

The Literacy of the Problem of High Notes Singing in Thai Female Singers in Thailand

Pathnitharn Sreeiams, Nachaya Natchanawakul*

College of Music, Mahidol University, Thailand

Corresponding author: Nachaya Natchanawakul, E-mail: nachaya.nat@mahidol.ac.th

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ABSTRACT

This study investigates the vocal challenges faced by Thai female singers, particularly in achieving high notes, and explores the effectiveness of Thai phonetic word sets as a pedagogical tool for developing healthy vocal techniques. Drawing on both quantitative and qualitative methods, the research includes experimental data from university-aged female students (18–25 years) and interviews with 23 experienced vocal teachers. The findings reveal sixteen common vocal problems—such as voice cracking, breathiness, and vocal fatigue—often linked to improper technique, poor vocal health awareness, and psychological factors like lack of confidence and anxiety. Singing high notes in Thai presents unique difficulties due to the tonal and monosyllabic nature of the language. Through phonetic analysis and expert consultation, the study developed a set of vocal exercises using specific Thai consonant and vowel combinations to support resonance and ease of articulation. Results from the implementation of these exercises demonstrated improved vocal control, tone production, and student confidence in navigating the upper register. The research highlights the importance of vocal health, articulation techniques, and the integration of Thai linguistic characteristics into vocal pedagogy. Additionally, the study advocates for a hybrid learning model—combining discovery-based, classroom, and private instruction—to enhance long-term vocal development. These findings contribute to the development of sustainable, culturally responsive vocal training methods suitable for Thai female singers aspiring to sing in high registers.

Key words: Thai Phonetics, High Notes, Female Singers, Vocal Technique, Vocal Health, Hybrid Learning, Thai Language, Voice Pedagogy

BACKGROUND

Human voice exerts a powerful influence, impacting both our physical and mental state. Hearing different voices triggers physiological responses, a consequence of the mental processing of emotions, thoughts, and feelings these voices evoke. These responses vary depending on the individual, their cultural background, and personal taste. The potency of voice is particularly evident in rituals, where it has played a significant role for generations (Loui et al., 2013).

From chanting and prayers to singing and instrumental music, even seemingly unstructured sounds like crackling fire, clanging armor, or cannon fire can be incorporated into rituals. While the specific forms of vocal expression in rituals have evolved over time (Acharya, 2021), the voice's power to shape and influence these ceremonies remains undeniable. The impacts of voices to humans both physically and mentally can incur by various factors. The quality of the voice is one of the important factors that impact the communication to the listeners, especially when singing. Singing can relay the message in stories, emotions and feelings very well together simultaneously. (Juslin, P. N., & Västfjäll, D., 2008) The voice can occur from the vibrations of the tissue and muscles

that are located opposite to the larynx. (MSc, N. M., 2023) Larynx is located between tongue base and above trachea that is the entrance to the lungs. (SuárezQuintanilla, J., 2023) The functions of vocal cords that is located inside larynx will be activated as a result from talking, speaking, and any actions that create voices. At the same time, air in our lung makes the vibration creating the sound waves, which are then travelled through trachea. The nasal and oral cavities act as the resonance to adjust the quality of the voice (Khambata, 1977). The result from the adjustment produces the different sound level and sound's tone to every individual.

From observations, many singing teachers have the objectives of singing by focusing on the quality of the voice, the method of teaching to improve vocal aesthetics, and the importance of personal favors of the listeners without the consideration of problems that might cause to the singers later. Since in 2000, there has been an increasing number of several singing contest and singing shows in different stages in Thailand, for regionally, nationally and internally (Chanasongkram, 2017).

This signifies the popularity in singing and listening to singing by Thai people who have different preference and

styles of listening to different kinds of sounds from singing. Whereas there is more number of people who turn themselves into the singing occupation and its industry, as singers, singing teachers, etc. “Singer” is a term that, in a broad sense, can include anyone: a young singing student, an untrained popular or traditional singer, or a famous classical singer. (Pestana, Vaz-Freitas, and Manso, 2017). Obviously, among them, the demands, the training, and the effects of their voice use will vary. (Pedro Melo Pestana, Susana Vaz-Freitas, and Maria Conceição Manso, 2017) Thai songs have been increasingly used in these singing competitions in various stages. The singing competitions have been categorized the types of singing styles distinctively into Thai popular, Phelng lük krung (เพลงลูกกรุง), Phelng lükthung (เพลงลูกทุ่ง) and Thai traditional. Emeritus Professor Poonpit Amatyakul, Ph.D. has categorized the Contemporary music that is originated from different kinds of Thai traditional into Phelng thiy thae (เพลงไทยแท้), Phelng rawng (เพลงร่ำวง), Phelng phưんばん (เพลงพื้นบ้าน), Phelng lükthung (เพลงลูกทุ่ง), Phelng lük krung (เพลงลูกกรุง), and Phelng thiy pop (เพลงไทยร่วมสมัย). (Wuttipong, 2011)

The quality of the voice used in singing competition at that time was comprised of the correctness in vocal level, vocal tone, personalities, stage performance which includes rhythms, melodies and singing techniques, the high notes when being sung by the singers should be articulate, the correctness when singing in Thai language. Singing in a high note requires extensive practice (Hongtao, 2022). Practicing is the key factor to master the skill in singing with high notes level (Janet, 2017). Gary Ewer (2014), a composer, arranger, conductor and clinician stated that singing in high note level is provide the emotional expression of the song that the songwriter would relay and express to the audience. In addition, from The Journal of Voice on the article of Potential factors related to untrained singing talent: A survey of singing pedagogues by Watts et al. (2003) mentioned that through dedicated vocal training, singers can develop their singing voices to effectively convey a range of emotions, moods, and even cognitive- linguistic information.

The physical differences between male and female cause the difference in both gender’s natural voice. Female singers bear some of the highest burdens and are having vocal difficulties (Boltežar and Šereg Bahar, 2014; Tepe et al., 2002) and also women have been found voice health problems more frequently than men (Hunter et al., 2011; Özaydin, 2016). Therefore, adopting proper vocal techniques can significantly reduce the risk of vocal injuries among female singers.

Stating about the transition of male and female voice called ‘mixed voice or mixed register’, vocal range of male’s voice has lower than female, in which the real voice in mixed register, called ‘Bridge’ or ‘Passaggio’ is in between D4-G4 (Sell, 2005). For female, Bridge of Passaggio is in between A4- B4 (Johnson, 2014). According to the Two-Registers Theory by Ware (1998), it says that the highest note of the female in their mixed register is C5 note. There are difficulties when singing and practicing to sing for both males and females. To be able to sing higher than mixed register as mentioned earlier is difficult; for male, to achieve the ability

of singing above G4; for female, to achieve and obtain above C5 note.

These differences in singing ability are the result from practicing. It requires the potentials of the singing students and the teaching method that concerns the quality of voice and vocal health as well. To establish the voice with good quality, it requires numerous factors along with the correct singing practice to avoid the possible injury that can happen to vocal cords of the singing students. The vocal problems can also be found not only in the people in music industry and careers, but in everyone.

Nowadays, there is a number of patients who have problems in vocal usage, which can occur from talking or singing. Usually, the causes are by using the voice incorrectly and not being cautious to use it correctly and appropriately. This results in a high number of patients in the hospital who have vocal problems. The results from the injury are hoarseness, the difficulties for the attempt to sing; sore throat, laryngitis, pharyngitis, and losing the ability to sing in high notes (Prukpitikul, 1995; Sujjalak, 1988). So, to preserve the quality of voice for individuals who frequently use their voices are necessary to be focused and emphasized on. A well training or practicing can also help to preserve the quality of voice.

This study therefore focuses on studying the problems of singing and voice use of female singers in Thailand, along with suggesting methods and techniques for further development of singing.

OBJECTIVE

The current study aims to survey vocal problems in Thai female students.

REVIEW LITERATURE

Thai Popular Music

The Thai popular music industry has evolved from a nascent sector influenced by Western music into a complex commercial entity shaped by globalization and technological advancements. By tracing the development of key genres and analyzing the strategies employed by major and independent labels, this study seeks to understand the interplay between artistic expression, commercial interests, and cultural context.

A comprehensive overview of the historical development of Thai popular music reveals a fusion of traditional Thai music with Western influences, leading to the emergence of distinct genres. Key themes include the impact of Western music on the Thai musical landscape, the formation of early music industries, and the challenges faced by musicians in navigating evolving cultural and technological landscapes.

The Pop Era (1980s to early 1990s) examines how major record labels dominated the market, leveraging mass media to shape consumer tastes. Issues of authenticity, originality, and the creative process are explored in this period.

The Indie Phenomenon (mid-1990s) focuses on the rise of the indie music scene, analyzing the challenges faced by independent labels and artists as they competed with major

labels. The period also examines the significance of indie music in reshaping the Thai music landscape.

The Major Return (late 1990s to early 2000s) addresses the challenges brought about by economic recession and technological advancements. Strategies employed by major labels to adapt to these changes and the evolving relationship between major labels and independent artists are discussed.

The Time for Celebrity and New Business Models explores the impact of digital technologies and the rise of celebrity culture in contemporary Thai music. Both challenges and opportunities faced by major labels and independent artists in the digital era are analyzed. (Wuttipong, 2011)

Thai popular music can be further categorized into four primary genres: pleng lukgrung, pleng lukthung, pleng string, and pleng puea chiwit. Each genre represents a unique blend of Thai and Western musical elements, with distinct characteristics in terms of style, language, theme, and audience.

Pleng Lukgrung (Urban Music) emerged as a synthesis of Thai court music and Western popular music, particularly Tin Pan Alley. Initially popular among the Thai elite, it gradually expanded its audience base. Key features include a smooth singing style, sophisticated compositions, and a focus on romantic love themes, often performed by big bands or combos.

RESEARCH METHOD

The study was a mixed methods study, which means that both quantitative and qualitative methods were used. The quantitative data was collected through an experiment, and the qualitative data was collected through interviews. Experimental research is a type of scientific research that follows a strict research design.

It involves testing a hypothesis by manipulating one variable and measuring the effects of that manipulation on other variables (Singh, 2021). Experimental research is typically conducted in a controlled environment to minimize the effects of extraneous variables. In this research, the experiment was conducted in four phases. The first phase was an experiment was conducted to find singing problems in Thai female singers aged 18-25 years.

The researcher interviewed 23 singing professional teachers about the problem of high notes singing in Thai female singers. The researcher also conducted an experiment to find singing problems from female students aged 18-25 years who study at university and have singing experiences. The researcher found all 16 problems of high notes singing in Thai female students.

RESULTS AND DISCUSSION

Although music is not a compulsory subject in the national curriculum, it remains a significant and popular aspect of Thai culture. As a result, many Thai students primarily learn music through rote memorization and self-practice. A study examining the challenges of singing high notes for Thai female students found that singing high notes effectively requires both physical and mental skills. Physically, singers must have a comprehensive understanding of vocal

techniques and the ability to utilize their vocal organs correctly.

Singing Thai songs presents unique challenges due to the language's monosyllabic structure and tonal variations, which necessitate distinct vocal placement compared to Western singing. Traditional Thai vocal training emphasizes spoken language articulation, differing significantly from Western vocal techniques. To overcome these challenges, Thai singers should explore vocal anatomy, comprehend the nuances of Thai phonetics, and selectively incorporate Western techniques while adapting them to the Thai language. By bridging these vocal approaches, singers can achieve greater vocal agility, expand their repertoire, and effectively convey the emotional depth of Thai music.

The research objective was to survey vocal problems in Thai female students when singing high notes. The findings indicate that producing high-quality high notes requires both physical and mental readiness. Physically, singers need to possess a thorough understanding of correct singing techniques, including the appropriate use of various anatomical structures according to vocal principles. Mentally, students often experience pressure when attempting to sing high notes, which can lead to negative outcomes, such as difficulty in controlling vocal quality or a lack of confidence.

The study involved interviews with 23 vocal instructors, comprising 3 male and 20 female teachers, who met the criteria for participation. The participants shared their experiences regarding the challenges they observed when teaching female singers to perform high notes (range C5) using mixed voice techniques. The findings are summarized as follows:

PROBLEMS WITH PRONUNCIATION

Pronunciation is a crucial aspect of effective communication and emotional expression through music. Each language has distinct phonetic characteristics that influence how words are pronounced, particularly in singing.

Currently, the clarity of Thai pronunciation has declined compared to the past. Pronunciation has deviated from standard norms in various ways, including the articulation of consonants, vowels, and tones (Aonphao, 2016). In singing lessons, unclear pronunciation in Thai is frequently observed.

New generations have created and adopted new vocabulary, pronunciations, and expressions, which differ significantly from traditional Thai linguistics. These emerging linguistic practices are reinforced through exposure to multimedia channels, social media, and peer interactions. As a result, speech patterns have evolved, with vowels pronounced in a flattened manner and the mouth held more open. This reduced oral movement has contributed to the decline in clear pronunciation, particularly when singing.

For students and young people, consistent practice in articulating words according to standard Thai pronunciation is essential (Amaadar, 2021). Vocal instructors often emphasize focusing on vowel sounds and mouth shapes, as the shape of the mouth influences airflow and clarity of sound production (Amaadar, 2021). Techniques commonly used to enhance the clarity of singing can also be applied to improve speech clarity for non-native speakers.

Incorrect pronunciation in Thai affects the use of key vocal organs, including the mouth, palate, gums, and tongue. These organs may not be utilized effectively during singing, leading to vocal production issues, particularly in high notes. The consequences of this issue include unsuccessful attempts to sing with clarity or incorrect pronunciation.

To address these challenges, it is crucial to emphasize correct pronunciation practices based on Thai linguistic principles. Thai has a distinct system of vowels, consonants, and tonal variations, each with unique characteristics. If singers mispronounce words, singing in that language becomes increasingly difficult, heightening the risk of vocal strain or injury.

Problems with Singing Technique

Singing technique is a fundamental component in captivating an audience. To effectively deliver high notes, the correct singing technique must be employed. According to an interview with Mantana Yuyangyuen, a senior music teacher, on August 19, 2021, she emphasized that, “Singers should take time to sing in high notes, gradually increasing the pitch. They must sing with a sweet voice. When starting to sing, singers need to attract attention and build anticipation, making the audience curious about the source of the song and who the singer is” (Mantana Yuyangyuen, personal communication, June 23, 2021).

This statement underscores the importance of a gradual approach to singing high notes rather than attempting to reach the high note abruptly or by force. Proper singing technique involves careful vocal control, artistic expression, and maintaining vocal health to avoid injury.

Interviews with multiple vocal instructors revealed several common problems encountered by female students in relation to singing technique:

A key issue identified was spasticity, which is a significant barrier to achieving high notes effectively. Spasticity often arises from the preconceived notion that singers must force their voices to reach higher notes. This tension can manifest as excessive neck or body strain, leading to vocal fatigue or potential injury.

Rather than producing a controlled, steady sound, the singer may attempt to push the voice, creating a strained, unbalanced tone.

The study identified 16 specific problems related to singing technique in high notes for female singers, based on qualitative data collected from interviews with 23 vocal teachers. These findings are summarized in Table 1.

Problems in Singing High Notes among Female Students

The study identified several vocal problems experienced by female students when singing high notes. The observed issues include 16 number.

To address these vocal challenges and develop a technique that expands the high note range in a healthy manner, the researcher devised vocal exercises using Thai phonetics. The practice lessons aimed to assist Thai female students in effectively reaching high notes without causing vocal strain.

Table 1. Sixteen vocal problems found from interviewing 23 experienced vocal teachers

No	Problems (English)	Problems (Thai)
1	Voice cracking	เสียงปลิ้น
2	Vibrato issues	เสียงสั่น
3	Off-pitch notes	เสียงเพี้ยน
4	Wavering pitch	เสียงแกว่ง
5	Breathiness	เสียงแหบ
6	Vocal fatigue	อาการเหนื่อยขณะร้อง
7	Sore throat while singing	อาการเจ็บคอขณะร้อง
8	Shouting or strained voice	ร้องตะเบง
9	Forced voice	ร้องเค้นเสียง
10	Neck tension	ร้องแล้วเกร็งคอ
11	Body stiffness	อาการเกร็งลำตัว
12	Flat notes	ร้องโน้ตเพี้ยนต่ำ
13	Sharp notes	ร้องโน้ตเพี้ยนสูง
14	Lack of focus or missing resonator points	การไม่พบจุดโฟกัส/ ไม่พบจุดก้องสะท้อน
15	Self-imposed pressure	การมีความกดดันในตัวเอง
16	Stress when singing high notes	การมีความเครียดขณะร้องเสียงสูง

The Thai language is characterized by its unique tonal and phonetic system, comprising 44 consonants, 6 articulators, and various nasal sounds that produce sharp and pointed tonalities. Additionally, there are 32 vowels (both short and long), resulting in a wide range of mouth shapes and tonal variations.

For the vocal exercise set, the researcher selected specific consonants and combined them with long vowels to create targeted high-note training practices. This approach was intended to align vocal techniques with the phonetic structure of the Thai language, emphasizing correct articulation and controlled vocalization.

A survey was conducted to assess the vocal challenges of singing high notes in female students aged 18 to 25 years old. The survey included interviews with singing instructors and self-assessment questionnaires completed by the students.

To evaluate the effectiveness of the vocal training exercise, the Thai song “Khon Chao Namta” (Tears of a Woman) was selected. This song, which includes a vocal range extending to C5, was chosen because its lyrics encompass all Thai consonants, including bilabial, alveolar, palatal, velar, glottal, and vocal cord consonants. Furthermore, the lyrics cover all vowel types, such as simple, compound, short, long, and consonant clusters.

This comprehensive approach aimed to provide a systematic method for developing high-note vocal techniques while minimizing vocal strain and ensuring healthy vocal production.

Techniques to Improve Singing Skills

In response to the vocal challenges identified, various techniques have been introduced to enhance vocal performance. The following techniques are commonly employed to improve singing skills:

Vocal resonance (Vibration)

Vocal resonance involves the amplification and enhancement of sound produced by the vocal folds as it travels through the body's resonating cavities, such as the chest, throat, mouth, nose, and sinuses (Sundberg, 2001). This vibration is crucial for both singing and speaking, as it amplifies sound and creates a pleasing vocal quality.

The process of vocal resonance functions as follows:

- The vocal folds vibrate at a natural frequency, determined by their length, thickness, and tension.
- This vibration travels up through an air column, resonating at the same frequency.
- The body's resonating cavities (chest, mouth, sinuses, and nasal cavity) amplify the sound.
- The shape of the vocal tract, formed by the tongue, palate, and mouth position, further shapes the sound quality.

Different resonating cavities can be activated to produce varied vocal qualities:

- Chest Resonance: Produces lower pitches and open, rich tones.
- Head Resonance: Produces higher pitches and brighter, lighter sounds.

The placement of the voice is determined by how the vocal folds interact with these resonating cavities. For instance, when the vocal folds are positioned to emphasize chest resonance, the resulting sound is characterized by a deep, full-bodied tone. Conversely, when the vocal folds are positioned to emphasize head resonance, the sound is lighter and more focused.

Additionally, the shape of the vocal tract influences sound quality:

- A narrow vocal tract results in a brighter, more focused sound.
- A wider vocal tract produces a darker, fuller sound.

Improving vocal resonance requires targeted practice and training exercises designed to increase awareness and control over the resonating cavities. Consistent practice can significantly enhance vocal projection, clarity, and tonal quality (Stemple & Dietrich, 2011).

Fixed Formants

Fixed formants refer to the characteristic resonant frequencies of the vocal tract that are responsible for producing different vowel sounds (Collins, 2012; Sundberg, 2001). These formants are also referred to as overtones or rings. Sundberg states, "The frequencies which are most successful in traveling through the vocal tract are called resonance or formant frequencies."

The first three formants (F1, F2, F3) are crucial in distinguishing vowel sounds:

- First Formant (F1): The lowest formant, which primarily determines the overall vowel quality.
- Second Formant (F2): Influences the frontness or backness of the vowel sound.
- Third Formant (F3): Relates to the height or openness of the vowel.

The shape and configuration of the vocal tract directly affect the formant frequencies. For instance:

- A narrow vocal tract produces higher formants, resulting in brighter sounds.
- A wider vocal tract produces lower formants, creating darker, more resonant sounds.

The tongue also plays a significant role in shaping the vocal tract and influencing formant frequencies. By moving the tongue forward or backward, singers can adjust the resonance to achieve clearer, more resonant vowels.

Mastering the control of formants is a critical aspect of effective singing. By learning to adjust the shape of the vocal tract, singers can produce more distinct, powerful, and resonant vowel sounds.

Articulation and Vowel Modification

Articulation involves the formation of specific speech sounds through the interaction of the vocal tract structures. The mouth, a primary articulatory organ, shapes the air and vibration passing through the vocal tract into recognizable speech sounds.

Articulators are categorized into two types:

- Movable Articulators: Structures that can be adjusted to modify sound production, including the jaw, lips, tongue, soft palate, and pharynx.
- Fixed Articulators: Structures that remain stationary, such as the hard palate and teeth.

The hard palate, located at the roof of the mouth, serves as a barrier between the nasal passages and the oral cavity. It works in conjunction with the soft palate to direct airflow and influence resonance.

Vowel Modification involves adjusting vowel formants to optimize vocal tone and resonance. This technique is particularly important for singing high notes, as some vowels are more difficult to produce clearly in the upper vocal registers (Thummarattana, 2015).

For instance:

- When singing high notes in a mixed register, certain vowels may require modification to prevent strain and maintain tonal quality.
- The vocal folds must resist airflow effectively to maintain closure and produce a rich, resonant tone.

Vowel modification not only enhances clarity but also prevents vocal fatigue and injury. This technique is essential for singers, especially when executing challenging passages or high notes.

CONCLUSION

This research explored the application of Thai phonetics in producing high-quality high notes. The findings support the notion that front resonance of open vowels facilitates vocal cord activation, making it easier to produce high notes. The study demonstrated that a teaching technique based on this principle effectively improved the high-note pronunciation skills of Thai female students.

A recent study highlighted the prevalence of vocal strain among Thai female singers when attempting to sing high

notes. Through experimental methods, the study identified improper vocal technique as the primary cause of vocal injuries sustained during such performances. The in-depth examination of sixteen common vocal challenges revealed a consistent link between improper technique and vocal strain.

Addressing these factors is essential to effectively mitigate vocal strain and improve high-note singing proficiency.

Implementation of Hybrid Learning and Discovery Learning

The hybrid classroom model was implemented to accommodate the evolving educational landscape post-COVID-19, emphasizing flexibility and adaptability in learning environments. Hybrid learning combines face-to-face instruction with online modules, allowing students to practice vocal techniques independently while receiving structured guidance.

In the context of high-note singing, the hybrid model proved advantageous as it allowed students to practice without pressure, reducing the risk of vocal fatigue. Continuous learning through assignments and vocal diaries reinforced skill retention while enabling both self-assessment and teacher evaluation.

Additionally, the study integrated discovery learning, a student-centered approach that encourages exploration and experimentation. In the hybrid classroom, students engaged with assigned vocal exercises and experimented with different techniques. This method fostered deeper comprehension of the material and facilitated improvement in singing skills.

Moreover, the research highlighted the significance of developing a strong foundation in Thai articulation, given the distinct phonetic structure of the Thai language. Mastering proper articulation not only enhances vocal clarity but also prevents strain and promotes sustainable vocal production.

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