



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

THE RELATIONSHIP BETWEEN MUSICAL  
ENVIRONMENT AND  
PRIMARY MEASURES OF MUSIC AUDIATION  
(PMMA) SCORES OF CHINESE CHILDREN IN  
PRIVATE KINDERGARTENS IN PENANG,  
MALAYSIA



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

TEOH SIEW KHIM

UNIVERSITI PENDIDIKAN SULTAN IDRIS

2013



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

THE RELATIONSHIP BETWEEN MUSICAL ENVIRONMENT AND  
PRIMARY MEASURES OF MUSIC AUDIATION (PMMA) SCORES OF CHINESE  
CHILDREN IN PRIVATE KINDERGARTENS IN PENANG,  
MALAYSIA

TEOH SIEW KHIM



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE  
DEGREE OF MASTER OF MUSIC EDUCATION  
(MASTER BY RESEARCH)

FACULTY OF MUSIC AND PERFORMING ARTS  
UNIVERSITI PENDIDIKAN SULTAN IDRIS

2013



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun  
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

## ACKNOWLEDGEMENTS

I would like to express my deepest gratitude and appreciation to my major advisor, Dr. Patricia Louise Bowes, for her guidance during the process of planning, implementing, and presenting this study. Her patient, tireless editing, and support have kept me on the task during the process.

To my second advisor, Prof. Zaharul Lailiddin bin Saidon, I would like to thank for his constant encouragement and inspiration. To other committee members, I appreciate their scholarly advice and contributions to the final draft of this dissertation.

I am deeply grateful and indebted to Dr. Ramlee Ismail who offered specific guidance to me regarding the SPSS analysis.

I would also like to give sincere and special thanks to the parents and teachers who participated in this study, and acknowledge them for their willingness to allow me to conduct the tests and complete the questionnaires. Thanks to the children who unknowingly contributed to this research. Without all your tenacious support, this research never would have come to fruition.

Finally, I would like to give thanks to my family members for their unconditional love and encouragement.



## ABSTRACT

The purpose of this study was to examine the relationship between musical environment and the developmental music aptitude scores of Chinese children in Penang, Malaysian kindergartens. The second aspect of the study investigated whether parent's attitude toward music, social economic status, and children's age have an impact on the music aptitude scores. Measures used to determine children's musical environment included the researcher-designed Home Musical Environment Questionnaire and Kindergarten Musical Experiences Questionnaire. Gordon's Primary Measurement of Music Audiation (PMMA) was used to evaluate the children's tonal and rhythmic music aptitudes. The sample comprised of 238 Chinese children age four to six enrolled in private kindergartens in Penang, Malaysia. Quantitative method was used in this study. The Pearson correlation coefficient revealed that home musical environment had a weak significant relationship between tonal subtest ( $r = .192, p < .01$ ), rhythm subtest ( $r = .178, p < .01$ ), and composite scores ( $r = .234, p < .001$ ). The kindergarten musical environment had an extremely weak significant relationship with tonal subtest ( $r = .140, p < .05$ ), rhythm subtest ( $r = .147, p < .05$ ), and composite ( $r = .176, p < .05$ ) score. Children's age and status social economic were also significantly correlated to PMMA scores. There was no significant relationship between parent's musical attitude and children developmental musical aptitude. Kindergarten musical environment and parent's attitude toward music were excluded from the regression equation. However, children's age in months, home musical environment, and socioeconomic status were the predictive factors of PMMA scores. Limitations and recommendations for the investigations are also included.





**Tajuk :** Perhubungan Di Antara Persekitaran Muzik Dengan Skor Pmma Bagi Kanak-Kanak Berbangsa Cina Di Prasekolah Negeri Pulau Pinang, Malaysia.

## ABSTRAK

Tujuan utama kajian ini ialah untuk mengkaji hubungan di antara persekitaran muzik dengan perkembangan potensi muzik bagi kanak-kanak berbangsa Cina di prasekolah Negeri Pulau Pinang, Malaysia. Aspek kedua kajian ini bertujuan menyiasat sama ada sikap ibu bapa terharap muzik, status sosial ekonomi, dan umur kanak-kanak mempunyai kesan ke atas perkembangan potensi muzik. Alat ukur kajian terdiri daripada soal selidik persekitaran muzik di rumah dan soal selidik persekitaran muzik di prasekolah, diikuti dengan ujian Primary Measures of Music Audiation (PMMA), Gordon. Ujian PMMA terbahagi kepada bahagian tonal muzik dan bahagian rentak muzik. Sampel kajian terdiri daripada 238 kanak-kanak Cina yang berumur 4-6 tahun dari prasekolah swasta di Pulau Pinang, Malaysia. Kaedah kuantitatif telah digunakan dalam kajian ini. Analisis Pekali Korelasi Pearson menunjukkan bahawa persekitaran muzik di rumah mempunyai hubungan signifikan yang lemah dengan tonal muzik ( $r = .192, p < .01$ ), rentak muzik ( $r = .178, p < .01$ ), dan skor komposit ( $r = .234, p < .001$ ). Persekitaran muzik di prasekolah mempunyai hubungan signifikan yang sangat rendah dengan tonal muzik ( $r = .140, p < .05$ ), rentak muzik ( $r = .147, p < .05$ ), dan skor komposit ( $r = .176, p < .05$ ). Umur kanak-kanak dan sosial ekonomi status mempunyai hubungan yang signifikan dengan perkembangan potensi muzik kanak-kanak. Walau bagaimanapun, tidak terdapat hubungan yang signifikan antara sikap ibu bapa terhadap muzik dan perkembangan potensi muzik kanak-kanak. Persekitaran muzik di prasekolah dan sikap ibu bapa terhadap muzik telah dikecualikan daripada persamaan regresi. Manakala umur kanak-kanak, persekitaran muzik di rumah dan sosial ekonomi status sesuai digunakan untuk meramal skor PMMA. Batasan dan cadangan atas kajian juga dikemukakan dalam tesis ini.



## TABLE OF CONTENTS

	<b>Page</b>
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
<i>ABSTRAK</i>	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 Introduction	1
1.2 Rational	10
1.3 Statement of the Problem	12
1.4 Purpose of the Study	13
1.5 Objectives of the Study	14
1.6 Research Questions	14
1.7 Conceptual Framework	15
1.8 Significance of the Study	18
1.9 Operational Definitions	19
1.10 Limitations of the Study	. 21
1.11 Organization of Remaining Chapters	21
<b>CHAPTER 2 LITERATURE REVIEW</b>	
2.1 Introduction	22

2.2	Nature and Nurture in Child's Musical Development	23
2.3	History and Background of Measurement of Music Aptitude	25
2.3.1	Seashore Measures of Musical Talent	26
2.3.2	Kwalwasser-Dykema Music Test	.27
2.3.3	Wing's Standardized Tests of Musical Intelligence	.28
2.3.4	Bentley's Measures of Musical Abilities	28
2.3.5	Gordon's Aptitude Tests	.29
2.3.6	The Taxonomy of Tonal and Rhythm Patterns	30
2.3.7	PMMA Preliminary Development Studies	31
2.3.8	Longitudinal Predictive Validity Studies	32
2.3.9	PMMA Norms	34
2.4	Validity and Reliability of Gordon's Musical Aptitude Test.	34
2.4.1	United States: Bell Study	35
2.4.2	Korea: Lee Study	36
2.4.3	Greece: Stamou, Schmidt and Humphreys Study	37
2.4.4	Malaysia: Bowes Study	37
2.5	Music Aptitude and Music Environment/ Experiences	38
2.6	Music Aptitude and Environment	39
2.6.1	Brand Study	39
2.6.2	Chuang Study	40
2.6.3	Hong Study	41
2.6.4	Malett Study	42
2.6.5	Gawlick Study	43

2.6.6	Rasmussen Study	44
2.6.7	Taylor Study	45
2.6.8	Helper Study	46
2.7	Music Aptitude and Musical Instruction	47
2.7.1	Dansereau Study	47
2.7.2	Hornbach & Taggart Study	48
2.7.3	Jaffurs Study	49
2.7.4	Pietrowski Study	49
2.7.5	Blesedell Study	50
2.7.6	Cernohorsky Study	51
2.7.7	Pickett Study	52

### CHAPTER 3 METHOD

3.1	Introduction	55
3.2	Research Design	56
3.3	Participants Selection	57
3.4	Measures	58
3.4.1	PMMA	58
3.4.2	Parent Questionnaire	59
3.4.3	Teacher Questionnaire	60
3.5	Ethical Considerations	61
3.6	Procedures	62



3.7	Modes of Analysis	62
3.8	Summary	64

## CHAPTER 4 RESULTS AND INTERPRETATIONS

4.1	Introduction	65
4.2	Pilot Test	66
4.3	Description of the Participants	69
4.4	PMMA Score	70
4.5	Parent Questionnaire	73
4.5.1	Home Musical Environment	73
4.5.2	Socioeconomic Status	78
4.5.3	Parent's Attitude toward Music	79
4.6	Teacher's Questionnaire	80
4.6.1	Kindergarten Musical Environment	80
4.7	Research Questions	82
4.7.1	Research Question 1	83
4.7.2	Research Question 2	85
4.7.3	Research Question 3	87
4.7.4	Research Question 4	90
4.8	Summary	96

**CHAPTER 5 DISCUSSION**

5.1	Introduction	98
5.2	Summary	99
5.3	Interpretations of the Finding	100
5.3.1	Research Question 1	100
5.3.2	Research Question 2	101
5.3.3	Research Question 3	102
5.3.4	Research Question 4	104
5.4	Limitations	104
5.5	Conclusions and Implications	105
5.6	Recommendations	110



REFERENCES	112
APPENDIX A (PARENT QUESTIONNAIRE)	118
APPENDIX B (TEACHER QUESTIONNAIRE)	120
APPENDIX C (PRINCIPLE PERMISSION LETTER)	122



### List of Tables

Table	Title	Page
3.1	Distribution of Sample by Kindergarten	58
4.1	Descriptive Statistics for Parent Questionnaire Pilot Test	67
4.2	Descriptive Statistics for Kindergarten Musical Environment Pilot Test	68
4.3	Reliability Statistics for Pilot Test Variables	68
4.4	Distribution of Sample by Cases	69
4.5	Distribution of Sample by Gender	70
4.6	Descriptive Statistics for Age	70
4.7	Descriptive Statistics for PMMA	71
4.8	Children's Frequency of Home Musical Environment	75
4.9	Descriptive Statistics for Parent Questionnaire	77
4.10	Reliability Statistics for Independent Variables	78
4.11	Parent Educational Level	79
4.12	Descriptive Statistics for Kindergarten Musical Environment	82
4.13	Pearson Product Moment Correlations of Home Musical Environment (HME) and PMMA	83
4.14	Pearson Product Moment Correlations among HME Items and HME Composite	84
4.15	Pearson Product Moment Correlations among PMMA Subtest and PMMA Composite	85
4.16	Pearson Product Moment Correlations of Kindergarten Musical Environment (KME) and PMMA	86
4.17	Pearson Product Moment Correlations among KME Items and KME Composite	87

4.18	Pearson Product Moment Correlations of Parent's Attitude Toward Music and PMMA	88
4.19	Pearson Product Moment Correlations of Socioeconomic Status (SES) and PMMA	88
4.20	Pearson Product Moment Correlations among Socioeconomic Status Items and Socioeconomic Status Composite	89
4.21	Pearson Product Moment Correlations of Children's Ages and PMMA	89
4.22	Stepwise Multiple Regression of Children Ages in Months, Home Musical Environment and Socioeconomic Status on PMMA	91
4.23	ANOVA summary for Stepwise Multiple Regression of Children Ages in Months, Home Musical Environment and Socioeconomic Status on PMMA	92
4.24	Prediction Equation for Stepwise Multiple Regression of Children Ages in Months (AMon), Home Musical Environment (HME) and Socioeconomic Status (SES) on PMMA	94
4.25	Multiple Regression Equation Excluded Variables	96

### List of Figures

Figure	Title	Page
1.1	Conceptual Framework	16
4.1	Frequency Distribution for PMMA Tonal Scores	72
4.2	Frequency Distribution for PMMA Rhythm Scores	72
4.3	Frequency Distribution for PMMA composite scores	73



## CHAPTER 1

### INTRODUCTION



#### 1.1 Introduction

Malaysia's kindergarten curriculum has aimed to focus on teaching and learning techniques which are suitable to age, self development, abilities, talents, and the children's interests, since the Ministry of Education began employing Developmentally Appropriate Practice (DAP) in 1987 (NAEYC, 2009). In music education, this movement required the teachers to have the professional preparation, special knowledge, skills, and resources to evaluate the children's interests, experiences, abilities, and talent in order to provide the best teaching and learning for the children. It may appear to be a challenging





task and require the assistance of parents, as they are the first teachers of the children. Parental support, motivation for music-related activities, and musical environment may significantly impact this effort.

Musical learning is an on-going process which starts in the home from birth, and each child needs individual consideration because of their difference in levels of musical potential. Gordon (2003b) stated, “Every child is born with at least some level of music aptitude, just as there are no children with no intelligence” (p.14). Thus, parents and kindergarten teachers are charged to make every effort to meet the individual needs of each child, including those musical. This would involve providing sufficient musical surroundings and offering appropriate music experiences to the children. To make all this happen, it would be helpful to know the level of each child’s music aptitude, ways to create a rich musical environment, and provide some appropriate formal and informal music guidance in order to develop a child’s full musical potential. My present study investigates the relationship between musical environment and developmental music aptitude of a group of Chinese children enrolled in private kindergartens in Penang, Malaysia.

The implementation of National Preschool Curriculum Standard (NPCS) by the Ministry of Education (MOE) in 2010, which replaced the National Preschool Curriculum (NPC) in 2003, aimed for all the kindergartens in Malaysia to nurture the potential of the child in an integrated manner, as each developmental aspect influences others. According to this NPCS goal, music is to be taught along side other components



in the creative and aesthetic arts, enhancing the child's other learning abilities (Liew & Lam, 2003), music is considered to be one of the subjects which could contribute to the total development of the child.

Although we might assume that Malaysia's MOE is aware that music plays an important role in supporting the cross curricular approaches which enable children to link different areas of learning, music education may have not been well implemented in most of the kindergartens in Malaysia. Efforts to discover and develop our children's potential in learning music may still be an alien concept for most parents and teachers. Moreover, the well-established approaches of music education in early childhood, such as Kodály, Orff, Dalcroze, Suzuki, and Gordon's Music Learning Theory, have never been clearly and seriously adapted in the curriculum guidelines set by the MOE. Liew and Lam (2003) reported that the majority (81.3%) of the kindergartens in Malaysia apply their own method in music teaching, while 11.9 % employ Yamaha, Musikgarten, Alfred, Lina Ng piano methods, and 3.4% use Dalcroze and Orff. The condition could be due to the lack of sufficient knowledge, training, and implementation of these special music programs.

Therefore, educating students through music is given more emphasis than teaching music to children in Malaysia's kindergarten music education. Instances of using music in the curriculum were (a) teachers' use of hygiene songs to educate the child in proper personal hygiene habits, (b) responsibility songs employed to educate children about respect for environment and elders, (c) friendship songs taught to improve children's social skills, (d) alphabet songs sung to assist the children's readiness for





Malay and English languages, and (e) number counting songs taught to develop children's numeracy skills in mathematics. Many kindergarten teachers and parents assert that music learning is a vehicle for other aspects of learning and should not stand independently as other academic subjects. Interestingly, Ministry of Education (MOE), music teachers, and even parents rarely explore questions such as:

1. Are all these integrated programs enough to encourage music learning?
2. How can we meet the individual needs of each child in music learning?
3. How do we create the musical environments which are characterized by appropriate musical interaction, material, and opportunities that will encourage children's development of musical aptitude?



Normally the kindergarten curriculums are designed to reflect what parents want for their children. Martin Luther said,

I always loved music; who so has skill in this art is of a good temperament, fitted for all things. We must teach music in schools; a schoolmaster ought to have skill in music, or I would not regard him (Luther, cited in Pound, & Harrison, 2003, p. viii).

If all Malaysian parents shared this attitude, it would encourage music teachers to seriously and critically reflect and create effective early childhood music programs. Most parents require the kindergarten curriculum to emphasize literacy and numeracy in order to provide their child a firm foundation for formal education in preparation for entering primary school. The concept of requiring children to learn music in order to become a music professional is still held in low regard in Malaysian society. Although both the





government and private kindergartens are required to follow the directives of the NPCCS as set by the MOE; teachers are allowed to implement their own curriculum on the provision that it is in addition to the NPCCS requirements.

Most of the generalist teachers may have minimal understanding of how to provide instruction or an effective environment in which the individual child's music aptitude can bloom. They may do well in helping the children to enjoy and perform music at the year-end concert, however, they may be struggling with helping the children to understand music. Bentley (1975), one of the pioneer researchers in the measurement of music aptitude, emphasized that music education is not only for entertainment and geared to present the annual music concert. Although the enjoyment of music and year-end music concert performances has its place in encouraging all the parties to be involved in music, it is only part of music education. Further progress has to be made beyond this short-term satisfaction in the efforts to produce concerts.

With the knowledge of music aptitude test scores, teachers can create a stimulating environment which enables students to develop and explore their musical potential. In addition, the results of the test can assist both parents and teachers to accept and respect the individual differences in children's responses and ability to learn music, and to better know the children's strengths and weaknesses in order to challenge children appropriately.



Regarding the differences of the children's music aptitudes, the debate continues to abound concerning the genetic and environmental factors in influencing its development. Horner (1968) reported that many early studies (Friend, 1939; Gaw & Stanton, 1922; Revesz, 1953; Schoen, 1940) generally stated that musical ability was innate and could not be influenced by environmental forces. He strongly believed that nature, not nurture, was responsible for one's musical talent. Gembris and Davidson (2002) pointed out that the notion of genius that emerged in the 18<sup>th</sup> and 19<sup>th</sup> centuries was responsible for promoting this public opinion. The idea that musical ability is considered a special gift that is relatively independent from environmental influences and the learning process continues to persist to this day. From the literature, during the first half of 20<sup>th</sup> century, most music psychologists and educators (Friend, 1939; Gaw & Stanton, 1922; Horner, 1968; Revesz, 1953; Seashore, 1938; Schoen, 1940) attributed musical ability to heredity instead of environmental influence. However, the evidence supporting the influence of heredity on music aptitude is inconclusive.

Upon entering the second half of 20<sup>th</sup> century, some music educators and music psychologists have endeavored to ascertain the relative contributions of heredity and environment to child's music aptitude (Kirkpatrick, 1962; Reynolds, 1960). They were in agreement that heredity and environment both played significant roles in the development music aptitude. Professors of psychology, Parke and Gauvain (2009) stressed that the modern developmentalists nowadays do not support either of these extreme positions. Instead, they explore how nature and nurture factors interact and work together to produce developmental variations in different children. Therefore, it is not about whether



either heredity or environment is solely responsible for the observed outcomes. Rather, the extent to which heredity and environment contribute to the development of music aptitude seems to be the present concern.

Other than the genetic and environmental factors, the variety of terminology associated with music aptitude tests, such as musical aptitude, musical achievement, musical intelligence, musical talent, and music abilities, also has been confusing. Gordon (2003a) defined music aptitude as the potential to achieve in music; it is a product of both innate potential and early environmental experiences. He stressed that music aptitude is innate, but is not hereditary. For instance, the level of a child's inborn music aptitude cannot be predicted on the basis of the level of his/her parent's music aptitude. He provided a more in-depth explanation that the level of one's music aptitude is commensurate with how well one *audiates*. The word *audiate* was coined and defined by Gordon as one's ability to "hear and comprehend music for which the actual sound is no longer physically present" (Gordon, 2003a, p.46). It is a cognitive process by which the brain gives meaning to musical sounds. Gordon (2003a) stressed that *audiation* is the basis of both music aptitude and music achievement. By providing children with appropriate knowledge and experiences, we can lead them to use their *audiation* potential as it is determined by their music aptitude to maximize their music achievement. The child's music aptitude can be nurtured and will fluctuate until approximately the age of nine (Gordon, 2003a).





Similar to Gordon, Hargreaves (1986) stated that the tests of musical aptitude are to assess an individual's potential for skilled musical behavior regardless of previous musical learning. Dorhout (1982) also defined music aptitude as a product of innate potential, stressed that music aptitude is an early experience which is unaffected by practice.

In contrast, an achievement test aims to assess the actual knowledge and skill that one has attained, not the potential to learn (Gordon, 2003a). Gordon stated that "music achievement is intellectual and primarily in the brain, whereas, music aptitude is spontaneous and primarily in the cells and genes, that is, in the entire body" (2003a, p. 42). Children who have a high level of music achievement generally have high music aptitude, but those who have a low level of music achievement, may not necessarily have a low level of music aptitude. It is a result of one's opportunity and exposure to music. "There are students with high music aptitude who never achieve to their potential because they have not had appropriate guidance or instruction in music" (Gordon, 2003a, p.42). Dorhout (1982) also stated that music achievement was referred to students' abilities after training, such as the abilities to differentiate between major and minor, to recognize tonal center, and to read music.

The term "intelligence" is generally defined as "problem-solving ability, verbal ability, and social competence" (Parke & Gauvain, 2009, p. 353). In the theory of multiple intelligences, Gardner (2004) proposed eight independent intelligences, which are linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, naturalist,





interpersonal, and intrapersonal. He defined intelligence as an ability to solve problems, create products, and discover new knowledge in a wide range of culturally valued activities. Musical intelligence was defined as the ability to produce and appreciate pitch, rhythm or melody, and aesthetic quality of the forms of musical expressiveness. Additionally, the musical intelligence can be stimulated and enhanced earlier in life and continue later in life than any of the other intelligences (Gardner, 2006).

In music, the terms “aptitude” and “talent” are commonly used to designate the innate dimension of ability (Reimer, 2003). Schoen (1940) defined “musical talent” as capacity for musical performance. Seashore (1938), for example, suggested that musical talent comprised six related areas involving sensory discrimination: pitch, loudness,



rhythm, time, consonance, and tonal memory. However, Seashore excludes “musicality” as a part of “musical talent”. Lundin (1953) stated that musical talent consists of musical feeling, musical understanding, musical sensitivity, and musical virtuosity, but it is restricted to acquired proficiency in artistic skills. Gordon used “aptitude” rather than mentioning “talent” in all his tests in order to avoid the confusing issue between music achievement and music aptitude.

Bentley (1975) interpreted abilities as a combination of genetic predisposition and experience or training which indicators of future development or progress, whereas, “talent”, “aptitude”, and “intelligence” imply a kind of genetic predisposition that may influence future development and progress. Boyle and Radocy (1987) also believed that



musical ability is the result of genetic endowment and maturation combined with whatever musical skills may develop with formal music education.

## 1.2 Rationale

Measurement of music aptitude is important for teachers to assist the children in the music learning process. The more the teachers understand the measurement and development of the child's music aptitude, the better they will be able to help the children in their current learning process and their future as well. Gordon emphasized that the music-teaching strategies can be developed in determining students' success in music achievement after the administration of the aptitude test.

Furthermore, as emphasized by Gordon (2003b), the development of music aptitude will stabilize by age nine, so a rich musical environment is essential to the development of child's music aptitude prior to this age. The level of music aptitude is at its highest when one is born, and it will decrease shortly after birth depending on the quality of a nurturing musical environment until the age of nine (Gordon, 1999). Without an appropriate musical environment, this potential may severely diminish.

In various countries, the music education profession has been using music aptitude tests as an aid in music education since early of 20<sup>th</sup> century. Franklin (1971) reported that the pioneer researchers in the testing of musical aptitude are, among others,

Seashore and Gordon (USA), Wing and Bentley (England), and Franklin and Holmstrom (Sweden). The well known aptitude tests included Seashore's Measures of Musical Talent (1919); Kwalwasser-Dykema Music Test (1930); Wing's Standardized Tests of Musical Intelligence (1947); Bentley's Measures of Musical Abilities Test (1966); Gordon's aptitude tests: Musical Aptitude Profile (MAP) (1965); Primary Measures of Music Audiation (PMMA) (1979); Intermediate Measures of Music Audiation (IMMA) (1982); and Advance Measures of Music Audiation (AMMA) (1989). Gordon had made a major contribution to this field, especially for the designation of developmental music aptitude test which was rooted upon the work of his predecessors, such as Carl Emil Seashore (1866-1949), James Lockhart Mursell (1893-1963), Jacob Kwalwasser (1894-1977), Peter Dykema (1873-1951), Raleigh M. Drake, and Herbert D. Wing

The Primary Measures of Music Audiation (PMMA) was Gordon's first test which was designed to measure the children's developmental music aptitude before their level of music aptitude becomes stabilized at age nine. Numerous researches had been conducted to investigate the validity and reliability of Gordon's PMMA test. Bell (1981) validated the PMMA for use with learning disabled children in the United States. Lee (2010) reported significantly higher scores on the PMMA than Bell's sample. Stamou, Schmidt, and Humphreys (2010) standardized PMMA for use in Greece. Brand (1986) reported that home musical environments are valuable for children in developing their music achievement rather than children's PMMA scores. Gawlick (2002) found children's heredity and home environment may have the strongest influences on child's





PMMA scores, but concluded that music experiences have a greater influence on children's music achievement than PMMA scores. Hornbach and Taggart (2005) reported no significant relationship was found in between singing achievement and PMMA tonal music aptitude. Pietrowsky (2002) showed an encouraging growth in PMMA rhythmic aptitude scores by the effect of movement instructions. The variety of all these results point to the need for further research as Gordon emphasized the role of music environment in the developmental of music aptitude.

Additionally, all of these studies were conducted outside of Malaysia except one which was conducted very recently by Bowes (2011). It is timely for music educators in Malaysia to investigate the appropriateness of Gordon's aptitude test. Therefore, as the second study, this research will investigate on the relationship of musical environment with the Gordon's PMMA score for a group of Chinese children in kindergartens in Penang, Malaysia.

### 1.3 Statement of the Problem

Traditional ways of identifying the children's music aptitude through the teacher's evaluations may be ineffective and difficult to differentiate whether the children's performance is due to their innate musical potential or their musical experiences before entering kindergarten. As a result, the teachers are often struggling to plan realistic and appropriate music activities to meet each child's musical needs. The effects of the



musical environment in kindergarten and the home may greatly influence children's developmental music aptitude. The problem addressed in this study was to determine both the parents' and teachers' knowledge and information regarding how to identify and track the effectiveness of the child's musical environment and the child's developmental music aptitude.

Although parents and kindergarten teachers show encouraging interest to involve their children in music activities, the majority lack appropriate time and environment to assist in the development children's musical aptitude growth. Gordon emphasized the importance of appropriate early formal and informal music experiences and music environment in maintaining children's music potential before it is stabilized at

approximately age nine. The children's level of music aptitude may decline if early musical influences are not sufficient, and music aptitudes will begin to rise if the situation is corrected. It was therefore believed that investigation in this field would assist the effort to develop our children's musical aptitude during these formative years (birth-age 9).

#### **1.4 Purpose of the Study**

The purpose of this quantitative study was to examine correlations between musical environment and music aptitude as measured by PMMA scores of 4-6 year old Chinese children in private kindergartens in Penang, Malaysia.

## 1.5 Objectives of the Study

The objectives of the study focus on:

1. The relationship of home musical environment and children's developmental musical aptitude.
2. The relationship of kindergarten musical environment and children's developmental musical aptitude.
3. The relationship of music aptitude and parent musical attitude, social economic status, and children's age.
4. Home musical environment, kindergarten musical environment, parents' musical attitude, social economic status, and children's age

## 1.6 Research Questions

In pursuing the objectives of the study, the specific research questions are listed below:

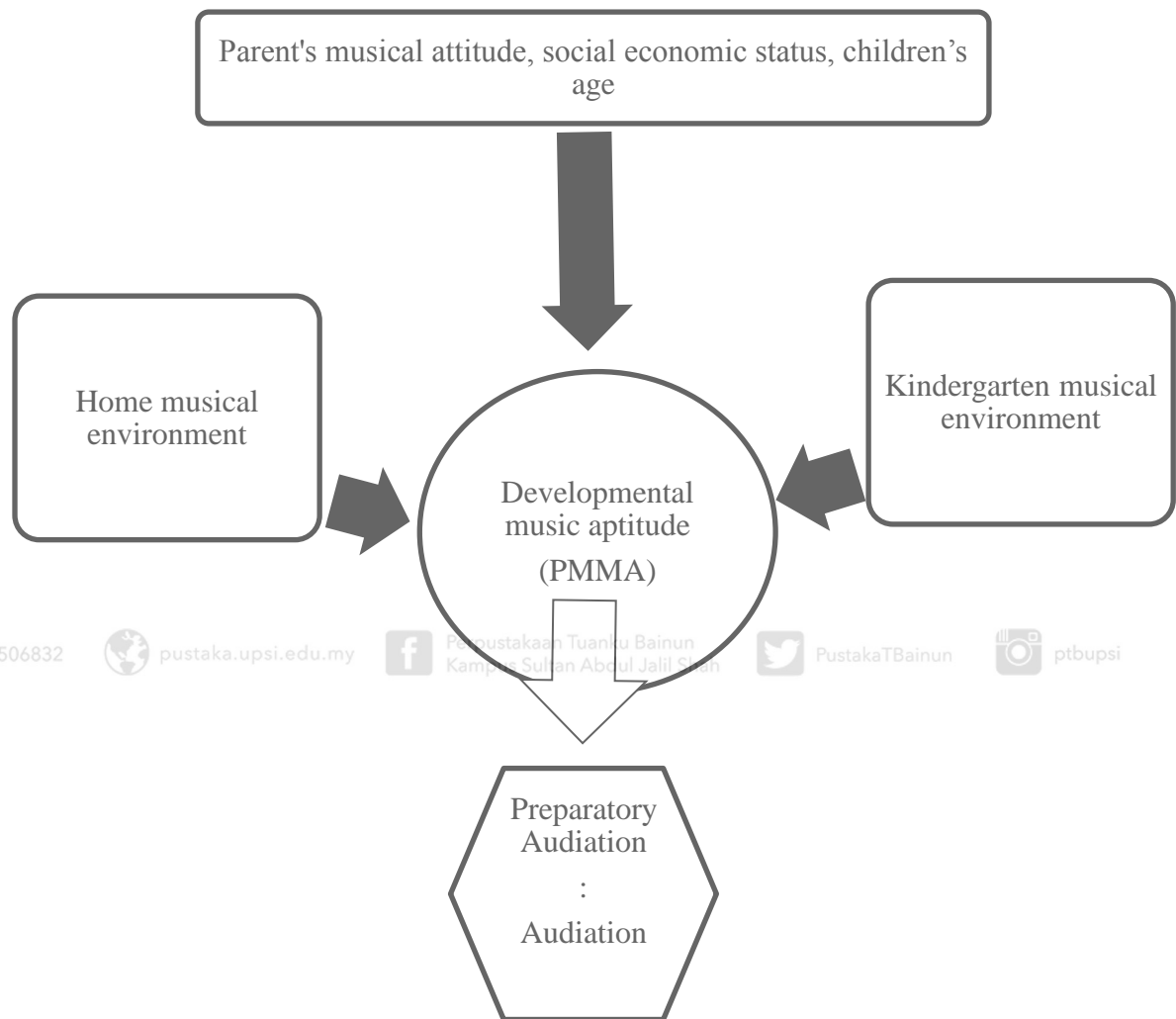
1. What is the relationship between home musical environment (HME) and tonal subtest, rhythm subtest, and composite aptitude scores on PMMA scores of Chinese children ages 4-6 in Penang, Malaysia?
2. What is the relationship between kindergarten musical environment (KME) and tonal subtest, rhythm subtest, and composite aptitude scores on PMMA of Chinese children ages 4-6 in Penang, Malaysia?

3. What is the relationship of children's music aptitude with the following:
  - a. Parents' musical attitude
  - b. Social economic status
  - c. Children's age
4. To what extent does home musical environment, kindergarten musical environment, parents' musical attitude, social economic status, and children's age contribute to children developmental music aptitude?

## 1.7 Conceptual Framework

Developmental music aptitude, home musical environment, and kindergarten musical environment are the three main key components of the conceptual framework in relation to the objectives of the study. On the other hand, private music lessons, parents' musical background, attitude toward music, and social economic status, and children's age are the additional factors described in conjunction with the key components of the study. A conceptual model which identified all the key components is shown in Figure 1.1.

**Figure 1.1 Conceptual Framework**



This study was grounded in Gordon's Music Learning Theory, which delineates the path for children's musical development through *audiation*, the foundation of this theory, and the basis of the PMMA test. Gordon coined and defined the term, *audiation* as to hear and comprehend music in the mind. It is the basis of music aptitude and



fundamental to both development and stabilized music aptitude as well as music achievement. According to Gordon, the process of learning language and music is very similar. “Music babble” as the early stage for a child’s musical growth, analogous to the babble stage in language development (Gordon, 2003). A child in this stage cannot audiate because he/she does not understand the syntax of the adult musical world. The child must go through the types and stages of preparatory audiation before developing into the *audiation* stage, this progression is dependent upon his/ her musical environment and inborn music potential.

Music aptitude at birth is innate and the child is in the developmental stages during the early years, until approximately age of nine, at which time the child enters into the stabilized music aptitude stage (Gordon, 2003a). Gordon believed that children’s developmental music aptitude is affected by the musical environment. In this study the musical environment was referred to home musical environment and kindergarten environment, which was analyzed separately in relation to children’s developmental music aptitude. Parents’ attitude toward music, social economic status, and children’s age were also investigated in relation to the developmental music aptitude.



## 1.8 Significance of the Study

The results of this study could help the parents and teachers become aware that the musical environment children receive in their very early ages at home and kindergarten is of the utmost importance, and seem to directly influence their levels of developmental music aptitude. Gordon emphasized that those who received the highest quality of informal music guidance and rich musical environment during the developmental music aptitude stage have the potential to maintain their innate level of music aptitude and increase their music achievement (2003a).

These findings may also serve as a guide for teachers and parents to initiate a realistic and functional music curriculum in kindergarten. Through Gordon's PMMA test, parents and teachers may find knowledge of results useful to assist them to meet the individual needs of each child in understanding music. By knowing the child's music aptitude and realizing the influence of music curriculum to the child's development of music aptitude, the teachers can help children to acquire some skills in music which would arouse the children's musical interest and thereby raise their musical achievement. Additionally, the children may enjoy learning music more if they are allowed to continue to develop their interests and aptitudes (Bentley, 1975).

## 1.9 Operational Definitions

The following terms and their definitions are listed in alphabetical order and used for purpose of the study:

1. Audiation: “hearing and comprehending in one’s mind the sound of music that is not or may never have been physically present. It is neither imitation nor memorization” (Gordon, 2003a, p. 361). Imitation, sometimes called inner hearing, is a product, whereas audiation is a process. (Gordon, 2001, p. 4).
2. Development music aptitude: “Music potential that is affected by the quality of environment factors. “A child is in the developmental music aptitude stage from birth to approximately nine years old” (Gordon, 2003a, p. 364). It is an individual’s developing musical potential which only can be measured during the first few years of life.
3. Formal music guidance: direct music instructions which are planned specifically according to time allocation and required expectations from the child when he/she enters kindergarten or private music.
4. Genetics: the effect of heredity on individual differences and the innate capacities with which a person is born.
5. Heredity: refers to “the genes we inherit from our biological parents” (T. L. Crandell, Crandell, & Zanden, 2009, p.80). It is part of the genetics factor.
6. Innate: in born.
7. Kindergarten: educational program in Malaysian for children ages four through six, beginning in January of each calendar year.



8. Informal music guidance: naturally and non-conscious musical exposure without any required expectations from the child, which may take place at home, or kindergarten.
9. Imitation: “Repeating music that was heard without giving it musical meaning” (Gordon, 2003a, p. 367).
10. Music achievement: “accomplishment in music” (Gordon, 2003a, p. 372).
11. Music aptitude: “the potential to achieve in music” (Gordon, 2003a, p. 372).
12. Music environment: included both formal and informal music guidance at home and kindergarten.
13. Music Learning Theory: “The analysis and synthesis of the sequential manner in which we learn when we learn music” (Gordon, 2003a, p. 372).
14. Preparatory audiation: Hearing and comprehending music as preparation for engaging in audiation. There are three types and seven stages of preparatory audiation.
15. PMMA: Primary Measurement of Music Audiation, test to measure children’s developmental music aptitude, developed by Edwin Gordon.
16. Stabilized music aptitude: “music potential that is no longer affected by environmental factors. A child enters the stabilized music aptitude stage at approximately nine years old, and remains there throughout life” (Gordon, 2003a, p. 376).



### 1.10 Limitations of the study

This study is limited to the Chinese private kindergarten children ages four and six in Penang, Malaysia. The results and conclusions of this study may not be applicable to other populations in other states, countries, and cultures. Another major limitation of this study was that the teachers' and parents' questions were restricted to forced-ranking responses.

### 1.11 Organization of Remaining Chapters



Chapter 2 includes the literature reviews which are organized into three topics associated with developmental music aptitude: a) the nature and nurture debate in influencing the development of the child; b) background of PMMA; and c) the influences of the developmental music aptitude. Chapter 3 provides a comprehensive description of the research design, the participants, methodology, data collection procedure, and methods of analysis for this study. Presentation, analysis, and interpretation of data are provided in Chapter 4. In Chapter 5, the whole study is summarized and includes conclusions and recommendations.

