

Development and Content Validation of the Wu Dialect Vocal Enhancement Program (WDVEP): A Preliminary Study in Vocational Music Education

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ABSTRACT

Dialectal interference in singing presents a significant challenge for vocational music students, particularly in multilingual and multidialectal contexts where regional speech habits influence standardized singing pronunciation. Among Wu dialect-speaking learners in China, phonological differences between the Wu dialect and Standard Mandarin may affect articulation accuracy, diction clarity, tonal production, and overall vocal performance. Despite growing recognition of these challenges, limited research has focused on the development of structured pedagogical interventions specifically designed to address dialectal interference in singing. Therefore, this study aimed to develop and establish the content validity of the Wu Dialect Vocal Enhancement Program (WDVEP), a pedagogical framework designed to support pronunciation development among vocational music students from Wu-speaking backgrounds. This study employed an Educational Material Development and Content Validation Design. The WDVEP was developed based on Language Transfer Theory, the OPERA Hypothesis, music psychology, vocal pedagogy, and culturally responsive pedagogy. Content validation was conducted by a purposive panel of eight experts in vocal music, music education, vocal pedagogy, linguistics, and curriculum studies. Quantitative data were analyzed using the Content Validity Index (CVI), while qualitative feedback was analyzed thematically. The findings revealed unanimous expert agreement regarding the quality and suitability of the developed materials. All curriculum and instrument validation criteria achieved an Item-Level Content Validity Index (I-CVI) of 1.00, while the overall Scale-Level Content Validity Index Average (S-CVI/Ave) was 1.00, indicating excellent content validity. Qualitative findings further confirmed the pedagogical appropriateness, structural coherence, practical feasibility, and cultural relevance of the program. The study concludes that the WDVEP constitutes a valid instructional package for addressing dialectal interference in singing among Wu dialect-speaking vocational music students. The validated framework provides a foundation for future implementation and effectiveness studies and contributes to research on vocal pedagogy, music education, language–music transfer, and culturally responsive instructional design.

Keywords: dialectal interference, vocal pedagogy, vocational music education, content validation, singing diction, language transfer, music psychology, Wu dialect

INTRODUCTION

Music education plays a vital role in developing students' artistic, cognitive, emotional, and communicative abilities. Within music education, vocal training occupies a central position because singing integrates musical understanding with linguistic expression. Effective singing requires not only accurate pitch production, rhythm control, and musical interpretation but also clear diction and pronunciation. The intelligibility of sung text contributes significantly to artistic communication, audience comprehension, and overall performance quality.

Consequently, pronunciation training has become an essential component of vocal pedagogy across educational contexts.

In multilingual and multidialectal societies, however, singing instruction is often complicated by the influence of regional speech varieties. Students typically acquire speech patterns from their local linguistic environments long before entering formal music education. These speech habits become deeply embedded through years of daily communication and may subsequently influence pronunciation during singing. When the phonological characteristics of a regional dialect differ from the pronunciation standards required for singing, students may experience difficulties producing accurate articulation, vowel formation, consonant realization, and tonal patterns. This phenomenon is commonly referred to as dialectal interference and represents a persistent challenge in vocal music education.

The issue is particularly evident in China, where numerous regional dialects coexist alongside Standard Mandarin. Among these dialect groups, the Wu dialect is one of the major Sinitic language varieties spoken predominantly in Shanghai, Zhejiang, southern Jiangsu, and surrounding regions. The Wu dialect possesses distinctive phonological characteristics, including differences in consonant articulation, vowel production, tonal systems, and syllable structures that distinguish it from Standard Mandarin (Zhengzhang & Zheng, 2015). While these linguistic features reflect the cultural and historical identity of Wu-speaking communities, they may create challenges for students who are expected to perform Mandarin-based vocal repertoire according to standardized pronunciation conventions.

Accurate pronunciation is particularly important in formal vocal performance because diction directly affects textual intelligibility, vocal resonance, and expressive communication. Chu and Petrus (2020) emphasized that Mandarin lyric diction requires precise articulation of consonants, vowels, and tonal patterns to achieve both linguistic clarity and artistic effectiveness. Similarly, Sun (2025) reported that Chinese singers often encounter pronunciation-related challenges when adapting linguistic articulation to formal vocal techniques, particularly within Bel Canto singing traditions. These findings suggest that pronunciation difficulties are not merely linguistic concerns but also pedagogical and performance-related issues that influence overall singing quality.

Beyond linguistic considerations, contemporary educational research emphasizes the importance of recognizing learners' cultural and linguistic backgrounds as valuable educational resources rather than obstacles to learning. Culturally responsive pedagogy advocates instructional approaches that acknowledge, respect, and incorporate students' cultural identities into teaching and learning processes (Gay, 2021). Similarly, culturally relevant pedagogy encourages educators to support academic achievement while simultaneously affirming students' cultural and linguistic heritage (Ladson-Billings, 2021). Within the context of vocal music education, this perspective suggests that regional dialects should not be viewed as deficiencies requiring elimination but rather as linguistic assets that can be leveraged to facilitate learning. Consequently, instructional approaches addressing dialectal interference should aim not only to improve pronunciation accuracy but also to foster linguistic awareness, cultural appreciation, and learner confidence.

The educational significance of such approaches is particularly relevant within vocational music education. Vocational music programmes are designed to prepare students for professional performance environments while supporting their artistic and personal development. Research has demonstrated that music learning contributes to broader dimensions of youth development, including identity formation, self-expression, communication, and social participation (Hallam & Creech, 2019). Furthermore, educational experiences within music programmes play an important role in shaping students' musical identities and future professional aspirations (Creech et al., 2020). As a result, pedagogical interventions should support not only technical skill acquisition but also the development of positive musical self-concepts and culturally grounded learning experiences.

Recent scholarship has further highlighted the broader impact of music education on human development and well-being. Music learning has been associated with cognitive, emotional, social, and communicative benefits that extend beyond musical performance itself (Biasutti et al., 2020). These perspectives suggest that addressing dialectal interference in singing should be viewed as part of a holistic educational process that

integrates linguistic competence, musical development, cultural identity, and learner well-being. Such an approach aligns with the objectives of the Wu Dialect Vocal Enhancement Program (WDVEP), which seeks to improve singing diction while maintaining respect for students' regional linguistic heritage.

The influence of prior linguistic knowledge on subsequent language production can be explained through Language Transfer Theory. According to Odlin (1989), language transfer occurs when previously acquired linguistic structures affect the learning or use of another language variety. Within singing contexts, negative transfer may occur when dialectal pronunciation habits interfere with the production of standardized singing diction. Such interference may manifest through articulation errors, vowel distortions, tonal inconsistencies, and pronunciation patterns that differ from accepted vocal performance standards. Because singing relies heavily on coordinated linguistic and motor processes, persistent dialectal habits may be particularly resistant to change through traditional correction methods alone.

Recent linguistic research further supports the importance of understanding dialectal influences on perception and production. Zhang et al. (2024) demonstrated that dialectal variation can influence tone perception and voice-quality cues, while Li et al. (2024) highlighted the considerable phonological diversity that exists across Chinese dialects. These findings suggest that dialect-related pronunciation differences are deeply rooted in perceptual and cognitive processes, reinforcing the need for systematic instructional approaches that address dialectal interference in educational settings.

Recent developments in music psychology and cognitive neuroscience provide additional insight into the relationship between speech and singing. Research suggests that music and language share overlapping neural, perceptual, and cognitive mechanisms involved in auditory processing, memory, attention, and motor control (Schön & Morillon, 2019; Hodges & McPherson, 2025). Patel's (2011, 2012, 2014) Opera Hypothesis further proposes that musical and linguistic processing interact through shared neural networks, allowing experiences in one domain to influence performance in the other. Empirical studies have demonstrated significant relationships between musical ability, speech perception, language acquisition, and pronunciation development (Swaminathan & Schellenberg, 2020; Choi, 2021; Choi, 2022a; Choi, 2022b; Thompson et al., 2025). More recent studies have shown that language background influences musical pitch perception and that cognitive and perceptual mechanisms contribute to music-to-language transfer among bilingual learners (Choi & Chan, 2025; Choi et al., 2025). Together, these findings indicate that pronunciation challenges in singing should not be viewed solely as technical vocal problems but rather as multidimensional educational issues involving language processing, cognition, perception, and motor learning.

Within Chinese vocal pedagogy, scholars have increasingly emphasized the need to balance linguistic authenticity with vocal technique. Pan (2023) observed that Chinese traditional singing and Western Bel Canto singing differ substantially in their treatment of diction, resonance, and vocal production, requiring singers to negotiate multiple linguistic and stylistic demands. Consequently, students from regional dialect backgrounds may face additional challenges when adapting their speech habits to standardized singing practices. Despite these challenges, existing instructional approaches often rely heavily on imitation, repetition, and corrective feedback without providing structured pedagogical frameworks specifically designed to address dialectal interference.

Furthermore, limited attention has been devoted to the development of educational materials tailored to dialect-speaking learners in vocational music education. Existing studies have largely focused on theoretical discussions of music-language relationships, pronunciation challenges, or vocal techniques, while relatively few have developed and validated pedagogical interventions that systematically address dialectal interference in singing. Equally important, there is a lack of validated assessment instruments capable of measuring pronunciation development and learner perceptions within such interventions. Without validated instructional materials and assessment tools, it becomes difficult for educators and researchers to evaluate intervention effectiveness and establish evidence-based instructional practices.

To address these gaps, the present study developed the Wu Dialect Vocal Enhancement Program (WDVEP), a pedagogical package designed to support pronunciation development among Wu dialect-speaking vocational

music students. The program integrates principles from Language Transfer Theory, the OPERA Hypothesis, contemporary music psychology, and culturally responsive pedagogy to provide structured instructional support for reducing dialectal interference in singing. As a preliminary phase of a broader research project, the present study focuses on the development and content validation of the WDVEP package, including both instructional materials and assessment instruments, through expert evaluation.

As a preliminary stage of a broader research project, the present study focuses on establishing the content validity of the WDVEP package through expert evaluation. Specifically, the study examines the suitability, relevance, clarity, and practical applicability of both the instructional materials and assessment instruments developed for the program. Establishing content validity represents a critical step before implementation and effectiveness testing because it ensures that the developed materials accurately represent the intended constructs and educational objectives.

Research Objectives

The study was guided by the following objectives:

- i. To develop the instructional materials and assessment instruments for the Wu Dialect Vocal Enhancement Program (WDVEP).
- ii. To determine the content validity of the WDVEP instructional materials through expert evaluation.
- iii. To determine the content validity of the WDVEP assessment instruments through expert evaluation.
- iv. To identify expert recommendations for improving the WDVEP package prior to implementation.

Research Questions

The study sought to answer the following research questions:

- i. To what extent do experts agree on the content validity of the WDVEP instructional materials?
- ii. To what extent do experts agree on the content validity of the WDVEP assessment instruments?
- iii. What recommendations do experts provide regarding the improvement of the WDVEP package?
- iv. Significance of the Study

This study contributes to vocational music education by providing a systematically developed and validated pedagogical package for addressing dialectal interference in singing. The validated materials offer practical guidance for vocal instructors working with dialect-speaking learners and provide researchers with assessment instruments for evaluating pronunciation development and learner perceptions. Furthermore, the study contributes to the growing body of literature on music-language transfer, culturally responsive music education, and evidence-based vocal pedagogy. By addressing pronunciation challenges while respecting regional linguistic identity, the WDVEP framework promotes both educational effectiveness and cultural inclusivity within vocational music education.

LITERATURE REVIEW

Dialectal Interference in Singing

Dialectal interference refers to the influence of regional speech patterns on the production of a target language or language variety. In multilingual and multidialectal societies, speakers frequently transfer phonological, lexical, and prosodic characteristics from their native dialects into formal communication contexts. Within vocal music education, such transfer becomes particularly significant because singing requires precise control of pronunciation, articulation, resonance, and linguistic expression. When dialectal speech habits differ from the pronunciation standards required in singing, learners may experience difficulties producing accurate vocal diction.

China provides a particularly relevant context for examining dialectal interference because of its extensive linguistic diversity. Although Standard Mandarin serves as the national language and the primary medium of

formal education, numerous regional dialects continue to be used in daily communication. Among these dialect groups, the Wu dialect is one of the most prominent linguistic varieties, spoken by millions of people across Shanghai, Zhejiang Province, southern Jiangsu, and surrounding regions. According to Zhengzhang and Zheng (2015), the Wu dialect possesses distinctive phonological features that differ considerably from Standard Mandarin, including variations in consonant articulation, vowel realization, tonal structures, and syllable patterns. These differences may influence pronunciation behaviours when Wu-speaking learners engage in Mandarin-based singing activities.

The relationship between speech and singing is particularly important because vocal performance relies on the accurate coordination of linguistic and musical elements. Singing requires performers to communicate textual meaning while simultaneously maintaining vocal technique, musical expression, and stylistic interpretation. Consequently, pronunciation inaccuracies may affect not only textual intelligibility but also vocal quality and artistic communication. Chu and Petrus (2020) emphasized that Mandarin singing demands careful attention to consonant articulation, vowel formation, and tonal clarity to achieve effective lyric diction. Accurate diction contributes not only to audience comprehension but also to efficient vocal production, resonance, and artistic communication (McKinney, 2005). Inaccurate pronunciation may therefore compromise both vocal effectiveness and overall performance quality.

Research within Chinese vocal pedagogy has highlighted the challenges associated with adapting regional speech habits to standardized singing practices. Sun (2025) reported that Mandarin pronunciation presents unique challenges for singers, particularly when linguistic articulation must be coordinated with formal vocal techniques such as Bel Canto singing. Similarly, Pan (2023) observed that Chinese traditional vocal styles and Western Bel Canto traditions differ substantially in their treatment of diction, resonance, and vocal production, requiring singers to negotiate multiple linguistic and stylistic demands. For students from dialect-speaking backgrounds, these challenges may be further compounded by the influence of long-established regional pronunciation habits. Within vocational music education, such challenges are particularly important because students are expected to develop professional performance competencies that align with industry standards and future career pathways. Music learning experiences contribute not only to technical skill acquisition but also to the development of artistic identity, communication skills, and professional aspirations (Hallam & Creech, 2019; Creech et al., 2020). Consequently, pronunciation accuracy represents an important component of vocational singing preparation and performance readiness.

Recent linguistic research has provided additional evidence regarding the impact of dialectal variation on speech perception and production. Zhang et al. (2024) demonstrated that dialect loss influences tone perception and voice-quality cues, suggesting that dialectal experience shapes the way individuals process and interpret speech sounds. Likewise, Li et al. (2024) highlighted the considerable phonological diversity that exists across Chinese dialects, emphasizing the complexity of speech processing within multilingual and multidialectal contexts. These findings indicate that dialect-related pronunciation differences are not merely superficial speech habits but are deeply embedded within cognitive and perceptual systems.

Within singing education, dialectal interference may manifest in several forms, including consonant substitutions, vowel distortions, inaccurate tonal production, altered resonance patterns, and deviations from standardized pronunciation norms. Such difficulties are often reinforced through years of habitual speech use, making them resistant to correction through traditional imitation-based instruction alone. Consequently, there is a need for structured pedagogical interventions that address both the linguistic and musical dimensions of pronunciation development.

Despite growing recognition of dialectal influences on speech and singing, existing research has focused primarily on describing pronunciation challenges rather than developing comprehensive educational solutions. Few studies have proposed pedagogical frameworks specifically designed to support dialect-speaking learners in transitioning from regional speech habits to standardized singing pronunciation. Furthermore, limited attention has been devoted to the development and validation of instructional materials capable of addressing dialectal interference systematically within vocational music education. These limitations highlight the need for educational interventions that integrate linguistic theory, vocal pedagogy, and culturally responsive teaching principles to support effective pronunciation development among dialect-speaking music students.

Language Transfer Theory

Language Transfer Theory provides a fundamental framework for understanding how previously acquired linguistic knowledge influences the learning and production of new language forms. According to Odlin (1989), language transfer refers to the influence resulting from similarities and differences between a learner's prior linguistic system and the target language being learned or used. Transfer may be positive when existing linguistic knowledge facilitates learning; however, it becomes negative when previously established language patterns interfere with the acquisition or production of target language forms. More recently, Odlin (2022) expanded discussions of language transfer by highlighting the complex relationships among language processing, comprehension, production, translation, and metalinguistic awareness, emphasizing the continuing relevance of transfer research for educational practice and language learning.

The concept of language transfer has traditionally been examined within second language acquisition research, where learners often experience difficulties due to the influence of their first language. However, the theory is equally applicable to situations involving dialectal variation. Although dialects and standard language varieties belong to the same linguistic system, differences in pronunciation, tone, articulation, and phonological structure may create learning challenges when individuals are required to shift from one variety to another. Consequently, speakers may continue to rely on familiar speech patterns even when alternative pronunciation forms are required.

Within the context of singing, language transfer occurs when speech habits developed through everyday communication influence vocal performance. Because pronunciation is closely linked to articulatory movements involving the tongue, lips, jaw, velum, and respiratory system, long-established speech patterns become deeply embedded in motor memory. As a result, singers frequently transfer habitual dialectal articulations into performance settings, particularly when performing under conditions requiring high levels of concentration, emotional engagement, or technical control. Such transfer may manifest as consonant substitutions, vowel distortions, altered resonance patterns, inaccurate tonal production, and deviations from standardized pronunciation norms.

For Wu dialect-speaking learners, the influence of language transfer may be particularly pronounced because of the substantial phonological differences between the Wu dialect and Standard Mandarin. Zhengzhang and Zheng (2015) noted that Wu dialects possess distinctive consonant inventories, vowel systems, and tonal characteristics that differ from those found in Standard Mandarin. Consequently, students who have used the Wu dialect as their primary means of communication may encounter challenges when attempting to adopt Mandarin pronunciation conventions in singing. These challenges may persist even after prolonged exposure to formal instruction because dialectal speech habits have been reinforced through years of daily linguistic practice.

Recent studies have further demonstrated that dialectal experience influences both speech perception and production. Zhang et al. (2024) found that dialect-related experiences affect tone perception and voice-quality processing, suggesting that phonological habits extend beyond surface-level pronunciation differences and influence underlying perceptual mechanisms. Similarly, Li et al. (2024) highlighted the complexity and diversity of Chinese dialect systems, emphasizing the substantial variation that exists among regional speech communities. These findings support the view that dialectal interference is rooted in deeply established cognitive and perceptual processes rather than simple pronunciation errors.

The relevance of Language Transfer Theory to singing is further supported by research examining the relationship between speech production and vocal performance. Effective singing requires the integration of linguistic articulation and musical expression. Consequently, inaccurate pronunciation resulting from negative transfer may influence not only textual intelligibility but also vocal resonance, tone quality, and overall performance effectiveness. McKinney (2005) emphasized that articulation and diction are essential components of vocal production, suggesting that persistent pronunciation habits can affect broader aspects of singing technique. Therefore, addressing dialectal interference requires instructional approaches that target both linguistic and vocal dimensions of performance.

From an educational perspective, Language Transfer Theory provides a strong rationale for the development of targeted pedagogical interventions. Rather than assuming that pronunciation difficulties will naturally disappear through repeated singing practice, the theory suggests that learners require structured opportunities to recognize, monitor, and modify existing speech habits. Such interventions should facilitate awareness of dialectal differences while providing systematic support for the development of standardized pronunciation skills. This perspective aligns with the objectives of the Wu Dialect Vocal Enhancement Program (WDVEP), which was designed to assist vocational music students in transitioning from dialect-influenced speech patterns to standardized singing diction through explicit instruction, guided practice, and continuous reinforcement.

Overall, Language Transfer Theory offers a valuable explanatory framework for understanding dialectal interference in singing. By highlighting the influence of prior linguistic experience on vocal performance, the theory provides a foundation for designing educational strategies that address pronunciation challenges systematically and effectively. The theory therefore serves as one of the principal foundations underpinning the development of the WDVEP framework and its associated instructional materials.

Music–Language Transfer and the OPERA Hypothesis

The relationship between music and language has attracted increasing attention across the fields of cognitive psychology, neuroscience, linguistics, and music education. Although traditionally treated as separate domains, contemporary research suggests that music and language share common perceptual, cognitive, and neural mechanisms. Both systems rely on the processing of pitch, rhythm, timing, auditory discrimination, memory, and motor coordination, enabling individuals to interpret and produce complex patterns of sound. Consequently, experiences in one domain may influence performance and learning in the other, a phenomenon commonly referred to as music–language transfer.

One of the most influential theoretical explanations for music–language transfer is Patel's (2011) OPERA Hypothesis. The OPERA Hypothesis proposes that musical training can improve speech processing when five conditions are satisfied: Overlap, Precision, Emotion, Repetition, and Attention. The first condition, overlap, refers to the sharing of neural networks between music and language processing. Precision suggests that musical activities often require greater accuracy than ordinary speech, thereby strengthening auditory processing mechanisms. Emotion highlights the motivational and affective engagement associated with music learning, while repetition and attention emphasize the intensive practice and focused concentration involved in musical activities. According to Patel (2011), the simultaneous presence of these conditions promotes adaptive neural plasticity that benefits speech perception and production.

Patel (2012) further clarified the assumptions underlying the OPERA framework, emphasizing that music-related improvements in speech processing are most likely to occur when musical tasks place higher demands on shared neural systems than everyday language use. Subsequently, Patel (2014) expanded the hypothesis by demonstrating that non-linguistic musical training can influence the neural encoding of speech, providing further evidence of the interconnected nature of music and language processing. Collectively, these studies established a theoretical foundation for understanding how musical experiences may contribute to language development and how linguistic factors may influence musical performance.

Empirical research has provided substantial support for the music–language transfer perspective. Swaminathan and Schellenberg (2020) found that musical ability and music training were positively associated with language abilities among children, suggesting that musical experiences contribute to broader linguistic development. Similarly, Thompson et al. (2025), through a meta-analysis of second-language acquisition studies, reported a significant relationship between musical ability and language learning outcomes. These findings indicate that musical and linguistic competencies are closely interconnected and may influence one another throughout the learning process.

Recent studies have further examined the interaction between language background and musical perception. Choi (2021) demonstrated that musicianship influences the relationship between language experience and

musical pitch perception, suggesting that language and music interact at both perceptual and cognitive levels. Choi (2022a) subsequently proposed a native OPERA hypothesis, showing that musicianship contributed positively to English stress perception. In a related study, Choi (2022b) found that musical ability, rather than formal musicianship alone, supported Cantonese listeners' perception of English stress patterns. These findings reinforce the argument that musical skills can facilitate language-related perceptual tasks and that language experience may shape musical processing.

More recent evidence has extended these findings to multilingual and tone-language contexts. Choi and Chan (2025) reported that Cantonese and Mandarin language backgrounds produced different effects on musical pitch perception, highlighting the influence of linguistic experience on musical processing. Likewise, Choi et al. (2025) demonstrated that cognitive and perceptual mechanisms contribute to music-to-language transfer among Cantonese–English bilingual children. Their findings suggest that language and music share interconnected processing systems that support learning across domains. Such evidence is particularly relevant to dialectal interference research because it indicates that long-established linguistic experiences can influence auditory perception and production in musical contexts.

The implications of music–language transfer research extend beyond theoretical discussions and have important consequences for music education. If speech and music rely on shared perceptual and neural mechanisms, pronunciation difficulties in singing cannot be viewed solely as technical vocal problems. Instead, they should be understood as multidimensional learning challenges involving auditory perception, linguistic processing, motor coordination, and cognitive control. Consequently, effective pedagogical interventions should address both linguistic and musical dimensions of performance rather than focusing exclusively on vocal technique.

Within the context of vocational music education, the OPERA Hypothesis and related music–language transfer research provide a strong rationale for developing structured pronunciation interventions. Students who experience dialectal interference may benefit from instructional approaches that simultaneously target speech awareness, auditory discrimination, articulation, and singing performance. By leveraging the shared mechanisms underlying music and language processing, educators may facilitate more effective pronunciation development while supporting broader musical growth. This perspective aligns closely with the objectives of the Wu Dialect Vocal Enhancement Program (WDVEP), which integrates linguistic and musical training to assist Wu dialect-speaking students in developing standardized singing pronunciation.

Overall, music–language transfer research and the OPERA Hypothesis provide important theoretical foundations for understanding the relationship between linguistic experience and singing performance. The growing body of evidence demonstrating interactions between music and language supports the development of pedagogical approaches that address pronunciation challenges through integrated musical and linguistic instruction. These perspectives therefore offer a valuable framework for guiding interventions designed to reduce dialectal interference in vocational music education.

Music Psychology and Singing Development

Music psychology provides an interdisciplinary framework for understanding how individuals perceive, process, learn, and perform music. Drawing upon perspectives from psychology, neuroscience, education, and music studies, the field examines the cognitive, emotional, social, and behavioural dimensions of musical engagement. Within vocal music education, music psychology offers valuable insights into the complex processes involved in singing development, particularly the interactions among perception, cognition, motor coordination, and communication. Understanding these processes is essential when addressing pronunciation challenges because singing requires the simultaneous integration of linguistic and musical competencies.

Contemporary music psychology emphasizes that musical learning extends beyond the acquisition of technical skills. According to Hodges and McPherson (2025), music learning involves the interaction of multiple domains, including auditory perception, memory, attention, motivation, emotion, motor control, and social

experience. These domains collectively influence how learners acquire musical knowledge and develop performance abilities. Consequently, difficulties encountered during singing may not be attributable solely to vocal technique but may also reflect underlying perceptual, cognitive, or linguistic processes. This perspective supports the view that pronunciation development should be approached as a multidimensional learning process rather than a purely mechanical exercise in articulation correction.

Research has further demonstrated that speech and music share important neural and cognitive mechanisms. Schön and Morillon (2019) argued that both domains rely on common processes related to auditory perception, timing, sequencing, memory, and sensorimotor integration. Because singing requires the coordination of linguistic and musical information, difficulties in speech perception or pronunciation may influence musical performance outcomes. Similarly, improvements in auditory discrimination, rhythmic processing, and vocal control may facilitate more accurate pronunciation during singing. These shared mechanisms provide additional theoretical support for integrated pedagogical approaches that address both linguistic and musical dimensions of learning.

The role of perception is particularly significant in singing development. Effective singing requires learners to discriminate subtle differences in pitch, rhythm, timbre, and pronunciation while continuously monitoring their own vocal output. Students must compare internal auditory representations with external performance expectations and make ongoing adjustments to their vocal production. When learners possess deeply established dialectal speech habits, perceptual biases may influence how they hear and produce speech sounds, potentially reinforcing pronunciation inaccuracies. Consequently, educational interventions designed to address dialectal interference should incorporate activities that enhance auditory awareness and phonological discrimination in addition to articulatory practice.

Emotion and motivation also play important roles in musical learning. Music education is often associated with strong emotional engagement, personal expression, and identity formation. Biasutti et al. (2020) highlighted the broad contributions of music learning to cognitive, emotional, social, and communicative development. Positive learning experiences can enhance learner motivation, confidence, and persistence, while repeated experiences of failure or correction may reduce engagement and self-efficacy. For students experiencing pronunciation difficulties, instructional approaches that provide supportive feedback and meaningful learning experiences may therefore contribute to both technical improvement and psychological well-being.

Within vocational music education, singing development is closely connected to professional identity formation and future career aspirations. Hallam and Creech (2019) noted that music learning contributes to broader aspects of youth development, including self-expression, communication, creativity, and personal growth. Similarly, Creech et al. (2020) emphasized that educational experiences play a significant role in shaping learners' musical identities and perceptions of future professional possibilities. Consequently, pedagogical interventions should not only target technical performance outcomes but also support students' confidence, motivation, and sense of belonging within the musical community.

From a music psychology perspective, pronunciation development in singing should therefore be viewed as a holistic educational process involving cognitive, perceptual, emotional, and social dimensions. Learners must develop awareness of linguistic differences, refine auditory discrimination skills, modify existing motor habits, and maintain motivation throughout the learning process. Such complexity suggests that effective interventions should combine explicit instruction, guided practice, reflective learning, and supportive feedback. These considerations informed the development of the Wu Dialect Vocal Enhancement Program (WDVEP), which seeks to address dialectal interference through an integrated approach that acknowledges both the psychological and pedagogical dimensions of singing development.

Overall, music psychology provides an important theoretical foundation for understanding pronunciation development within vocal music education. By recognizing the interconnected roles of cognition, perception, emotion, and identity in musical learning, educators can design more comprehensive interventions that support both technical proficiency and holistic learner development. These principles underpin the WDVEP framework

and reinforce the need for pedagogical approaches that address dialectal interference through multidimensional educational strategies.

Culturally Responsive Pedagogy and Vocational Music Education

Contemporary educational research increasingly recognizes that students' cultural, linguistic, and social backgrounds play a significant role in shaping learning experiences and educational outcomes. Rather than viewing linguistic diversity as a barrier to academic achievement, culturally responsive approaches emphasize the value of learners' existing knowledge, experiences, and identities as resources for learning. This perspective is particularly relevant in multilingual and multidialectal contexts, where students bring diverse linguistic backgrounds into educational environments. Within music education, culturally responsive pedagogy provides a framework for supporting student learning while simultaneously respecting and affirming cultural and linguistic identities.

According to Gay (2021), culturally responsive teaching involves the deliberate use of learners' cultural experiences, perspectives, and communication styles to make learning more meaningful and effective. Such approaches seek to create inclusive educational environments in which students' backgrounds are recognized as strengths rather than deficiencies. Similarly, Ladson-Billings (2021) argued that culturally relevant pedagogy promotes academic success while fostering cultural competence and critical awareness. Together, these perspectives suggest that educational interventions should support students' development without requiring them to abandon their cultural or linguistic identities.

Within the context of vocal music education, this principle has important implications for addressing dialectal interference. Traditional approaches to pronunciation training often emphasize the correction or elimination of non-standard speech patterns. While such methods may improve pronunciation accuracy, they may inadvertently position regional dialects as deficiencies requiring remediation. From a culturally responsive perspective, however, dialects represent important expressions of cultural heritage, community identity, and personal experience. Consequently, educational interventions should aim to help learners develop the ability to use standardized pronunciation in appropriate performance contexts while maintaining respect for their native dialects and linguistic backgrounds.

This perspective is particularly important in China, where regional dialects constitute significant elements of local culture and identity. The Wu dialect, for example, represents a rich linguistic tradition with deep historical and cultural roots. For many learners, the dialect functions not only as a means of communication but also as a marker of personal and community identity. Therefore, instructional approaches designed to address dialectal interference should avoid framing dialectal speech patterns as inherently problematic. Instead, educators should help students develop linguistic flexibility, enabling them to move effectively between dialectal and standardized forms according to contextual demands.

Vocational music education provides a particularly appropriate context for applying culturally responsive principles. Unlike general music education, vocational programmes are designed to prepare students for professional performance environments while supporting their artistic and personal development. Hallam and Creech (2019) noted that music learning contributes to identity formation, self-expression, communication skills, and social participation. Likewise, Creech et al. (2020) emphasized that educational experiences play an important role in shaping students' musical possible selves and future professional aspirations. As a result, vocational music educators must balance the development of technical competencies with broader educational goals related to identity, confidence, and personal growth.

For students pursuing careers in music performance, accurate pronunciation remains an essential professional competency. Performers are expected to communicate text clearly, interpret repertoire authentically, and meet established artistic standards. However, the pursuit of professional competence should not require students to reject or suppress their linguistic heritage. Instead, vocational music education should cultivate adaptive expertise, enabling students to employ different linguistic and vocal practices according to specific performance contexts. Such an approach promotes both technical excellence and cultural inclusivity.

The principles of culturally responsive pedagogy also align closely with contemporary perspectives on learner-centered education. Effective learning occurs when students are actively engaged, motivated, and able to connect new knowledge with prior experiences. By acknowledging learners' dialectal backgrounds and incorporating opportunities for reflection on language use, educators can create more meaningful and supportive learning environments. This approach may also reduce anxiety associated with pronunciation correction by framing dialectal differences as learning resources rather than errors.

These considerations informed the development of the Wu Dialect Vocal Enhancement Program (WDVEP). Rather than seeking to eliminate dialectal identity, the program aims to support students in developing awareness of linguistic differences and acquiring the pronunciation skills necessary for formal singing performance. The Multilingual Integration pillar of the WDVEP framework reflects this philosophy by encouraging learners to recognize the relationship between dialectal and standardized speech forms while maintaining appreciation for their linguistic heritage. Through this approach, the program seeks to balance professional performance requirements with cultural responsiveness and educational inclusivity.

Overall, culturally responsive pedagogy provides an important educational foundation for addressing dialectal interference in vocational music education. By recognizing the value of learners' linguistic identities and promoting adaptive language use, educators can create instructional environments that support both pronunciation development and cultural affirmation. These principles contribute significantly to the theoretical foundations of the WDVEP framework and reinforce its emphasis on inclusive, learner-centered vocal instruction.

Research Gap and Conceptual Framework Development

The literature reviewed in the preceding sections demonstrates that dialectal interference in singing is a complex phenomenon influenced by linguistic, cognitive, perceptual, pedagogical, and sociocultural factors. Research on Chinese dialects has highlighted substantial phonological differences between regional dialects and Standard Mandarin, while studies in vocal pedagogy have emphasized the importance of accurate pronunciation for effective singing performance (Chu & Petrus, 2020; Sun, 2025; Zhengzhang & Zheng, 2015). Language Transfer Theory further explains how deeply established dialectal speech habits may influence pronunciation in singing contexts (Odlin, 1989, 2022). Collectively, these perspectives provide strong theoretical support for addressing dialectal interference through targeted educational interventions.

Research in music psychology and music–language transfer has also contributed important insights into the relationship between speech and singing. The OPERA Hypothesis (Patel, 2011, 2012, 2014) and subsequent empirical studies (Choi, 2021, 2022a, 2022b; Choi & Chan, 2025; Choi et al., 2025; Swaminathan & Schellenberg, 2020; Thompson et al., 2025) suggest that music and language share common perceptual and neural mechanisms. These findings indicate that pronunciation development in singing involves more than articulatory correction and should instead be understood as a multidimensional process involving auditory perception, cognitive processing, motor learning, and linguistic awareness. Similarly, contemporary perspectives in music psychology emphasize the interconnected roles of cognition, emotion, motivation, identity, and social experience in musical learning (Biasutti et al., 2020; Hodges & McPherson, 2025; Schön & Morillon, 2019).

Despite these advances, several important gaps remain within the existing literature. First, most studies have focused on describing dialectal influences on speech, tone perception, or singing pronunciation rather than developing practical pedagogical solutions for addressing these challenges. While researchers have identified the existence of dialect-related pronunciation difficulties, relatively few studies have translated these findings into structured educational interventions specifically designed for vocational music learners.

Second, existing research has rarely integrated linguistic theory, music psychology, vocal pedagogy, and culturally responsive education into a unified instructional framework. Studies examining language transfer, music–language relationships, and singing development have generally been conducted within separate disciplinary traditions. As a result, there remains a lack of comprehensive pedagogical models capable of addressing dialectal interference from multiple educational perspectives simultaneously.

Third, there is limited research focusing specifically on vocational music education. Vocational music students are expected to meet professional performance standards while simultaneously developing artistic identity, technical competence, and communicative effectiveness. However, few studies have examined how dialectal interference affects this population or how instructional interventions can be designed to support their unique learning needs. This limitation is particularly significant because vocational programmes place considerable emphasis on performance readiness and employability.

Fourth, existing studies have devoted limited attention to the development and validation of educational materials specifically designed to address dialectal interference in singing. While pronunciation exercises and diction training strategies are commonly used in vocal instruction, there remains a shortage of systematically developed instructional packages supported by theoretical foundations and expert validation. Similarly, validated assessment instruments capable of measuring pronunciation development and learner perceptions are seldom reported in the literature.

Finally, although culturally responsive pedagogy emphasizes the importance of respecting learners' linguistic identities (Gay, 2021; Ladson-Billings, 2021), few singing interventions have explicitly incorporated these principles into pronunciation instruction. Existing approaches often prioritize pronunciation standardization without considering how dialectal identity can be acknowledged and valued within the learning process. Consequently, there is a need for pedagogical frameworks that balance professional performance requirements with cultural inclusivity and learner-centered educational practices.

To address these gaps, the present study developed the Wu Dialect Vocal Enhancement Program (WDVEP), a pedagogical framework designed specifically for vocational music education. The framework integrates four complementary theoretical perspectives: Language Transfer Theory, the OPERA Hypothesis, music psychology, and culturally responsive pedagogy. Through this integration, the program seeks to address dialectal interference not merely as a pronunciation problem but as a multidimensional educational challenge involving language, cognition, music learning, and cultural identity.

The WDVEP framework is organized around four pedagogical pillars: Phonetic Training, Layered Correction, Segmental Practice, and Multilingual Integration. These pillars collectively guide the design of instructional materials, learning activities, and assessment procedures. In addition, the framework incorporates validated assessment instruments, including the Vocal Performance Evaluation Rubric (VPER) and the Student Perception Survey (SPS), to support systematic evaluation of learning outcomes and learner experiences.

The development of the WDVEP framework therefore represents an attempt to bridge existing theoretical and practical gaps within the literature. By integrating insights from linguistics, music psychology, vocal pedagogy, and educational theory, the framework provides a comprehensive foundation for addressing dialectal interference in vocational singing education. The conceptual relationships among these theoretical foundations, instructional components, and intended outcomes are presented in the following section.

CONCEPTUAL FRAMEWORK

Conceptual Framework of the Wu Dialect Vocal Enhancement Program (WDVEP)

The conceptual framework of the Wu Dialect Vocal Enhancement Program (WDVEP) was developed to address dialectal interference in singing among vocational music students from Wu-speaking backgrounds. The framework integrates four complementary theoretical perspectives identified in the literature: Language Transfer Theory, the OPERA Hypothesis, music psychology, and culturally responsive pedagogy. Together, these perspectives provide a comprehensive foundation for understanding the linguistic, cognitive, perceptual, and sociocultural factors that influence pronunciation development in singing.

Language Transfer Theory (Odlin, 1989, 2022) provides the primary explanation for dialectal interference by highlighting how previously acquired speech habits influence the production of standardized pronunciation forms. The theory suggests that learners often transfer phonological patterns from their native dialect into

singing performance, resulting in pronunciation inaccuracies and articulation difficulties. The OPERA Hypothesis (Patel, 2011, 2012, 2014) complements this perspective by explaining how music and language share common neural and perceptual mechanisms, thereby supporting the possibility of integrated linguistic and musical interventions. Music psychology further contributes insights into the roles of perception, cognition, motivation, and motor learning in singing development (Hodges & McPherson, 2025; Schön & Morillon, 2019). Finally, culturally responsive pedagogy (Gay, 2021; Ladson-Billings, 2021) emphasizes the importance of respecting learners' linguistic identities while supporting the development of professional competencies.

The framework conceptualizes dialectal interference in singing as the central educational problem. This interference may manifest through inaccurate articulation, vowel distortions, tonal inconsistencies, consonant substitutions, and reduced diction clarity during singing performance. Rather than viewing these challenges solely as technical vocal problems, the framework recognizes them as multidimensional learning issues influenced by language background, auditory perception, cognitive processing, and cultural identity.

To address these challenges, the WDVEP framework incorporates four interrelated pedagogical pillars:

Phonetic Training

The Phonetic Training pillar focuses on developing learners' awareness of phonological differences between the Wu dialect and Standard Mandarin. Through targeted pronunciation exercises, auditory discrimination activities, and articulation practice, students develop greater control over speech sounds required for singing performance.

Layered Correction

The Layered Correction pillar provides systematic and progressive pronunciation support. Rather than correcting all pronunciation issues simultaneously, the approach introduces structured correction procedures that move from basic articulation awareness to more advanced singing applications. This process allows learners to gradually modify entrenched speech habits while maintaining confidence and motivation.

Segmental Practice

Segmental Practice emphasizes focused work on specific linguistic elements, including vowels, consonants, syllables, and tonal patterns. By isolating problematic pronunciation features before integrating them into complete singing tasks, students are provided with opportunities for deliberate and sustained practice.

Multilingual Integration

The Multilingual Integration pillar is grounded in culturally responsive pedagogy and recognizes the value of learners' dialectal backgrounds. Rather than encouraging the abandonment of regional linguistic identity, the approach promotes linguistic flexibility by helping students understand when and how different speech forms may be used appropriately across various communication and performance contexts.

The implementation of these pedagogical pillars is supported through a set of instructional materials, including teacher guides, lesson plans, pronunciation activities, singing exercises, worksheets, and reflective learning tasks. In addition, the framework incorporates two assessment instruments: the Vocal Performance Evaluation Rubric (VPER) and the Student Perception Survey (SPS). These instruments were developed to evaluate both learning outcomes and learner experiences associated with the intervention.

The expected outcomes of the WDVEP framework include improved singing diction, reduced dialectal interference, enhanced vocal performance, increased learner confidence, and greater awareness of linguistic and cultural diversity. By integrating theoretical perspectives from linguistics, music psychology, vocal pedagogy, and education, the framework provides a comprehensive foundation for supporting pronunciation development among vocational music students.

Figure 1 illustrates the conceptual relationships among the theoretical foundations, identified educational problem, pedagogical components, instructional materials, assessment instruments, and intended outcomes of the WDVEP framework.

Figure 1. Conceptual Framework of the Wu Dialect Vocal Enhancement Program (WDVEP)

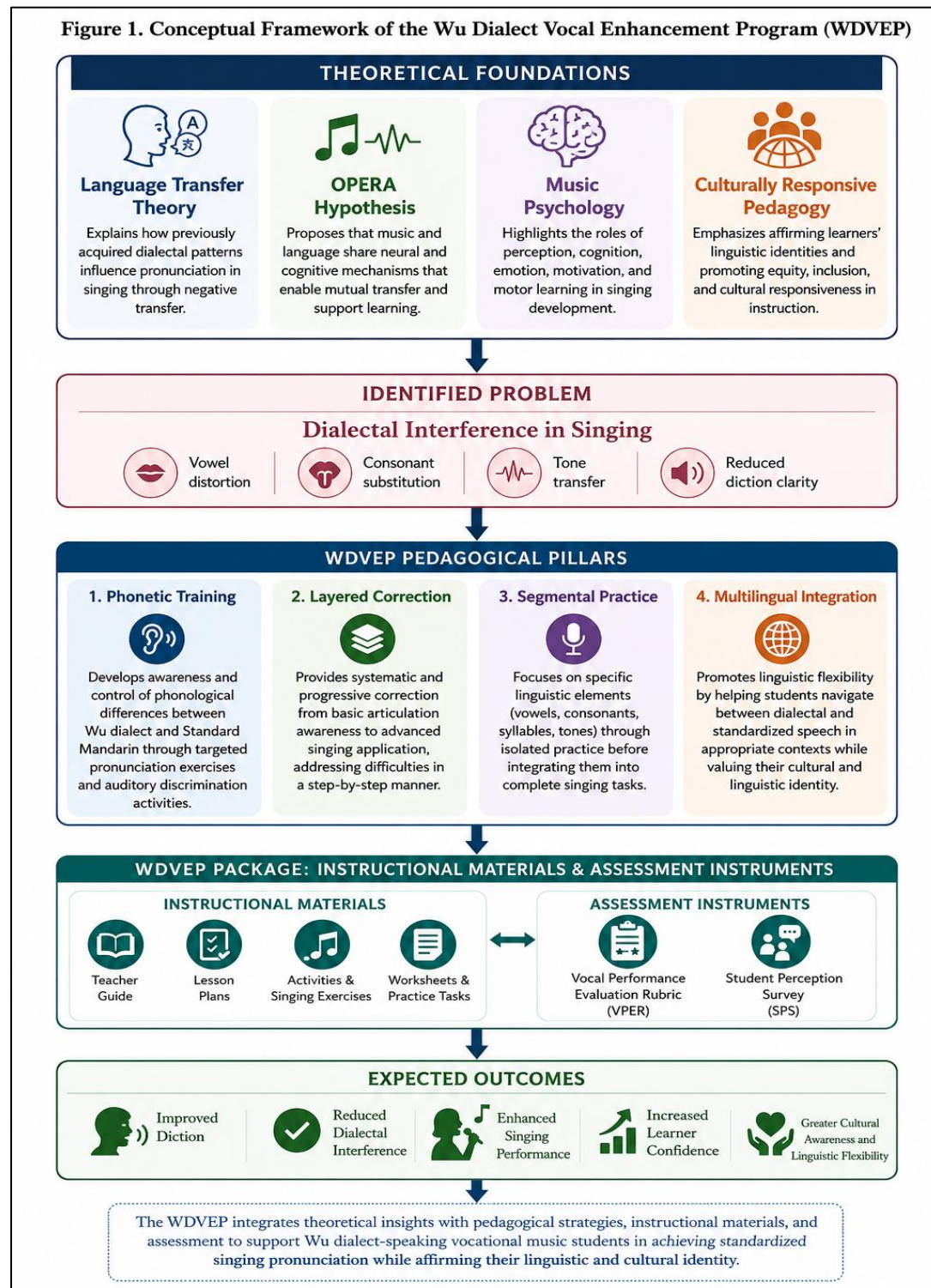


Figure 1 presents the conceptual framework of the WDVEP. The framework is grounded in four theoretical foundations (Language Transfer Theory, the OPERA Hypothesis, Music Psychology, and Culturally Responsive Pedagogy) which collectively inform the design of the program. These theoretical perspectives guide the development of four pedagogical pillars: Phonetic Training, Layered Correction, Segmental Practice, and Multilingual Integration. Through the implementation of instructional materials and assessment instruments, the framework aims to reduce dialectal interference and improve pronunciation accuracy, singing performance, learner confidence, and cultural awareness among vocational music students.

METHODOLOGY

Research Design

This study employed an Educational Material Development and Content Validation Design to develop and validate the Wu Dialect Vocal Enhancement Program (WDVEP) for vocational music education. Educational material development studies are commonly used in educational research to systematically design, evaluate, and refine instructional resources prior to implementation (Fraenkel et al., 2026). Such studies emphasize the development of educational products grounded in theory and empirical evidence, followed by expert evaluation to ensure quality, relevance, and appropriateness.

The study consisted of two sequential stages. The first stage involved the development of the WDVEP package based on theoretical foundations and empirical literature related to dialectal interference, language transfer, music psychology, vocal pedagogy, and culturally responsive education. The second stage involved content validation of the developed materials and assessment instruments through expert review using quantitative and qualitative evaluation procedures.

A mixed-method approach was adopted. Quantitative data were obtained through expert ratings and analyzed using the Content Validity Index (CVI), while qualitative data were collected through written comments and recommendations provided by the expert panel. The integration of quantitative and qualitative evidence allowed a comprehensive evaluation of the developed educational package.

Development of the WDVEP Package

The Wu Dialect Vocal Enhancement Program (WDVEP) was developed through an extensive review of literature spanning dialectal interference, Language Transfer Theory, the OPERA Hypothesis, music psychology, vocal pedagogy, and culturally responsive pedagogy. Guided by the conceptual framework, the program addresses dialectal interference among Wu dialect-dominant vocational music students through a structured pedagogical approach. Table 1 synthesizes the theoretical foundations and structural pillars underpinning the curriculum design.

The finalized WDVEP package contains a comprehensive 16-week curriculum tailored for Wu dialect-speaking vocational music students. It features instructional materials (Teacher Guide, Lesson Plans, Pronunciation Awareness Activities, Phonetic Training Exercises, Singing Practice Activities, Student Worksheets, and Reflective Learning Tasks) alongside two validated assessment instruments.

To measure program outcomes, the Vocal Performance Evaluation Rubric (VPER) evaluates singing proficiency across five technical dimensions: Pitch Accuracy, Tone Quality, Diction Clarity, Musical Expressiveness, and Overall Performance. Concurrently, the Student Perception Survey (SPS) assesses student subjective experiences across five perceptual tracks: Learning Motivation, Pronunciation Awareness, Learning Engagement, Perceived Improvement, and Cultural Appreciation. Both evaluation instruments utilize a standardized five-point scale layout, with the VPER ranging from 1 (Very Poor) to 5 (Excellent) and the SPS utilizing a five-point Likert scale ranging from Strongly Disagree to Strongly Agree.

Table 1: Theoretical Framework and Pillars of the WDVEP Curriculum

Operational Layer	Structural Component	Key Reference(s)	Core Contribution to Program Design
Theoretical Foundations	Language Transfer Theory	Odlin (1989, 2022)	Explains dialectal interference and pronunciation transfer from the Wu dialect to Mandarin singing.
	OPERA Hypothesis	Patel (2011, 2012, 2014)	Rationale for integrating pronunciation and singing instruction via cross-domain brain networks.
	Music Psychology	Hodges & McPherson (2025)	Supports the cognitive, perceptual, motivational, and motor-learning aspects of voice development.

Pedagogical Pillars	Vocal Pedagogy	McKinney (2005)	Guide diction training, articulation mechanics, and targeted vocal technique adjustments.
	Culturally Responsive Pedagogy	Gay (2021); Ladson-Billings (2021)	Preserves regional linguistic identity while developing standardized national singing pronunciation.
	Phonetic Training	Program Protocol	Develops explicit awareness of phonological differences between the Wu dialect and standard Mandarin.
	Layered Correction	Program Protocol	Outlines progressive instruction from basic phoneme awareness to active singing application.
	Segmental Practice	Program Protocol	Isolates specific vowels, consonants, syllables, and tones requiring mechanical remediation.
	Multilingual Integration	Program Protocol	Encourages stylistic and linguistic flexibility while maintaining deep respect for regional identity.

Methodological Screening & Content Validation

Content validation was conducted by a multidisciplinary panel of eight experts selected through purposive sampling, which is appropriate when specialized domain knowledge is required to evaluate newly developed educational materials and measurement criteria (Fraenkel et al., 2026). To ensure comprehensive screening of both pedagogical and linguistic structures, candidates had to meet four selection criteria: a doctoral degree or equivalent professional expertise; a minimum of 10 years of professional experience; core specialization in music education, vocal pedagogy, linguistics, curriculum design, or educational assessment; and documented experience in instrument development or material validation.

An expert validation form was designed to systematically evaluate the relevance, representativeness, and appropriateness of the materials before field deployment (Almanasreh et al., 2019; Yusoff, 2019). Table 2 organizes the validation dimensions and operational rating parameters used during this psychometric evaluation phase.

Table 2: Methodological Parameters for the Expert Content Validation

Target Component	Evaluated Validation Criteria	Rating Scale Configuration	Mixed-Method Analytical Strategy
Instructional Materials	Content Relevance, Learning Objectives, Instructional Design, Pedagogical Suitability, Cultural Responsiveness, Practicality, Implementation Feasibility.	4-Point Relevance Scale: 1 = Not Relevant 2 = Somewhat Relevant 3 = Quite Relevant 4 = Highly Relevant (Adapted from Yusoff, 2019)	Quantitative: Instrument items and curriculum items are analyzed using the Item-Level Content Validity Index (CVI) and the Scale-Level Average (CVI/Ave).
Assessment Instruments	Relevance, Clarity, Content Coverage, Construct Scale Representation, Suitability.	Qualitative: Written comments regarding programmatic adjustments are systematically decoded via thematic analysis.	

Participation in the validation process was completely voluntary. All eight experts were informed of the study's scope and provided formal consent before evaluation. Responses were treated confidentially, and findings were reported in aggregated form to maintain anonymity. The study strictly adhered to established ethical principles concerning informed consent, confidentiality, and responsible reporting of research findings.

FINDINGS

Expert Panel Profile

Content validation of the Wu Dialect Vocal Enhancement Program (WDVEP) was conducted by a panel of eight experts representing vocal performance, vocal pedagogy, music education, curriculum design, music theory, and Chinese traditional music studies. The panel included professors, doctoral supervisors, conservatory faculty members, and music education specialists from the Shanghai Conservatory of Music, Wuhan Conservatory of Music, and Nanjing Normal University. Several experts possessed extensive experience in Chinese phonetics, lyric diction, dialect-related vocal training, curriculum development, and the teaching of Mandarin pronunciation in singing. This multidisciplinary composition ensured a comprehensive evaluation of the linguistic, pedagogical, and musical dimensions of the WDVEP package.

Combined Quantitative Content Validation Results

The WDVEP instructional handbook and its corresponding research instruments (the Vocal Performance Evaluation Rubric (VPER) and the Student Perception Survey (SPS)) were evaluated across their respective core domains. Expert ratings were converted into Content Validity Index (CVI) values following the psychometric procedures described by Yusoff (2019). Table 3 aggregates the quantitative item-level and scale-level validation results.

Table 3: Consolidated Content Validity Index (CVI) Results for the WDVEP Package

Evaluation Focus	Domain / Instrument Layer	Evaluated Validation Criterion	Item CVI (I-CVI)
WDVEP Curriculum & Handbook	Objectives and Program Alignment	Clarity of Objectives	1.00
		Alignment with Phonetic Needs	1.00
		Relevance to Vocational Context	1.00
		Artistic Value	1.00
	Program Content and Pedagogy	Methodological Soundness	1.00
		Practical Utility	1.00
		Individualization	1.00
		Technical Depth	1.00
	Feasibility and Implementation	Pacing	1.00
		Progression	1.00
		Resource Dependency	1.00
Research Instruments	Vocal Performance Evaluation Rubric (VPER)	Construct Validity	1.00
		Clarity	1.00
		Content Coverage	1.00
		Scale Suitability	1.00
	Student Perception Survey (SPS)	Relevance	1.00
		Objectivity	1.00
		Understandability	1.00
Scale-Level Average	Overall Package Metrics (N = 8 Experts)	Composite Scale CVI (CVI/Ave)	1.00

As shown in Table 1, all curriculum and instrument criteria achieved perfect consensus among the eight experts, resulting in individual CVI values of 1.00 and an overall CVI/Ave of 1.00. In terms of the handbook, the panel rated the WDVEP as "Highly Appropriate" for vocational vocal music students, "Strongly Recommend" for implementation in the Suzhou, Wuxi, and Changzhou regions, and unanimously voted to accept the curriculum without major revisions. For the evaluation instruments, every criterion received a score of 3 or 4 from all validators, establishing excellent content validity and implementation readiness for the main study.

Qualitative Analysis of Expert Feedback

Thematic analysis of the experts' qualitative commentary identified four core themes that provide deep context for the quantitative data:

- The Transition Bottleneck (Theme 1): Validators flagged the transition from isolated phonetic training to repertoire-based singing (Weeks 4–8) as the primary learning hurdle. Experts noted that simultaneously coordinating diction accuracy, vocal technique, and musical expression increases the likelihood of dialectal interference re-emerging during performance tasks.
- Repertoire Suitability and Cultural Relevance (Theme 2): The panel unanimously endorsed including *Jasmine Flower* (*Mo Li Hua*) and *Taihu Beauty* (*Taihu Mei*) due to their cultural relevance to the Suzhou, Wuxi, and Changzhou regions. Adding secondary Chinese art songs was recommended to diversify stylistic exposure while maintaining core Mandarin diction goals.
- Program Clarity and Pedagogical Coherence (Theme 3): The package was described as well-organized, coherent, and strongly aligned with its objectives. The instructional sequencing and structural integration of linguistic and musical training were deemed highly appropriate for vocational music tracks, permitting immediate implementation.
- Instrument Validity and Assessment Quality (Theme 4): Evaluators agreed that the VPER and SPS descriptors were distinct, unambiguous, and sufficiently specific to support consistent assessment practices, thereby laying the groundwork for strong inter-rater reliability.

Summary of Findings

The quantitative and qualitative findings collectively demonstrate that the Wu Dialect Vocal Enhancement Program possesses excellent content validity and strong practical applicability. The curriculum handbook and its assessment tools achieved a perfect composite CVI/Ave value of 1.00, backed by qualitative confirmation of the program's pedagogical coherence, cultural relevance, and implementation feasibility. These findings provide definitive empirical evidence that the WDVEP package is fully ready for classroom implementation and effectiveness testing.

DISCUSSION

The purpose of this study was to develop and establish the content validity of the Wu Dialect Vocal Enhancement Program (WDVEP), a pedagogical framework designed to address dialectal interference in singing among vocational music students from Wu-speaking backgrounds. The findings demonstrated excellent content validity for both the instructional package and the associated assessment instruments, with all validation criteria achieving an Item-Level Content Validity Index (I-CVI) of 1.00 and an overall Scale-Level Content Validity Index Average (S-CVI/Ave) of 1.00. Furthermore, qualitative feedback from the expert panel confirmed the pedagogical appropriateness, practical feasibility, cultural relevance, and assessment suitability of the program. These findings provide strong support for the theoretical foundations underpinning the WDVEP and highlight its potential contribution to vocational music education.

Validation of the WDVEP as a Pedagogical Response to Dialectal Interference

One of the most significant findings of the study was the unanimous expert agreement regarding the relevance and appropriateness of the WDVEP framework. This finding supports the argument that dialectal interference in singing represents a genuine educational challenge requiring systematic instructional intervention. Existing literature has consistently demonstrated that dialectal speech habits may influence pronunciation, articulation, tonal production, and vocal diction during singing (Chu & Petrus, 2020; Sun, 2025; Zhengzhang & Zheng, 2015). However, previous studies have focused primarily on describing these challenges rather than developing structured pedagogical solutions.

The positive evaluation of the WDVEP suggests that experts recognized the need for an instructional framework specifically designed to address the unique pronunciation challenges experienced by Wu dialect-speaking learners. The four pedagogical pillars (Phonetic Training, Layered Correction, Segmental Practice,

and Multilingual Integration) were viewed as coherent and appropriate mechanisms for facilitating pronunciation development. These findings support the proposition that dialectal interference should be addressed through targeted instructional design rather than through repetition and imitation alone.

The findings are also consistent with Language Transfer Theory (Odlin, 1989, 2022), which proposes that previously acquired linguistic patterns continue to influence subsequent language use. The expert panel's observations regarding the re-emergence of dialectal features during complex singing tasks further reinforce the theory's assertion that deeply established speech habits remain active even when learners are consciously attempting to adopt alternative pronunciation forms. Consequently, the strong validation outcomes provide indirect support for the theoretical assumption that dialectal interference requires explicit instructional intervention and sustained practice.

Support for Music–Language Transfer and the OPERA Hypothesis

The expert feedback also provides support for contemporary theories concerning the relationship between music and language. Several experts identified the transition from phonetic drills to repertoire-based performance as the most challenging stage of the program because students were required to coordinate pronunciation accuracy, vocal technique, and musical expression simultaneously. This observation aligns closely with Patel's (2011, 2012, 2014) OPERA Hypothesis, which emphasizes the interconnected nature of music and language processing through shared neural mechanisms.

The experts' recognition that pronunciation difficulties often reappear when musical demands increase suggests that speech production and singing performance draw upon overlapping cognitive and motor resources. This finding is consistent with empirical studies demonstrating relationships between musical ability, speech perception, and language processing (Swaminathan & Schellenberg, 2020; Choi, 2021; Choi, 2022a; Choi, 2022b; Thompson et al., 2025). The findings therefore support the theoretical rationale for integrating linguistic and musical training within a single pedagogical framework.

Furthermore, the positive evaluation of the WDVEP's structured progression from isolated phonetic practice to full musical performance reflects the principle that pronunciation development should occur within authentic musical contexts. This progression enables learners to transfer newly acquired pronunciation skills into increasingly complex performance situations, thereby strengthening the connection between speech and singing.

Contributions of Music Psychology to Singing Development

The findings also support contemporary perspectives in music psychology, which emphasize that musical learning involves interactions among cognitive, perceptual, emotional, and motor processes (Hodges & McPherson, 2025). The experts consistently highlighted the importance of gradual progression and systematic skill development throughout the sixteen-week curriculum. Such observations reflect established theories of skill acquisition, which propose that complex performance abilities are best developed through structured and sequential learning experiences.

The identification of transitional stages as potential areas of difficulty further highlights the role of cognitive load in singing development. During these stages, learners are required to coordinate multiple processes simultaneously, including auditory monitoring, phonetic control, vocal technique, memory, and musical interpretation. This supports the view that pronunciation development should not be conceptualized as an isolated linguistic skill but rather as part of a broader process of musical performance development.

The positive evaluation of the instructional design also suggests that the WDVEP successfully addresses important psychological factors associated with learning. The program's gradual progression, opportunities for repeated practice, and integration of reflective activities may contribute to increased learner confidence, motivation, and self-regulation. These characteristics align with recommendations within music psychology literature that emphasize the importance of supportive learning environments and scaffolded instruction for developing musical expertise.

The Importance of Cultural Responsiveness in Vocal Pedagogy

Another significant finding relates to the experts' endorsement of the selected repertoire and the cultural appropriateness of the program. The inclusion of regionally relevant works such as *Jasmine Flower (Mo Li Hua)* and *Taihu Beauty (Taihu Mei)* was viewed positively because these works support pronunciation development while simultaneously reflecting the cultural identity of learners from the Suzhou–Wuxi–Changzhou region.

This finding is consistent with principles of culturally responsive pedagogy (Gay, 2021) and culturally relevant pedagogy (Ladson-Billings, 2021), which advocate instructional approaches that acknowledge and value students' cultural and linguistic backgrounds. Rather than positioning the Wu dialect as a deficiency requiring elimination, the WDVEP seeks to develop students' ability to navigate between dialectal and standardized forms according to contextual requirements. Such an approach promotes linguistic flexibility while maintaining respect for regional cultural identity.

The experts' support for the inclusion of culturally relevant repertoire suggests that pronunciation instruction can be achieved without disregarding learners' linguistic heritage. This finding contributes to ongoing discussions regarding the balance between standardization and cultural preservation within music education and highlights the potential value of culturally responsive approaches in vocal pedagogy.

Validation of Assessment Instruments

The findings also demonstrated excellent content validity for the Vocal Performance Evaluation Rubric (VPER) and Student Perception Survey (SPS). The unanimous agreement among experts regarding construct validity, clarity, content coverage, relevance, objectivity, and understandability indicates that both instruments adequately represent the constructs they were intended to measure.

The strong validation outcomes are particularly important because assessment instruments play a critical role in evaluating educational interventions. Without valid instruments, it becomes difficult to determine whether observed outcomes accurately reflect student learning and program effectiveness. The positive validation results therefore strengthen the methodological rigor of future WDVEP implementation studies and provide a foundation for subsequent empirical investigations.

Moreover, expert comments regarding the clarity of rubric descriptors suggest that the VPER may facilitate consistent assessment practices and support inter-rater reliability during future implementation. This is particularly important within singing assessment, where subjective judgments can potentially influence evaluation outcomes.

Implications for Vocational Music Education

The findings of this study have several implications for vocational music education. First, they demonstrate the importance of addressing dialectal interference through structured pedagogical approaches rather than relying solely on conventional vocal training methods. Second, they highlight the value of integrating linguistic, musical, cognitive, and cultural perspectives when designing pronunciation interventions. Third, they suggest that culturally responsive instructional approaches can support professional skill development while simultaneously affirming learners' linguistic identities.

More broadly, the study illustrates how educational material development and expert validation procedures can be used to create evidence-informed interventions tailored to specific learner populations. As vocational music education increasingly serves diverse linguistic and cultural communities, similar approaches may be beneficial for addressing other pronunciation-related challenges across different educational contexts.

Overall, the findings provide strong preliminary evidence supporting the validity and educational relevance of the WDVEP. The unanimous endorsement provided by the expert panel suggests that the framework possesses substantial potential for improving pronunciation development among Wu dialect-speaking vocational music students and warrants further investigation through implementation and effectiveness studies.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study aimed to develop and establish the content validity of the Wu Dialect Vocal Enhancement Program (WDVEP), a pedagogical framework designed to address dialectal interference in singing among vocational music students from Wu-speaking backgrounds. Grounded in Language Transfer Theory, the OPERA Hypothesis, music psychology, vocal pedagogy, and culturally responsive pedagogy, the program was developed to provide a structured and theoretically informed approach to improving Mandarin singing pronunciation while respecting learners' linguistic and cultural identities.

The findings demonstrated that both the instructional materials and assessment instruments achieved excellent content validity. The curriculum handbook received unanimous expert agreement across all validation criteria, resulting in an Item-Level Content Validity Index (I-CVI) of 1.00 for every evaluated component and an overall Scale-Level Content Validity Index Average (S-CVI/Ave) of 1.00. Similarly, the Vocal Performance Evaluation Rubric (VPER) and Student Perception Survey (SPS) achieved perfect content validity scores, indicating strong expert consensus regarding their relevance, clarity, representativeness, and suitability for use in the main study.

Qualitative feedback further confirmed the pedagogical appropriateness, practical feasibility, and cultural relevance of the WDVEP. Experts highlighted the logical progression of the curriculum, the suitability of the selected repertoire, the clarity of instructional terminology, and the usefulness of the assessment instruments. Collectively, these findings indicate that the WDVEP constitutes a valid and comprehensive instructional package capable of supporting pronunciation development among Wu dialect-speaking vocational music students.

This study therefore contributes to the growing body of literature on vocal pedagogy, music education, and language-music interaction by demonstrating the feasibility of integrating linguistic, musical, psychological, and cultural perspectives within a single instructional framework. The validated WDVEP provides a strong foundation for subsequent implementation and effectiveness studies aimed at improving singing diction and reducing dialectal interference in vocational music education.

Contributions of the Study

The study contributes to knowledge and practice in several important ways.

First, it contributes to the literature on dialectal interference in singing by proposing a structured pedagogical framework specifically designed for vocational music students from Wu-speaking backgrounds. While previous studies have largely focused on describing pronunciation challenges, the present study offers a practical educational solution grounded in established theoretical perspectives.

Second, the study contributes to music education research by integrating Language Transfer Theory, the OPERA Hypothesis, music psychology, and culturally responsive pedagogy into a unified conceptual framework. This interdisciplinary approach provides a more comprehensive understanding of pronunciation development in singing than approaches based solely on vocal technique.

Third, the study contributes to instructional design by developing a complete educational package consisting of curriculum materials, learning activities, assessment tools, and implementation guidelines. The validated package provides educators with practical resources for addressing dialectal interference within formal music education settings.

Fourth, the study contributes methodologically through the development and validation of two assessment instruments: the Vocal Performance Evaluation Rubric (VPER) and the Student Perception Survey (SPS). These instruments may be adapted or extended for future research examining pronunciation development and singing performance in similar educational contexts.

Finally, the study contributes to culturally responsive music education by demonstrating how pronunciation instruction can support professional performance standards while simultaneously respecting learners' regional linguistic identities and cultural heritage.

Limitations of the Study

Several limitations should be acknowledged when interpreting the findings of this study.

First, the study focused exclusively on content validation and did not include implementation or effectiveness testing. Consequently, the findings provide evidence regarding the quality and suitability of the developed materials but do not yet demonstrate their impact on student learning outcomes.

Second, the validation process relied on expert judgment from a relatively small panel of specialists. Although the experts possessed extensive experience in vocal music, music education, linguistics, and curriculum development, their evaluations may reflect perspectives specific to their professional backgrounds and institutional contexts.

Third, the WDVEP was developed specifically for vocational music students from the Suzhou–Wuxi–Changzhou region who speak the Wu dialect. Therefore, the findings may not be directly generalizable to learners from other dialect groups, educational levels, or cultural contexts without further adaptation and validation.

Finally, the study concentrated primarily on content validity and did not examine additional psychometric properties of the assessment instruments, such as construct validity, criterion validity, inter-rater reliability, or internal consistency. These aspects should be investigated in future research.

Recommendations for Future Research

Based on the findings and limitations of the present study, several recommendations are proposed for future research.

First, the validated WDVEP should be implemented in vocational music education settings to evaluate its effectiveness in improving pronunciation accuracy, singing diction, vocal performance, and learner confidence. Experimental or quasi-experimental designs may be employed to compare learning outcomes between students receiving the intervention and those receiving conventional instruction.

Second, future studies should investigate the psychometric properties of the Vocal Performance Evaluation Rubric (VPER) and Student Perception Survey (SPS), including reliability, construct validity, and factor structure. Such analyses would further strengthen the assessment framework developed in this study.

Third, researchers may consider adapting the WDVEP framework for use with learners from other Chinese dialect groups, such as Cantonese, Hokkien, Hakka, or Min-speaking communities. Comparative studies could provide valuable insights into the similarities and differences in dialectal interference across linguistic contexts.

Fourth, future investigations may explore the long-term effects of dialect-focused singing interventions on pronunciation retention, musical development, and professional performance readiness. Longitudinal studies would provide a deeper understanding of how pronunciation skills evolve over time.

Finally, researchers are encouraged to examine the broader educational implications of culturally responsive vocal pedagogy, particularly its potential influence on learner motivation, musical identity formation, cultural awareness, and engagement. Such research would contribute to the development of more inclusive and contextually relevant approaches to music education.

In conclusion, the present study provides strong preliminary evidence supporting the validity and educational relevance of the Wu Dialect Vocal Enhancement Program (WDVEP). The validated framework offers a promising foundation for future implementation and research aimed at enhancing pronunciation development

and singing performance among vocational music students while preserving respect for regional linguistic and cultural identities.

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