Derivative of Electroglottographic Signals for Characterization of Nonpathological Phonation." *Journal of the Acoustical Society of America* 115 (3): 1321–1332. https://doi.org/10. 1121/1.1646401.

- Hoch, Matthew, and Matthew Edwards. 2018. "CCM versus Music Theater: A Comparison." Journal of Singing 75 (2): 183–190. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nats. org/_Library/JOS_On_Point/JOS-075-2-2018-183_-_CCM_versus_Music_Theater_-_Edwards-Hoch.pdf.
- Holmes, Patricia, and Christopher Holmes. 2013. "The Performer's Experience: A Case for Using Qualitative (Phenomenological) Methodologies in Music Performance Research." *Musicae Scientiae* 17 (March): 72–85. https://doi.org/10.1177/1029864912467633.
- Howe, M. J., J. W. Davidson, and J. A. Sloboda. 1998. "Innate Talents: Reality or Myth?" *Behavioral and Brain Sciences* 21 (3): 399–407; discussion 407-442. https://doi.org/10.1017/s0140525x9800123x.
- Hughes, Diane. 2013. "An Encultured Identity: Individuality, Expressivity and the Singing-Self." *Australian Voice* 15:13–19.
- Huston, Caitlin. 2019. "Speaking Out About Vocal Injuries on Broadway." *Broadway News*. https:// www.broadwaynews.com/speaking-out-about-vocal-injuries-on-broadway/.
- Innes, Jennifer. 2021. "Communication and Resilience in Acting Students: A Qualitative Study." Voice and Speech Review 15 (3): 252–274. https://doi.org/10.1080/23268263.2021.1892287.
- The Juilliard School. 2023. "National Center for Education Statistics." https://nces.ed.gov/collegen avigator/?q=juilliard&s=all&id=192110#admsns.
- Kafoa, Henry. 2025. "Finding the Lullaby of Broadway: What Sets Music Theatre Vocal Production Apart from Other Contemporary Commercial Music Styles?" *Voice and Speech Review*. Published online. https://doi.org/10.1080/23268263.2025.2458431.
- Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/M/bo3637992.html.
- LeBorgne, Wendy DeLeo, and Marci Daniels Rosenberg. 2019. *The Vocal Athlete*. 2nd ed. San Diego, CA: Plural Publishing.
- Maxfield, Lynn, and Brian Manternach. 2018. "Perceptual Differences Between Novice and Professional Music Theater Singers." *Journal of Voice* 32 (5): 572–577. https://doi.org/10.1016/j. jvoice.2017.08.007.
- Maxfield, Lynn, and Kari Ragan. 2021. "Evidence-Based Voice Pedagogy (EBVP), Part 1: Voice Research Component." *Journal of Singing* 77 (4): 543–547. http://ezproxy.usq.edu.au/login?url= https://search.ebscohost.com/login.aspx?direct=true&db=cul&AN=149027602&site=ehost-live.
- McCoy, Scott. 2012a. "Some Thoughts on Singing and Science." Journal of Singing 68 (5): 527–530.
- McCoy, Scott Jeffrey. 2012b. "Chapter 3: Resonance." In Your Voice: An Inside View. 2nd ed. Delaware, OH: Inside View Press, 43–61.
- McCoy, Scott Jeffrey. 2012c. "Chapter 6: Voice Registers." In Your Voice: An Inside View, 64–78. Princeton, NJ: Inside View Press. http://archive.org/details/yourvoiceinsideview00mcco.
- Michael, Deirdre. 2010. "Dispelling Vocal Myths. Part 1: 'Sing from Your Diaphragm!'." Journal of Singing 66 (5): 547–551.
- Michael, Deirdre. 2015. "Dispelling Vocal Myths: Part V 'Sniff to Raise the Palate!'." *Journal of Singing* 71 (3): 319–324.
- Michael, Deirdre D, and George S Goding. 2012. "Dispelling Vocal Myths. Part 3: 'Sing OVER Your Cold!'." *Journal of Singing* 68 (4): 419–425.
- Miller, Richard. 1989. "Imagery and the Teaching of Singing." Journal of Singing 46 (1): 15–16.
- Miller, Richard. 1998. "The Reluctant Student." *Journal of Singing* 54 (3): 41–43. https://www.proquest. c o m / o p e n v i e w / 6 9 5 8 a 0 3 c 2 2 d e 4 f 1 9 / 1 ? c b l = 9 7 1 & p a r e n t S e s s i o n l d = 83FJfiF50ryF9Grk26NAGwoNYTVBqKHdaAHITV9iPZk%3D&pq-origsite=gscholar&accountid=14647.
- Popeil, Lisa. 2007. "The Multiplicity of Belting." *Journal of Singing* 64 (1): 77–80. Corpus ID: 141500856.
- The Public Theater. 2023. "Audition for SUFFS (Broadway)." *Theatre News. Broadway World*, December 1. https://www.broadwayworld.com/equity-audition/SUFFS–Broadway–Young-Are-At-The-Gates-LLC-2023-41248.
- Richardson, Toni. 2022. "The Evolution of American Musical Drama and Its Effects on Modern Soprano Repertoire." Master of Music., Nashville, Tennessee: Belmont University. https://reposi tory.belmont.edu/music_recitals/26.
- Roll, Christianne. 2014. "Female Musical Theater Belting in the 21st Century: A Study of the Pedagogy of the Vocal Practice and Performance." ProQuest Dissertations and Theses, New

York, USA: Teachers College, Columbia University. https://www.proquest.com/docview/ 1545887820/abstract/C59614299A74470DPQ/18.

- Roll, Christianne. 2016. "The Evolution of the Female Broadway Belt Voice: Implications for Teachers and Singers." *Journal of Voice* 30 (5):.e639.1–.e639.9. https://doi.org/10.1016/j.jvoice.2015.07.008.
- Roll, Christianne. 2019. "The Female Broadway Belt Voice: The Singer's Perspective." Journal of Singing 76 (2): 155–162.
- Roubeau Bernard, Claude Chevrie-Muller. 1993. Laryngeal Vibratory Mechanisms and Neuromuscular Control of the Fundamental Frequency Université Paris-Orsay. https://www.sudoc.abes.fr/cbs/xslt//DB=2.1/SET=2/TTL=1/SHW?FRST=2.
- Sadoway, Dawn. 2021. "The Language of Teaching Voice: A Qualitative Study." Voice and Speech Review 15 (1): 51–63. https://doi.org/10.1080/23268263.2020.1751413.
- Sansom, Rockford. 2016. "The Unspoken Voice and Speech Debate [Or] the Sacred Cow in the Conservatory." *Voice and Speech Review* 10 (2–3): 157–168. https://doi.org/10.1080/23268263. 2016.1318814.
- Sansom, Rockford. 2021. "The 'So What' of Voice Research." *Voice and Speech Review* 15 (2): 125–128. https://doi.org/10.1080/23268263.2021.1940480.
- Schmidt, Alexandria R. 2022. "Musical Theater Education: Alumni Perceptions on the Integration of Musical Theater Vocal Pedagogy, Technique, and Repertoire within Voice Programs at Ohio Public Universities." Doctoral diss., Ohio State University. https://www.proquest.com/docview/ 2718154894/abstract/C59614299A74470DPQ/37.
- Scott, Sophie. 2024. "Insights, Considerations, and Suggestions for the Practitioner-Researcher in Voice Studies." *Voice and Speech Review* 18 (2): 146–165. https://doi.org/10.1080/23268263.2022. 2137972.
- Searl, Jeff, Troy Dargin, Alyssa Fritz, and Grace Kuza. 2022. "Voice and Lifestyle Behaviors of Student Singers: Impact of History Gathering Method on Self-Reported Data." *Journal of Voice* 36 (5):. e735.7–.e735.18. https://doi.org/10.1016/j.jvoice.2020.08.041.
- Spiotta, Alejandro M., Avery L. Buchholz, Alyssa K. Pierce, JoAnn Dahlkoetter, and Rocco Armonda. 2018. "The Neurosurgeon as a High-Performance Athlete: Parallels and Lessons Learned from Sports Psychology." World Neurosurgery 120 (December): e188–93. https://doi.org/10.1016/j. wneu.2018.08.013.
- Tara Rubin Casting. 2023a. "Auditions: Back to the Future: The Musical (Broadway) Equity Ensemble Singers." News. Broadway World.Com - Broadway's Premier Web Resource, December 12. https:// www.broadwayworld.com/equity-audition/BACK-TO-THE-FUTURETHE-MUSICAL-Broadway-Hill-Valley-Productions-LLC-2024-41422.
- Tara Rubin Casting. 2023b. "Auditions: Death Becomes Her (Broadway) Equity Ensemble Singers." *News. Broadway World.Com - Broadway's Premier Web Resource*, May 11. https://www.broadway world.com/equity-audition/DEATH-BECOMES-HER-Now-A-Warning-LLC-2023-39688.
- Taylor Williams Casting. 2024. "Auditions: 'The Last Five Years' (Broadway) EPA." *Theatre News, Backstage*. https://www.backstage.com/casting/the-last-five-years-broadway-nyc-epa-revised -2876395/.
- Tse, Dwight C. K., Jeanne Nakamura, and Mihaly Csikszentmihalyi. 2021. "Living Well by "Flowing' Well: The Indirect Effect of Autotelic Personality on Well-Being Through Flow Experience." Journal of Positive Psychology 16 (3): 310–321. https://doi.org/10.1080/17439760.2020.1716055.
- Ware, Rachel. 2013. "The Use of Science and Imagery in the Voice Studio-A Survey of Voice Teachers in the United States and Canada." *Journal of Singing* 69 (4): 413–417. https://www.proquest.com/ docview/1326414663?pq-origsite=gscholar&fromopenview=true&sourcetype=Scholarly% 20Journals .
- Willis-Lynam, Keyona. 2015. "The Crossover Opera Singer: Bridging the Gap Between Opera and Musical Theatre." Doctoral diss., Ohio State University. https://etd.ohiolink.edu/acprod/odb_etd/ etd/r/1501/10?clear=10&p10_accession_num=osu1449161062.
- Wiltsher, Nick. 2019. "Imagination: A Lens, Not a Mirror." *Philosopher's Imprint* 19 (30). http://hdl. handle.net/2027/spo.3521354.0019.030.