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Developing Vocal Literacy: The Efficiency of Basic Vocal Training Exercises for Students at Yamaha Music School in Mahasarakham, Thailand

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ABSTRACT

This study aimed to evaluate the effectiveness of basic vocal training exercises for students at Yamaha Music School in Mahasarakham, Thailand, using a quantitative research approach. The research focused on collecting measurable numerical data and was divided into two main components: content validity assessment and effectiveness evaluation of the exercises using the E1 and E^2 efficiency measures. The statistical methods used for data analysis included Arithmetic Mean, Percentage, and Standard Deviation (SD). The findings indicate that the developed vocal training exercises consist of five core components: Breathing and Breath Control, Correct Pronunciation, Listening and Singing on Pitch, Voice Range Development, and Expressing Emotions through Singing. The content validity assessment yielded an Index of Item-Objective Congruence (IOC) of 0.95 and a Standard Deviation (SD) of 0.01, confirming that the exercises align well with academic standards and instructional objectives. The efficiency evaluation of the exercises (E1/E2) resulted in a score of 80.5/84.9, surpassing the standard benchmark of 80/80. These results demonstrate that the exercises effectively enhance students' fundamental vocal skills and can be successfully implemented to improve vocal training at Yamaha Music School, Mahasarakham, Thailand.

Key words: Vocal Literacy, Training Exercise, Efficiency, Evaluation

INTRODUCTION

Vocal training remains one of the most popular courses, as singing is an accessible and cost-effective activity that does not require an investment in musical instruments. The human vocal cords function as the instrument itself (Boontatsanakul, 2004). However, producing a high-quality singing voice requires consistent practice, an understanding of one's body, and guidance from a knowledgeable vocal instructor who can clearly and effectively teach proper singing techniques. Since the body serves as the primary instrument for singing—and each individual's body is unique—every person's voice differs as well. Many students enroll in vocal training to improve specific aspects of their singing, such as pitch accuracy, posture, stage presence, diction, articulation, and breathing techniques. Vocal instructors often teach by demonstrating their own singing voice, expecting students to imitate them. However, this method primarily develops listening and imitation skills without fostering true vocal independence. As a result, when students no longer have an instructor to guide them, they often struggle to refine their singing abilities on their own (Flossy, 2017). Achieving a beautiful singing voice requires proper instruction and systematic training. While some individuals with a naturally strong vocal foundation can enhance their skills by listening to professional singers and adapting stylistic elements, most students need a structured approach with knowledgeable instructors and well-designed vocal exercises to develop their vocal abilities effectively (Siripin, 2008).

Vocal literacy plays a critical role in effective vocal training, as it encompasses a singer's understanding of vocal production, vocal anatomy, technique, and musical interpretation. Elliott (2020) emphasizes that vocal literacy extends beyond mere vocalization; it equips singers with the ability to read and interpret music, recognize vocal registers, apply resonance techniques, and adapt to various musical styles. Similarly, Rogers (2015) argues that developing vocal literacy enables students to become independent learners by providing them with the tools to assess and refine their singing skills. Without a strong foundation in vocal literacy, students struggle with pitch inaccuracy, limited vocal agility, and poor dynamic control, which can hinder their ability to sing expressively and sustainably. Research also suggests that students with higher vocal literacy demonstrate greater confidence in performance settings, as they possess a deeper understanding of how to manage vocal challenges effectively. Therefore, integrating vocal literacy into vocal training curricula is essential for comprehensive vocal development, allowing students to achieve greater precision, artistic expression, and long-term vocal sustainability.

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The Vocal Course at Yamaha Music School, Mahasarakham, provides singing lessons for individuals interested in vocal training. The course covers essential techniques such as breath control, posture for full-voiced singing, vocal warm-up scales, and key exercises to ensure effective learning and noticeable progress. By engaging in these lessons, students gain confidence to perform at events and concerts without hesitation. Upon completing the course, students can take an annual music proficiency exam to assess their vocal skills (Siam Music Yamaha Co., Ltd., 2019).

As a vocal instructor at Yamaha Music School, Mahasarakham, the first author has observed that students preparing for the Grade 10 vocal exam, the beginner-level proficiency test in Yamaha's curriculum, continue to face difficulties in fundamental vocal skills, including pitch inaccuracy, improper breathing techniques, offbeat singing, unclear diction, and incorrect posture, all of which hinder their ability to meet course objectives. Current teaching methods, which heavily rely on textbooks and imitation-based learning, fail to effectively address individual needs. To bridge this gap, this study aims to develop and evaluate the effectiveness of basic vocal training exercises that enhance students' core singing abilities. The program consists of five key exercises: Breathing and Breath Control to improve airflow regulation for sustained singing, Correct Pronunciation to enhance diction and articulation clarity, Listening and Singing on Pitch to develop pitch accuracy and ear training, Voice Range Development to expand vocal flexibility and range, and Expressing Emotions Through Singing to strengthen emotional expression and musical interpretation. These exercises help students gain better vocal control, build confidence in performance, and improve overall singing proficiency, while also fostering long-term vocal development. The basic vocal training exercises developed in this study will serve as a valuable resource for both vocal instructors and students, providing a structured and systematic approach to fundamental vocal training, applicable in both formal instruction and independent practice.

RESEARCH OBJECTIVES

To evaluate the efficiency of basic vocal training exercises for students at Yamaha Music School in Mahasarakham, Thailand.

LITERATURE REVIEW

Concepts and Theories Related to Singing

Wongchaiyaratnakul (2011) identified singing as a fundamental musical skill for two key reasons. First, singing serves as the foundation for learning various musical concepts, as most musical experiences integrate singing into the learning process. Second, singing enables children to explore and utilize their voices as instruments for musical expression. Music instructors should design singing experiences with clear principles and teaching objectives, ensuring that students simultaneously develop their singing abilities and gain broader musical experiences. This approach allows students to understand singing more deeply while cultivating a lasting appreciation for music.

Khachaprasert (2014) analyzed the unique characteristics of human voices, explaining that tone, pitch, and quality vary from person to person, producing sounds that range from high and sharp to low and deep. Body size, vocal cord structure, and vocal fold length influence these differences, making it essential to develop techniques that promote natural vocal production when singing the same piece of music.

Flossy (2017) emphasized the importance of breathing in singing, asserting that proper breathing techniques are essential for producing beautiful and high-quality vocal performances, regardless of the genre—whether general singing, choir, Thai music, opera, or musical theater.

In summary, human voices differ based on physiological factors, which directly impact singing ability. As a result, applying natural vocal techniques is crucial. Singing plays a foundational role in musical learning, allowing students to express themselves through their voices. Effective singing instruction requires structured principles and well-defined objectives, helping students develop both their vocal skills and a deeper understanding of music. Among all elements of singing, breathing remains the most essential technique, serving as the foundation for all forms of vocal performance.

Concepts and Theories on Vocal Teaching

Wongchaiyatharnakul (2011) outlined music teaching principles in Music in the Educational System, explaining that the process of teaching music mirrors language learning, consisting of listening, speaking, reading, and writing. Listening and reading serve as foundational skills in music education, as they directly involve listening to music and reading notation. Speaking and writing, in a musical sense, correspond to singing and composing music, covering all essential aspects of musical skills. The learning process begins with listening as the foundation, followed by responding to music through singing, performing, or movement (speaking). Once students develop a basic understanding, they progress to reading music notation (reading) and finally to writing music and composing their own pieces (writing).

Wonganuttharoch (2003) emphasized that teaching practical skills requires careful planning and a step-by-step methodology, allowing students to analyze and distinguish different skills effectively. Teachers must demonstrate and explain each component, ensuring that students comprehend and apply these skills efficiently. This structured approach makes the teaching of practical skills adaptable across different disciplines.

Hallam (2006) highlighted the importance of practice in developing musical proficiency. Effective musical practice extends beyond technical skill development and should incorporate musical interpretation, memorization, collaboration with other musicians, improvisation, and adaptability to stage conditions. These factors involve listening skills, technical proficiency, perception, communication, performance execution, and ongoing learning. Achieving musical excellence requires more than repetitive practice; instead,

musicians must engage in diverse and purposeful training to refine their skills holistically.

In summary, music teaching principles follow a structured learning process similar to language acquisition, emphasizing listening, speaking, reading, and writing. Listening and reading notation are critical for understanding and interpreting music, while singing and composing contribute to musical creativity. A well-designed approach to teaching practical skills ensures that students develop essential techniques that can be applied to broader musical contexts. Additionally, effective musical practice must incorporate interpretation, collaboration, and adaptability, leading to well-rounded proficiency in vocal performance.

Development of Singing Skill Training

Srisa-ard (2013) outlined the principles and steps for developing achievement tests to assess learning outcomes. The process begins with clearly defining the test's objectives and specifying its purpose and content in detail, covering both major and minor topics. Educators should then create a content analysis table that aligns the test content with its goals, prioritizing the importance, weight, and difficulty level of each topic. Selecting an appropriate test format, whether multiple-choice or essay-based, ensures alignment with learning objectives. Teachers and experts should review the test for quality, and piloting the test in real settings allows for evaluation of item discrimination, difficulty, and content coherence before finalization.

Jujaroen (2017) emphasized that effective training sets must relate to previously learned lessons and match students' age and abilities. Instructions should be short, concise, and easy to understand to help learners complete tasks accurately and efficiently. Training sets should also be timed appropriately—neither too long nor too short—while maintaining engagement and a level of challenge that encourages learners to demonstrate their abilities.

Thorndike (1972) introduced the "Law of Exercise," stating that repeated practice enhances proficiency and performance, while a lack of practice leads to a decline in abilities. This principle applies to language skill development, where continuous practice improves fluency, creativity, and effective outcomes.

Suthajit (2001) examined musical skill assessment, emphasizing its close relationship to performance evaluation. Musical skills can be assessed through solo or group performances, though solo assessments are often preferred as they allow for individualized evaluation. However, assessing solo performances requires significant time allocation, making careful curriculum planning essential to ensure adequate assessment time.

In summary, skill development and assessment must include clearly defined objectives, content analysis, and appropriately structured test formats that align with learning goals. Educators should review test quality before implementation. Effective training sets should connect with prior knowledge, be age-appropriate, concise, well-timed, and sufficiently challenging. Frequent practice strengthens skills, while a lack of practice leads to skill deterioration. Additionally, musical skill assessment should account for both solo and group performances, with individual evaluations requiring careful time management in curriculum planning.

The Efficiency of Skill Training Modules

Ruenrom (2021) analyzed the efficiency of skill training modules, emphasizing that validity refers to a test's ability to accurately measure and cover the intended content and behaviors. Researchers classify validity into four primary types: (1) Content validity, (2) Construct validity, (3) Criterion-related validity, and (4) Predictive validity. Achievement tests primarily rely on content validity to ensure that the test effectively measures all aspects of the targeted content. Additionally, the Effectiveness Index (E1/E2) quantifies learning progress, comparing students' existing knowledge base before and after engaging in supplementary skill training exercises, particularly in mathematics.

Kalong (2016) explained that various methods exist for assessing the efficiency of skill training modules, with one of the most widely used approaches relying on predefined standard criteria such as 75/75, 80/80, or 90/90, depending on the instructional media and subject matter.

Chalermsri (2012) highlighted that determining the effectiveness of activity-based training modules requires a systematic quality evaluation to confirm that the modules contribute to achieving the intended learning objectives.

In summary, evaluating the efficiency of skill training modules involves assessing test validity to ensure that it accurately measures the intended content and behaviors, using four key validity types. Content validity plays a critical role in achievement tests. The Effectiveness Index (E1/E2) measures learning progress following supplementary training exercises. Additionally, training module effectiveness is often assessed based on predefined standard criteria—such as 75/75, 80/80, or 90/90—which vary according to the instructional media and subject matter.

METHOD

This research follows a quantitative approach, focusing on collecting and analyzing numerical data to measure the efficiency of basic vocal training exercises. We assessed efficiency by using quantitative measurements such as $E1/E^2$, which compare learning outcomes before and after engaging in the exercises. The efficiency calculation aligns with quantitative research principles, which rely on numerical analysis to produce clear and objective results. This study utilizes statistical data and hypothesis testing, applying specific criteria and standards to evaluate outcomes systematically. The research methodology includes the following steps:

Population and Sample

The population consisted of 41 individuals who registered for the vocal course at Yamaha Music School, Mahasarakham, Thailand. The sample group comprised 10 students, selected using Purposive Sampling, focusing on those who enrolled

in the vocal course at Yamaha Music School, Mahasarakham and had not yet passed the Grade 10 proficiency exam under the Yamaha vocal curriculum.

Tools for Data Collection

The tools used in this research include:

Basic vocal training exercises

The basic vocal training exercises focus on developing essential singing skills, structured into five key practice modules:

1. Singing Skill Practice 1 – Breathing and Breath Control: Covers diaphragmatic breathing techniques, breath control for continuity and stability, practicing breath regulation with counted beats, and evaluating breathing efficiency.
2. Singing Skill Practice 2 – Correct Pronunciation: Focuses on clear enunciation of vowels and consonants, proper mouth, tongue, and throat positioning, diction practice through song lyrics, and an evaluation of pronunciation accuracy.
3. Singing Skill Practice 3 – Listening and Singing on Pitch: Emphasizes note recognition, pitch accuracy, key recognition, and rhythm precision. Includes melody imitation exercises to strengthen listening skills, followed by an evaluation of pitch accuracy.
4. Singing Skill Practice 4 – Voice Range Development: Provides techniques for singing high and low notes effectively, focusing on chest voice, head voice, falsetto, and mixed voice exercises, with an evaluation of voice range improvement.
5. Singing Skill Practice 5 – Expressing Emotions through Singing: Highlights emotional interpretation in singing, lyrical analysis, and communicating emotions through rhythm and voice. Includes facial expression and gesture exercises to enhance stage presence, followed by an evaluation of emotional expression in singing.

Basic vocal knowledge test

This test consists of multiple-choice questions assessing cognitive, affective, and psychomotor domains related to vocal training.

Basic vocal skills evaluation

A rating scale is used to evaluate students' basic vocal skills, assessing their proficiency in various vocal techniques and performance aspects.

Content consistency evaluation of basic vocal training exercises

The Index of Item-Objective Congruence (IOC) is used to assess the alignment of the training exercises with the intended learning objectives for students at Yamaha Music School, Mahasarakham.

Content consistency evaluation of the basic vocal knowledge test

The IOC method evaluates the validity and consistency of the Basic Vocal Knowledge Test, ensuring that the test accurately measures the intended learning outcomes.

Content consistency evaluation of the basic vocal skills evaluation

The IOC method is also applied to assess the Basic Vocal Skills Evaluation, verifying that the rating scale aligns with the learning objectives and skill assessment criteria.

Data Collection

The data collection process in this research followed a systematic approach to ensure accuracy and reliability in evaluating the effectiveness of Basic Vocal Training Exercises. The researcher carried out the following steps:

Pre-test administration

Before implementing the training exercises, the researcher administered a pre-test to evaluate students' initial knowledge and singing performance skills. The pre-test included two key components:

Basic Singing Knowledge Test – Assessed students' theoretical understanding of fundamental vocal techniques.

Singing Skill Performance Assessment – Measured students' practical singing abilities before engaging in the training exercises.

Implementation of the basic vocal training exercises

During the instructional phase, the researcher introduced and implemented the structured vocal training exercises based on pedagogical principles for vocal development. This phase focused on systematic training in essential singing techniques, including breath control, vocal warm-ups, pitch accuracy, tone production, and articulation. The exercises were progressively structured to enhance students' vocal abilities, integrating guided practice and instructor feedback for effective learning.

Post-test administration

After completing the 5-week training program, with 2-hour sessions per week, the researcher conducted a post-test using the same assessment instruments as the pre-test to ensure consistency in measuring students' learning progress. The researcher systematically recorded the scores from both the pre-test and post-test for further analysis.

Data analysis

The collected data were analyzed using descriptive statistical methods to determine the effectiveness of the training exercises. The statistical measures used in this research included:

Mean (M): Calculated the average performance scores of students before and after the training.

Standard Deviation (SD): Measured the dispersion and variability of students' scores.

Statistics Used in Data Analysis

The statistics used in this research are as follows:

Content validity analysis

To ensure the accuracy and appropriateness of the content in the basic vocal training exercises, experts assessed the Index of Item-Objective Congruence (IOC) based on the method developed by Rovinelli and Hambleton (1977), evaluating the alignment between the training content and the intended learning objectives.

$$IOC = \frac{\sum R}{N}$$

where R represents the scores given by experts (+1 for agreement, 0 for uncertainty, and -1 for disagreement), and N is the total number of experts. A high IOC value (IOC ≥ 0.67) indicates that the content is relevant and well-structured for achieving the desired learning outcomes, while lower values suggest the need for content revision and refinement.

Efficiency evaluation (E1/E2)

The efficiency of the Basic Vocal Training Exercises was evaluated using the E1/E2 efficiency index, a widely recognized method in educational research for assessing the impact of instructional innovations. Based on the approach of Waltz and Bausell (1981), this method evaluates both the learning process and student achievement. The formula for calculating the E1/E2 efficiency index is as follows:

$$E_1 = \left[\frac{\frac{\sum x}{N}}{A} \right] \times 100$$

$$E_2 = \left[\frac{\frac{\sum F}{N}}{B} \right] \times 100$$

Where E_1 represents the efficiency of the learning process, and E_2 represents the efficiency of the Basic Vocal Training Exercises. $\sum x$ denotes the total score of students from formative assessments conducted during the learning process, while $\sum F$ represents the total score of all students after completing the training. N is the total number of students, A indicates the maximum possible score of the training exercises, and B denotes the maximum possible score of the post-training assessment. A higher E_1/E_2 value, typically meeting or exceeding the 80/80 benchmark, indicates that the exercises effectively enhance students' vocal skills and learning progression, whereas lower values suggest the need for further refinement of the training exercises.

RESULTS AND DISCUSSION

This research analyzes the efficiency of basic vocal training exercises for students at Yamaha Music School in Mahasarakham, Thailand. The objective is to develop and evaluate these exercises to ensure they meet the 80/80 standard criteria. The researcher presents the data analysis results as follows:

Analysis Results

The analysis of vocal training exercise effectiveness for students in the vocal course at Yamaha Music School, Mahasarakham followed two steps, with the results detailed below:

Content validity analysis

Expert reviewers evaluated whether the components and content of the fundamental vocal training exercises aligned with the subject matter. The analysis determined a content validity index (IOC) of 0.95 with SD = 0.01, confirming the consistency of the exercises.

Experimental implementation

We tested the exercises on a sample group of 10 students. Scores were collected during the course, and both theoretical and practical assessments were conducted after training. The results of this analysis are presented below.

Table 1 illustrates that the basic vocal training exercises conducted during the course (E1) for vocal students at Yamaha Music School, Mahasarakham achieved an efficiency score of 80.5%. This result exceeded the standard criterion of 80%, confirming that the in-class training exercises effectively enhanced students' vocal skills and were well-suited for vocal development.

Table 2 illustrates that the post-training basic vocal knowledge assessment yielded an average score of 41.9, equivalent to 86.3%. This result confirms that all students met the required criteria, demonstrating that the exercises effectively enhanced fundamental vocal knowledge.

Table 3 illustrates that the post-training practical vocal skills assessment recorded an average score of 43, equivalent to 84%. This result confirms that all students successfully met the required standards, indicating that the exercises were highly effective in enhancing basic vocal performance skills.

Table 4 illustrates that the overall efficiency of the basic vocal training exercises for vocal students at Yamaha Music School, Mahasarakham, was evaluated using the E1/E2 criterion, which measures both the learning process and learning outcomes. The analysis produced an efficiency value of 80.5/84.9, surpassing the standard benchmark of 80/80. This result confirms that the training exercises were highly effective in enhancing students' vocal skills.

Table 1. Efficiency analysis of in-class training exercises (E1)

Student No.	Exercise 1	Exercise 2	Exercise 3	Exercise 4	Exercise 5
1	15	15	15	15	15
2	15	15	10	15	20
3	20	20	15	15	15
4	15	15	10	20	15
5	15	20	20	15	15
6	15	15	15	20	20
7	10	20	20	15	15
8	15	15	20	15	15
9	20	15	15	20	15
10	15	20	15	15	15
Total	155	170	155	165	160
M	15.5	17	15.5	16.5	16
Grand.	16.1				
M.	0.65				
Percentage	80.5				

Table 2. Efficiency analysis of post-training knowledge assessment (E2)

Student No.	Score obtained (Full score: 50)	Percentage	Evaluation
1	40	80	Pass
2	41	82	Pass
3	43	86	Pass
4	42	84	Pass
5	43	86	Pass
6	43	86	Pass
7	41	82	Pass
8	40	80	Pass
9	44	88	Pass
10	42	84	Pass
Total	419		
M	41.9		
SD	1.37		
Percentage	83.8		

Table 3. Efficiency analysis of post-training practical skills assessment (E2)

Student No.	Score obtained (Full score: 50)	Percentage	Evaluation
1	40	80	Pass
2	40	80	Pass
3	50	100	Pass
4	40	80	Pass
5	50	100	Pass
6	40	80	Pass
7	40	80	Pass
8	50	100	Pass
9	40	80	Pass
10	40	80	Pass
Total	430		
Average	43		
SD	4.83		
Percentage	86		

Discussion

The findings of this study provide strong evidence supporting the effectiveness of the Basic Vocal Training Exercises in enhancing students' singing skills. The results align with the study's objectives, confirming the validity and efficiency of the training exercises. The key findings are discussed as follows:

Content validity of the basic vocal training exercises

The content validity assessment ensured that the training exercises were well-structured and aligned with fundamental vocal training principles. The Index of Item-Objective Congruence (IOC) yielded a value of 0.95, indicating a high degree of alignment between the training content and the intended learning objectives. Additionally, the standard deviation (SD) of 0.01 suggests minimal variability, further reinforcing the appropriateness of the content structure. These results confirm that the exercises were effectively designed and correspond well with the fundamental requirements for vocal skill development. This finding aligns with Chaiarwut et al. (2025), who employed the IOC method to validate the accuracy of a constructivist digital mathematics learning model designed to enhance executive problem-solving skills. Their analysis yielded an average IOC score of 0.84, demonstrating a high level of consistency between the learning design approach and the theoretical principles underlying the platform's development. The application of the IOC method in this study ensures that technology-driven learning environments can effectively support the development of

Table 4. Overall efficiency of the basic vocal training exercises (E1/E2)

Assessment Phase	Full Score	N	Mean	SD	Percentage	Efficiency (E1/E2)
During Learning						
Exercise 1	20	10	15.5	2.83	77.5	
Exercise 2	20	10	17	2.58	85	
Exercise 3	20	10	15.5	3.68	81.25	
Exercise 4	20	10	18.5	2.41	77.5	
Exercise 5	20	10	16	2.41	82.5	80.5/84.9
Total During Learning	100	10	16.1	0.65	80.5	
Post-Learning						
Theoretical Exam	50	10	41.9	2.32	86.3	
Vocal Skills Exam	50	10	43	4.1	84	
Total Post-Learning	100	10	42.45	0.77	84.9	

students' conceptual understanding and executive cognitive functions with a high degree of reliability and pedagogical soundness.

Efficiency of the basic vocal training exercises (e1) through in-class assessments

The effectiveness of the exercises was evaluated through in-class assessments, where students participated in practical singing exercises and skill evaluations throughout the training period. The analysis showed that students achieved an average score of 80.5%, surpassing the predefined threshold of 80%. This suggests that the training exercises effectively facilitated the development of essential vocal techniques, including breath control, pitch accuracy, vocal projection, and articulation. The results indicate that the structured nature of the exercises contributed to progressive learning and skill acquisition.

Efficiency of vocal skill development (e^2) through post-learning knowledge and skill assessment

To measure the long-term effectiveness of the training exercises, post-learning assessments were conducted using both theoretical and practical evaluations. The results demonstrated that all students met the required performance criteria, achieving an average score of 84.9%, significantly higher than the standard benchmark. This finding highlights the high efficiency of the exercises in reinforcing and sustaining students' vocal skills over time. The increase in scores from E1 (80.5%) to E_2 (84.9%) further indicates that students were able to internalize and apply the vocal techniques acquired during training.

Overall efficiency of the basic vocal training exercises

This study demonstrates that the Basic Vocal Training Exercises significantly contribute to the development of Vocal Literacy among students at Yamaha Music School, Mahasarakham. The five exercises—Breathing and Breath Control, Correct Pronunciation, Listening and Singing on Pitch, Voice Range Development, and Expressing Emotions Through Singing—were well received, with students reporting improvements in technical proficiency, musical expressiveness, and vocal confidence. However, some challenges were noted, particularly in breath control, pitch accuracy, and emotional expression, which required focused practice. The structured assessment confirmed that these exercises effectively addressed key aspects of vocal development, aligning with the core principles of Vocal Literacy, which emphasize both technical mastery and artistic expressiveness in singing. This finding is consistent with Julia et al. (2019), who developed an action research-based approach to transform primary school teachers' singing instruction methods in Indonesia. Their six-step framework replaced traditional oral instruction, which often lacked pitch accuracy and tempo stability, with modern teaching techniques that incorporated technology and structured vocal training. Key skills emphasized in their study included pitch matching, tempo control, articulation, and expressiveness, all of which led to significant improvements in students' singing abilities. Teachers also demonstrated increased confidence in their instruction, recognizing the impact of accurate vocal modeling on students' development. The effectiveness of this revised methodology was further validated through student performances, highlighting substantial progress and reinforcing the importance of Vocal Literacy in foundational music education.

Similarly, the study aligns with Manternach & Manternach (2019), who analyzed the most beneficial components of a university-level singing curriculum for acting majors. Their research identified three primary areas of instruction: (1) learning and performing songs, (2) music theory and sight reading, and (3) vocal pedagogy, including anatomy and technique. While students initially perceived song performance as the most useful component (44.1%), long-term reflections revealed that vocal pedagogy held the greatest value (40.7%), as it provided them with essential knowledge for improving vocal quality and technique independently. The curriculum also incorporated solfège training, sight singing, and a variety of musical genres, enabling students to develop versatility in their vocal abilities. These findings emphasize that structured vocal training, which balances technical skill development with theoretical understanding,

plays a crucial role in enhancing Vocal Literacy and preparing students for professional singing and acting careers.

The application of the E1/E2 efficiency index to evaluate the effectiveness of the Basic Vocal Training Exercises yielded strong results of 80.5/84.9, surpassing the expected benchmark of 80/80. These findings indicate that the exercises were not only efficient in enhancing students' vocal proficiency but also contributed to broader skill development as defined by Vocal Literacy. The structured training approach, which integrated key aspects such as breath control, vocal range development, and pitch accuracy, played a pivotal role in improving students' technical abilities. This aligns with Arsyad (2024), who emphasized that assessing the effectiveness of learning media, particularly visual aids, enhances students' ability to grasp complex concepts and retain information over time. Similarly, Laureti (2014) highlighted the necessity of evaluating teaching efficiency at all educational levels to ensure that instructional methods lead to meaningful learning outcomes. The present study affirms that well-designed vocal training exercises, guided by educational efficiency principles, can significantly enhance students' singing skills and long-term vocal development.

Furthermore, the study highlights that the training exercises not only enhance students' immediate vocal skills but also foster sustained improvements in singing performance. The high E1/E2 efficiency scores suggest that the program provides a sustainable foundation for continuous vocal skill development, a critical component of Vocal Literacy, which requires both short-term proficiency and long-term skill retention. The success of these exercises underscores their potential as an effective tool for vocal training in music education, enabling students to develop both technical mastery and expressive capabilities. Given their positive impact at Yamaha Music School, these findings hold significant implications for broader applications in music curricula, where structured vocal training could serve as a fundamental resource for developing skilled, expressive, and versatile vocalists.

CONCLUSION

This research study evaluates the effectiveness of Basic Vocal Training Exercises for students enrolled in the vocal course at Yamaha Music School, Mahasarakham. The content validity assessment confirms that the exercises are well-structured, pedagogically appropriate, and aligned with established educational standards, yielding an Index of Item-Objective Congruence (IOC) value of 0.95 and a Standard Deviation (SD) of 0.01. These results demonstrate that the exercises effectively develop fundamental vocal skills, reinforcing their relevance in structured music education.

The E1/E2 efficiency index evaluation further confirms the exercises' effectiveness, with an average overall efficiency score of 80.5/84.9, exceeding the standard benchmark of 80/80. The exercises enhance students' vocal proficiency beyond expected performance thresholds, particularly in pitch accuracy, breath control, vocal range development, and expressive interpretation. The high E1 and E2 scores validate the exercises' role in fostering sustainable skill development, aligning with Vocal Literacy principles, which emphasize both immediate proficiency and long-term vocal growth.

Beyond individual student improvement, this study highlights broader applications for music education. The structured vocal training approach can be adapted and implemented in music-related programs, conservatories, and performance training academies. Educators can integrate these exercises into existing vocal curricula, providing students with a comprehensive, progressive, and pedagogically sound framework for vocal development. Future research can further refine the training exercises and assess their effectiveness across different skill levels to ensure continuous improvements in vocal education. Ultimately, this study reinforces the critical role of systematic and structured vocal training in enhancing music education, equipping students with essential skills for both academic success and professional careers in vocal performance.

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