THE EFFECTS OF SONG SINGING PATTERNS ON THE VOCAL SINGING ACHIEVEMENT AMONG PRIMARY LEVEL STUDENTS

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THE EFFECTS OF SONG SINGING PATTERNS ON THE VOCAL SINGING ACHIEVEMENT AMONG PRIMARY LEVEL STUDENTS

ABSTRACT

The purpose of this study is to investigate the effects of song singing patterns on the vocal achievement skills of Year 3 and Year 4 students in the primary level of music education. The participants for this study comprised of 60 students (n=60) from Year 3 and Year 4 primary levels for this study. Some students have been subjected to prior singing lessons but do not possess a systemised training in interval recognition, expression and stylistic singing and vocal singing techniques. This study employed a control group design compared to treatment group in a pre-test and post-test exercise to measure the vocal achievement skills of young children by investigating the effectiveness of using intervallic singing exercises versus song singing exercises through *The Sound of Music* excerpts of songs. The treatment administered was 20-minute sessions per week for the duration of eight weeks with the inclusion of additional pre-test and post-tests the week before and after the treatment period. Data was collected and subjected to the critieria of four tests, Intervallic Singing Test (IST), Expression and Stylistic Singing Test (ESST), Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT). Results showed that children taught through the song singing patterns method performed the songs with significant achievement than did those taught through the intervallic singing process.

Keywords: vocal singing achievement, intervallic singing, song singing patterns, singing tonality, expression, vocal singing techniques.

KESAN PENGGUNAAN KAEDAH CORAK LAGU PADA PENCAPAIAN VOKAL PELAJAR DI PERINGKAT RENDAH PENDIDIKAN MUZIK

ABSTRAK

Tujuan kajian adalah untuk mengkaji kesan corak lagu nyanyian pada pencapaian vokal pelajar Tahun 3 dan Tahun 4 di peringkat rendah pendidikan muzik. Peserta kajian ini terdiri daripada 60 pelajar (n = 60) dari pelajar kelas Tahun 3 dan Tahun 4 tahun untuk eksperimen ini. Sesetengah pelajar telah menjalani pelajaran menyanyi sebelum ini tetapi tidak mempunyai latihan yang sistematik dalam pengiktirafan interval, ekspresi dan nyanyian gaya dan teknik nyanyian vokal. Kajian ini menggunakan reka bentuk kumpulan kawalan berbanding kumpulan rawatan dalam pra-ujian dan ujian pasca untuk mengukur kemahiran pencapaian vokal anak-anak muda dengan menyiasat keberkesanan menggunakan latihan nyanyian 'intervallic' dan latihan nyanyian lagu menerusi petikan corak lagu dari filem 'The Sound of Music'. Rawatan yang diberikan adalah sesi 20 minit seminggu untuk tempoh lapan minggu dengan kemasukan pra-ujian dan ujian pasca tambahan setiap minggu sebelum dan selepas tempoh rawatan. Data dikumpulkan dan tertakluk kepada skala empat ujian, Ujian Nyanyian Intervallic (IST), Ujian Nyanyian Nyata dan Gaya (ESST), Ujian Nyanyian dengan Tonal (STT) dan Ujian Nyanyian Teknik Vokal (VSTT). Keputusan menunjukkan bahawa kanak-kanak yang diajar melalui kaedah corak lagu menyanyikan lagu-lagu dengan pencapaian yang signifikan daripada yang diajar melalui proses nyanyian 'intervallic'.

Kata kunci: pencapaian nyanyian vokal, corak nyanyian interval, corak nyanyian lagu, tonal menyanyi, ekspresi, teknik nyanyian vokal.

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CHAPTER 1

INTRODUCTION

1.1 Background

Learning performing arts such as music, dance, theatre and art ignites creativity in the music curriculum motivating young children to be disciplined, intrigued and purposefully driven. Music education at primary levels contain extensive modules and pedagogies structured to address a child's accuracy of musical achievement and ability especially in pitch shown through singing and musical instrument skills, a common objective for music educators (Reifinger, 2013). Children are exposed to components of listening, performing and analyzing music from a young age giving assistance to their physical and cognitive development. As singing takes up the major part of the primary music curriculum while dance movements, instrument skills and music theory are the minor components, the approaches to teaching are set to guide children in building a strong musical foundation that will develop skills in all areas of the curriculum.

The entrance of informal music education came into Malaya in the early 1800s through the English-medium schools. Music was incorporated as an educational tool in other subjects such as English and Mathematics as well as activities such as marching bands and singing. In 1983, music was then formally introduced as a compulsory subject in the primary music education system and later on in secondary schools in 1996 with two 30-minute periods a week in the timetable when the Ministry of Education realised music as an essential part of a child's physical and cognitive development. Over time, alterations were made for music lessons to be eventually part of the arts department with only one 30-minute period a week. As a result with the restriction of time, music educators have faced difficulties in the teaching and learning of music which has caused a major drop of the intake in tertiary music education. In a recent interview with Mustafa (2018,

para 21), Dr. Ramona Mohd. Tahir said that the reduction of time spent in teaching music has caused obstruction in achieving the objectives of the Primary School Music Education Curriculum. A few researchers in the music education field in Malaysia have expressed dissatisfaction on the lack of awareness and importance of music learning in school curriculums and the inadequacy of training and experience of music educators due to the insufficient exposure to the subject (Mustafa, 2018, para 14). Since the primary music curriculum is catered on singing, most schools engage general music teachers who may or may not have a specialised music education background. According to a report that was published in 2000, 54.5% of music teachers in primary music education had no prior musical education or background. Music teachers who could not sing in correct pitch had a percentage of 29.4%, whereas only 25.1% were able to play a musical instrument (Augustine, 2004, para 4).

Private and international schools in Malaysia have generally utilized a compilation of the National music curriculum and international syllabus that includes the National UK Music curriculum and Cambridge Primary and Lower Secondary Music programmes depending on which curriculums that have been adopted by the schools themselves. The important components of the music programmes for primary music education include singing, dance movement and composition. Since singing takes up majority of the primary music curriculum and with restricted musical learning time, introducing familiar songs from cultural backgrounds, well known movies and musicals have been a common way to learn songs, transmit cultural heritage and public knowledge among general primary music teachers. Some notable folklore classics for children include *Rasa Sayang, Bangun Pagi Gosok Gigi* and *Burung Kakak Tua*, making it enjoyable to remember the words and sing the melody. Other songs include songs from musicals such as *My Favourite Things*, *Doe a deer*, and *So long, farewell* from the golden age musical 'The Sound of Music', written by a prominent composer-lyricist duo, Richard

Rodgers and Oscar Hammerstein II, *Tomorrow* from 'Annie' and *Food, Glorious Food* in the story of 'Oliver'. These song excerpts have memorable melodies that have lasted for decades and have been used in the learning of songs among children in the music programmes offered by the private and international schools. Music education researchers have been constantly conducting studies and experiments on pedagogies and teaching methods to enhance the vocal singing performance of a child in their song proficiency and song acquisition. For a successful singing engagement of a primary school child, in-tune singing is necessary using rubrics and scales (Nichols, 2016).

Children should feel at ease in singing activities, whether as a school performance or at playtime and continue this skill enjoyably even into adulthood. Children may choose to sing songs using lyrics, syllables or nonsense words that they find exciting and easy to adapt. Since songs are made up of tunes and lyrics, the attachment of words to melodies, one would deliberate the relationship between music and language in children's minds and how tunes and lyrics influence the methodology of how children learn songs. Chen-Hafteck (1999a) found that Cantonese-speaking children had the greater ability to recall melody first compared to the text whereas it was the other way round for English-speaking children due to the language comprehension. In some instances, children may prefer to use lyrics to recall the songs they have learnt because words may captivate the children in their experience of singing songs. The extent as to how melodies and words interconnect in the learning of songs within the minds of children has been examined in recent studies. Text-melody relationship in songs have been found to be significant in the learning process of singing for a child as they would need to acquire both words and melodies and therefore should not be disregarded (Chen-Hafteck, 1999b).

Recent research has indicated that accurate pitch singing is a requisite for a successful musical participation among children. It is important to note that the singing tasks assigned to the children affect their ability to sing accurately, may it be in solo

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singing or when singing with support (Nichols, 2016). In his analyses, Nichols found that the fourth graders performance excelled in single pitch and interval tasks than on patterns or singing a song from memory. A group of researchers conducted a study on the effects of pattern recognition on sight-singing ability and found that although the result showed significant improvement, even though participants had prior learning of choral work, this task did not give much effect to sight-singing abilities (Fine, Berry & Rosner, 2006). Previous studies have observed that children have learnt melodies successfully through rote-singing instruction, using both diatonic and pentatonic melodic contours (Jarjisian, 1983). Music educators have long justified reasons as to how some children match pitches easily while others find it challenging to match and coordinate their voices to what they hear (Rutkowski & Barnes, 2000). These systemised training in song patterns have shown significant results in pitch accuracy but have been inconsistent in terms on the usage of words to patterns extracted from songs. When children have the unwillingness or the lack of ability to sing a song, they often perform the piece inaccurately with just the lyrics and lacking the pitch accuracy in the melody (White, Sergeant, & Welch, 1996).

The capability of showing appreciation and expressing in music contributes to the ability of distinguishing pitch differences which is considered one of the fundamentals in learning and producing quality musical performances. This issue unfortunately creates individuals of students who may end up being shy singers or despise singing lessons altogether. Music teachers have the numerous task to assess and encourage individual student's singing development because it has proven to play a part in the future musical participation of the child (Clements, 2002). Some research results have proven to show that children may prefer to recall the words rather than notes because it may have attracted their attention greatly. In a research by Goetze (1986), the result found that third graders could manage lyrics and melodies better than younger children who seemed to produce more accuracy in melodic contours rather than song singing patterns. In another study,

Reifinger (2012) found a greater accuracy in melodic contours sung by the children when they related familiar tonal patterns to familiar songs. Several variables have become apparent to a successful achievement of a vocal performance. Singing melodies in accurate intervals appears as a strong predictor of vocal achievement in terms of performance and participation of children. The overall expression and style seem to matter to music educators in terms of producing a successful performance.

From the discussion above, it is noted that most studies were quantitative, but the findings were ambiguous and inconsistent. The conflicting reports on the application of familiar song patterns are likely due to the disparities in teaching methodologies. Considering the usage of general music teachers in Malaysian schools and the continuing decline of the teaching and learning of music in primary schools (Augustine, 2004), the application of song patterns from extracts of familiar songs could provide different challenges to the vocal singing development of the child due to the investigated variables being diverse, effect of text-melody relationships, the accuracy of pitch in interval-singing and relating tonal patterns to familiar songs in which quantitative analyses were conducted in previous studies. Children perform variably in different singing tasks, especially interval-singing and song patterns. Therefore, music educators would make the allowance for the child's vocal singing development when they have a better understanding in the effects of song singing patterns. Further, music educators can design and utilise better singing patterns knowing the rubrics for the child's vocal singing achievement.

1.2 Statement of the Problem

Music educators and researchers have conducted a large number of researches in vocal singing development about the inability of interval recognition, lack of expression and singing style and vocal pitch inaccuracy. Recent studies have found that the acquisition of accurate pitch in singing comes naturally for some children while for others it can be challenging (Rutkowski & Barnes, 2000). Although with certain attempts of remedial to singing accuracy teaching strategies in which studies have shown vocal pitch accuracy of children have improved through pitch-matching skills, music teachers still face the evaluation of singing development in other components as one of the biggest challenges in music education (Nichols, 2016). The strategy of using song singing patterns requires a different set of cognitive skills which can be demanding for young children and requires a longer period of evaluation and assessment (Demorest, Nichols, & Pfordresher, 2016). Addressing the issues of vocal singing achievement in young children through different uncommon strategies will have benefits and contribute to the singing curriculum of private and international schools in the Klang Valley.

1.3 Purpose of the Study

This study focuses on the vocal achievement through the effects of song singing patterns among primary Year 3 and Year 4 students. The purpose of the research aims: (1) to investigate the effects of practising intervallic patterns versus song singing patterns on vocal singing achievement; (2) to examine how intervallic patterns versus song singing patterns affect expression and stylistic singing; (3) to examine the effect of intervallic singing patterns versus song singing patterns on singing tonality; and (4) to investigate the effect of intervallic singing patterns versus song singing patterns on vocal singing technique.

1.4 Research Questions

The research questions that guided my study are as follows:

1. What are the effects of practising intervallic patterns versus song singing patterns in vocal singing achievement?

2. How do singing intervallic patterns versus song singing patterns affect expression and stylistic singing?

3. What is the effect of intervallic singing patterns versus song singing patterns on singing tonality?

4. What is the effect of intervallic singing patterns versus song singing patterns on vocal singing technique?

1.5 Significance of Study

Singing instruction is a vital component in the music curriculum of elementary school. The acquisition of singing and pitch accuracy among young children is a constant challenge for music educators because some children attain it naturally while others have difficulty in matching their voices to the pitch that is correctable (Rutkowski & Barnes, 2000). It is crucial that music educators motivate students who lack singing skills and experience that may demotivate their participation in future school planned activities (Clements, 2002). Music educators have created a variety of tests to assess children from different grades to demonstrate their accuracy in singing, pitch and rhythm. These tests have yielded varying results of accurate and non-accurate singers (Cooper, 1995; Hedden, 2012; Nichols, 2016, 2017). This study aims to contribute to the improvement of vocal singing achievement among students in the private and international primary schools in the Klang Valley.

1.6 Delimitations of Study

This study delimits the participants for testing from only selected private and international schools in the Klang Valley because national (kebangsaan) schools utilize a different music syllabus. This study also delimits the age of participants to only Year 3 and Year 4 primary students. The participants were selected from these age groups as they appear to be the prime candidates for the study of vocal singing achievement because of its major components in the singing syllabus of the music curriculum.

This study conducted tests using only certain songs from the musical 'The Sound of Music' written by Richard Rodgers and Oscar Hammerstein II. The songs selected for the treatments are based on its melodic contours and intervals that are appropriate for the testing of the study components comprising of intervallic singing, expression and stylistic singing, singing tonality and vocal singing techniques.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Vocal Performance

The singing performance and capacity of a child is one of the most important elements in the primary music curriculum. The ability of the child to stand in front of an audience, produce skillful and accurate melodic patterns along with other skills of singing tonality and expression are crucial for the child to experience and learn for a successful singing performance. Children most often can perform a vocal melodic pattern within the appropriate range (Hedden, 2012). The criteria of the vocal performance of a child have been in constant research among music educators and various factors have been taken into account to understand how to produce a successful vocal singing performance of a child. In her study, Hedden (2012) discusses these internal and external variables with pedagogical considerations in singing lessons for children focused on pre-K to sixth grade levels of primary music education. In the research, the internal factors discovered in the development of children's singing include specific vocal range according to the age of the child because young children are able to produce a successful singing performance with accurate pitch in melody and good melodic contour within a limited range while the external variables focuses on solo versus group singing style, the use of text on melodies, accompaniment and echo singing. She argues the use of text on melodies may generate a set of challenges in matching pitches.

Studies on children's singing performance usually focuses on examining small facets in the variability of tasks in singing accuracy, pitch recognition and pitch-matching skills using tonal patterns (Demorest, Nichols & Pfordresher, 2017; Nichols, 2015, 2016; Neokleous, 2015; Reifinger, 2009, 2012; Mizener, 2008; Flowers & Dunne-Sousa, 1988), pitch production and pitch matching skills (Reifinger, 2013; D. Pederson & N. Pederson,

1970), singing skills of the child which include music participation levels and sight-singing abilities (Demorest, Kelley & Pfordresher, 2017; Hedden, 2012; Fine, Berry & Rosner, 2006). Children respond to singing accuracy through various assessments that include interval singing and song singing tasks that exclusively focuses on the discriminating pitches (Nichols & Wang, 2016).

A number of research works have been done to examine these variables for the vocal singing development of a child (Pederson & Pederson, 1970; Rukowski, 1996; Trollinger, 2007; Skelton, 2007; Larrouy-Maestri & Morsomme, 2014; Demorest, Kelley & Pfordresher, 2017; Nichols, 2019). An adequate vocal singing performance derives from the development of the acquisition of singing accuracy, precise deliverance of rhythmic patterns and the appropriate vocal range for categories of different age groups among children. There have been studies carried out to examine the vocal performance of a child combining rhythm and pitch matching abilities but the rhythm variable is not being examined in the study of vocal singing achievement (Mizener, 2008; Salvador, 2010; Hedden, 2012; Demorest, Nichols & Pfordresher, 2017).

Each research conducted comprises of its own set of testing and variables to be examined and it will be a challenge to compare every result obtained to measure the vocal singing achievement of children as a whole. However, only a few researchers have conducted studies on the vocal achievement of a child using the variables of the combination of tuneful melodies and words (Chen-Hafteck, 1999; Illari & Habibi, 2015). Also, there has been examination done on how lyrics and melodies affect emotions in an adult song performance (Ali & Peynircioglu, 2006) and the effects of singing tonality and implementation of expression and style. It is important to note that rating scales using rubrics that are appropriate to the time setting of the study and the assessment of the variables in children's singing achievement are crucial so as to provide reliability in the

assessment and to demonstrate the route for a child's elevated development in vocal singing achievement.

2.1.1 Assessment and Measurement Criteria for Vocal Performance

The development of vocal performance can be conducted through varied tasks that assess the prerequisites of children's singing on the whole. Guerrini (2004) conducted a study to explore the relationship of vocal accuracy, gender and music aptitude among elementary students. The purpose of this study was to get a clearer perception of how fourth and fifth grade students acquired singing ability. The participants *(N=174)* were all fourth and fifth grade students in a suburban middle-class school with an almost evenly distributed gender. The participants were subjected to three separate tasks which were audio taped, namely: (1) patterns from the Singing Voice Development Measure (SVDM); (2) a long-familiar song of 12 measures (America, in the key of F); and (3) a newly-learned unfamiliar song (Path to the Moon, in the key of G) which were also of 12 measures. The SVDM measures the ability of the singer with a five point rating scale of with the first criterion consisting of a 'Presinger' who does not sing but chants the lyrics, to the fifth criterion rating that incorporates a person who is able to produce an extended singing range as a "Singer" (Rutkowski, 1990). The study yielded results of a higher singing accuracy among students with higher music aptitude compared to those with low music aptitude. Although the SVDM rating scale has been frequently reviewed by vocal singing researchers, this scale was designed to achieve a successful singing performance over a period of time and with a matured voice (Salvador, 2010), hence the SVDM was not an appropriate rating scale to measure the criterions of vocal singing achievement in this study.

Another research that was observed in this study was the examination of singing achievement in first-grade children. Results of this research indicated that children with high tonal aptitude test scores demonstrated successful singing accuracy compared with children who had low tonal aptitude test scores (Jarjisian, 1983). In other studies, researchers have found that using song singing patterns have not shown improvement in vocal accuracy whereas pitch-matching skills have been successful (Demorest, Nichols, & Pfordresher, 2017; Welch, Sergeant, & White, 1998). Although in various studies, researchers have utilized interval singing and song singing exercises, in order to obtain precision in singing, the full range of interval singing should be assessed (Nichols & Wang, 2016).

Among the factors of vocal accuracy, music participation and using song singing patterns for a successful vocal performance of a child, the results have been varied, implying that the child's vocal singing performance may be affected by particular conditions. Supplementary criteria for a vocal singing performance include vocal techniques that can be utilized by primary music teachers in the classroom. These incorporate necessary rubrics as the maintenance of consistent tempo and continuous tone quality within the registers throughout a singing exercise (Gordon, 2002, p. 27-29). As a result, the teacher may choose to use more effective methods containing melody and words that may be an element to the achievement of the child's vocal performance.

2.2 Intervallic Singing

A number of studies have been conducted to examine the ability to match pitch in interval singing. The faculty of showing appreciation and expressing in music contributes to the ability of distinguishing pitch differences which is considered one of the fundamentals in learning and producing quality musical performances (Seashore, 1919). Music educators have continued to investigate the issue of pitch matching skills involving the component

of intervallic singing. An interval is the difference in pitch of two notes, with intervallic singing, each individual with the ability to match the pitches develops the skill of singing accurately. For children, a few intervals may come to be a challenge to sing when reading the notes and some not, especially intervals which are smaller. Pederson D. & Pederson N. (1970) argue that a person is able to distinguish pitches not just in one type but rather many types such as single pitches, intervallic pitches and sequential pitches partly because of its correlations. This challenge may seem relatable for an adult with sufficient practice and experience in singing but it may not be the same for a child because of the time and perceptivity of the skill to be acquired for singing achievement.

Fine, Berry and Rosner (2006) conducted a study to examine the singing accuracy and the speed adult participants took to sing the interval singing tasks accurately through sight singing. Although the results indicated a high mean score and with the possibility of participants having prior choral singing experience, they were not able to produce entirely accurate pitches during the duration given for the tasks of sight reading due to modifications on the original melodic and harmonic patterns. The researchers also found that participants performed better and with fewer mistakes when they were exposed to familiar melodic and harmonic patterns. Children must be able to remember the pitch that was heard in order to sing it back (Szabo, 2001). Researchers observed that to reproduce a specific melodic pattern, children would first pick up the lyrics, rhythms and estimate its melodic contour before attempting to sing it again (Davidson, McKernon, & Gardner, 1981). Depending solely on single pitch-matching tasks for children to acquire achievement in a singing performance and for music educators to develop their teaching and learning on the singing curriculum would not be sufficient.

Over the years, teachers have found methods to be employed into pitch-matching lesson objectives. Researchers have conducted different tasks to observe the achievement of interval singing which includes single pitch-matching, imitation of single pitches or

intervals, imitation of short pitch patterns, unfamiliar pitch sequences and singing familiar melodies from memory (Laurrouy-Maestri & Morsomme, 2014). The result of this study showed a correlation between tempo and accuracy of the notes for the participants of the study that comprised of professional and occasional singers, in which if the tempo was slower, the occasional singer participants were able to perform the intervals accurately.

A research was conducted on participants to observe the achievement of vocal singing through the effects of musical experiences (Mang, 2007). Three groups of participants ranging from trained instrumentalists and experienced vocalists who did not have prior formal singing lessons to college students whom never had any formal music education other than in primary and secondary schools. The measurement criterions were using a song performance task that employed a familiar tune and a pitch matching task. The findings of the study observed that the trained instrumentalists showed positive effects on the interval singing task whereas the experienced vocalists had the advantage of performing better in the song performance task due to possibly having prior experience of singing in public performances.

2.2.1 Assessment and Measurement Criteria for Intervallic Singing

Children have the potential to learn how to sing from an early age. Certain children develop singing skills as babies when they are able to produce single syllabic sounds and some children develop this skill in primary school. However, there are children who are unable to acquire singing and pitch-matching skills (Guerrini, 2006). Studies have been constantly conducted to examine the problems faced in pitch matching tasks ranging from music students at kindergarten level right up to adulthood. In recent studies, researchers have discovered that human beings have a natural ability to sing and this skill is not solely reserved for trained professionals (Bella, 2015). If this is the case, with proper instruction

and appropriate training on singing skills using interval singing tasks, children who are deemed unable to develop this skill may be able to do so.

Price (2000) conducted a study on participants who were non music major students from college level to comprehend the factors that affect pitch matching skills. The study employed three types of singers in a classroom that included certain, uncertain and modulating singers. After the participants were subjected to an interval singing task, they were to recall the melodic pattern after which the certain and modulating singers were able sing the patterns accurately and the uncertain singers produced a less in tune pattern. The participants were subjected to only certain intervals (in this case minor thirds) which is limited in the assessment of singing skills, furthermore for children. Moore, Chen and Brotons (2004) carried out a research to examine pitch and interval accuracy through singing and xylophone playing among primary children from four different nationalities. The dependent variables of this study were: (1) singing by echo; (2) playing the xylophone by echo; and (3) singing and playing the xylophone. The results demonstrated that even though most of the participants did not have prior xylophone playing lessons, they produced a better performance in playing the instrument rather than singing. The observation of successful performance in the order the participants performed had no effect. In other words, children responded to interval matching through listening and performing on instrument better than singing. Hence, the criteria of the Intervallic Singing Test (IST) was designed based on prerequisites of the child's ability and accuracy to sing all intervals thoroughly through interval singing exercises and song singing exercises. The song excerpts from *The Sound of Music* have been chosen to be used in this study has been analysed to comprise of all intervallic patterns that need to be assessed for a successful singing performance.

2.3 Song Singing Patterns (Text-Melody Relationships)

In many cultures of the world, notably Asian and African, children's songs have been identified to shape the musical experiences that contribute to social and learning development of the child (Akuno, 2015). Children portray inclination towards singing activities and gain musical experience when they respond through tapping the rhythmic beat and memorising song lyrics of popular music as their own initiative (Kolb, 1996). Studies conducted to investigate the relationship of melody and text has been proposed to be amalgamated in children's intellectual abilities because it involves different components in the processes of learning and recalling songs. For a while now, song has become an educational tool for children in learning different parts of the curriculum (Hedden, 2012; Reifinger, 2012) and it was a source of music creativity when participants were to compose melody and words that fit creatively. In a recent study conducted by Gudmundsdottir and Trehub (2018), results revealed a significant accuracy in the melody sung by toddlers aged 16 months to 3 years compared to the words sung. Almost all toddlers produced overall pitch and rhythmic patterns in a structured familiar song. Children may possess the cognitive abilities to correlate pitch patterns with lyrics because it requires similar processes of performance achievements (Reifinger, 2018).

Ilari and Habibi (2015) conducted a twofold research to examine the musical performance of elementary children through favourite songs, melodic components of a song and familiar tunes using singing tasks. Results showed interestingly that girls received high scores on the tasks of favourite songs by producing singing accuracy in pitch matching tasks. The result of the testing also showed that although the participants may have had the lack of language comprehension, they showed preference for familiar tunes performed the songs with positive effects of accuracy. Although there have been studies done to research song singing patterns to increase the development of vocal

singing using text abilities among young children, the support for this argument has been limited.

Based on a study conducted by Flowers and Dunne-Sousa (1988), the researchers established the task of singing songs as a more functional skill for young children in the component of learning melodic patterns in the curriculum for many preschool and elementary schools. However, Rutkowski (1996) discussed about the singing ability performance of the child as an inborn talent using the method of "speech-to-song" in which the child produces the ability in speech, using lyrics then transferred into song in which the examination of this studies were successful. In 1997, a couple of researchers conducted a study to investigate the effects of the presence or absence of lyrics in children's musical selections on two types of young children's responses to music. Sims and Cassidy (1997) presumed that children had better concentration in music when subjected to the use of lyrics although there is no objective evidence to support the theory further concluding findings of the study showed the absence or presence of lyrics in songs did not serve as a variable. Children who are not able to achieve pitch accuracy have the tendency to adapt to lyrics after a few repeated rounds of the activity (Moog, 1976).

Previous studies suggest that the effect of text on singing accuracy is varied among researchers. Rainey and Larson (2002) suggest that a person is able to rely on the text of songs set on familiar melodic patterns as their research verifies the correlation of lyrics and melody to enhance the performance through recalling strategies. Kindergarten and first-grade children were found to be able to produce a better performance of melodic patterns using text as compared with just using a neutral syllable (Gault, 2002). In other studies, researchers have found that memorising words together with the melody is an effective strategy to a successful singing performance for singers with sufficient training (Ginsborg & Sloboda, 2007). The findings of the study presumed participants are able to

recall the words of familiar songs thus having a better and strong association of words and melody.

2.3.1 Assessment and Measurement Criteria for Song Singing Patterns (Text-Melody Relationships)

A group of researchers conducted a study (Welch, Sergeant and White, 1998) to examine the singing development among children aged five, six and seven years primarily focusing on the linguistic aspect when learning a song. In this experimental study, each year group was subjected to learning two songs that were constructed using pitches within the range of each year group. The measurement criteria included two key components of the test songs: (1) words which were the song text and (2) pitches. Based on the findings of the study, Welch, Sergeant and White (1998) suggested children have a strong tendency to learn the lyrics of songs at a young age but there was an improvement in vocal pitch matching in song singing when these children reach the third year of schooling. However, in comparison to song singing and vocal pitch matching abilities, the former appeared to show a relatively high significance than the latter. Based on this study, the use of lyrics in singing exercises have demonstrated achievement in vocal singing practices at the appropriate age groups.

Reifinger (2012) conducted a research to examine the effects of children's sight-singing skills in two perspectives using solfege and tonal pattern relation to songs. The participants of this study comprised of second grade students from urban public schools in the US. The results of this study demonstrated a substantial improvement in melodic contour accuracy in two criterions of the tests. The first criterion involved the use of solfege with familiar patterns and the second criterion used the neutral syllable *(loo)* with unfamiliar patterns. Gault (2002) conducted a study to examine how certain song teaching strategies with the application and absence of words in melody patterns affected the vocal

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singing performance achievement of children from kindergarten and grade one levels. The study was examined consecutively for two weeks with the measurement criteria for this study: (1) song holistically with text; and (2) song holistically without text. The findings yielded positive effects on songs taught holistically with lyrics; however, the teaching strategy of choosing the appropriate songs to reach the optimum level of children's performances is crucial. However, the expressive criteria for song singing were not included.

2.4 Singing Accuracy

As a common music educational objective, music educators and researchers are constantly finding strategies for the improvement of student success in singing, as singing is the most basic and natural way for a young child to engage in music making before acquiring any other skill in music (Demorest, Nichols & Pfordresher, 2017). In a recent study, Reifinger (2013) discussed strategies to facilitate the learning and improvement of singing accuracy in elementary school general music, to have a solid foundation, in the hope of students developing advanced musical skills later on. Some of the strategies discussed in this study were the acquisition of singing independence, call-and-response singing, the advancement of singing performance accuracy and developing a conceptual understanding of pitch.

Reifinger (2013) found that the participation of children singing in music classes initially began by what he termed as, "chiming in" with the teacher. The teacher then makes an assessment on when to cease singing so that the children sing independently, and this enables the teacher to evaluate each child's singing accuracy. He found that with practice, students are able to progress in singing entire songs from fragments and phrases without the teacher's help using this method. However, a teacher can only assess the singing accuracy and pitch-matching of a student in a solo setting rather than in a group.

For this, students may be given opportunities to become accustomed to songs that are enjoyable and memorable to be able to participate in successful solo-singing that may present confidence in musical showmanship and as well as in singing accuracy.

Requirements of singing accuracy evaluation and assessment are in constant progress and needed in the development of music education. The circumstances contributing to the assessment of singing accuracy presents it as challenging platform for most music teachers but because inaccurate singing among children is an ongoing issue, the run to identify the key factors that contribute to this drawback for better improvement is in continuous study. Nichols (2017) studied different factors that contribute to the success in measuring the accuracy of singing. Based on the flow of assessment choices, he discussed that the selection of tasks for the assessment of student's singing accuracy should be based on the range of the student's voice (based on the Singing Voice Development Measure, SVDM), the response to the model of singing, the kind of text or neutral syllable based on memorisation or pitch-matching skills and the technique of doubling voices between student and teacher. Nichols (2017) emphasizes that the precision of measuring the deflected pitch sung from the original pitch must be taken into account when scoring a student during singing accuracy assessment. Teachers need to be mindful about the range of children's voices so as to be measured by the Singing Voice Development Measure (SVDM) rating scale for assessments.

2.4.1 Assessment and Measurement Criteria for Singing Accuracy

Music educators have found established and valid assessments for the purpose of singing accuracy achievement in the classroom. However, it is important for teachers to know each child's singing range to be able to conduct these assessments otherwise it would be deemed biased from one student to the other. Therefore, the appropriate rating scales should be designed and used for the measurement and assessment of children's singing

accuracy. Nichols (2016) explored the effects of task demands on children's singing accuracy. The participants *(N=120)* were fourth grade students who came from various musical backgrounds and may have therefore represented abilities by developed by various music teachers. The participants were tested on a few dimensions that included: (1) doubled intervals; (2) double single pitches; (3) doubled patterns; (4) solo intervals; (5) solo single pitches and doubled song ("Jingle Bells"); (6) solo song ("Jingle Bells"); and (7) solo pattern. The results showed that the participants' performance was better on single pitch and interval tasks rather than on patterns or singing a song from memory.

Primary music teachers commonly teach songs using interval based singing exercises to warm up first then head on to the learning of whole songs. According to Nichols (2016), to successfully sing a complete song, one must possess the basics of pitch-matching. As reviewed in the previous article, several researchers have suggested that the singing accuracy of a person is dependent on the tonal memory (Petzold, 1960). Nichols (2016) also observed that doubled singing whereby participants had to sing along with accurate singers yielded a more effective result compared to solo-singing. This is common among primary level music instruction whereby teachers sing phrase by phrase exercises echoed by the students to increase accuracy in pitch-matching skills.

2.5 Singing Tonality

Tonality is an important element in the singing development of an individual. When singing a song, the person is able to focus on the pitch, strength and quality of the tone of voice. To be able to present a successful vocal singing performance, one needs to acquire good vocal singing techniques to produce a good and well balanced tone.

Singing tonality has been closely regarded to individuals who are to perform musically with accuracy, good melodic contour and clear tones. It may not however be the case if the person is not able to perform musically that he or she does not possess

singing tonality, creating a vague idea as to what exactly the derivation of singing tones could be. This could also stem from the belief when a person has the lack of participation in musical activities creating less opportunities to practice and develop the singing voice for tonal perfection (Sloboda, Wise, & Peretz, 2005). The ability to maintain the key center in singing among children has emerged to be a criterion for vocal singing achievement. The upper primary children may be able to maintain a consistent tonality compared with the lower primary children because they may experience challenges in reproducing the melodic contours (Flowers & Dunne-Sousa, 1988). Children who are skilled may be able to predict the direction of the melody when they sing based on harmonic accompaniment even if the notes they produce do not appear to be accurate (Fine, Berry & Rosner, 2006), however, this confidence in singing tonality may assist them to a greater degree of vocal singing performance.

2.5.1 Assessment and Measurement Criteria for Singing Tonality

When an assessment is carried out to measure the singing performance of large and same group of students, concised rubrics that are appropriate for the data collection is necessary. For the tonal dimension, Gordon (2002, p. 26) used the precision of singing the beginning and final notes, the accuracy of intervallic keyality-related skips in a phrase, the accurate performance of a melodic contour and established tonality as the evaluative criteria. In a study conducted by Reifinger (2018) to investigate the correlation to the beginning of sight-singing achievement, the measurement criteria included tonal discrimination, the fluency of reading, language comprehension and academic ability. The participants subjected to this testing were second grade students from urban public schools. The ability of students to distinguish tonal pitches was measured by a tonal subtest. The results yielded a more positive effect on academic and language

comprehension abilities but the ability to discriminate tonal pitches had less impact on sight-singing achievement.

Reifinger (2012) also conducted a previous study to explore areas of sight-singing training in relation to tonal patterns. The measurement criteria for this experimental study were: (1) solfege syllables versus the *loo* syllable for singing patterns; and (2) the use of related songs (songs that began with tonal patterns being studied) as compared with unrelated songs. The participants were also second-grade students who were tested in 16 consecutive sessions of sight-singing instruction lessons. Participants had to undergo four stages of treatments with the independent variables of: (1) related songs/solfege; (2) related songs/*loo*; (3) unrelated songs/solfege; and (4) unrelated songs/*loo.* The dependent variables on sight-singing pre-, post- and retention tests were pitch and contour accuracy of familiar and unfamiliar patterns. The results that were yielded in this study found that the second-graders improved on their sight-singing performance for all four sight-singing variables (note accuracy/familiar patterns, note accuracy/unfamiliar patterns, contour accuracy/familiar patterns, and contour accuracy/unfamiliar patterns). After an eight-week time frame of no sight-singing learning, the students were still able to use the skills learnt in sight-singing exercises on new sight-singing exercises given by the teacher. There has been correlation in the use of independent variables of related and unrelated songs which were appropriate for the age of the participants and since the results were pleasing, there is achievement in the singing accuracy of children.

A previous study showed that the most gifted fourth-grade students improved their singing accuracy when they demonstrated the ability to sight-sing because of preliminary practices of the task (Petzold, 1960). However, when examined on memorisation of words to help facilitate in the improvement of singing accuracy and tonality, children developed the ability to recall melodies when the songs were heard over a period of time,

contributing to the fact that text provided the basis for recognition of tune rather than the accuracy of the tune.

2.6 Expression and Style

Often to achieve a successful musical and expressive singing performance would be a tuneful one (Mang, 2007). There are many areas to consider in the final product of a performance with regards to expression and style. Phrasing is one particular element to be incorporated into the performance to make it enjoyable, expressive and lively to the audience rather than to sound mechanical and monotonous. In recent studies, researchers have found the impact of lyrics in songs to convey emotions while singing, hence creating an expressive performance (Ali & Peynircioglu, 2006). To reach a height in singing development, a common view that connects the singer with the audience is the personal response of the performer towards the song being performed that contributes to the expression and style of the performance. The performer is able to evoke and express emotions forming a connection and communication of the content of the song to the audience. This creates evenness to the voice and contributes to faculty of the strength of the voice.

Dalgarno (1997) discussed the variables that contribute to a successful expressive performance on two areas namely, the instrument technicality and expressive interpretation of the performer which he examines separately comparing with the general pedagogy of teaching both components hand in hand. However, these limiting factors that does not consider the expressive performance of the singing voice but only in terms of the performance of an instrumentalist. Children are able to present a successful voice singing performance with visible dimensions such as pitch and sight-singing. Body movement and posture when singing comes easily for young children as they are able to see and imitate the teacher, giving significance to singing achievement. Nafisi (2013)

conducted a study to examine the use of gesture and body movements as teaching strategies for voice singing lessons. Gestures and body movements are tools to enhance the singing performance as part of expression and style. She found that a good number of participants who are music teachers implemented these strategies in their teaching and learning for the vocal singing achievement of primary children.

However, it may come as a challenge to produce a singing performance with the variables of dynamics, expression and style, with children not having the depth of understanding on the expectations of these dimensions. In a previous study, the participants used variations of dynamics without varying the sound level significantly thus creating an improvement in the evenness of the tone of voice (Vurma, 2018). Teaching expression and style in music to children have proven to be challenging, but if music educators possess the exploration to the guidelines for the development of these dimensions, children will demonstrate vocal singing performance successfully.

2.6.1 Assessment and Measurement Criteria for Expression and Style

Napoletano (1988) conducted a study using evaluations each time a course was taught over the course of 75-minute lessons, twice weekly within a span of 15 weeks, to examine the effects of popular song lyrics on the potential to demonstrate an understanding certain psychological concepts. The measurement criteria for this study were: (1) stimulation of subject matter; (2) ability to think critically; (3) improvement of relationship on subject matter; and (4) comprehension of subject matter. It was suggested that the continued use of appropriate songs with lyrics increased the scores on measures of critical thinking and comprehension of subject matter, however the criteria of performing a song vocally with expression and style was not examined in this study. Singing has been regarded to portray feelings of an individual, social and religious beliefs and particular events. But one might

consider the advantage of these elements for the development of expression and style in singing.

Juslin (2003) considers the involvement of the performer in a multidimensional aspect to exhibit performance expression. He argues that a successful performance expression should comprise the occurrence of a model of multidimensional elements involving distinct components rather than regarding it as a single entity. He used the components of performance expression according to the GERMS model involving five criteria: (1) G-component, generative transformations; (2) E-component, emotion-specific patterns; (3) R-component, internal timekeeper and motor delay variance; (4) M-component, biological motion; and (5) S-component, deviations from expected performance conventions. However, the vocal singing performance criteria were not included in the measurement criteria of this study. Gordon (2002, p. 28-29) used variations of loud and soft, performing to the characteristic style of the music and demonstration of sensitive phrasing as the evaluative criteria for the expression dimension. These criteria which is deemed appropriate for this study have been adapted into the measurement and assessment of children's vocal singing achievement skills.

CHAPTER 3

METHODOLOGY

3.1 Overview

The purpose of this study was to gain insight into how children in Year 3 and 4 primary classes acquire successful vocal singing. The purpose of the research aims: (1) to investigate the effect of intervallic singing patterns versus song singing patterns on intervallic singing; (2) to examine the effect of intervallic singing patterns versus song singing patterns on expression and stylistic singing; (3) to examine the effect of intervallic singing patterns versus song singing patterns on singing tonality; and (4) to investigate the effect of intervallic singing patterns versus song singing patterns on vocal singing technique. This chapter aims to provide a succinct description of the research methodology to address the research questions. The study discusses the methods used to examine and address the following research questions:

1. What are the effects of practising intervallic patterns versus song singing patterns in vocal singing achievement?

2. How do singing intervallic patterns versus song singing patterns affect expression and stylistic singing?

3. What is the effect of intervallic singing patterns versus song singing patterns on singing tonality?

4. What is the effect of intervallic singing patterns versus song singing patterns on vocal singing technique?

3.2 Research Methods

The following presents the research methods for the study. The sections are organised as follows: (1) research design; (2) instrumentation; (3) data collection procedure and (4) data analysis procedure.

3.2.1 Research design

This study is a quantitative research in which the researchers attempted to accumulate existing information and data regarding the effects of using intervallic singing exercises versus song singing melodic patterns through the song excerpts of the musical 'The Sound of Music' to examine the achievement of intervallic singing, expression and stylistic singing, singing tonality and vocal singing techniques used among Year 3 and Year 4 primary level students.

The purpose of the study in a quantitative research is to determine the effect of the independent variables, in this study, intervallic singing patterns and song singing patterns from the excerpts of songs from 'The Sound of Music', on the dependent variables which are the numerical measurement of the variable. The dependent variables in this study are: (1) intervallic singing; (2) expression and stylistic singing; (3) singing tonality; and (4) vocal singing technique. The independent variables were manipulated through intervention treatments to determine the accuracy in intervallic singing, the dimension of expression and stylistic singing in performance, the achievement of singing tonality and the precision of vocal singing techniques used.

3.2.2   Experimental design

The following is the description of the experimental design for this study. Under this design, the treatment (*X1* and *X2*) are the manipulated independent variables while the pre-test and post-test (*O*) measures the value of the dependent variables before and after the treatment. Figure 3.1 below illustrates the randomized Pretest-Posttest between Subjects experimental design.

Figure 3.1

Experimental design of the study

Experimental Group	Pretest	Treatment	Posttest
Group 1	*O*	*X1*	*O*
Group 2	*O*	*X2*	*O*

Note: X1 = intervallic singing patterns
X2 = song singing pattern excerpts from 'The Sound of Music'
 O = measurement

3.2.2.1 Independent variables

The independent variables in this research design involved two different treatments: (1) intervallic singing patterns through echo-singing; and (2) song-singing patterns using selected excerpt of songs from the musical 'The Sound of Music'. The respective treatments were given to students in experimental group 1 (intervallic singing patterns) and experimental group 2 (song singing patterns) during planned lessons. The intervallic singing patterns treatment was created using intervals in a major scale, intervals of a second, third, fourth, fifth, sixth, seventh and octave for experimental group 1. The excerpts of song singing patterns from the songs *Doe a*

deer, Edelweiss, The Sound of Music and *The Lonely Goatherd* were administered to experimental group 2 through part-by-part echo-phrase singing. The selection of song excerpts from the 'The Sound of Music' were based on the presence intervallic skips conjunct melodies combining with lyrics in which children will be able to correlate for a successful vocal performance (Reifinger, 2018). *Doe a deer* (see Appendix F-1) contains mostly second, third, fourth and fifth intervals and conjunct melodic phrases in the key. *Edelweiss* (see Appendix F-2) has been analysed to comprise of second, third, fourth and fifth intervals as well as conjunct phrases. The excerpt of *The Sound of Music* (see Appendix F-3) comprises of ascending and descending conjunct melodic phrases and the use of seventh interval. Third, fourth, seventh and eighth or octave intervals are found to be present in the excerpt of *So long, farewell* (see Appendix F-4). Hence, the excerpts chosen for the treatment of song singing patterns were appropriate for the purpose of the study. Both treatments were manipulated to investigate the effects of intervallic singing, expression and stylistic singing, singing tonality and vocal singing techniques on the vocal achievement among Year 3 and Year 4 primary level students.

3.2.2.2 Dependent variables

The dependent variables in this study design are the differences of the mean scores between pre-test and post-test measuring the accuracy of intervallic singing in the Intervallic Singing Test (IST) (see Appendix C-1; Appendix D-1); measuring the expression and stylistic singing in the Expression and Stylistic Singing Test (ESST) (see Appendix C-3; Appendix D-3); measuring the variables of singing tonality in the Singing Tonality Test (STT) (see Appendix C-2; Appendix D-2) and measuring the variables of vocal singing technique in the Vocal Singing Technique Test (VSTT) (see Appendix C-4; Appendix D-4).

The results were collected before and after the treatments were administered to experimental groups 1 and 2. Comparison between two treatments were made to compare the effectiveness of both treatments towards each participant's achievement in intervallic singing, expression and stylistic singing, singing tonality and vocal singing techniques.

3.2.3 Treatment of the study

In the stage of pre-test and post-test, each participant was subjected to the same interval singing exercise (see Appendix A; Appendix B). The researcher evaluated the vocal achievement for each participant. The performance for each participant was recorded using single audio tracks on Garageband recording software and thereafter saved into separate individual participant files.

For the treatment session, each participant was subjected to eight weeks of 20-minute sessions in singing lessons. Experimental group 1 (intervallic singing pattern treatment) received four intervallic singing exercises (see Appendix E-1 to E-4) exploring intervals of second, third, fourth, fifth, sixth, seventh and octave in a major scale. Experimental group 2 (song singing patterns treatment) received four song singing exercises (see Appendix F-1 to F-4) based on the excerpts of four songs from The Sound of Music, namely, *Doe a deer, Edelweiss, The Sound of Music* and *The Lonely Goatherd.* The learning environment was observed to compare the effectiveness of these two treatments on the groups. The same approaches were carried out for eight weeks on both experimental groups. The lesson plan below shows the two different approaches that were used on the two experimental groups.

Table 3.1

Lesson Plan Outline

Lesson	Experimental Group 1	Experimental Group 2
1	Interval singing exercise 1 (see Appendix G-1a)	Song-singing exercise 1 (see Appendix G-1b)
2	Interval singing exercise 1 (see Appendix G-2a)	Song-singing exercise 1 (see Appendix G-2b)
3	Interval singing exercise 2 (see Appendix G-3a)	Song-singing exercise 2 (see Appendix G-3b)
4	Interval singing exercise 2 (see Appendix G-4a)	Song-singing exercise 2 (see Appendix G-4b)
5	Interval singing exercise 3 (see Appendix G-5a)	Song-singing exercise 3 (see Appendix G-5b)
6	Interval singing exercise 3 (see Appendix G-6a)	Song-singing exercise 3 (see Appendix G-6b)
7	Interval singing exercise 4 (see Appendix G-7a)	Song-singing exercise 4 (see Appendix G-7b)
8	Interval singing exercise 4 (see Appendix G-8a)	Song-singing exercise 4 (see Appendix G-8b)

3.2.4   Participants

The participants comprised of 60 participants (n=60) from Year 3 and Year 4 in the primary school level for this experiment. Some participants have been subjected to prior singing lessons but did not possess a systemised training in singing accuracy of song or intervallic patterns, expressive and stylistic singing, singing tonality and vocal singing techniques.

3.2.5 Instrumentation

Instruments in this study consisted of the pre-test and post-test singing materials, treatment materials comprising of the intervallic singing pattern exercises and song singing pattern excerpts from 'The Sound of Music' and the assessment materials.

3.2.5.1 Pretest-posttest materials

The resources used for the pre- and post- tests were interval singing exercises that were given to evaluate the variables being tested in this study in each participant. Both the pre-test and post-test materials (see Appendix A; Appendix B) utilized the same melodic patterns on both occasions. Assessment procedures, compilation and development of music materials for treatment were discussed with the panel of experts in singing and four interval singing patterns and four song excerpts from 'The Sound of Music', (1) Do-Re-Mi; (2) Edelweiss; (3) The Sound of Music; and (4) The Lonely Goatherd materials were used for both the treatment interventions.

3.2.6 Data Collection Procedure

The data was collected during the stage of pre-test and post-test in September 2018. Sixty singing performance data were collected and assessed according to the components of the four tests of vocal achievement testing which are Intervallic Singing Test (IST), Expression and Stylistic Singing Test (ESST), Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT). Pre-test and post-test mean score differences were then compared between intervallic singing exercises (experimental group 1) and song singing exercises (experimental group 2). There were three judges chosen to evaluate the participants in the pre- and posttest for this quantitative research. All judges are qualified in music education and have had many years of experience in the field of educating primary level music students.

Data was collected according to the participant's vocal achievement skills in intervallic singing accuracy, expressive and stylistic singing, singing tonality and abilities in vocal singing techniques. The improvement between the pre-test and post-test of the two experimental groups was then compared using the mean score, p-value and effect size.

3.2.7 Data Analysis Procedure

The data collected was analysed according to the four vocal achievement tests. The Intervallic Singing Test (IST) had seven criterions for measurement instrument which were (1) able to sing the 2nd interval accurately; (2) able to sing the 3rd interval accurately; (3) able to sing the 4th interval accurately; (4) able to sing the 5th interval accurately; (5) able to sing the 6th interval accurately; (6) able to sing the 7th interval accurately and (7) able to sing the 8ve interval accurately. These criterions will serve as the measurement and assessment for the whole range of intervals.

The five criterions for measurement instrument on Expression and Stylistic Singing Test (ESST) were (1) ability to produce variations of loud and soft; (2) performs the characteristics styles of the music; (3) able to demonstrate sensitive phrasing; (4) able to demonstrate continuous voice tone quality and (5) able to perform with creative nuance and style. These criterions include the characteristics of expression and style to be assessed for the appropriate age group of participants, in this case, Year 3 and Year 4 students.

For the Singing Tonality Test (STT), there were six criterions for measurement instrument which were (1) able to establish tonality; (2) able to sing melodic contour accurately; (3) accuracy of intervallic keyality-related skips; (4) able to produce beginning pitch accurately; (5) able to produce final pitch accurately and (5) able to maintain focused and clear tonality.

The Vocal Singing Technique Test (VSTT) had six criterions, which were (1) able to produce articulated pitches; (2) functional breathing; (3) uses full range of the voice; (4) maintains supportive posture; (5) maintains continuous tone quality among registers; and (6) consistency of maintaining tempo throughout. The evaluative criterions in the Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT) were designed and adapted from previous studies from characteristics based on the tonality, rhythm and vocal dimensions. (Gordon, 2002, p. 26).

3.3 Conclusion

This chapter has presented the methodology of this study. It included research design, instrumentation, data collection procedure, data analysis procedure for this study.

CHAPTER 4

ANALYSIS OF DATA AND FINDINGS

4.1 Introduction

This chapter presents the statistical analysis of data and the results of the study. The sections are organised as follows: (1) descriptive analysis; (2) Inter-judge reliability; (3) split-plot SPANOVA analysis on effects of singing accuracy improvement by intervallic singing patterns; (4) split-plot SPANOVA analysis on effects of singing accuracy improvement by song singing patterns; and (5) summary of results.

The results were presented to address the research questions of the study. The research questions included:

1. What are the effects of practising intervallic patterns versus song singing patterns in vocal singing achievement?
2. How do singing intervallic patterns versus song singing patterns affect expression and stylistic singing?
3. What is the effect of intervallic singing patterns versus song singing patterns on singing tonality?
4. What is the effect of intervallic singing patterns versus song singing patterns on vocal singing technique?

In this study, the data collection procedure included pre-tests and post-tests of 4 tests which include: (1) Intervallic Singing Test (IST); (2) Expression and Stylistic Singing Test (ESST); (3) Singing Tonality Test (STT); and (4) Vocal Singing Technique Test (VSTT). The Intervallic Singing test included the ability to sing intervallic patterns using 2nd, 3rd, 4th, 5th, 6th, 7th and 8ve intervals (see Appendix A-1, A-2). The Expression and

Stylistic Singing test consisted of criterions that include ability to display dynamics, presentation of characteristics styles of the music, demonstration of sensitive phrasing, presentation of continuous voice tone quality and producing creative nuance and style singing performance (see Appendix A-1, A-2). The Singing Tonality test consisted of the establishment of tonality, accuracy of melodic contour, accuracy of intervallic keyality-skips, the ability to produce accurate beginning and final pitches and demonstration of clear and focused tonality (see Appendix A-1, A-2). The Vocal Singing Technique test comprised of the ability to produce articulated pitches, demonstration of functional breathing when singing, display of supportive posture, usage of full range of the voice, the sustainability of continuous tone quality among registers and demonstration of consistent tempo when singing (see Appendix A-1, A-2).

4.2 Inter-judge Reliability

Inter-judge reliability for the Intervallic Singing Test (IST), Expression and Stylistic Singing Test (ESST), Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT) was computed with Cronbach's Alpha correlation coefficients and inter-judge reliability was intended for every individual item.

The inter-judge reliability coefficient for Intervallic Singing Test (IST) was reported as .95; for Expression and Stylistic Singing Test (ESST), the coefficient was .77; the coefficient for Singing Tonality Test (STT) was .90; for Vocal Singing Technique Test (VSTT), the coefficient was .85. The overall inter-judge reliability was reported to be strong ranged from .77 to .95 (Vaughan, 1977).

4.3 Descriptive Statistics for Measures of Intervallic Singing Test (IST), Expression and Stylistic Singing Test (ESST), Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT)

Descriptive statistics for all variables were computed using SPSS and conducted on all continuous variable measures. There were seven criterions for measurement instrument on Intervallic Singing Test (IST) comprising of: (1) able to sing the 2nd interval accurately; (2) able to sing the 3rd interval accurately; (3) able to sing the 4th interval accurately; (4) able to sing the 5th interval accurately; (5) able to sing the 6th interval accurately; (6) able to sing the 7th interval accurately and (7) able to sing the 8ve interval accurately.

The five criterions for measurement instrument on Expression and Stylistic Singing Test (ESST) were (1) ability to produce variations of loud and soft; (2) performs the characteristics styles of the music; (3) able to demonstrate sensitive phrasing; (4) able to demonstrate continuous voice tone quality and (5) able to perform with creative nuance and style.

There were six criterions for measurement instrument on Singing Tonality Test (STT). They were (1) able to establish tonality; (2) able to sing melodic contour accurately; (3) accuracy of intervallic keyality-related skips; (4) able to produce beginning pitch accurately; (5) able to produce final pitch accurately and (5) able to maintain focused and clear tonality.

The six criterions for measurement instrument on Vocal Singing Technique Test (VSTT) were (1) able to produce articulated pitches; (2) functional breathing; (3) uses full range of the voice; (4) maintains supportive posture; (5) maintains continuous tone quality among registers and (6) consistency of maintaining tempo throughout.

Tables 4.1 to 4.4 display the means, standard deviations and also the mean difference of the raw scores for singing skills achievement for both the pre-tests and post-tests of Intervallic Singing Test (IST), Expression and Stylistic Singing Test (ESST), Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT). The Intervallic Singing Test (IST) was used to measure the accuracy of intervallic singing skills achievement.

The Intervallic Singing Test (IST) (see Appendix C-1; Appendix D-1) consisted of seven items and was evaluated on a 5-point scale, yielding a maximum possible score of 35. The Expression and Stylistic Singing Test (ESST) (see Appendix C-3; Appendix D-3) consisting of five items was evaluated on a 5-point scale, yielding a maximum possible score of 25, was used to measure the singing expression and style achievement. The Singing Tonality Test (STT) (see Appendix C-2; Appendix D-2) was used to measure singing tonality achievement using six items yielding a maximum possible score of 30 on a 5-point scale. The Vocal Singing Technique Test (VSTT) (see Appendix C-4; Appendix D-4) consisting of six items was evaluated on a 5-point scale, yielding a maximum possible score of 30. This test was used to measure the vocal singing techniques achievement (see Appendix A-1, A-2).

The data in Table 4.1 shows that for Intervallic Singing Test (IST), the mean of the pre-test scores for the seven individual items ranged from 1.96 (*Interval 7th*) to 3.30 (*Interval 5th*) for the experimental group 1 (intervallic patterns), and ranged from 2.42 (*Interval 7th*) to 3.51 (*Interval 5th*) for experimental group 2 (song singing patterns from 'The Sound of Music'). In the post-test scores, the mean ranged from 2.31 (*Interval 7th*) to 3.84 (*Interval 8ve*) for experimental group 1 (intervallic patterns), and ranged from 2.73 (*Interval 7th*) to 4.29 (*Interval 5th*) for experimental group 2 (song singing patterns from "The Sound of Music"). The mean difference between pre-test and post-test scores for experimental groups 1 and 2 ranged from 0.13 to 0.57 and 0.31 to 0.79 respectively.

The results in Table 4.1 indicate higher mean values and mean differences for the song singing patterns from 'The Sound of Music' intervention (experimental group 2) than that of the intervallic singing patterns intervention (experimental group 1) in the singing accuracy of intervallic singing skills achievement for the Intervallic Singing Test (IST).

Table 4.1

Pre-posttest means, standard deviations and mean difference in Intervallic Singing Test (IST)

	Intervallic Singing Test					
	Experimental Group 1			Experimental Group 2		
	Pretest	Posttest		Pretest	Posttest	
Variables	Mean (SD)	Mean (SD)	MD	Mean (SD)	Mean (SD)	MD
2nd	2.79 (.97)	3.03 (.81)	0.24	3.06 (.87)	3.41 (.75)	0.35
3rd	2.94 (.87)	3.16 (.79)	0.22	3.41 (.96)	3.93 (.65)	0.52
4th	2.90 (.72)	3.03 (.81)	0.13	2.92 (.74)	3.28 (.82)	0.36
5th	3.30 (.81)	3.68 (.86)	0.38	3.51 (1.00)	4.29 (.78)	0.78
6th	2.29 (.81)	2.66 (.78)	0.37	2.63 (.81)	2.98 (.75)	0.35
7th	1.96 (.85)	2.31 (.77)	0.35	2.42 (.96)	2.73 (.91)	0.31
8ve	3.27 (1.02)	3.84 (.82)	0.57	3.44 (1.04)	4.23 (.72)	0.79

Note: MD = Mean Difference

The data in Table 4.2 shows that for Expression and Stylistic Singing Test (ESST), the mean of the pre-test scores for the five individual items ranged from 1.81 (*Tone quality*) to 2.08 (*Performance style*) for experimental group 1 (intervallic patterns), and ranged from 1.69 (*Tone quality*) to 1.91 (*Performance style*) for experimental group 2 (song singing patterns). In the post-test scores, the mean scores ranged from 2.31 (*Performance style*) to 3.68 (*Tone quality*) for experimental group 1, and ranged from

2.44 (*Tone quality*) to 3.09 (*Phrasing*) for experimental group 2. The mean difference between pre-test and post-test scores for experimental groups 1 and 2 ranged from 0.23 to 1.87 and 0.75 to 1.29 respectively.

The results in Table 4.2 indicate higher mean values and mean differences for the intervallic patterns than that of the song singing patterns intervention in the expression and stylistic singing skills achievement for Expression and Stylistic Singing Test (ESST).

Table 4.2

Pre-posttest means, standard deviations and mean difference in Expression & Stylistic Singing Test (ESST)

	Expression & Stylistic Singing Test					
	Experimental Group 1			Experimental Group 2		
	Pretest	Posttest		Pretest	Posttest	
	Mean	Mean		Mean	Mean	
Variables	(SD)	(SD)	MD	(SD)	(SD)	MD
Dynamics	1.94 (.76)	2.69 (.74)	0.75	1.91 (.68)	2.77 (.77)	0.86
Performance style	2.08 (.90)	2.31 (.59)	0.23	1.91 (.91)	2.77 (.70)	0.86
Phrasing	1.86 (.74)	2.40 (.68)	0.54	1.80 (.71)	3.09 (.68)	1.29
Tone quality	1.81 (.60)	3.68 (.86)	1.87	1.69 (.66)	2.44 (.69)	0.75
Nuance & style	1.92 (.80)	2.66 (.78)	0.74	1.78 (.80)	2.63 (.80)	0.85

Note: MD = Mean Difference

Data in Table 4.3 shows for Singing Tonality Test (STT), the mean of pre-test scores for the six individual items ranged from 2.38 (*Tonality established*) to 2.92 *(Beginning pitch accuracy)* for experimental group 1 (intervallic patterns), and ranged from 2.33 (*Tonality established*) to 2.79 (*Melodic contour*) for experimental group 2 (song singing patterns). In the post-test scores, the mean ranged from 2.80 (*Accuracy of intervallic keyality-skips*) to 3.36 (*Tonality focused*) for experimental group 1, and ranged

from 2.79 (*Accuracy of intervallic keyality-skips*) to 3.48 (*Tonality focused*) for experimental group 2. The mean difference between pre-test and post-test scores for experimental groups 1 and 2 ranged from 0.18 to 0.84 and 0.26 to 1.00 respectively.

Table 4.3

Pre-posttest means, standard deviations and mean difference in Singing Tonality Test (STT)

	Singing Tonality Test					
	Experimental Group 1			Experimental Group 2		
	Pretest Mean (SD)	Posttest Mean (SD)	MD	Pretest Mean (SD)	Posttest Mean (SD)	MD
Variable						
Tonality established	2.38 (.70)	2.82 (.65)	0.44	2.33 (.82)	2.92 (.71)	0.59
Melodic contour	2.83 (.71)	3.01 (.70)	0.18	2.79 (.91)	3.08 (.84)	0.29
Intervallic keyality	2.61 (.76)	2.80 (.82)	0.19	2.53 (.66)	2.79 (.77)	0.26
Beginning pitch	2.92 (.92)	3.17 (.84)	0.25	2.77 (.90)	3.08 (.85)	0.31
Final pitch	2.87 (.85)	3.14 (.83)	0.27	2.69 (.87)	3.03 (.83)	0.34
Tonality focused	2.52 (.93)	3.36 (.70)	0.84	2.48 (1.00)	3.48 (.86)	1.00

Note: MD = Mean Difference

The results in Table 4.3 indicate higher mean values and mean differences for song singing patterns from 'The Sound of Music' intervention (experimental group 2) than that of the intervallic singing patterns intervention (experimental group 1) in the singing tonality skills achievement for Singing Tonality Test (STT).

The data in Table 4.4 demonstrates that for Vocal Singing Technique Test (VSTT), the mean of the pre-test scores for the six individual items ranged from 2.19 (*Voice range*) to 3.09 (*Tone quality*) for experimental group 1, and ranged from 2.30 (*Voice range*) to 3.14 (*Tempo*) for experimental group 2. In the post-test scores, the mean ranged from 2.34 (*Articulated pitches*) to 3.88 (*Voice range*) for experimental group 1, and ranged from 2.38 (*Articulated pitches*) to 3.86 (*Voice range*) for experimental group 2. The mean difference between pre-test and post-test scores for experimental groups 1 & 2 ranged from -0.17 to 1.69 and -0.09 to 1.56 respectively.

Table 4.4

Pre-posttest means, standard deviations and mean difference in Vocal Singing Technique Test (VSTT)

	Vocal Singing Technique Test					
	Experimental Group 1			Experimental Group 2		
	Pretest Mean (SD)	Posttest Mean (SD)	MD	Pretest Mean (SD)	Posttest Mean (SD)	MD
Variable						
Articulated pitches	2.51 (.84)	2.34 (.64)	-0.17	2.47 (.90)	2.38 (.77)	-0.09
Breathing	2.34 (.64)	3.38 (.68)	1.04	2.38 (.77)	3.60 (.68)	1.22
Supportive posture	2.98 (.65)	2.83 (.78)	-0.15	3.01 (.63)	3.08 (.60)	0.07
Voice range	2.19 (.69)	3.88 (.73)	1.69	2.30 (.59)	3.86 (.63)	1.56
Continuous tone quality	3.09 (.86)	3.14 (.83)	0.05	2.96 (.90)	3.03 (.83)	0.07
Tempo	3.00 (.73)	3.36 (.70)	0.36	3.14 (.84)	3.48 (.86)	0.34

Note: MD = Mean Difference

The results in Table 4.4 indicate higher mean values and mean differences for the intervallic patterns (experimental group 1) than that of the song singing patterns from "The Sound of Music" intervention (experimental group 2) in the vocal technique skills achievement for Vocal Singing Technique Test (VSTT).

4.4 Effects of Intervallic Patterns versus Song Singing Patterns on Vocal Singing Achievement

To address research question 1, an analysis of variance using split-plot design called Split-plot ANOVA will be presented to recognise the intervallic patterns versus song singing patterns from "The Sound of Music" treatment effect on the vocal singing achievement. Multivariate Tests were piloted to decide if the interaction effect of the independent variables was significantly different. The significance level was set at alpha .05.

4.4.1 Profile plot on the differences in the Intervallic Singing Test (IST)

Figure 4.1 demonstrates the profile plot on the effects of intervallic singing total scores of the two experimental groups, by intervallic patterns (experimental group 1) versus song singing patterns (experimental group 2) from "The Sound of Music" attained in the Intervallic Singing Test (IST). The shape of the graph indicate that mean scores for both experimental groups had increased from the pre-test to the post-test suggesting that both intervallic patterns and song singing patterns treatments may have had an effect on the participants' 2nd interval singing achievement. Both the two experimental groups showed steady increase on post-test scores. The song singing patterns treatment displayed a steeper gradient compared to the intervallic patterns treatment suggesting a slight gain for intervallic singing ability on the 2nd interval.

Figure 4.1 Profile plot for comparison between two experimental groups on *Interval 2ⁿᵈ* singing skills in Intervallic Singing Test (IST).

Figures 4.2 to 4.7 present the profile plots of the differences of each variable in intervallic singing skills achieved by the two experimental groups, intervallic patterns and song singing patterns from "The Sound of Music" in the Intervallic Singing Test (IST). The profile plot for the variable of fourth interval showed a very steep gradient in the graph from pre-test to post-test scores compared to the other variables (third, fifth, sixth, seventh and octave). From all the profile plots, the indication from the shape of the graphs show the steady increase of mean scores for both experimental groups, the intervallic patterns (experimental group 1) and song singing patterns (experimental group 2) from the pre-test to the post-test. This indicates that both treatment interventions had worked effectively on the participants' intervallic singing achievement and displayed the resulting improvements. However, the profile plots in Figures 4.2 to 4.4 shows a steeper gradient on the song singing patterns treatment compared to the profile plots in Figures 4.5 to 4.7 suggesting a slight improvement on intervallic singing for the variables of third, fourth and fifth intervals.

Figure 4.2 Profile plot for comparison between two experimental groups on

Interval 3ʳᵈ singing skills in Intervallic Singing Test (IST).

Figure 4.3 Profile plot for comparison between two experimental groups on

Interval 4ᵗʰ singing skills in Intervallic Singing Test (IST).

Figure 4.4 Profile plot for comparison between two experimental groups on *Interval 5th* singing skills in Intervallic Singing Test (IST).
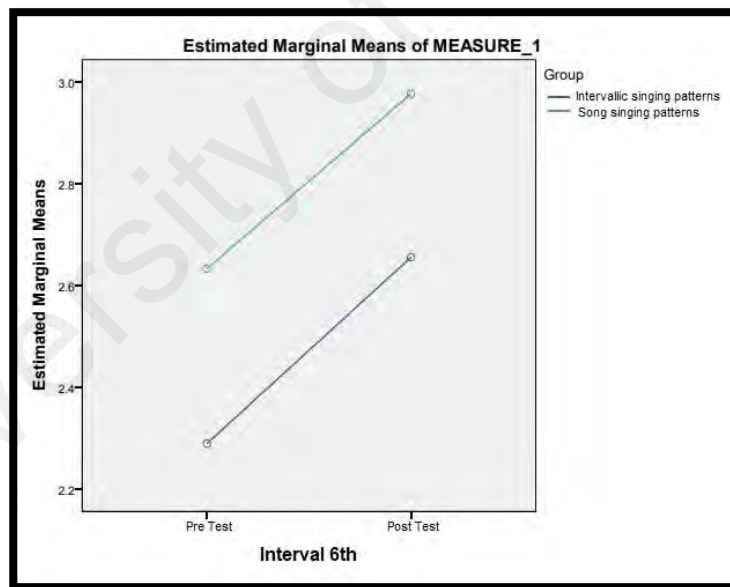
Figure 4.5 Profile plot for comparison between two experimental groups on *Interval 6th* singing skills in Intervallic Singing Test (IST).
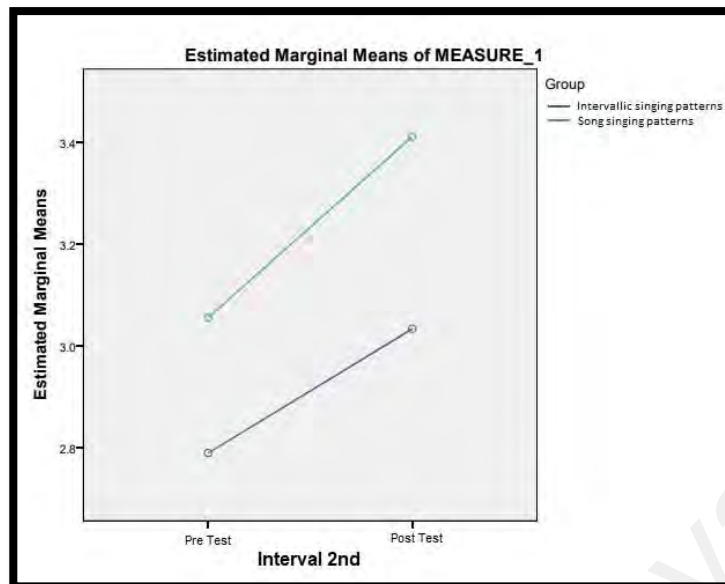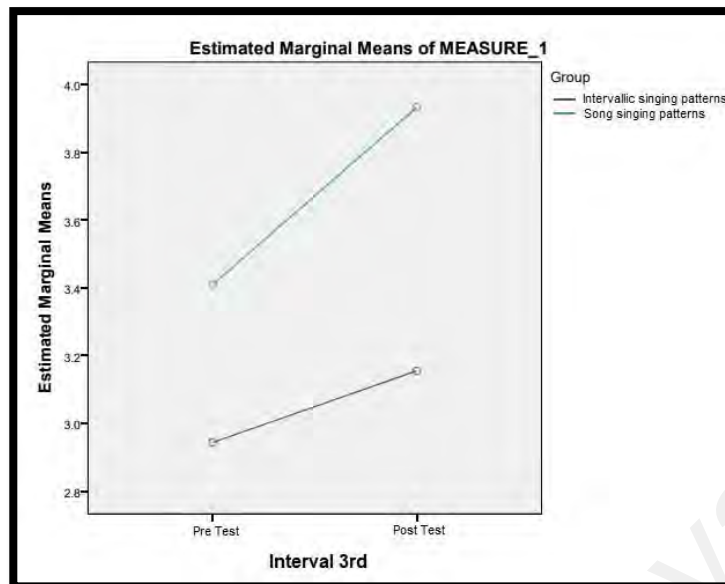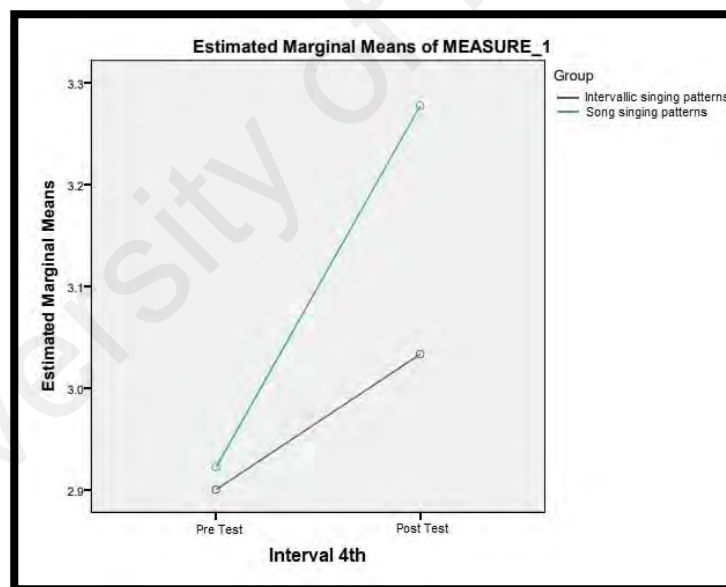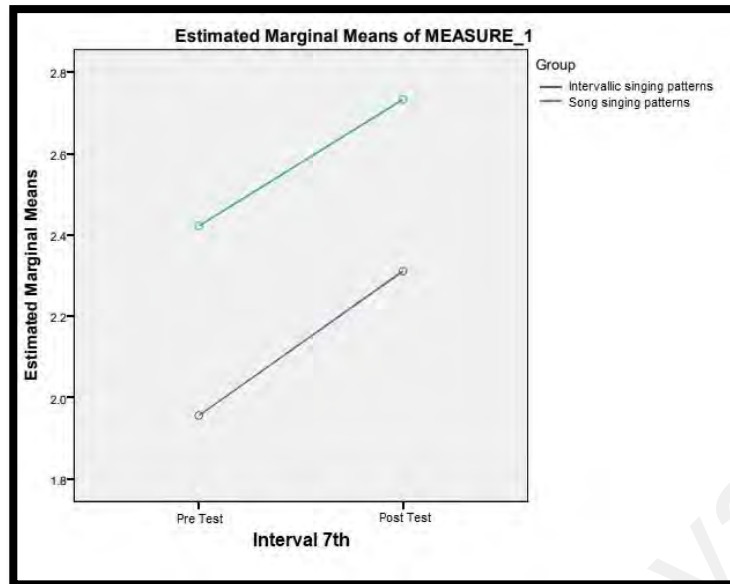
Figure 4.6 Profile plot for comparison between two experimental groups on *Interval 7th* singing skills in Intervallic Singing Test (IST).
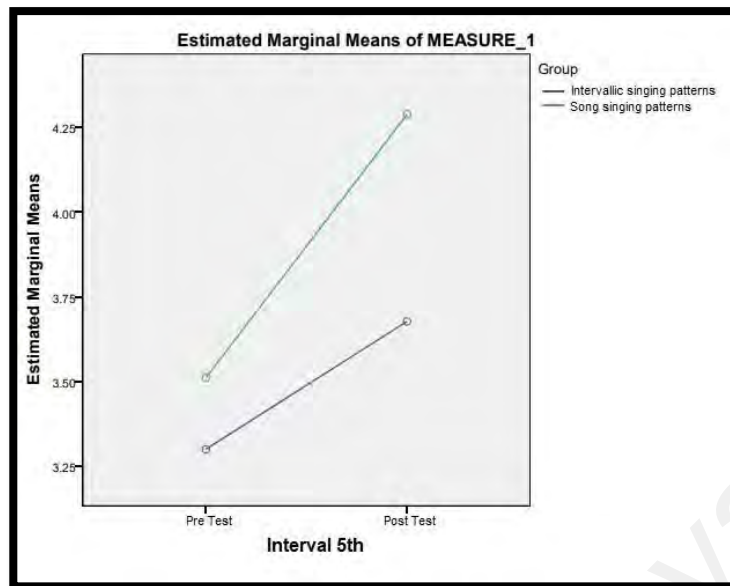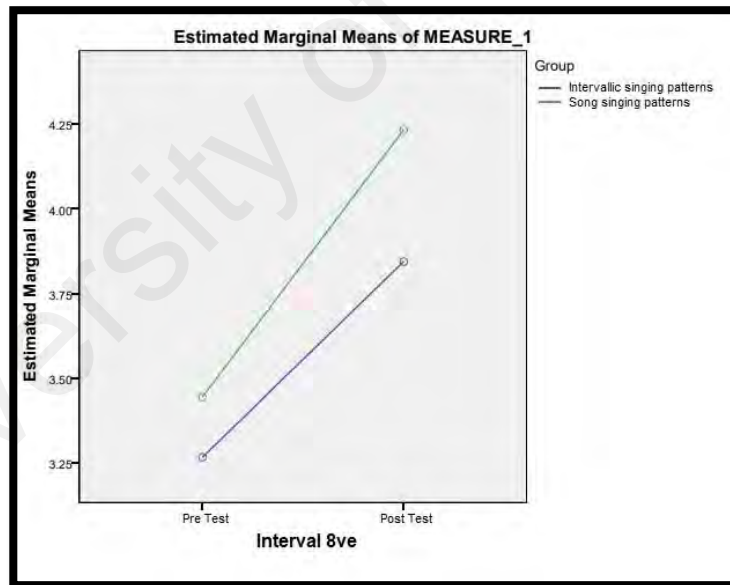

Figure 4.7 Profile plot for comparison between two experimental groups on *Interval 8ve* singing skills in Intervallic Singing Test (IST).

The results indicate there is a positive treatment effect of song singing patterns on intervallic singing on the participants. The benefit of utilizing the split-plot ANOVA analysis in making a comparison between the two experimental groups, contributes to the effect size. An effect size is the quantitative measure of the significant magnitude to the effect of the treatment administered. Cohen (1988) hesitantly defined effect sizes as "small, d = .2," "medium, d = .5," and "large, d = .8".

4.4.2 Split-plot ANOVA analysis on effects of practising intervallic singing patterns versus song singing patterns on vocal singing achievement

The data in Table 4.5 below display the results of the Split-Plot ANOVA analysis on the effects of intervallic singing skills in the Intervallic Singing Test (IST). The results from the multivariate Pillai's Trace test indicated a significant interaction effect on three out of seven interval variables of intervallic singing. Second interval $[F(1,178) = 2.01, p = .158]$; Third interval $[F(1,178) = 10.85, p = .001]$; Fourth interval $[F(1,178) = 6.28, p = .013]$; Fifth interval $[F(1,178) = 17.15, p = .000]$; Sixth interval $[F(1,178) = .07, p = .785]$; Seventh interval $[F(1,178) = .31, p = .58]$; Octave interval $[F(1,178) = 4.30, p = .039]$.

The effect size of second interval [d=.01] indicates no treatment effect; third interval [d=.06] indicates no treatment effect; fourth interval [d=.03], no treatment effect; fifth interval [d=.08] show a slightly small effect size; sixth interval [d=.00], seventh interval [d=.00] and octave interval [d=.02] indicates no treatment effect. Overall, the results indicate no significant improvement or effect on intervallic singing achievement using the intervallic patterns versus song singing patterns interventions.

Table 4.5

Split-plot ANOVA analysis for the effect of intervallic singing in the Intervallic Singing Test (IST)

Items	Intervallic Singing Test (IST)						
	Experimental Group 1		Experimental Group 2		Pillai's Trace Test		
	Intervallic		Song Singing		Interaction effect		Effect size (Cohen's *d)*)
	Pre-test Mean	Post-test Mean	Pre-test Mean	Post-test Mean	F -ratio value at df = 1, 178	*p*	
2nd int	2.79	3.03	3.06	3.41	2.01	.158	.01
3rd int	2.94	3.16	3.41	3.93	10.85	.001**	.06
4th int	2.90	3.03	2.92	3.28	6.28	.013*	.03
5th int	3.30	3.68	3.51	4.29	17.15	.000**	.09
6th int	2.29	2.66	2.63	2.98	.07	.785	.00
7th int	1.96	2.31	2.42	2.73	.31	.582	.00
8ve int	3.27	3.84	3.44	4.23	4.30	.039*	.02

Note. *p < .05 **p < .001

4.5 Effect of practising intervallic patterns versus song singing patterns on expression and stylistic singing

To address research question 2, an analysis of variance using split-plot design called Split-plot ANOVA will be presented to recognise the intervallic patterns versus song singing patterns treatment effect on the singing expression and style achievement. Multivariate Tests were piloted to decide if the interaction effect of the independent variables was significantly different. The significance level was set at alpha .05.

4.5.1 Profile plot on the differences in the Expression and Stylistic Singing Test (ESST)

Figures 4.8 demonstrate the profile plot on the effects of intervallic patterns versus song singing patterns on expression and stylistic singing total scores of the two experimental groups, experimental group 1 and experimental group 2 attained in the Expression and Stylistic Singing Test (ESST) for the variable of dynamics. The shape of the graph indicates that mean scores for both experimental groups had increased from the pre-test to the post-test suggesting both intervallic patterns and song singing patterns from "The Sound of Music" treatments may have an effect on the participants' expression and stylistic singing achievement and resulted improvements respectively.

The song singing pattern intervention shows a lower mean score in the pre-test compared to the intervallic pattern intervention mean score. For the post-test, the song singing pattern treatment displayed a higher mean score compared to the intervallic pattern treatment suggesting a greater gain in producing variations of loud and soft singing skills.

Figure 4.8 Profile plot for comparison between two experimental groups on *dynamics* skill scores in Expression and Stylistic Singing Test (ESST).

Figures 4.9 to 4.12 present the profile plots of the differences of each variable in expression and stylistic singing skills achieved by the two experimental groups, intervallic singing patterns and song singing patterns from "The Sound of Music" in the Expression and Stylistic Singing Test (ESST). From all the profile plots below, the shape of the graphs indicate the increase of mean scores for both experimental groups, the intervallic patterns (experimental group 1) and song singing patterns (experimental group 2) from the pre-test to the post-test. This indicates that both treatment interventions had an effect on the participants' expression and stylistic singing achievement and the resulting improvements. The profile plots in Figures 4.9 and 4.10 display a steeper gradient on the song singing patterns treatment suggesting a greater gain compared to the intervallic singing pattern treatment in the ESST for the style characteristics and phrasing variables respectively. This indicates a positive treatment effect of song singing patterns on the variables of expression and stylistic singing skills.
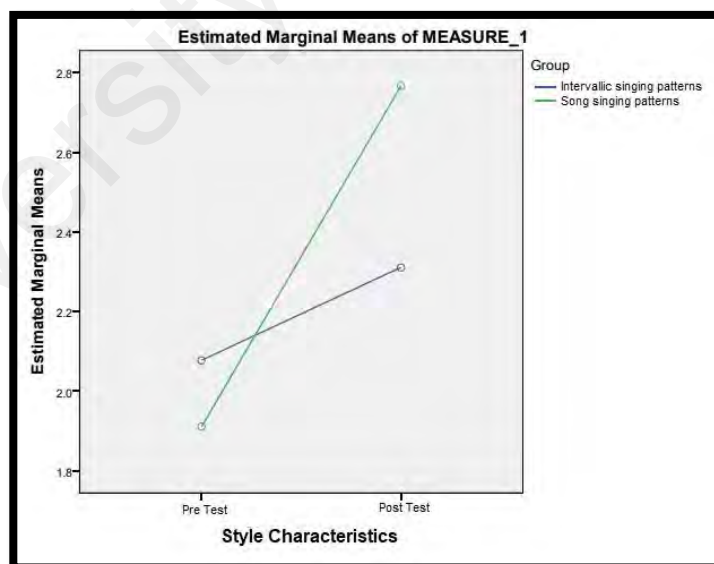
Figure 4.9 Profile plot for comparison between two experimental groups on *style characteristics* skill scores in Expression and Stylistic Singing Test (ESST)
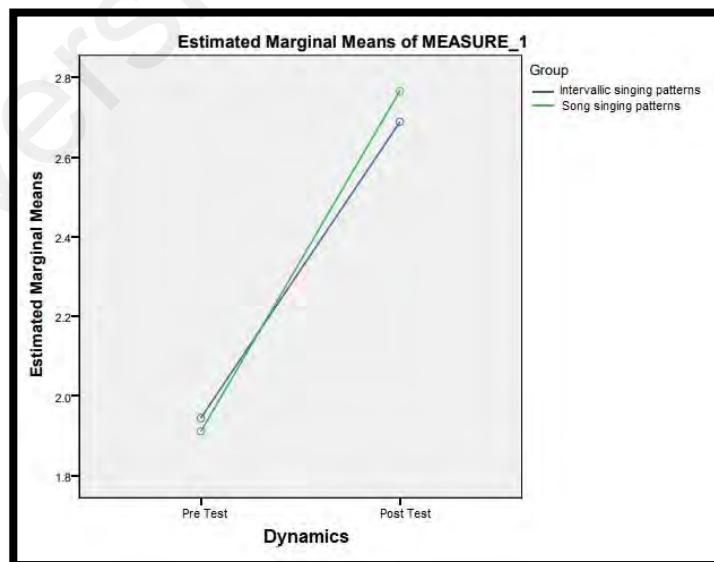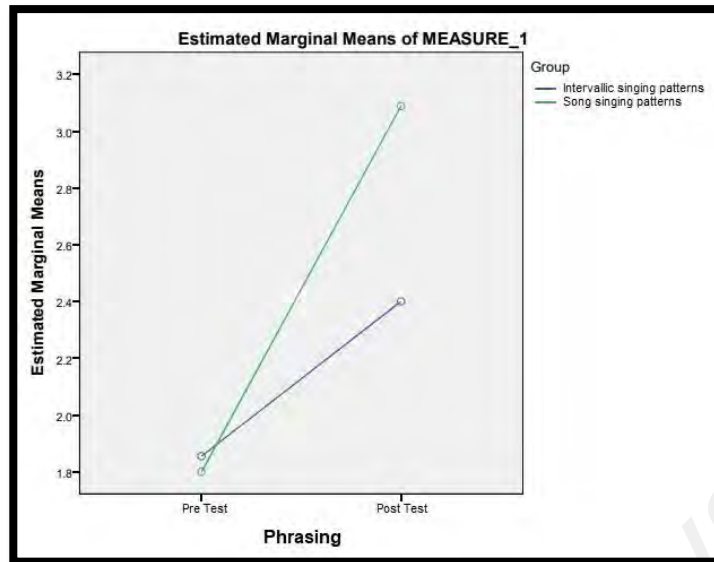
Figure 4.10 Profile plot for comparison between two experimental groups on *phrasing*

skill scores in Expression and Stylistic Singing Test (ESST).
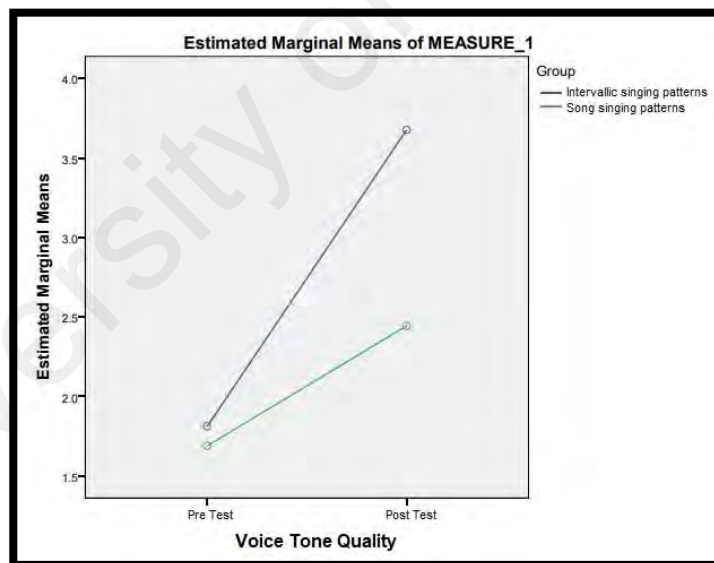
Figure 4.11 Profile plot for comparison between two experimental groups on *voice*

tone quality skill scores in Expression and Stylistic Singing Test (ESST).
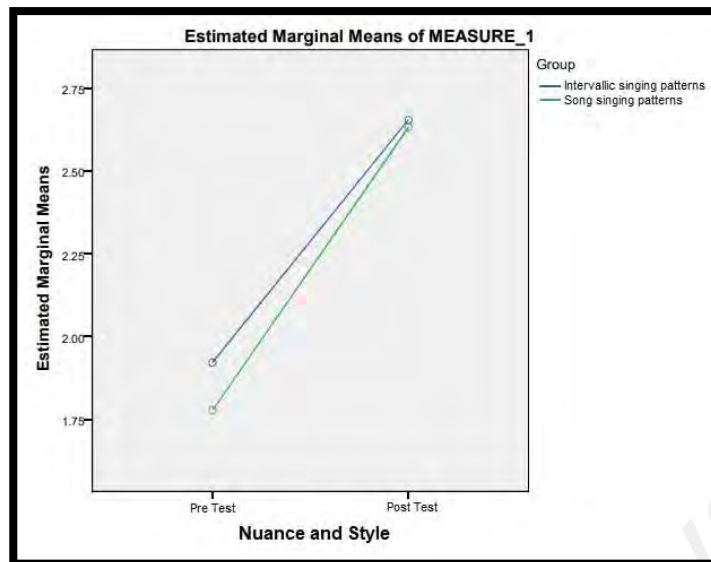
Figure 4.12 Profile plot for comparison between two experimental groups on *nuance and style performance* skill scores in Expression and Stylistic Singing Test (ESST).

The profile plots in Figures 4.11 and 4.12 show a steeper gradient on the intervallic singing pattern treatment compared with the song singing pattern treatment indicating a positive treatment effect on the variables of expression and stylistic singing skills, namely voice tone quality and creative performance of nuance and style.

4.5.2 Split-plot ANOVA analysis on effects of expression and stylistic singing skills through intervallic patterns versus song singing patterns

The data in Table 4.6 shows the results of the Split-Plot ANOVA analysis on the effects of intervallic singing skills in the Expression and Stylistic Singing Test (ESST). The results from the multivariate Pillai's Trace test indicated a significant interaction effect on two out of five variables of expression and stylistic singing skills. Dynamics [F (1,178) = .94, *p* = .340]; Style characteristics [F (1,178) = 21.65, *p* = .000]; Phrasing [F (1,178) = 60.97, *p* = .000]; Voice tone quality [F (1,178) = 81.71, *p* = .000]; Creative nuance and style [F (1,178) = 1.04, *p* = .310].

The effect size of dynamics [d=.01] indicates no treatment effect; style characteristics [d=.11] indicates a slightly small effect size; phrasing [d=.26], indicates a larger effect size compared to style characteristics; voice tone quality [d=.32] shows close to a medium effect size; creative nuance and style [d=.01] indicates no treatment effect. Overall, the results indicate one of the variables, voice tone quality experiencing some significant improvement on expression and stylistic singing achievement using the intervallic patterns versus song singing patterns interventions.

Table 4.6

Split-plot ANOVA analysis for the effect of expression and stylistic singing in the
Expression and Stylistic Singing Test (ESST)

Items	Expression and Stylistic Singing Test (ESST)						
	Experimental Group 1		Experimental Group 2		Pillai's Trace Test		
	Intervallic		Song Singing		Interaction effect		Effect Size (Cohen's *d*)
	Pre-test Mean	Post-test Mean	Pre-test Mean	Post-test Mean	F-ratio value at df = 1, 178	*p*	
Dynamics	1.94	2.69	1.91	2.77	.91	.340	.01
Characteristics	2.08	2.31	1.91	2.77	21.65	.000**	.11
Phrasing	1.86	2.40	1.80	3.09	60.97	.000**	.26
Tone quality	1.81	3.68	1.69	2.44	81.71	.000**	.32
Nuance & style	1.92	2.66	1.78	2.63	1.04	.310	.01

Note. *$p < .05$ **$p < .001$

4.6 Effect of Intervallic Singing Patterns versus Song Singing Patterns on Singing Tonality

To address research question 3, an analysis of variance using Split-plot ANOVA will be presented to recognise the intervallic patterns versus song singing patterns from "The Sound of Music" treatment effect on the singing tonality achievement. Multivariate Tests were piloted to decide if the interaction effect of the independent variables was significantly different. The significance level was set at alpha .05.

4.6.1 Profile plots on the differences in the Singing Tonality Test (STT)

Figure 4.13 demonstrates the profile plot on the effects of singing tonality total scores of the two experimental groups, by intervallic patterns versus song singing patterns from "The Sound of Music" attained in the Singing Tonality Test (STT). The shape of the graph indicate that mean scores for both experimental groups had increased from the pre-test to the post-test suggesting both intervallic patterns and song singing patterns treatments may have an effect on the participants' singing tonality achievement in the variable of established tonality and resulted improvements respectively.

The song singing pattern intervention shows a lower mean score in the pre-test compared to the intervallic singing pattern intervention mean score. For the post-test, the song singing pattern treatment display a higher mean score compared to the intervallic singing pattern treatment suggesting a greater gain in establishing tonality skills.

Figure 4.13 Profile plot for comparison between two experimental groups on *tonality established* skill scores in Singing Tonality Test (STT).

Figures 4.14 to 4.18 present the profile plots of the differences of each variable in the singing tonality skills achieved by the two experimental groups 1 and 2, intervallic patterns and song singing patterns respectively in the Expression and Stylistic Singing Test (ESST).

From all the profile plots indicated, the shape of the graphs exhibit the increase of mean scores for both experimental groups, the intervallic singing patterns (experimental group 1) and song singing patterns (experimental group 2) from the pre-test to the post-test. This indicates that both treatment interventions had an effect on the participants' singing tonality achievement and the resulting improvements.

There is an indication of a positive treatment effect on the variable of singing the melodic contours accurately as shown on Figure 4.14. The profile plot display a steeper gradient on the song singing pattern treatment compared to the intervallic singing pattern treatment. The profile plots in Figures 4.15 to 4.17 display a steeper gradient on the intervallic singing patterns treatment suggesting a greater gain in the variables of the

singing tonality skills scores. This indicates a more positive treatment effect for experimental group 1 on the variables of singing tonality skills.

The profile plot in Figure 4.18 display a steeper gradient on the mean scores for the song singing pattern treatment compared to the intervallic singing pattern treatment indicating a slightly positive treatment effect on the variable, singing with clear and focused tonality on the singing tonality achievement skill scores.
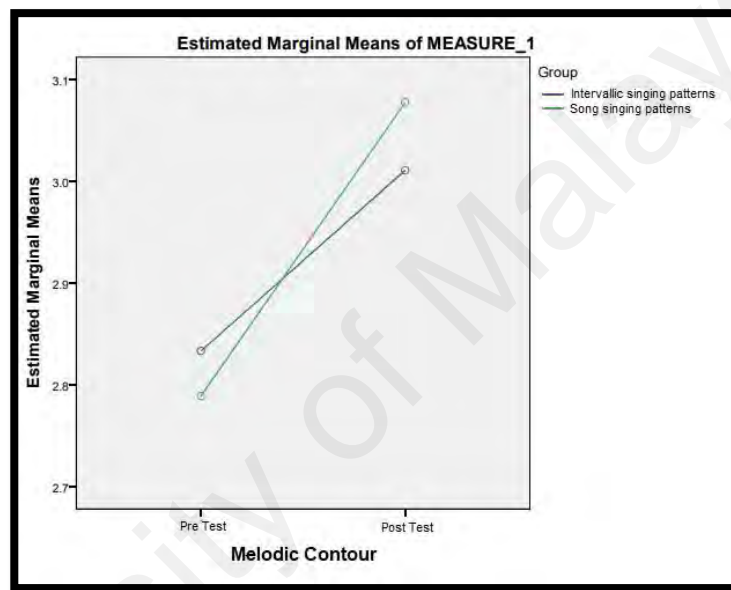
Figure 4.14 Profile plot for comparison between two experimental groups on *melodic contour* skill scores in Singing Tonality Test (STT).
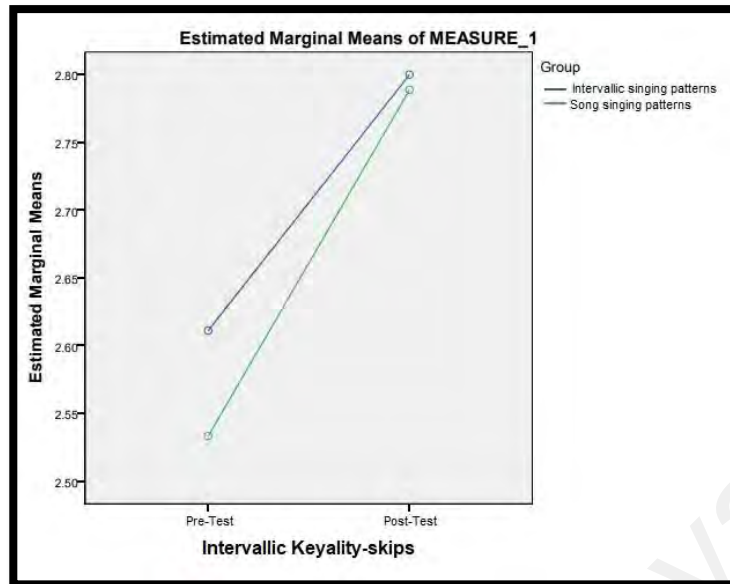
Figure 4.15 Profile plot for comparison between two experimental groups on *intervallic keyality-skips* skill scores in Singing Tonality Test (STT).
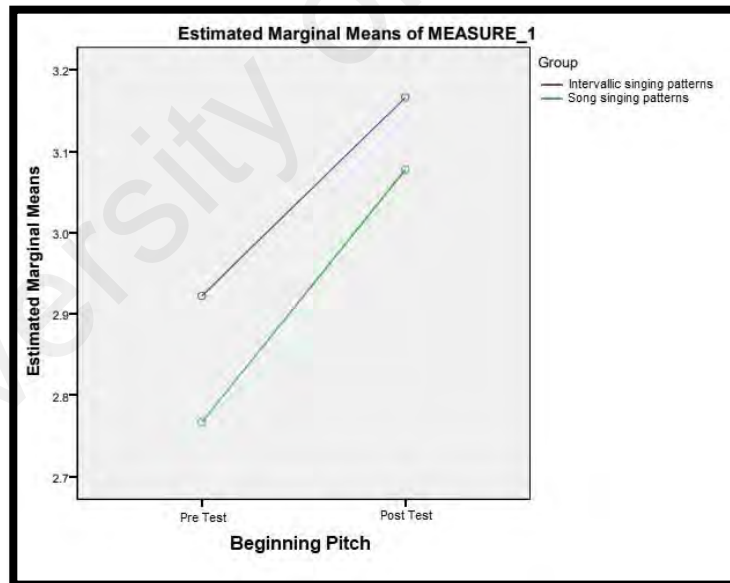
Figure 4.16 Profile plot for comparison between two experimental groups on *beginning pitch* skill scores in Singing Tonality Test (STT).
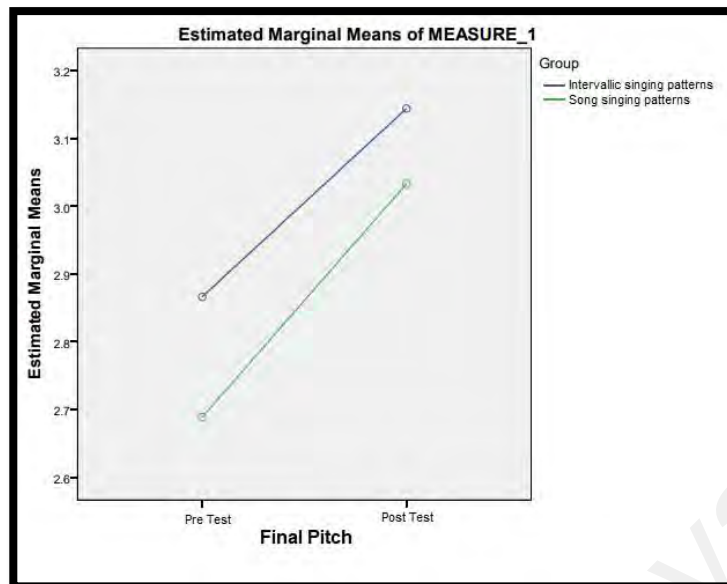
Figure 4.17 Profile plot for comparison between two experimental groups on *final pitch*
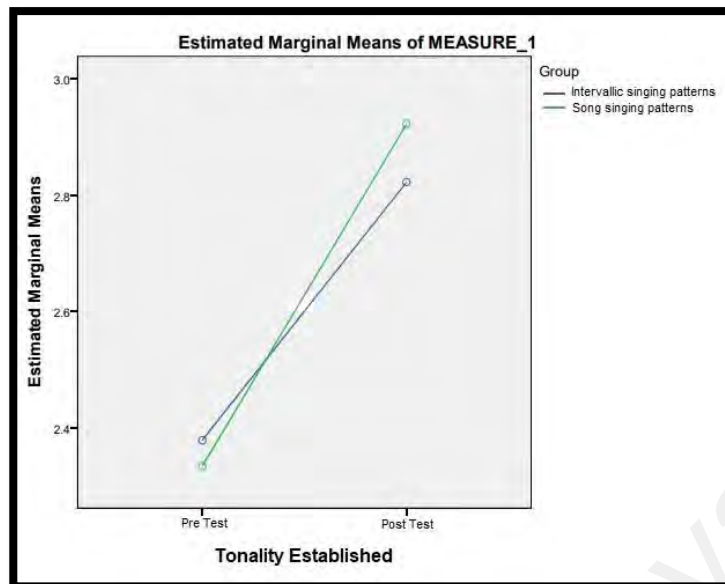
skill scores in Singing Tonality Test (STT).
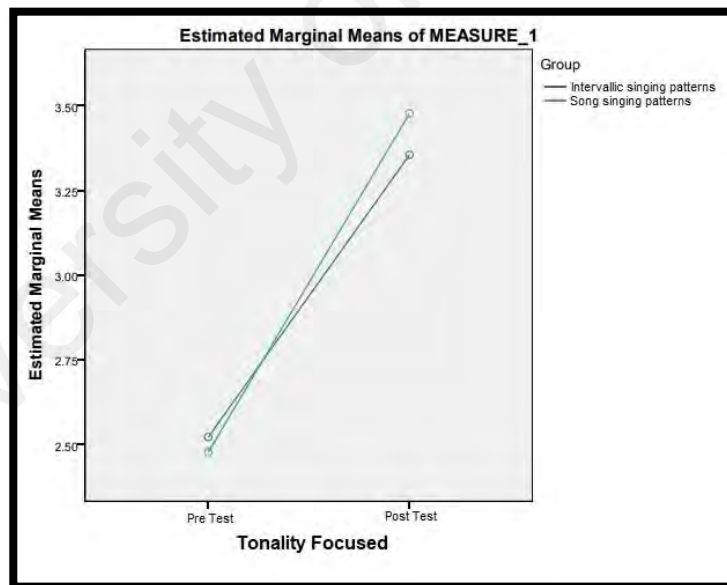
Figure 4.18 Profile plot for comparison between two experimental groups on *tonality*

focused skill scores in Singing Tonality Test (STT).

4.6.2 Split-plot ANOVA analysis on effects of singing tonality skills through intervallic singing patterns versus song singing patterns

The data in Table 4.7 shows the results of the Split-Plot ANOVA analysis on the effects of singing tonality skills in the Singing Tonality Test (STT).

Table 4.7

Split-plot ANOVA analysis for the effect of singing tonality in the Singing Tonality Test (STT)

	Singing Tonality Test (STT)						
Item	Experimental Group 1		Experimental Group 2		Pillai's Trace Test		
	Intervallic		Song Singing		Interaction effect		Effect Size (Cohen's *d*)
	Pre-test Mean	Post-test Mean	Pre-test Mean	Post-test Mean	F -ratio value at df = 1, 178	*p*	
Tonality established	2.38	2.82	2.33	2.92	3.80	.053*	.02
Melodic contour	2.83	3.01	2.79	3.08	1.84	.176	.01
Intervallic keyality-skips	2.61	2.80	2.53	2.79	1.15	.285	.01
Beginning pitch	2.92	3.17	2.77	3.08	.48	.489	.00
Final pitch	2.87	3.14	2.69	3.03	.59	.444	.00
Tonality focused	2.52	3.36	2.48	3.48	2.57	.111	.01

Note. *$p < .05$ **$p < .001$

The results from the multivariate Pillai's Trace test indicated a significant interaction effect on three out of six variables of singing tonality skills. Tonality established [F $(1,178) = 3.80$, *p* = .053*]; Melodic contour [F $(1,178) = 1.84$, *p* = .176]; Intervallic keyality-skips [F $(1,178) = 1.15$, *p* = .285]; Beginning pitch [F $(1,178) = .48$, *p* = .489]; Final pitch [F $(1,178) = .59$, *p* = .444]; Tonality focused [F $(1,178) = 2.57$, *p* = .111]. The effect size of established tonality [d=.02] indicates no treatment effect; Melodic contour [d=.01], intervallic keyality-skips [d=.01], beginning pitch [d=.00], final pitch [d=.00] and tonality focused [d=.01] all indicate no treatment effect.

Overall, the results indicate no significant improvement or effect on the variables of singing tonality achievement using the intervallic patterns versus song singing patterns interventions.

4.7 Effect of Intervallic Singing Patterns versus Song Singing Patterns on Vocal Singing Technique

To address research question 4, an analysis of variance using Split-plot ANOVA will be presented to recognise the intervallic singing patterns versus song singing patterns treatment effect on the vocal singing technique achievement. Multivariate Tests were piloted to decide if the interaction effect of the independent variables was significantly different. The significance level was set at alpha .05.

4.7.1 Profile plot on the differences in the Vocal Singing Technique Test (VSTT)

Figure 4.19 demonstrates the profile plot on the effects of vocal singing technique total scores of the two experimental groups, by intervallic patterns versus song singing patterns attained in the Vocal Singing Technique Test (VSTT) for the variable of articulated pitches. The shape of the graph indicate that mean scores for both experimental groups had decreased from the pre-test to the post-test suggesting both intervallic patterns and

song singing patterns treatments may have had a negative effect on the participants' vocal singing technique achievement and resulted regress respectively.

Although the song singing pattern intervention has a lower mean score in the pre-test compared to the intervallic pattern intervention, in the post-test however, the intervallic pattern displays a lower mean score compared to the song singing pattern intervention suggested no improvement in the variable of articulated pitches skills score in the Vocal Singing Technique Test (VSTT).

Figure 4.19 Profile plot for comparison between two experimental groups on *articulated pitches* skill scores in Vocal Singing Technique Test (VSTT).

Figure 4.20 Profile plot for comparison between two experimental groups on *breathing* skill scores in Vocal Singing Technique Test (VSTT).

Figure 4.20 displays the profile plot of the total mean scores of the two experimental groups, intervallic singing patterns and song singing patterns treatments for the pre-test and post-test on the variable of breathing in the Vocal Singing Technique Test (VSTT). The shape of the graph indicates a steady increase in both mean scores for the pre-test and post-test suggesting a positive effect on the breathing skill scores achievement. The song singing pattern treatment indicates a steeper gradient suggesting a greater gain on the variable of breathing skill scores achievement of participants.

Figure 4.21 Profile plot for comparison between two experimental groups on *posture* skill scores in Vocal Singing Technique Test (VSTT).

The profile plot in Figure 4.21 displays the mean scores of the two experimental groups, intervallic pattern and song singing pattern treatments for the variable of supportive posture as an effect of vocal singing technique skills achievement. The graph for the mean score of intervallic pattern treatment displays a decrease from the pre-test to the post-test suggesting a negative effect on the variable of posture for the vocal singing technique skills achievement. However, the graph for the song singing pattern treatment indicates that the mean score increased from the pre-test to the post-test suggesting a greater gain on the effect of posture for the variables in the Vocal Singing Technique Test (VSTT).

Figures 4.22 to 4.24 present the profile plots of the differences of each variable namely voice range, continuous tone quality and tempo respectively in vocal singing technique skills achieved by the two experimental groups, intervallic patterns (experimental group 1) and song singing patterns (experimental group 2) in the Vocal

Singing Technique Test (VSTT). From all the profile plots indicated, the shape of the graphs exhibit the mean scores for both experimental groups. All increased from the pre-test to the post-test. This indicate that both treatment groups had an effect on the participants' vocal singing technique skills achievement and the resulting improvements.

However, from the profile plot in Figure 4.22, although the intervallic pattern treatment has a lower mean score in the pre-test compared to the song singing pattern treatment, both treatments display similar mean scores in the post-test suggesting the same positive treatment effect on the variable of voice range in the vocal singing technique skills achievement. Whereas the profile plot in Figure 4.23 display a higher mean score for the intervallic singing pattern treatment compared to the song singing pattern treatment suggesting a greater gain of the effect on the variable of continuous tone quality in the vocal singing technique skills achievement. The mean score in Figure 4.24 display a steeper gradient on the song singing pattern treatment compared to the intervallic pattern treatment suggesting a greater gain on the effect of the variable of tempo in the vocal singing technique skills achievement.
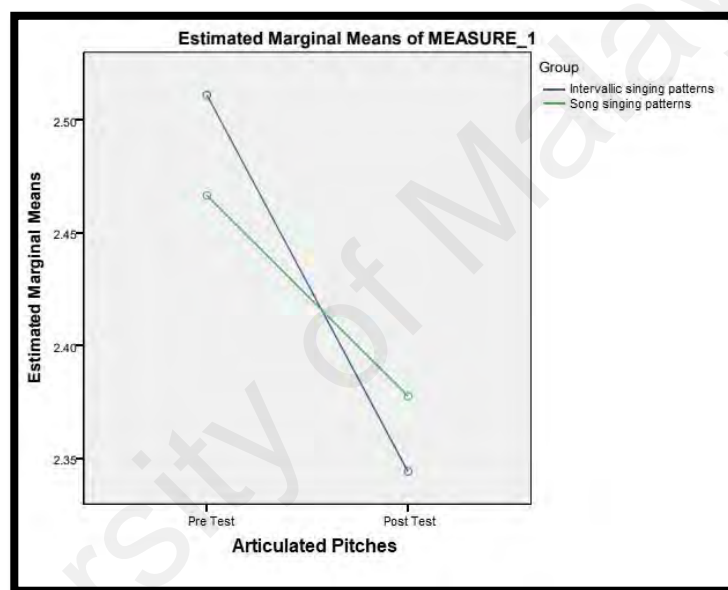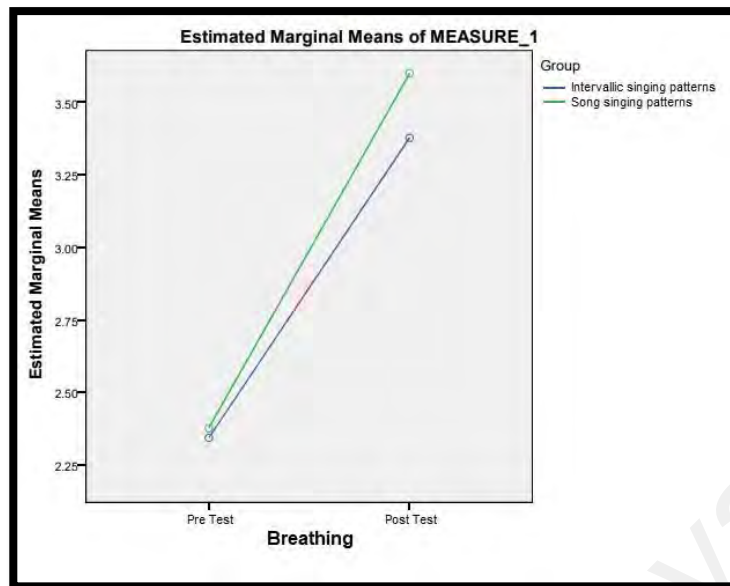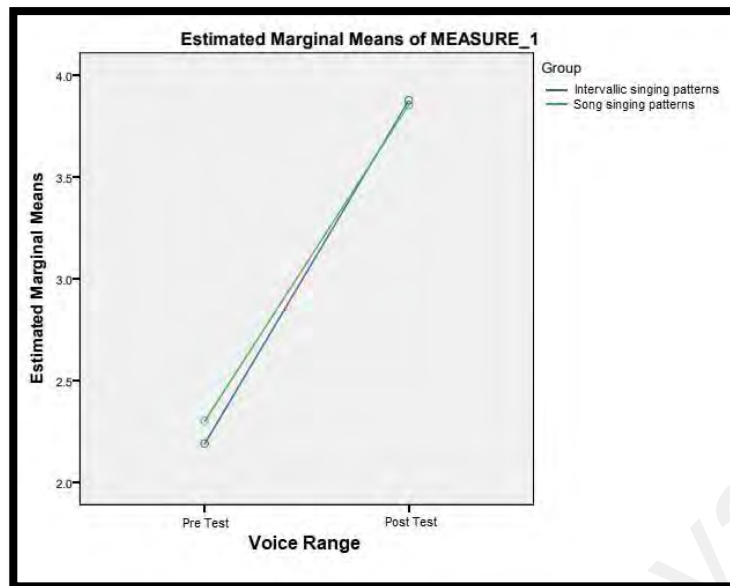
Figure 4.22 Profile plot for comparison between two experimental groups on *voice range* skill scores in Vocal Singing Technique Test (VSTT).
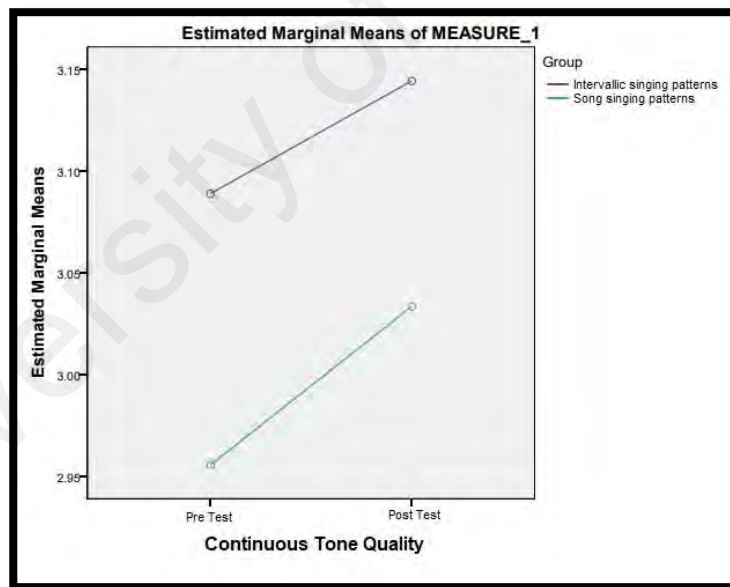
Figure 4.23 Profile plot for comparison between two experimental groups on *continuous tone quality* skill scores in Vocal Singing Technique Test (VSTT).
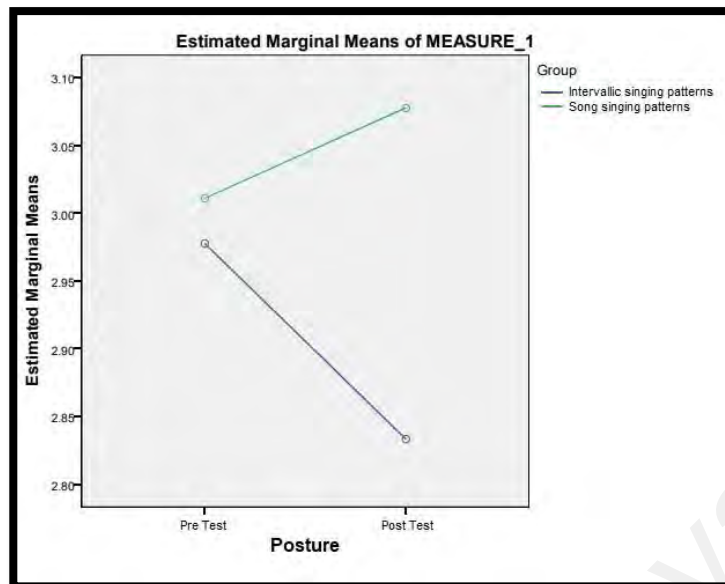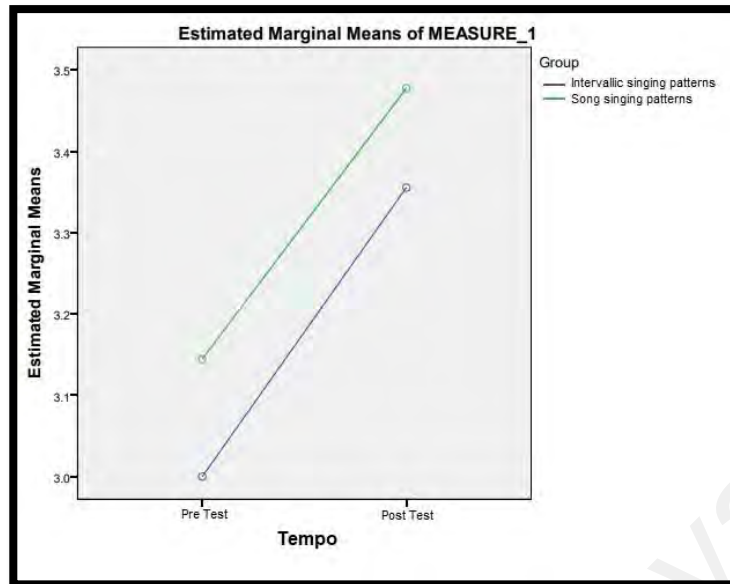
Figure 4.24 Profile plot for comparison between two experimental groups on *tempo*

skill scores in Vocal Singing Technique Test (VSTT).

4.7.2 Split-plot ANOVA analysis on effects of vocal singing technique skills through intervallic singing patterns versus song singing patterns

The following data in Table 4.8 shows the results of the Split-Plot ANOVA analysis on

the effects of vocal singing technique skills in the Vocal Singing Technique Test (VSTT).

Table 4.8

Split-plot ANOVA analysis for the effect of vocal singing technique in the Vocal Singing Technique Test (VSTT)

Item	Experimental Group 1		Experimental Group 2		Pillai's Trace Test		Effect size (Cohen's *d*)
	Intervallic		Song Singing		Interaction effect		
	Pre-test Mean	Post-test Mean	Pre-test Mean	Post-test Mean	F -ratio value at df = 1, 178	*p*	
Articulated pitches	2.51	2.34	2.47	2.38	.48	.491	.00
Breathing	2.34	3.38	2.38	3.60	2.79	.097	.02
Supportive posture	2.98	2.83	3.01	3.08	5.35	.022*	.03
Voice range	2.19	3.88	2.30	3.86	1.23	.268	.01
Continuous tone quality	3.09	3.14	2.96	3.03	.02	.896	.00
Tempo	3.00	3.36	3.14	3.48	.03	.857	.00

Note. *$p < .05$ **$p < .001$

The results from the multivariate Pillai's Trace test indicated a significant interaction effect on four out of six variables of vocal singing technique skills. Articulated pitches [$F (1,178) = .48$, $p = .491$]; Breathing [$F (1,178) = 2.79$, $p = .097$]; Supportive posture [$F (1,178) = 5.35$, $p = .022*$]; Voice range [$F (1,178) = 1.23$, $p = .268$]; Continuous tone quality [$F (1,178) = .02$, $p = .896$]; Tempo [$F (1,178) = .03$, $p = .857$]

The effect size of articulated pitches [d=.00], continuous tone quality [d=.00] and tempo [d=.00] indicate no treatment effect as with voice range [d=.01]. The effect size for supportive posture [d=.03] could be considered close to a small effect size when

compared to the effect size of breathing [d=.02] which is small. Overall, the results indicate no significant improvement on the variables of vocal singing technique achievement using the intervallic singing patterns versus song singing patterns intervention.

4.8 Summary of the results

From all the analyses performed, it can be concluded that both experimental groups encountered positive treatment effects in the variables of vocal singing achievement tests. However, the song singing pattern treatment intervention (experimental group 2) proved to exhibit positive treatment effects on several variables of the vocal singing achievement skills. The results indicate a higher percentage in gain scores in all the categories of Expression and Stylistic Singing Test (ESST) except for ability to produce loud and soft variations (dynamics) and creative nuance and stylistic performance. The results indicate a higher percentage in gain scores in all the categories of Vocal Singing Technique Test (VSTT) except for functional breathing and supportive posture. There was no significant treatment effect on the variables of Intervallic Singing Test (IST) and Singing Tonality Test (STT) from the song singing pattern treatment.

DISCUSSION, IMPLICATION AND RECOMMENDATIONS

5.1   Overview

This chapter presents the discussion, implication and recommendation of the study. The sections are organized as follows: (1) summary of results; (2) discussion of findings of the study; (3) conclusion; (4) implications of the study; (5) recommendations for future study; and (6) closing remarks. The findings and recommendation were presented to address the research questions of the study. The research questions included:

1. What are the effects of practising intervallic patterns versus song singing patterns in vocal singing achievement?

2. How do singing intervallic patterns versus song singing patterns affect expression and stylistic singing?

3. What is the effect of intervallic singing patterns versus song singing patterns on singing tonality?

4. What is the effect of intervallic singing patterns versus song singing patterns on vocal singing technique?

5.2   Summary of Results

Overall, the song singing pattern treatment (experimental group 2) generated significant results in only two out of four tests, Expression and Stylistic Singing Test (ESST) and Vocal Singing Technique Test (VSTT) as compared to the intervallic singing pattern treatment (experimental group 1). The Intervallic Singing Test (IST) was measured by seven criterions. Five criterions were measured on the Expression and Stylistic Singing

Test (ESST) and six criterions were measured in both the Singing Tonality Test (STT) and Vocal Singing Technique Test (VSTT).

The measurement for Intervallic Singing Test (IST) was based on (1) *able to sing the 2nd interval accurately*; (2) *able to sing the 3rd interval accurately*; (3) *able to sing the 4th interval accurately*; (4) *able to sing the 5th interval accurately*; (5) *able to sing the 6th interval accurately*; (6) *able to sing the 7th interval accurately* and (7) *able to sing the 8ve interval accurately*; the measurements for Expression and Stylistic Singing Test (ESST) were (1) *ability to produce variations of loud and soft*; (2) *performs the characteristics styles of the music*; (3) *able to demonstrate sensitive phrasing*; (4) *able to demonstrate continuous voice tone quality* and (5) *able to perform with creative nuance and style*; the measurements for Singing Tonality Test (STT) were (1) *able to establish tonality*; (2) *able to sing melodic contour accurately*; (3) *accuracy of intervallic keyality-related skips*; (4) *able to produce beginning pitch accurately*; (5) *able to produce final pitch accurately* and (6) *able to maintain focused and clear tonality*; the measurements for Vocal Singing Technique Test (VSTT) were (1) *able to produce articulated pitches*; (2) *functional breathing*; (3) *uses full range of the voice*; (4) *maintains supportive posture*; (5) *maintains continuous tone quality among registers* and (6) *consistency of maintaining tempo throughout*.

In the Intervallic Singing Test (IST), the pre-posttest means, standard deviations and mean difference showed higher scores in the song singing pattern treatment (experimental group 2) through all interval singing except for the 6th and 7th intervals compared to the intervallic singing pattern treatment (experimental group 1). In comparison for the mean difference for the variable of 2nd interval singing, the song singing pattern treatment recorded a mean difference of 0.35 while the intervallic singing pattern treatment recorded 0.24 (MD) thus showing an insignificant treatment effect with

a difference of -11% with experimental group 1. The song singing pattern treatment recorded a mean difference of 0.52 (*3rd interval*), 0.36 (*4th interval*), 0.78 (*5th interval*) and 0.79 (*8ve interval*) respectively whilst the intervallic singing pattern treatment recorded a mean difference of 0.22 (*3rd interval*), 0.13 (*4th interval*), 0.38 (*5th interval*) and 0.57 (*8ve interval*) thus scoring percentages of 30%, 23%, 40% and 22% respectively for experimental group 2 showing significant treatment effect in the intervention of song singing pattern treatment. However, there was a decline of the mean score in the song singing pattern treatment for 6th and 7th interval with a recorded mean difference of 0.35 and 0.31 respectively when compared to intervallic singing pattern treatment which recorded a mean difference of 0.37 (*6th interval*) and 0.35 (*7th interval*) thus showing a significant treatment effect for the experimental group 1.

In the Expression and Stylistic Singing Test (ESST), the song singing pattern treatment (experimental group 2) recorded higher mean scores, standard deviations and mean differences in all variables except voice tone quality during the pre- and posttests as compared to the intervallic singing pattern treatment (experimental group 1). For the measurement of dynamics, the results of experimental group 1 recorded a mean difference of 0.75 compared to the higher score of experimental group 2 mean difference which is 0.86. This gives a significant treatment effect of 11% for the song singing pattern treatment. For performance style and sensitive phrasing, the song singing pattern treatment recorded mean differences of 0.86 and 1.29 respectively while the intervallic singing pattern treatment recorded mean differences of 0.23 and 0.54 respectively. This demonstrates a better result of percentages in the song singing pattern treatment with a significance of treatment effect with 63% for performance style and 75% for sensitive phrasing. The variable of creative nuance and style recorded a mean difference of 0.85 for song singing pattern treatment and 0.74 (MD) for intervallic singing pattern treatment which shows a slight significant effect of 11% in the song singing pattern treatment.

However, voice tone quality was recorded to have a greater significant treatment effect of 112% in the intervallic singing pattern treatment with the mean difference of 1.87 compared to the song singing pattern treatment with the mean difference of 0.75.

The variables in the Singing Tonality Test (STT) all showed a positive treatment effect using the song singing pattern treatment as compared to the intervallic singing pattern treatment. For the measurement of establishing tonality, the song singing pattern treatment recorded a mean difference of 0.59 compared to 0.44 (intervallic singing pattern treatment) giving a significance 15% in the results for experimental group 2. For the measurement of singing accuracy of melodic contour, the mean difference result of experimental group 2 recorded 0.29 compared to the mean difference score of 0.18 for experimental group 1. This shows a slight positive treatment effect in the song singing pattern treatment with 11%. The mean difference result for song singing pattern treatment in the variable of intervallic keyality-skips showed 0.26 whereas the mean difference for intervallic singing pattern treatment showed 0.19 indicating an increase of 7% treatment effect for experimental group 2. For the variable of intervallic keyality-skips, experimental group 1 showed an insignificant treatment effect of -7% with a mean difference score of 0.18. The song singing pattern treatment recorded mean differences of 0.31 and 0.34 respectively for singing accuracy of beginning pitch and final pitch. However, the mean differences for intervallic singing pattern treatment were recorded at 0.25 for beginning pitch and 0.27 for final pitch accuracy. This shows a slight treatment effect for song singing pattern treatment with the 6% and 7% respectively. For the measurement of clear and focused tonality, the song singing pattern treatment recorded a mean difference of 1.00 while the intervallic singing pattern treatment recorded a mean difference of 0.84, giving significance to the treatment effect with 16% gain for this variable.

In the Vocal Singing Technique Test (VSST), the pre-posttest means, standard deviations and mean differences showed higher scores in the song singing pattern treatment (experimental group 2) for all the variables except for the measurement of voice range and tempo as compared to the intervallic singing pattern treatment (experimental group 1). For the measurement of articulated pitches, the mean difference recorded for the song singing pattern treatment is -0.09 whereas the intervallic singing pattern treatment was recorded as -0.17 (MD). This gives a slight positive treatment effect on the song singing pattern treatment with a percentage of 8%. For the measurements of functional breathing and supportive posture, the mean differences for song singing pattern treatment were recorded as 1.22 and 0.07 respectively while the mean differences recorded for intervallic singing patterns were 1.04 and -0.15 respectively. Both these variables demonstrated insignificant treatment effects on the intervallic singing patterns with -18% and -22% respectively as compared with the song singing pattern treatment. For the measurement of continuous tone quality, the song singing pattern treatment recorded a mean difference of 0.07 while the intervallic singing pattern treatment recorded a mean difference of 0.05, showing not a very significant treatment effect of 2% for the song singing pattern treatment. However, for the measurements of voice range and tempo, the intervallic singing pattern treatment recorded higher mean difference scores of 1.69 and 0.36 respectively as compared with the song singing pattern treatment which recorded lower mean difference scores of 1.56 and 0.34 thus giving a slightly higher significance in the treatment effect for intervallic singing pattern treatment.

5.3 Discussion of Findings of the Study

Two vital components which are to be considered in the proficiency of vocal singing achievement are intervallic singing skills and song singing skills. This study investigated the treatment effects of intervallic singing patterns versus song singing patterns on intervallic singing practice, expression and stylistic singing, singing tonality and vocal singing techniques. The discussion of the treatment effects are presented in the following points below.

5.3.1 Intervallic singing skills

The application of interval singing exercises is an effective teaching strategy in the improvement of a student's vocal singing development. The findings of the study demonstrated positive and significant results in several criterions of the different tests conducted to observe the vocal singing achievement in children when the intervallic singing pattern treatment was administered to the participants. Since interval recognition serves a major part of the primary music curriculum in the development of vocal singing performance, this study incorporated the practice of intervallic singing patterns as one of the research treatments.

Interval recognition improves the ability to distinguish pitches in melodic exercises and hence improves interval singing. In a recent study conducted by Stambaugh and Nichols (2020), they gathered findings from some researchers that specific intervals in melodic exercises can be distinguished with ease, predominantly the perfect 8ve interval, whereas the identification of other intervals can be challenging. Nichols (2016) conducted a study to measure the singing accuracy performance of participants in grade four using interval singing task as one of its criterions. The results disclosed a significant response in interval singing compared to the other criterions including singing excerpts of familiar songs. Researchers have suggested methodologies to improve singing in the

music curriculum for young children based on the complexity of singing tasks ranging from interval-matching exercises to song singing exercises (Demorest, Nichols, & Pfordresher, 2017).

However, due to the inconsistency of singing pedagogy achievements in previous studies on interval singing, music education researchers are therefore constantly seeking new and interactive ways that will not be seemingly lacking variety and repetitive in the manner of instruction for children to develop vocal singing achievement. Due to the lack of awareness on the benefits of learning music, time and resources spent on the Malaysian primary music education system have been cut down to allow other major subjects to be developed in the timetable. To acquire the skills of singing performance will require longer period of contact with children per week and extended time to develop vocal singing performance skills when utilising systemised singing exercises.

5.3.2   Song singing skills

Although there have been inadequate studies to support the practice of song singing patterns in children's singing achievements in primary music education, a few studies have indicated some significance in the application of lyrics to melodic patterns in song learning that will lead to vocal singing achievement. Based on empirical evidence and data in this study, the song singing pattern treatment seems to have demonstrated significant positive effects on criterions in two out of the four tests administered to the participants namely, the Expression and Stylistic Singing Test (ESST) and Singing Tonality Test (STT). The assessment of the variables in these two tests covered the criterions that support the expression, style and singing tonality dimensions of the children's singing voices.

In most primary music curriculums, singing is considered the major component of the syllabus because children are able to adapt quickly and experience enjoyment as they are able to memorise and participate in song activities. Children have the tendency to respond to singing with excitement by remembering the words of songs that are familiar and attractive to them (Kolb, 1996, para 1). Sims and Cassidy (1995) suggest that children may listen to songs containing lyrics for a longer period of time compared to instrumental pieces to retain their interest in music. Chen-Hafteck (1999) suggested children in the higher primary level may have the cognitive abilities to combine singing challenging intervals of melodic pitches when there is proficiency in text-melody relationship. Since the allocated time for the subject of music is limited in the primary music syllabus in Malaysian national and international schools, using song singing patterns as a teaching strategy may show improvement in the development of children's vocal achievement skills.

5.4 Conclusion

The conclusion is made according to the purpose of study. According to the discussion and findings of the study, both intervallic singing and song singing approaches have been found to be appropriate to improve children's vocal achievement skills systematically and experientially. However, the administration of song singing pattern treatment on participants demonstrated significant improvement on certain criterions of vocal singing skills in a shorter period of time. Hence, song singing patterns from familiar song excerpts are effective to vocal achievement skills that comprises of intervallic singing exercises, expression and stylistic singing, singing tonality exercises and vocal singing techniques.

5.5   Implication of the Study

The results in this study have shown that the song singing pattern approach has contributed significant results in the improvement of a child's vocal achievement skills. Music educators in the primary music education in national, private and international schools are encouraged to use this approach to enhance the singing development of a child based on the limited time allocated for the subject in primary education.

This study provides some suggestions of song singing pattern approaches using song excerpts from the musical 'The Sound of Music' written by Richard Rodgers and Oscar Hammerstein II which could be used in the music classroom. However, it is recommended that primary school music teachers compile more creative sounding song singing patterns from different sources that may be familiar to children in their song learning experiences. The materials compiled and created should possess the criteria that have been used in this study for the development of the vocal singing skills in primary school children.

5.6   Recommendation for Future Study

Based on the results of this study, it is recommended that primary music teachers and general teachers who have been assigned to teach music to include song singing patterns that derive from popular song excerpts from musicals and songs in children related movies and documentaries that could be familiar to children in their music lessons. Using song singing patterns to develop the vocal singing achievement of the child in the classroom has shown significant positive results. It seems that these methodologies are also effective when applied as echo singing patterns in singing tasks by the teacher. Music teachers of the primary level ought to have versatile knowledge on familiar and popular excerpts of song patterns that can be utilised for the purpose of vocal singing development.

In future study, researchers are recommended to compile and categorize various song singing patterns according to different degrees of song singing development among children. The level of difficulty in each song singing pattern material can be compiled according to the ability of the student at different levels.

Music researchers and educators are also recommended to investigate how song singing patterns can affect the child's singing development through sight-singing skills and the enhancement of cognitive skills in singing.

5.7   Closing Remarks

Overall, the study contributes to the primary music education in the area of vocal achievement skills. It provides some empirical evidence to prove that the teaching strategy of using song singing patterns are as effective as using intervallic singing patterns for the singing development of a voice student. Combining the findings from this study provides some new ideas for teaching strategies in further studies and for future research of vocal singing achievement of children.

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