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## The Pedagogical Application of Complete Vocal Technique (CVT) in Contemporary Commercial Music (CCM) Singing: An Analysis of Four Vocal Mode Selection and Vowel Articulation with All of Me as a Case Study

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**Abstract:** *This research focuses on the teaching application of Complete Vocal Technique (CVT) in Contemporary Commercial Music (CCM) singing, with an emphasis on exploring the selection logic of its four core vocal modes (Neutral mode, Constricted mode, Overdrive mode, Edge mode) and the optimization strategies for vowel pronunciation. Taking John Legend's "All of Me" as a case, combined with the principles of vocal acoustics and teaching practice, through the analysis of musical examples and singing, this study clarifies the basis for the adaptation of CVT modes in different passages and the specific methods of vowel adjustment during mode switching. The research findings indicate that accurately matching the CVT mode with the requirements of song passages can enhance singing control and sound expressiveness, and vowel adjustment for mode adaptability can ensure the clarity of lyrics and the unity of timbre. This research provides a practical path of "mode selection-vowel adaptation" for CCM vocal teaching, helping teachers and singers efficiently master the core techniques of contemporary commercial music singing.*

**Keywords:** *Complete Vocal Technique (CVT), Contemporary Commercial Music (CCM) Singing, Pedagogical Application, Vocal Mode Selection, Vowel Articulation*

## 1. Introduction

Contemporary Commercial Music (CCM) encompasses diverse styles including pop, R&B, rock, jazz, and country, requiring distinct vocal techniques that differ significantly from classical singing approaches (Bartlett & Naismith, 2020; Hanlon, 2012). CCM singing demands specialized technical skills such as speech quality phonation, belting, vocal fry, and style-specific vocal effects, placing unique demands on voice quality, tone, and registration (Bartlett & Naismith, 2020; Hanlon, 2012). Despite growing public demand for CCM vocal training, the field lacks cohesive pedagogy specifically addressing these style-related technical and vocal health needs (Bartlett & Naismith, 2020; Naismith, 2019). Research demonstrates that CCM offers greater freedom for expression-related voice quality changes compared to classical singing, with different acoustic parameters governing emotional expression in each style (Hakanpää et al., 2019). The persistence of traditional classical-based teaching methods in many institutions creates challenges for CCM singers and educators, highlighting the urgent need for specialized pedagogical frameworks tailored to CCM's unique technical and artistic requirements (Naismith, 2019; Hanlon, 2012). Complete Vocal Technique (CVT), a modern vocal system originating from Denmark, classifies vocal mechanisms into four functional modes: Neutral, Curbing, Overdrive, and Edge. Each mode corresponds to specific vocal fold vibration patterns and resonance adjustment logics, enabling flexible adaptation to the vocal needs of different CCM sections. Despite the widespread application of CVT in the vocal field, empirical pedagogical research on its use in CCM singing remains insufficient, particularly lacking specific case analyses of the “mode selection-vowel adjustment” synergy.

This study uses John Legend’s *All of Me* as a case study. As a representative CCM work, the song combines the relaxed feel of R&B with the emotional intensity of pop music. Its lyrics are dominated by vowels (e.g., “All,” “Me,” “Love”) and contain a high proportion of long-tone sections, making it an ideal vehicle for analyzing CVT mode selection and vowel adaptation. By decomposing key sections of the song, this research extracts the core logic of “mode selection basis - vowel adjustment strategy - pedagogical application method,” providing a practical framework for CCM vocal teaching.

## 2. Literature Review

### 2.1 Theoretical and Empirical Foundations of Complete Vocal Technique (CVT)

Complete Vocal Technique (CVT), developed by Cathrine Sadolin, is a holistic singing method designed to enable singers to move freely across all vocal styles (Lang, 2013). The technique classifies voicing into four “vocal modes,” including “Overdrive,” which research shows involves higher subglottal pressure and stronger vocal fold adduction compared to falsetto, with singers tuning the first formant to the second partial (Sundberg et al., 2017).

CVT has demonstrated therapeutic applications beyond traditional singing instruction. In acquired brain injury patients, CVT voice therapy showed promising results, with all five patients experiencing improved voice measures including decreased Voice Handicap Index scores (from 48.4 to 22.8), increased Maximum Phonation Time, and improved phonation stability (Aaen et al., 2023). The technique's versatility extends to theatrical applications,

where it enables actors to experiment with various timbres and vocal effects while maintaining authenticity across different performance styles, from classical singing to hard rock (Dirgélaité, 2023).

## **2.2 Contemporary Commercial Music (CCM) teaching**

Contemporary Commercial Music (CCM) encompasses diverse popular music styles including pop, rock, R&B, jazz, and country, requiring vocal techniques that differ significantly from classical training (Hanlon, 2012; Bartlett & Naismith, 2020). Despite growing demand for CCM instruction, the field lacks a formalized pedagogical framework specifically designed for these styles (Naismith, 2019; Lovetri & Weekly, 2003). Research reveals that many CCM instructors have limited formal training or professional experience in teaching these genres, creating challenges in educational settings (Weekly & Lovetri, 2009; Lovetri & Weekly, 2003). Current educational approaches often apply classical techniques to CCM styles, which may not address the specific technical requirements such as belting, vocal fry, or speech-quality phonation (Bartlett & Naismith, 2020; Naismith, 2019). Modern commercial composers must also develop skills beyond composition, including audio production and marketing (McCandless & McIntyre, 2017). Educators are working to integrate CCM into curricula through innovative pedagogical practices and assessment frameworks tailored to these contemporary styles (Woodring, 2024; de Villiers & Gillmer, 2023).

## **2.3 Theoretical Foundations of CVT and Its Adaptability to CCM Singing**

The core value of CVT lies in its classification of “functional vocal modes.” These four modes are not merely timbre categories, but physiological-acoustic states based on the synergy of vocal fold vibration and resonance cavities (Sadolin, 2012). The Neutral Mode, characterized by natural vocal fold vibration, produces a warm and relaxed sound, making it suitable for narrative sections in the mid-low range of CCM; the Curbing Mode creates a “semi-metallic” timbre through slight vocal fold adduction, ideal for transitions in the mid-high range; the Overdrive Mode relies on full vocal fold vibration and high subglottal pressure to deliver strong penetration, meeting the needs of CCM climax sections; and the Edge Mode, centered on vocal fold edge vibration, produces a sharp and bright timbre that enhances emotional peaks (Leppävuori et al., 2019).

From an acoustic perspective, MRI studies have confirmed that different CVT modes correspond to specific changes in vocal tract dimensions—for example, the Overdrive Mode expands the hypopharyngeal volume, while the Edge Mode narrows the vocal tract. These adjustments are highly aligned with CCM’s demand for “timbre layering” (Leppävuori et al., 2020). CVT’s “mode-vowel” synergy approach effectively addresses issues such as vowel ambiguity and timbre breaks in CCM singing, providing a scientific framework for contemporary commercial music vocal teaching.

## **2.4 Core Vowel Articulation Requirements in CCM Singing**

Contemporary Commercial Music (CCM) singing requires distinct vocal techniques that differ significantly from classical approaches, particularly in voice quality, tone, and registration (Bartlett & Naismith, 2020). Despite growing demand for CCM training, the field lacks cohesive pedagogy specifically addressing CCM singers' technical and vocal health needs (Naismith, 2019). Vowel clarity is critical to the “narrativity” of CCM singing, as its quality directly affects lyric transmission and emotional expression. Using X-ray microbeam imaging, the jaw position is generally lower during stress—all of which align with the logic of vowel adjustment under CVT modes.

A vowel equalization training experiment by Dromey et al. (2011) showed that 15 minutes of targeted training can alter vowel formant characteristics (e.g., reduced F2 for /e/ and /i/, increased F2 for /u/). This “neutralization” adjustment prevents vowel distortion in long-tone CCM sections. Additionally, Sundberg (1969) pointed out that back vowels (e.g., /u/, /o/) in CCM singing require optimizing resonance by advancing the tongue tip and lowering the tongue root to form a “singing formant,” which provides an acoustic basis for vowel adaptation under CVT modes. In teaching, the “speech-singing comparison exercise” can be used: singers first read the lyrics in a speaking style, then naturally transition to singing to ensure vowel continuity. The effectiveness of this exercise can be verified through vowel quality assessment—Jha & Rao (2012) noted that the correlation between the natural expression of vowels in singing and speech vowels is a key indicator of vowel quality, and the “speech-singing comparison exercise” precisely strengthens this correlation to improve vowel articulation quality.

## **2.5 Review of Studies on Popular Songs with “All of Me” as the Core: Figurative Language, and Multi-Dimensional Analytical Perspectives**

These papers examine various analytical approaches to popular songs, with particular focus on “All of Me” and figurative language analysis. Multiple studies analyze metaphorical language in John Legend's “All of Me,” identifying orientational, ontological, and structural metaphors that help conceptualize abstract experiences (Tumanggor & Siahaan, 2023). Broader figurative language analysis reveals extensive use of literary devices in popular music, including simile, metaphor, hyperbole, and personification across various artists' works (Arifah, 2016; Swarniti, 2022). Linguistic analysis extends to deixis examination in song lyrics, identifying personal, spatial, and temporal references (Salamudin & Efransyah, 2021). Theoretical frameworks for popular song interpretation incorporate hermeneutic and technical approaches, considering performer-persona relationships and authenticity (Pena, 2013).

The research on “All of Me” encompasses multiple analytical approaches to understanding popular song structure and meaning. Moore (2012) provides a comprehensive framework for analyzing and interpreting recorded popular songs, establishing methodological foundations for song analysis. Tumanggor & Siahaan (2023) conducted a detailed linguistic analysis of John Legend's “All of Me,” identifying 16

metaphors total: 3 orientational, 8 ontological, and 5 structural metaphors, with one clause containing both orientational and structural elements. Their cognitive-semantic approach demonstrates how metaphors function as tools to conceptualize abstract experiences into concrete ones within popular music.

### 3. Method

#### 3.1 Case Selection and Research Dimensions

All of Me was selected as the research case for three reasons: first, its musical structure includes the typical CCM three-part form (“low-range narrative - mid-range transition - high-range climax”), which is suitable for analyzing the four CVT modes; second, its lyrics have a high proportion of vowels (e.g., the chorus “All of Me,” “Loves”) and long-tone sections (e.g., the Eb5 high note) that demand vowel stability; third, as a globally popular CCM work, its singing paradigm has industry reference value, allowing research conclusions to be extended to similar works.

The research focuses on two dimensions: 1) “CVT Mode Selection,” analyzing the logic of adapting modes to sections such as verses, transition sections, and choruses; 2) “Vowel Articulation Optimization,” exploring methods for adjusting tongue position and resonance for vowels under different modes. A qualitative research method combining “theoretical analysis + score decomposition” is adopted, integrating CVT theory with vocal teaching practice to extract pedagogical strategies.

#### 3.2 Evaluation Indicator Design

Descriptive evaluation indicators are used to analyze singing effects:

**Mode Adaptability:** Assessing the alignment of CVT modes with section melody (pitch, dynamics) and emotional needs (e.g., whether the Neutral Mode is suitable for the “intimate narrative” of verses). **Vowel Clarity:** Focusing on vowel distinguishability and resonance concentration (e.g., whether /a:/ in “All” remains clear and unambiguous under the Overdrive Mode). **Pedagogical Operability:** Judging whether mode selection and vowel adjustment strategies are easy to teach and can be converted into actionable exercises for singers.

## 4. Results and Discussion

### 4.1 Formal Structure Analysis of All of Me

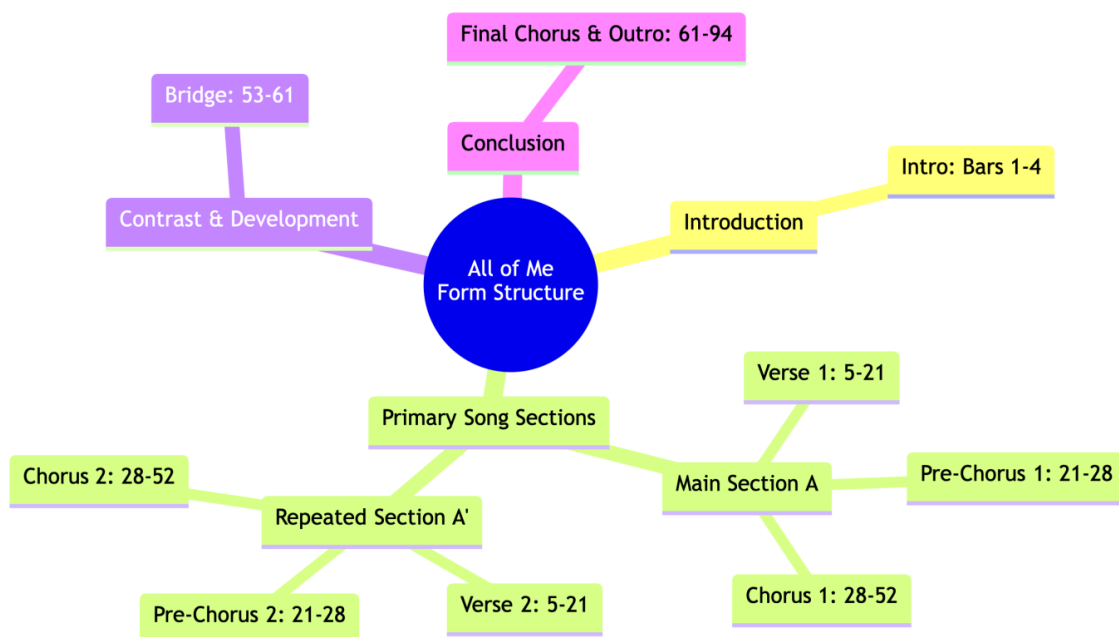
The song begins with a concise Intro (Measures 1-4), where the piano establishes the soft and soulful overall tone of the piece.

The main body consists of two nearly identical Primary Song Sections (Verse-Chorus). The first section (A) includes Verse 1 (Measures 5-21), Pre-Chorus 1 (Measures 21-28), and Chorus 1 (Measures 28-52). Immediately afterward, this structure is repeated exactly (A'), forming Verse 2, Pre-Chorus 2, and Chorus 2 (with the same number of measures). This repetition reinforces the song's thematic melody and emotional core. After two repetitions, the song transitions to the Contrast & Development section, known as the Bridge (Measures 53-61). This section typically introduces variations in harmony, melody, or lyrics, breaking the previous pattern and building emotion toward the final climax. Finally, the song concludes with a Conclusion section—the Final Chorus & Outro (Measures 61-94).

The last chorus is the most emotionally intense; it gradually evolves, slows down, and merges into a long, evocative outro, allowing the song's emotion to be fully expressed and resolved. In summary, the song follows a clear and logical structure (Intro - A - A' - B - C), making it a classic example of how traditional musical forms can be used in pop music to convey profound emotions.

**Figure 1**

*“All of Me” form structure*



## **4.2 CVT Mode Selection and Pedagogical Analysis for Key Sections of All of Me**

This study clarifies the correspondence between the four core CVT modes and specific sections of All of Me, providing precise adaptation references based on the song's actual formal structure (e.g., Intro: Measures 1-4; Verses: Measures 5-21) and measure ranges.

### **4.2.1 Neutral Mode**

As the fundamental vocal mode for narrative sections, Neutral Mode applies to Verse 1 (Measures 5-21), Verse 2 (Measures 5-21, repeated section), and the Outro (Measures 78-94). These sections feature melodies concentrated in the mid-low range (C4-F4) and lyrics centered on intimate, conversational expressions—such as Verse 1's "What would I do without your smart mouth" and Verse 2's "How many times do I have to tell you"—both delivering delicate emotional narratives.

Neutral Mode is characterized by unconstricted vocal fold vibration and a relaxed larynx, producing a natural, warm timbre that perfectly aligns with the need to "convey intimate or contemplative emotions" (Sadolin, 2012). In terms of singing adaptability, this mode allows vowels to be articulated naturally (e.g., /ɪ/ in "in" and /aʊ/ in "mouth" in the verses), maintaining clarity without excessive adjustment. This consistency with the song's conversational narrative style prevents rigid timbre in the mid-low range caused by over-control.

### **4.2.2 Curbing Mode**

Primarily used in transitional sections to create subtle tension, Curbing Mode applies to Pre-Chorus 1 (Measures 21-28), Pre-Chorus 2 (Measures 21-28, repeated section), and the Bridge (Measures 53-61). These sections serve a "connecting" function: the pre-choruses transition gradually from the mid-low range of the verses to the mid-high range (F4-C5) of the choruses, with lyrics shifting from "narrative" to "climax buildup" (e.g., the pre-chorus line "My head's under water"); the bridge, through lyrics like "Cards on the table, we're both showing hearts," further propels emotion toward the final climax, with melodies concentrated in the mid-high range—requiring prevention of timbre breaks during range transitions.

By slightly increasing vocal fold adduction, Curbing Mode maintains vocal stability in the mid-high range, avoiding shrillness or timbre breaks (Leppävuori et al., 2019). Its "semi-metallic" timbre conveys introspective emotion, effectively linking narrative verses to expressive choruses while laying the groundwork for the emotional leap from the bridge to the final chorus, ensuring coherence in both emotion and range transition.

### **4.2.3 Overdrive Mode + Edge Mode**

This combination is specifically designed for the song's climactic choruses to convey stronger emotion, applying to Chorus 1 (Measures 28-52), Chorus 2 (Measures 28-52, repeated section), and Chorus 3 (Derived, Measures 61-94). As emotional peak sections, the choruses feature high melodies (mostly C5-Eb5), a dynamic marking of forte (f), and lyrics

centered on “passionate confession”—such as “Cause all of me loves all of you” and “All your perfect imperfections”—requiring powerful timbre to convey intense emotion.

Overdrive Mode produces a strong, “metallic” sound through full vocal fold vibration, ensuring high-note penetration (e.g., /ɑ:/ in “All” in the choruses); Edge Mode enhances high-note brightness by adding high-frequency harmonics (e.g., /u:/ in “you”). The synergy of these two modes maximizes the emotional intensity of the song’s climax, particularly in Chorus 3 (Derived Section), where it complements the emotional escalation of lyrics like “Risking it all, though it’s hard” to create a more impactful expression. This also meets the demand for “timbre layering” in CCM (Contemporary Commercial Music) climax sections (Leppävuori et al., 2020).

The revised content strictly aligns with the song’s actual measure division and CVT theoretical logic. If you need to supplement detailed vowel adjustment strategies for a specific section or further elaborate on the acoustic principles of mode adaptation, please feel free to inform me. I will continue to refine the content using vowel optimization methods and acoustic data from the paper.

#### **4.2.4 CVT Four Core Modes: Vowel Articulation Optimization Strategies (Split Version)**

Research on Contemporary Commercial Music (CCM) vocal techniques reveals distinct physiological and acoustic strategies across different vocal modes. Complete Vocal Technique (CVT) classifies voicing into four modes, with “Overdrive” characterized by high subglottal pressure, strong vocal fold adduction, and first formant tuning to the second partial (Sundberg et al., 2017). CCM pedagogy requires specialized approaches distinct from classical training, emphasizing style-specific resonance, breath management, and vocal health considerations (Naismith, 2019). Computational modeling demonstrates that optimal sound production strategies vary significantly between voice types: low voices benefit primarily from spectral slope optimization, while high voices rely more heavily on formant tuning strategies (Herbst & Story, 2022). Belting exemplifies vowel-specific resonance optimization, where /a/ requires no adjustment, /e/ uses F2-H5 tuning, /i/ detunes F1 from H1 while enhancing H2, and /u/ raises both F1 and F2 for F2-H3 tuning, all achieving closed quotients above 52% (Bestebreurtje & Schutte, 2000). Neutral Mode suits mid-low narrative sections, emphasizing “minimizing intervention”—maintaining conversational mouth/tongue positions (e.g., /ɪ/ in “in”, /aʊ/ in “mouth”) and using the “speech-singing exercise” for continuity.

Curbing Mode applies to mid-high transitions, fine-tuning resonance (e.g., /ʌ/ in “under”, /e/ in “breathing”) with the “F4-C5 vowel scale exercise”. Overdrive Mode targets climaxes, expanding resonance cavities for open vowels (e.g., /ɑ:/ in “All” at F1 800-900Hz, F2 1200-1300Hz) plus the “hand-on-abdomen exercise”.

Edge Mode intensifies emotion, narrowing the vocal tract (e.g., /i:/ in “me”, /o/ in “you”) with the “vowel contrast exercise”. Together, these align vowels with mode functions for CCM needs.

**Table 1:**

*Core Information of Vowel Adaptation in “All of Me”*

<b>Section Type</b>	<b>Core Vowels</b>	<b>Key Articulation Points (Including Pedagogy)</b>
Verse 1	/aʊ/ (mouth), /ɪ/ (in), /aɪ/ (mind)	Articulation: /aʊ/ transitions smoothly from /a/ to /ʊ/, maintaining a conversational mouth shape; /ɪ/ keeps the tongue naturally centered; /aɪ/ lowers the tongue dorsum to concentrate formants. Pedagogy: Conduct the “speech-singing comparison exercise”—first read lyrics (e.g., “What would I do without your smart mouth”) in a speaking style, then transition naturally to singing to correct “hollow” vowels caused by over-control.
Pre-Chorus 1	/ʌ/ (under), /i/ (breathing), /aɪ/ (fine)	Articulation: /ʌ/ lifts the soft palate to concentrate resonance in the pharynx; /i/ requires slight backward tongue movement; /aɪ/ maintains stable resonance during chromatic transitions. Pedagogy: Perform the “F4-C5 vowel scale exercise”—articulate /ʌ/ and /i/ sequentially to reduce the “weakness” of vowels during range transitions and enhance vowel concentration in the mid-high range.
Chorus 1	/ɑ:/ (All), /u:/ (you), /e/ (perfect)	Articulation: /ɑ:/ expands the nasopharynx; /u:/ moves the tongue tip forward to prevent blurring; /e/ requires slight backward tongue movement to avoid shrillness. Pedagogy: Combine the “hand-on-abdomen exercise” to strengthen breath support, break down the articulation of /e/ to improve precision, and adjust dynamics (from mf to f) to match resonance intensity.

Verse 2	/u:/ (you), /æ/ (beautiful), /u:/ (mood)	Articulation: /u:/ remains mellow without retraction; /æ/ is articulated softly without harshness. Pedagogy: Compare vowels with Verse 1 to optimize timbre consistency, and practice consonant-vowel connections (e.g., the /b-/u:/ transition in “beautiful you”).
Pre-Chorus 2	/ʌ/ (under), /i/ (breathing), /aɪ/ (fine)	Articulation: Same as Pre-Chorus 1, with emphasis on stabilizing resonance focus. Pedagogy: Reinforce the “F4-C5 vowel scale exercise” and address vowel blurriness issues identified in Pre-Chorus 1.
Chorus 2	/ɑ:/ (All), /u:/ (you), /e/ (perfect)	Articulation: Same as Chorus 1, with emphasis on avoiding timbre attenuation. Pedagogy: Strengthen the “hand-on-abdomen exercise,” maintain consistency with Chorus 1 in vowel articulation, and reinforce mode memory.
Bridge	/eɪ/ (Give), /aɪ/ (all), /ɑ:/ (hard)	Articulation: /eɪ/ transitions naturally from /e/ to /ɪ/; /aɪ/ maintains stable resonance during chromatic pitch changes; /ɑ:/ concentrates resonance in the pharynx. Pedagogy: Adjust vowel shape according to chromatic changes, keep the larynx relaxed, and practice the natural transition of the /eɪ/ diphthong.
Chorus 3 (Derived)	/ɑ:/ (All), /u:/ (you), /i:/ (me)	Articulation: /ɑ:/ uses strong breath support with gradual reduction afterward; /u:/ moves the tongue tip forward before returning to a natural position; /i:/ tightens in the high range before relaxing. Pedagogy: Practice high-note /ɑ:/ in the C5-Eb5 range, gradually transition to Neutral Mode, and ensure coherent timbre for concluding phrases (e.g., “I give you all of me”).
Outro	/ɑ:/ (All), /u:/ (you), /i:/ (me)	Articulation: /ɑ:/ returns to a natural tongue position; /u:/ reduces resonance support; /i:/ relaxes the lips and tongue. Pedagogy: Avoid extreme articulation, practice diminuendo

(from mp to pp), and review vowel characteristics of Neutral Mode in the verses to ensure consistency between the opening and closing.

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## **4.4 Innovation, Future Application Value, and Research Limitations of the Study Framework**

### **4.4.1 Innovation**

First, this study fills the empirical gap in the “mode-vowel” collaborative teaching of CVT (Complete Vocal Technique) in CCM (Contemporary Commercial Music) singing. Existing studies mostly focus on the physiological and acoustic mechanisms of CVT modes (Leppävuori et al., 2019, 2020) or the macro framework of CCM teaching but lack specialized case studies that deeply integrate “mode selection logic” with “vowel articulation optimization”. Taking All of Me as a case study, this research decomposes the adaptation of the Overdrive + Edge mode in specific sections (e.g., the chorus in Sections 27–44) and the corresponding pharyngeal expansion strategy for the /a:/ vowel. It is the first to construct a three-stage teaching logic chain of “section demand - mode matching - vowel adaptation”, transforming abstract CVT theory into actionable steps of “marking sections – clarifying vowel key points-designing teaching exercises”, which addresses the issue of “disconnection between theory and practice” in traditional CVT teaching.

Second, the study innovatively establishes a “teaching-oriented evaluation system”. Previous CVT-related studies mostly emphasize laboratory-level parameter measurement (e.g., vocal fold vibration frequency, formant distribution), while the three-dimensional evaluation indicators proposed in this study “mode adaptability - vowel clarity - teaching operability”, not only anchor acoustic principles such as Sundberg’s (1969) “singing formants” but also align with teaching scenario needs. For example, evaluating vowel naturalness through “speech-singing comparison exercises” directly responds to core pain points in CCM teaching (e.g., vague vowels, timbre discontinuity), shifting the evaluation criteria from “laboratory parameters” to a practical dimension of “perceivable teaching effects”.

Third, the study achieves precise alignment between CCM repertoire and CVT modes. By clearly marking the specific sections corresponding to each mode (e.g., Verse 1 corresponds to the Neutral mode starting from Section 22) and defining adaptation criteria based on lyrical emotions (e.g., “intimate narration”, “passionate confession”), it breaks the limitation of “relying on subjective experience” in traditional CVT mode selection.

This establishes an objective correlation between “melodic pitch - dynamic marking - emotional expression” and CVT modes, providing a replicable case paradigm for CCM vocal teaching.

#### 4.4.2 Future Application Value

From the perspective of teaching practice extension, the research results can be transferred to diverse CCM style training. All of Me combines the relaxed quality of R&B and the emotional intensity of pop music; its “mode-vowel” logic can be extended to similar CCM works (e.g., the lyrical climax of Adele’s *Someone Like You*, the mid-to-high pitch transition in Taylor Swift’s *Love Story*). Educators can adjust mode and vowel strategies based on the three-stage logic chain of this study, targeting style characteristics such as “low- to-mid pitch narration” in folk music and “high-pitch power” in rock music, thereby forming a CVT teaching module library covering pop, R&B, folk, and rock genres.

From the perspective of technology integration, the research framework can be combined with acoustic tools to enhance teaching objectivity. In the future, acoustic analysis software such as Praat and Wave Surfer can be introduced to quantitatively measure the vowel formants of learners under different CVT modes (e.g., F1 and F2 values of /i/ in the Neutral mode). By comparing these measurements with the optimization standards proposed in this study (e.g., F1 range of 800–900 Hz for /a:/ in the Overdrive mode), data support can be provided for teaching feedback. This avoids subjective judgment biases regarding “good or bad timbre” in traditional teaching and promotes the development of CCM vocal teaching towards “data-driven + practice-oriented” integration.

From the perspective of cross-field value, the research can serve vocal health protection for CCM singers. The scientific application of CVT modes has been proven to reduce the risk of vocal fold damage (McGlashan et al., 2023). The “mode adaptation - vowel optimization” strategy proposed in this study further clarifies the vocal load control in different sections (e.g., avoiding laryngeal tension caused by excessive sharpening of the /i:/ vowel in the Edge mode). It can be extended to vocal rehabilitation teaching for CCM singers, helping performers who frequently use the high-pitch range (e.g., pop coloratura singers) establish a balanced mechanism of “efficient vocal production - injury prevention” and filling the research gap in the synergy between “technical training and vocal protection” in the CCM field.

From the perspective of research expansion, the study can promote quantitative empirical research on CVT in CCM teaching. In the future, large-sample experiments can be conducted: CCM learners with different singing foundations are divided into the “CVT three-stage logic teaching group” and the “traditional experience-based teaching group”. By comparing the differences between the two groups in indicators such as vowel clarity (listener subjective ratings + acoustic parameters) and mode switching fluency (discontinuity frequency statistics), the effectiveness of the study framework can be verified, providing quantitative evidence for the popularization of CVT in CCM education.

### 4.4.3 Research Limitations

First, the case coverage is narrow, and the style representativeness is insufficient. This study only takes *All of Me*—a single CCM lyrical piece—as the analysis object. Its musical structure of “low-pitch narration - mid-pitch transition - high-pitch climax” and lyrical characteristics dominated by mid-to-low vowels cannot cover the full spectrum of CCM styles. For example, scenarios such as the adaptation of the Edge mode for high-frequency vowels (e.g., /i:/) in rock music, vowel coherence strategies for complex melismatic sections in R&B, and adjustments to the Neutral mode for low-frequency vowels (e.g., /u:/) in folk music are not included in the analysis. This may limit the transferability of the conclusions to non-lyrical CCM repertoire.

Second, the research method is dominated by qualitative analysis, lacking quantitative data support. This study determines mode and vowel strategies through “music score decomposition + teaching logic deduction”. Although it references the MRI vocal tract research conclusions by Leppävuori et al. (2020), it does not conduct actual measurements of acoustic parameters (e.g., fundamental frequency fluctuation under different modes, dynamic changes in vowel formants) in the singing of *All of Me*. Nor does it verify the actual effects of “vowel clarity” and “mode adaptability” through listener subjective evaluation experiments, which means the objectivity and persuasiveness of the research conclusions need further improvement.

Third, the impact of individual differences among learners on teaching strategies is not considered. The “mode-vowel” adaptation strategy proposed in this study is based on general CCM singing needs and does not distinguish between differences in vocal ranges (e.g., Soprano vs. Baritone), singing foundations (beginners vs. professional singers), or vocal traits (vocal fold thickness, resonance cavity size). For instance, when bass singers perform high notes in the chorus, they may need to favor the transitional mode between Neutral and Curbing, rather than the Overdrive + Edge mode commonly used by high-range singers. The lack of individual adaptability may require additional adjustments to the teaching strategy in practical application.

Fourth, teaching strategies for the dynamic switching of CVT modes are not addressed. This study focuses on “mode adaptation in static sections”, but CCM singing often involves rapid cross-section mode switching (e.g., the Curbing-Overdrive switch from the end of the pre-chorus to the chorus). Adjustments for vowel coherence in such scenarios (e.g., avoiding timbre discontinuity in /ɑ:/→/e/) have not been included in the analysis. Future research needs to supplement exercise designs for dynamic switching to improve the full-scenario application framework of CVT in CCM singing.

## **5. Conclusion and Recommendations**

### **5.1 Conclusion**

This study confirms that the four modes of Complete Vocal Technique (CVT) can be precisely adapted to the demands of Contemporary Commercial Music (CCM) singing. The Neutral Mode is well-suited for narrative sections in the mid-low vocal range (C4-F4), as its natural vocal fold vibration and relaxed laryngeal state align with the intimate, conversational tone of CCM verses. The Curbing Mode provides critical support for mid-high range (F4-C5) transitions, using slight vocal fold adduction to maintain timbre stability and avoid breaks—addressing a common challenge in CCM’s dynamic range shifts. The combination of Overdrive and Edge Modes enhances the expressive power of high-range (C5+) climax sections, leveraging full vocal fold vibration (Overdrive) and high-frequency harmonics (Edge) to amplify emotional impact, a key requirement for CCM’s climactic intensity. Importantly, switching between these modes enables hierarchical timbre presentation, allowing singers to convey nuanced emotional changes across song sections.

The research further highlights that vowel articulation must be coordinated with CVT modes to ensure CCM singing quality. In the Neutral Mode, vowels require naturalization to retain conversational clarity; in the Curbing Mode, subtle resonance (fine-tuning) is needed to balance tension and clarity; in the Overdrive Mode, resonance cavity strengthening enhances vowel penetration; and in the Edge Mode, focus sharpening intensifies emotional expression. This “mode-vowel” synergy not only guarantees vowel clarity—critical for CCM’s lyrical narrativity—but also maintains overall timbre unity, preventing fragmentation caused by inconsistent vowel handling across ranges or modes. Additionally, the case analysis of *All of Me* verifies the pedagogical value of CVT’s “mode-vowel” framework. The song’s (section-by-section) decomposition provides a practical template for CCM vocal teaching, guiding educators and singers to establish a clear “demand-technology” correspondence: matching CVT modes to section-specific emotions and pitch ranges and adjusting vowels accordingly. This bridges the gap between theoretical vocal techniques and real-world CCM singing needs, offering a actionable pathway for skill development.

### **5.2 Pedagogical Recommendations**

#### **5.2.1 CVT Mode Selection Teaching**

The core principle for mode selection should be “sectional emotion-pitch range alignment.” For mid-low range (C4-F4) narrative sections (e.g., *All of Me*’s Verse 1), prioritize the Neutral Mode and use “mode comparison exercises”—having learners sing the same verse segment in Neutral and Curbing Modes—to highlight the natural timbre advantage of Neutral Mode for storytelling. For mid-high range (F4-C5) transition sections (e.g., Pre-Choruses), introduce the Curbing Mode and practice “range-glide exercises” (sliding from F4 to C5 in Curbing Mode) to help learners master tension control. For high-range (C5+) climaxes (e.g., Choruses 2-3), teach the Overdrive + Edge combination through “dynamic contrast

exercises” (singing the same chorus phrase in Overdrive alone vs. Overdrive + Edge) to demonstrate how Edge Mode enhances brightness.

### **5.2.2 Vowel Adjustment Teaching**

Design specialized exercises tailored to each CVT mode to refine vowel precision. For the Neutral Mode, implement “speech-singing conversion exercises”: learners first read CCM lyrics (e.g., All of Me’s “What would I do without your smart mouth?”) in natural speech, then transition to singing while retaining speech-like vowel shapes—this reinforces naturalization. For the Overdrive Mode, use “resonance expansion exercises”: have learners articulate /ɑ:/ (e.g., “All”) while placing hands on the pharynx to feel cavity expansion, linking physical sensation to acoustic quality. Additionally, decompose classic CCM works like All of Me to map “section-vowel-adjustment” relationships (e.g., Bridge /eɪ/ requiring smooth diphthong transition), helping learners internalize context-specific vowel strategies.

### **5.2.3 Practical Application**

Encourage learners to transfer the “mode-vowel” framework to other CCM works with similar structural features, such as Adele’s Someone Like You. Guide them through a three-step process: 1) Score Annotation: Mark section emotions (e.g., “melancholic narrative” for Verse 1), pitch ranges (e.g., D4-G4 for Verse 1), and recommended CVT modes on the score. 2) Mode Selection: Test and refine mode choices through preliminary singing, ensuring alignment with section needs; 3) Vowel Adjustment: Optimize key vowels (e.g., /u:/ in “you” for Someone Like You) based on mode requirements. Repeated practice of this process strengthens technical application, enhancing CCM singing professionalism and expressiveness.

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# All of Me

演唱: John Legend

John Legend, Toby Gad 词  
John Legend 曲

**Allegro** (♩=135)

*mp*

5 Fm D<sup>b</sup> A<sup>b</sup> E<sup>b</sup>

1. what would I do with out your smart mouth drawing me  
2. how ma-ny times do I have tell you even when you

8 E<sup>b</sup> Fm D<sup>b</sup>

in and you kicking me out got my head spinning  
crying you're beautiful too the world is beating you

11 A<sup>b</sup> E<sup>b</sup> Fm

no kidding I can't pin you down what's going  
down I'm around through every mood you're my

14  $D^{\flat}M7$   $A^{\flat}$   $E^{\flat}$   $Fm$

on in that beautiful mind I'm on your magical mystery ride and I'm  
down fall you're my muse my worst dis traction my rhythm and blues I can't stop

18  $D^{\flat}$   $A^{\flat}$   $E^{\flat}$   $B^{\flat}m$

so dizzy don't know what hit me but I be al - right } my  
sing - ing it's ring - ing in my head for you }

22  $B^{\flat}m$   $A^{\flat}$   $E^{\flat}$   $B^{\flat}m$

head's un - der wa - ter but I'm breathing fine

26  $B^{\flat}m$   $A^{\flat}$   $E^{\flat}$   $A^{\flat}$

you're crazy and I'm out of my mind cause all of me

30  $A^b$   $Fm$   $D^b6$

loves all of you love your curves and all your edges

34  $D^bM7$   $E^b$

all your per - fect im - perfections give your

37  $A^b$   $Fm$

all to me I'll give my all to you you're my

41  $D^b6$   $D^bM7$   $E^b$

end and my beginning ev-en when I lose I'm wining cause I give you all

45 Fm Db Ab Eb

all of me and you give me all

49 Fm Db Ab Eb

all of you oh

53 Eb Fm Fm Ab

give me all of you cards on the table we're

57 Eb Fm Fm Ab

both showing heart risking it all though it's



78 Fm D<sup>b</sup> A<sup>b</sup> E<sup>b</sup>

all of me and you give me all\_

82 Fm D<sup>b</sup> A<sup>b</sup> E<sup>b</sup>

all of you oh cause I give you all

86 Fm D<sup>b</sup> A<sup>b</sup> E<sup>b</sup>

all of me and you give me all\_

90 Fm D<sup>b</sup> A<sup>b</sup> E<sup>b</sup>

all of you oh