Sing by Ear:
A Study of Motivation, Informal Learning, and Musicianship of
Popular Music Education in Hong Kong

by

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Statement of Originality

I, POON, Tsz Wai Pearly, hereby declare that I am the sole author of the thesis, and that the material presented in this thesis is my original work except as indicated in the acknowledgements. I further declare that I have followed the University’s policies and regulations on Academic Honesty, Copyright, and Plagiarism in writing the thesis, and no material in this thesis has been submitted for a degree in this or other universities.
Abstract

Hong Kong students’ declining motivation levels in learning music have become an alarming issue and a challenge for music educators. At the same time, while expressing an interest in popular music, local students have limited opportunities to study the genre as part of their formal school curricula. It leaves the question of what kinds of teaching strategies and music materials should be constructed to provide students with educational and musical values in the school music curriculum. The present study explores the effects and responses of implementing popular music education in the local classroom, examines students’ motivational levels and, the psychology of music learning based on the self-determination theory.

A teaching approach was created based on the concepts from informal learning practices with the addition of singing elements, namely the Sing by Ear project. The approach is tailored to the Hong Kong classroom music context, as instruments and spacious practice rooms are not required when resources are limited. The project aims to provide a comprehensive music learning approach in which confidence, and satisfaction, and musicianship through listening, creating, and performing could be earned collaboratively and simultaneously with the activity. The current research was administered under the explanatory sequential approach, which involves two phases of data collection: a quantitative phase followed by a qualitative phase. By employing the convenience sampling method, 323 participants (aged 11-14) were invited to the three-month project. Students were involved in singing cover songs by ear instead of reading music notations in an a cappella setting. A mobile learning strategy was adopted due to the enforcement of social distancing measures following the outbreak of the COVID-19 pandemic.

Data were collected by pre-test and post-test survey instruments and student
interviews to determine (1) the extent of self-determination for having formal school music lessons, (2) the motivational changes based on the self-determination theory (SDT) by implementing the Sing by Ear approach, (3) the difference in students’ motivation level by (a) gender, (b) grade level, (c) instrumental background, and (d) span of previous music training, and (4) the effect of informal learning practice and learning by ear approach of the Sing by Ear project on the learning process and musicianship in students. An understanding of how that influences their musical learning process and motivation level is provided based on SDT.

Results show that students has high level of Amotivation in formal music lessons, indicating that the students are neither motivated by internal nor external factors. Moreover, results show that students’ motivation levels in the Intrinsic motivation domains have higher increases than in the other domains after the Sing by Ear project, suggesting that students experience a quality intrinsic motivation that promotes psychological growth and internal regulation. With no significant relationships ($p > .05$) found between motivation levels and the factors of (a) gender, (c) grade level, (c) instrumental background, and (d) span of instrumental learning, the results also indicated that students, regardless of instrumental background, could experience higher motivation in learning music. In the qualitative interviews, students reported a gain in musicianship and confidence in making music through peer-directed informal learning.

The limitations of the study should be observed. The convenience sampling of participants and the number of participants may have restricted diversity in this study. Students from different schools or different regions may have demonstrated varying characteristics.
The findings serve as a reference for discussions in the Hong Kong secondary school music curriculum. From a new perspective, popular music education with e-learning elements is introduced in the classroom setting. The possibility of introducing the informal learning style into formal school settings is also explored. In addition, the results obtained from Hong Kong may aspire to different pedagogical approaches in popular music education in a global context.

Keywords: popular music education, informal learning, learn by ear, self-determination, mobile learning
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Table of Contents

Statement of Originality i
Abstract ii
Acknowledgements v
Table of Contents vi
List of Abbreviations ix
List of Figures x
List of Tables xii

Chapter 1: Introduction 1
1.1 Background 1
1.2 Statement of Problem 3
1.3 Purpose of the Study 5
1.4 Research Questions 6

Chapter 2: Literature Review 8
2.1 The Definition of Popular Music 8
2.2 The Value of Popular Music in International Music Education 9
2.3 Formal and Informal Learning 27
2.4 Musicianship—Learn by Ear 31
2.5 Musicianship—Sing by Ear 36
2.6 Adaptation of Informal Learning in the Sing by Ear Project 38
2.7 Motivation Theories in Psychology 38
2.8 Motivation Research in Music Education 46
2.9 Self-Determination Theory in Psychology 52
2.10 Self-Determination Theory Research in Music Education 57
2.11 From E-Learning to M-Learning in Music Education 71
2.12 Theoretical Framework of the Present Study 80

Chapter 3: Methodology 83

3.1 Research Questions 83
3.2 Participants 83
3.3 The Sing by Ear Project 84
3.4 Research Design 86
3.5 Data Collection 89
3.6 Data Analysis 94
3.7 Procedure 95
3.8 COVID-19 Pandemic and Mobile Learning 97
3.9 Ethical Issues 98

Chapter 4: Survey findings 99

4.1 Participants 99
4.2 Post Hoc Internal Consistency Reliability Analysis of the Survey Instrument 102
4.3 Correlation Matrix of the Seven Domains 105
4.4 Self-Determination for Formal School Music Lessons 109
4.5 Self-Determination For the Sing by Ear Project 118
4.6 Changes in Self-Determination After the Sing by Ear Project 128
4.7 Summary of Survey Results 138

Chapter 5: Multiple-Case Study 145

5.1 Students’ Cases 148
5.2 Cross-case Analysis 173

Chapter 6: Discussion 181

6.1 Response to Research Question One 182
6.2 Response to Research Question Two 185
# List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABRSM</td>
<td>The Associated Board of the Royal Schools of Music</td>
</tr>
<tr>
<td>APME</td>
<td>The Association for Popular Music Education</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>CDC</td>
<td>The Curriculum Development Council</td>
</tr>
<tr>
<td>EMS</td>
<td><em>Echelle de Motivation vis-à-vis les Sports</em></td>
</tr>
<tr>
<td>EPP</td>
<td>Ear Playing Project</td>
</tr>
<tr>
<td>GCSE</td>
<td>The General Certificate of Secondary Education</td>
</tr>
<tr>
<td>HKDSE</td>
<td>The Hong Kong Diploma of Secondary Education Examinations</td>
</tr>
<tr>
<td>IASPM</td>
<td>The International Association for the Study of Popular Music</td>
</tr>
<tr>
<td>MANOVA</td>
<td>Multivariate Analysis of Variance</td>
</tr>
<tr>
<td>MENC</td>
<td>The Music Educators National Conference</td>
</tr>
<tr>
<td>MPMS</td>
<td>Music Practice Motivation Scale</td>
</tr>
<tr>
<td>NAfME</td>
<td>The National Association for Music Education</td>
</tr>
<tr>
<td>OLE</td>
<td>Other Learning Experience</td>
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<td>SDT</td>
<td>Self-determination Theory</td>
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<tr>
<td>SMS-28</td>
<td>Sport Motivation Scale</td>
</tr>
</tbody>
</table>
List of Figures

Figure 2.7: The Self-Determination Continuum 53
Figure 2.8: The Self-Determination Continuum with Music Behaviours 56
Figure 2.9: The Self-Determination Proposed Model 60
Figure 2.11: The Self-Determination Final model 62
Figure 2.22: Framework Comprising Three Distinctive Characteristics of Mobile Learning 75
Figure 2.23: Theoretical Framework of 3M: Mobile Learning, Motivation and Musicianship 79
Figure 2.24: Theoretical Framework of the Present Study 81
Figure 3.1: Diagram of the Explanatory Sequential Approach 86
Figure 3.2: One-group Pretest-posttest Design 87
Figure 3.4: The Self-Determination Model 93
Figure 4.32: Interaction Effect of Intrinsic Motivation—To Know Domain by Grade Level 133
Figure 4.33: Interaction Effect of Intrinsic Motivation—To Accomplish Domain by Grade Level 134
Figure 4.34: Interaction Effect of Intrinsic Motivation—To Experience Stimulation Domain by Grade Level 134
Figure 4.35: Interaction Effect of Extrinsic Motivation—Identified Domain by Grade Level 135
Figure 4.36: Interaction Effect of Extrinsic Motivation—Identified Domain by Grade Level 135
Figure 4.37: Interaction Effect of Extrinsic Motivation—External Regulation Domain by Grade Level 136
Figure 4.38: Interaction Effect of Amotivation Domain by Grade Level

Figure 7.1: Pedagogical Model of Popular Music Education for the Sing by Ear Project
List of Tables

Table 2.1: Hong Kong Adolescents’ Song Preferences 22
Table 2.2: Music Style Preference of Young Hong Kong Students 23
Table 2.3: Student’s Attitude Toward Different Musical Genres Taught in Music Lessons in School 24
Table 2.4: Students’ Views on Diverse Music Styles That They Would Prefer to Learn in School Music Lessons (Shanghai) 25
Table 2.5: Differences Between Formal and Informal Learning 29
Table 2.6: Criteria for Formal and Informal Education 29
Table 2.10: The Self-Determination Correlation Matrix 61
Table 2.12: MPMS Subscale Definitions 64
Table 2.13: MPMS Items from the Intrinsic Motivation—To Know Subscale 65
Table 2.14: MPMS Items from the Intrinsic Motivation—To Accomplish Subscale 65
Table 2.15: MPMS Items from the Intrinsic Motivation—To Experience Stimulation Subscale 66
Table 2.16: MPMS Items from the Extrinsic Motivation—Identified Subscale 67
Table 2.17: MPMS Items from the Extrinsic Motivation—Introjected Subscale 67
Table 2.18: MPMS Items from the Extrinsic Motivation—External Regulation Subscale 68
Table 2.19: MPMS Items from the Amotivation Subscale 69
Table 2.20: Ranking of MPMS Subscale Scores 69
Table 2.21: E-Learning Related Concepts 72
Table 3.3: MPMS Subscale Definitions 90
Table 4.1: Gender Distribution of Participants 99
Table 4.2: Grade Distribution of Participants 100
Table 4.3: Age Distribution of Participants

Table 4.4: Music Background Distribution of Participants

Table 4.5: Span of Instrumental learning of Participants

Table 4.6: Gender/ Span of Instrumental Learning Grouping Crosstabulation of Participants

Table 4.7: Post Hoc Internal Consistency Reliability Analysis of the 28 items in the Survey (Pre-test)

Table 4.8: Post Hoc Internal Consistency Reliability Analysis of the 28 items in the Survey (Post-test)

Table 4.9: Correlation Matrix of the Seven Domains (Pre-test)

Table 4.10: Correlation Matrix of the Seven Domains (Post-test)

Table 4.11: Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.12: Male Students’ Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.13: Female Students’ Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.14: Form One Students’ Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.15: Form Two Students’ Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.16: Instrumental Learners’ Self-Determination for Formal School Music Lessons (Pre-test)

Table 4.17: Non-instrumental Learners’ Self-determination for Formal School Music Lessons (Pre-test)
Table 4.18: Instrumental Learners’ (Less than 5 Years) Self-Determination for Formal School Music Lessons (Pre-test)  

Table 4.19: Instrumental Learners’ (More than 5 Years) Self-Determination for Formal School Music Lessons (Pre-test)  

Table 4.20: Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.21: Male Students’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.22: Female Students’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.23: Form One Students’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.24: Form Two Students’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.25: Instrumental Learners’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.26: Non-instrumental Learners’ Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.27: Instrumental Learners’ (Less than 5 Years) Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.28: Instrumental Learners’ (More than 5 Years) Self-Determination for the *Sing by Ear* Project (Post-test)  

Table 4.29: Univariate *F*-test (Pre-test and Post-test)  

Table 4.30: Ranking for All the Participants of the Seven Domains in the Self-Determination Changes  

Table 4.31: Interaction Effect: Pre-Post by Grade Level
Table 4.39: Ranking of the Seven Domains in the Self-Determination Changes (Form One Students) 137

Table 4.40: Ranking of the Seven Domains in the Self-Determination Changes (Form Two Students) 138

Table 5.1: Interview Questions 145

Table 5.2: Students’ Background Information 146

Table 5.3: The Cross-case Matrix 177
Chapter 1

Introduction

1.1 Background

In Hong Kong, students have limited opportunities to study popular music in their formal school curricula. Based on the studies by Fung et al. (2000) and Ho (2002, 2013) on students’ music preferences, statistics revealed that local students are interested in learning popular music, especially local Cantonese popular music. In terms of Hong Kong adolescents’ music preferences, the present study focuses on the effects and impacts of implementing popular music education in classroom teaching designed in an informal learning setting, which includes singing popular songs by ear in schools’ music curricula. In this study, informal learning refers to a flexible curriculum that is designed to be tailored to the learners’ needs and interests, and with a peer-directed setting to accomplish a learning activity (Coombs & Ahmed, 1974; Dib, 1988; Mok, 2011; Rogers, 2014).

The current study employs the concept of an informal learning setting. In order to learn popular music in an engaging manner, students learnt how to sing popular songs by ear in the Sing by Ear approach. In this study, the Sing by Ear project consisted of students learning to sing cover songs by ear in an a cappella setting alongside the informal learning approach instead of reading music.

The study was conducted in a classroom setting. Three hundred and twenty-three Secondary Form one and Form two students (10 classes) were invited for the project. Pre-test surveys were distributed to the students before the project. The classes received the Sing by Ear training, which lasted for 10 weeks (October 2020 to December 2020).
The class structure of the *Sing by Ear* project consists of the following parts:

1. A cappella singing style and skills are introduced to the class, which is divided into groups.
2. Groups are instructed in how to rearrange an a cappella piece.
3. Groups are assisted in learning their chosen piece by ear; some group members learn the melody line while others learn the accompaniment part.
4. Exploration of vocal percussion or creation of own percussion instruments.
5. Group practices and recording.

A mobile learning strategy was adopted due to the enforcement of social distancing measures following the outbreak of the COVID-19 pandemic. With an examination of local secondary students’ responses to the *Sing by Ear* project, an understanding of the influences on their musical learning process and motivation level is provided based on self-determination theory (SDT). The concept of SDT was introduced by Deci and Ryan (1985a), and advanced by the recent research on SDT in music education (Evans et al., 2013; Evans, 2015; Evans & Bonneville-Roussy, 2016; MacIntyre et al., 2018; Schatt, 2018), which focuses on the quality of motivation and behaviour. In addition, the findings from this study would serve as a reference for discussions in the Hong Kong secondary school music curriculum to create more opportunities to study popular music.

The teaching materials and student performances are available on the following website: https://sites.google.com/view/singbyearproject.
1.2 Statement of Problem

Gass (1992) stated that all kinds of music should be learnt and appreciated, and that popular music has become an integral part of students’ daily lives. He also commented that popular music offers the opportunity to look at the musical elements neglected in traditional music courses, such as songwriting and vocal styles, instrumental and production techniques, song forms, band arrangements, musical influence, lyrical references, and rhythmic patterns. Cutietta (1991) observed musical qualities and emotional contents, which deserve further discussion in the music curriculum. He also emphasised that popular music education should not be treated solely as a strategy to attract students to learn classical music.

1.2.1 Local Situation

In Hong Kong, students have limited exposure to popular music in the school’s formal music lessons. According to the Arts Education Key Learning Area Music Curriculum Guide (Primary 1 – Secondary 3) (2003) prepared by the Curriculum Development Council, the curriculum stresses creativity, performance, and listening skills to promote music as the medium to communicate and express emotions. The curriculum guide focuses on Western classical music and Chinese music, including Cantonese opera. However, the emphasis on popular music is sparse. Limited materials about popular music is provided on the website of the Hong Kong Education Bureau, including musical characteristic of Sam Hui, The Beatles, Elvis Presley, and Joseph Koo (Education Bureau, 2021).

For Hong Kong secondary school students, there are only one to two music lessons per week for junior forms (Form one to Form three). There are no compulsory music lessons for the senior forms (Form four to Form six) if they are not taking
music for the Hong Kong Diploma of Secondary Education Examinations (HKDSE). However, music, including other arts learning experiences for senior secondary school students are often link with the aesthetic development in the Other Learning Experience (OLE) under the New Senior Secondary Curriculum (Education Bureau, 2021). The music curriculum guide suggested by the Curriculum Development Council (2003) stresses Western classical music. However, Chinese music and other world music comprise only a small proportion. Students have limited opportunities to learn music, especially popular music.

Based on these grounds, Ho (2009) commented that many Hong Kong music teachers received training from Western universities and local institutions. Their expertise is primarily dominated by Western classical music knowledge. In this case, Hong Kong music teachers only have sufficient knowledge to teach Western classical music. However, students have limited opportunities to learn popular music and other types of music, which is also the case in other countries, such as the United States and Canada (Bowman, 2004; Rodriguez, 2004). Recent research by Ho (2000, 2011, 2017) examines the situation of schools’ popular music education and students’ music learning preferences in Mainland China, Taiwan, and Hong Kong. The results revealed that Hong Kong students prefer popular songs in their school music lessons, including Cantonese, Western, Japanese and Mandarin popular songs.

Ho’s studies explained the reasons for including popular music education in school’s curricula. However, it leaves the question of what kinds of teaching strategies and music materials should be constructed to provide students with educational and musical values through studying different cultures in the school music curriculum.
In terms of motivation levels of Hong Kong adolescents in learning music, Leung and McPherson (2010) conducted a study consisting of 4,495 students from 23 local primary and 20 secondary schools. The data showed that the students considered music to be a complex subject. There was a significant decline in competence beliefs and values in music across the secondary school years compared to other subjects, such as Chinese, mathematics, visual arts and physical education. Hong Kong students’ declining motivation levels in learning music have become an alarming issue and a challenge for music educators.

1.3 Purpose of the Study

The purpose of this study is to explore the possibility of including popular music education in our current school’s music curriculum and to create a teaching approach, namely, the Sing by Ear approach. The Sing by Ear approach involves teaching popular music in an informal learning style. Students are be arranged in groups and learn to sing cover songs by ears in an a cappella singing style. The approach is suitable for the Hong Kong classroom music context, as instruments and spacious practice rooms are not required when resources are limited. Furthermore, non-instrumentalists can also enjoy the activity, as notation reading is not necessary. Informal learning is tailored to students’ needs and interests so that students can be more active in their learning processes. Popular music education is essential in a school’s music curriculum, as it provides opportunities to be creative during the learning processes, such as through arrangements and performances. The exposure to different musical genres and styles with which the students are already familiar with and relate to their daily lives makes it possible to enhance their intrinsic motivation in learning music. Students’ musical style preferences in school music lessons and the
declining motivation level of students in learning music has raised the issues regarding the learning style of music education in Hong Kong. More research and studies are needed on this topic to evaluate the ways of teaching music in the school’s curriculum and to reconsider what is suitable and updated for the current situation.

Popular music education and a cappella singing can be introduced into the school classroom setting with the *Sing by Ear* approach, which takes a new perspective on the current situation. The approach aims to provide a comprehensive music learning approach in which musicianship skills such as listening, creating, and performing can be earned collaboratively and simultaneously in the activity. The aims perfectly echo those of the Hong Kong music curriculum (Curriculum Development Council, 2003) and pave the way for the upcoming revised Hong Kong Diploma of Secondary Education Examinations syllabus, which includes 20% of the assessment in popular music. The present study explores the possibility of introducing informal learning styles into formal school settings where self-determination theory (SDT) is adopted to examine changes in students’ intrinsic motivation throughout the learning process. The results obtained may aspire to different pedagogical approaches in popular music education in the Hong Kong context and serve as a good reference in popular music education around the globe, such as in the United States of America (US), United Kingdom (UK), Singapore, and Finland. These countries have implemented popular music in their school music curricula.

1.4 Research Questions

The current study addresses the following research questions:

1. What degree of self-determination do students report for formal school music lessons?
2. How does the motivation change, based on SDT, after implementing the Sing by Ear approach?

3. Are there any differences in students’ motivation levels by (a) gender, (b) grade level, (c) instrumental background and (d) span of instrumental learning?

4. How do the informal learning practice and learn by ear approach affect the learning process and musicianship in the Sing by Ear project?
Chapter 2

Literature Review

2.1 The Definition of Popular Music

The term *popular music* is ambiguous. According to Middleton (1990), *popular music* was defined as “well-liked” music produced by the lower classes in nineteenth-century Europe. Middleton (1990) referred to Birrer’s (1985) more specific definition of popular music: “popular music is associated with a particular social group” and “popular music is disseminated by mass media.” Similarly, Rodriguez (2004) further defined popular music according to three characteristics: the measurable consumption, delivery mode, and alignment with a particular group of listeners. As Rodriguez (2004) explains, measurable consumption means the music ranks on publicised charts or other ranking systems, reflecting the general audiences’ musical preference; popular music is delivered to the audiences by media or other technologies; and lastly, audiences of popular music exerts control over the music made as they revise the music style to attract the audiences. Furthermore, Bowman (2004) claimed that popular music is “the music of real people” – authentic, grounded, vital, and connected to day-to-day human existence (p. 35). In a more recent context, Ho (2017) argued that popular music comprises a wide range of musical productions that ranges over a long period. Harmonising Birrer’s and Rodriguez’s definition of popular music, Ho ascribed popular music to Western and local music widely promoted in the mass media. The definition of *popular music* identified by Ho (2017) was adopted for this study. Popular music includes Western, Asian, and Chinese/ Cantonese popular songs, as the current subjects of the current study were more familiar these genres.
2.2 The Value of Popular Music in International Music Education

The educational value of popular music is a controversial topic. There have been studies on how popular music can be taught in school lessons where popular music education is becoming more established as an academic subject (Parkinson & Smith, 2015). Rauduvaitė (2018) states that popular music promotes the experience of positive emotions, and teachers should observe the new context of the contemporary music environment, which allows a closer connection between students, music culture, and education. The researchers expressed their views and pointed out the importance of popular music education in the school’s curriculum. In the following sections, different pedagogical approaches to popular music education around the globe, such as the United States (US), United Kingdom (UK), and some other countries, are examined to bridge the gap between global and local contexts.

2.2.1 Popular Music Education in the United States

Popular music in the US has an illustrious history and can be traced back to the Tin Pan Alley and ragtime in the 1890s; blues and country music in the 1920s; rock music in the 1940s; and Elvis Presley in the 1950s (Humphreys, 2004). Popular music education only made its way haphazardly into only a few schools until the 1950s, and it was only accepted into formal music education in the 1960s (Green, 2002; Humphreys, 2004). In 1968, education authorities officially recognised popular music as a subject worthy of being taught (Humphreys, 2004). The “Tanglewood Declaration” of 1968 created a new page for popular music education in the US. Musicians, educators, sociologists and government officials attended the Music Educators National Conference (MENC, the largest organisation in the US representing music teachers, now known as NAfME—the National Association for
Music Education) in Tanglewood, Massachusetts. Experts concluded that music of all periods, forms, and styles, including popular music, should be accepted in the curriculum (Powell et al., 2015). In the following years, more schools started offering popular music programmes, in primary, secondary, and vocational schools and universities (Powell et al., 2015). Many associations were established in the US as a result of the proliferation of popular music programmes offered in schools, such as the International Association for the Study of Popular Music (IASPM) in 1981, the Little Kids Rock in 2002, and the Association for Popular Music Education (APME) in 2009. In particular, the Little Kids Rock offers free popular music lessons and teaching materials to young children as a non-profit organization, where their curriculum stresses on composition and improvisation. In the 2000s, as inspired by Greens’ (2002) work on popular music, US music educators started to look at the impacts and processes that the students encounter in popular music learning (Jaffurs, 2004; Paparo, 2013; Abrahams et al., 2017).

American scholars such as Cutietta and Allsup expressed their views on popular music education. Cutietta (1991) provided examples from his own teaching experiences of how popular music could develop the relationship between teachers and students. Cutietta described popular music education as a “renewed challenge” in that popular music needs to be included in the curriculum, and “new techniques and modes of instruction need to be devised and incorporated into every aspect of music education” (p. 28). Allsup (2011) pointed out that popular music education provides a new way to teach methods and opens a new door for students to learn other kinds of music. Despite the fact that popular music education is being increasingly accepted in schools, Allsup stated that teachers have hesitation in teaching because they have less training and experience with popular music (Allsup, 2011).
2.2.2 Popular Music Education in the United Kingdom

The recognition of popular music in the UK evolved from the US rock and jazz culture, which aroused educational consciousness in the 1950s (Odam, 2004; Cloonan, 2005). The 1968 Schools Council report revealed that music was considered the most tedious and least helpful subject out of the fourteen subjects when the curriculum was predominantly made up of the Western classical canon (Shepherd & Vulliamy, 1994).

Due to admiration for the Beatles and other famous musicians such as Bob Dylan, the importance of popular music was further discussed in 1980s. In the mid-1980s, the British government established a new examination system for 14- to 16-year-old students, called the General Certificate of Secondary Education (GCSE) (Green, 2002). The examination involved all the students learning the same syllabus and taking the same examinations. Based on the new examination system, there was significant reform to the British music education syllabus. Students were required to study popular music, jazz, contemporary music and classical music. Students needed to demonstrate their ability to listen to various music styles, performance on any instruments and composition or improvisation in any style (Green, 2002). Regrettably, conflicts arouse in 1991 and 1992, which was five years after the examination system reform. The development of the National Music Curriculum became very controversial under the guardianship of Margaret Thatcher’s Conservative government, which favoured “the return to traditional notion and Britishness” (Shepherd & Vulliamy, 1994). The angry debate between the right-wing Music Curriculum Association, the Music Working Group, and the National Curriculum Council was intense. The traditionalists desired to restore to a more theoretical and academic approach, focusing on Western classical music. They were concerned that
popular music is only for students’ pleasure (Shepherd & Vulliamy, 1994). A settlement was finally reached when the curriculum proposals agreed to focus on performance and composition (Green, 2002). By then, popular music has been acknowledged as a normally established part of the school curriculum (Green, 2004; Cloonan 2005). Two rock institutes were established in 1988 (“Rock Challenge”) and in 1991 (“Rockschool Limited”). A non-profit organization, the Musical Futures was established in 2003 to provide resources to UK and overseas primary and secondary students in learning popular music. Nowadays, popular music education is offered at 47 UK higher education institutes (Till, 2017).

Middleton (1990) recognised the values of improvisation in popular music performances, where classical music often allows fewer improvisation capacities in the prescriptive scores. In Green’s book How popular musicians learn (2002), she mentions that children could make music in their regular schools’ curricula. However, the vast majority dropped out of music activities as they grew up. Green (2002) addressed the issue that the dropout situation is prevalent in various regions around the globe, where music participation among students is undergoing a decline. She also pointed out that most twentieth-century music teaching strategies and curriculum content were associated with the Western classical music pedagogy. The teachers recognised and incorporated a greater variety of music, especially popular music. Green (2002) believes that including popular music in a school’s curriculum is highly beneficial. Her research found that musicianship, discipline, and self-esteem could be gained through popular music education. From this research, Green (2002, 2013) found that learning popular music is highly enjoyable and voluntary, which is a significant element in the learning process that could enhance motivation in learning and could be entwined in all disciplines. In the case studies with her pupils who had
popular music classes, some of them commented that learning popular music was fun and enjoyable, and they expressed enthusiasm. Some of the students indicated that musicianship skills developed during learning extended beyond the popular music style they practised and were able to appreciate a wider variety of music styles (Green, 2002). Springer and Gooding (2013) commented that popular music education could promote students’ interests and participation, while it grabs students’ attention as a “powerful motivational tool” (p. 31).

Although the debate of value of popular music education persists and remains controversial even nowadays, the more progressive education community has been able to carry on with the popular music curriculum since the early 1990s (Snell, 2007). Now, the UK has a well-established popular music curriculum offered in public schools, post-secondary education, and teacher training programmes that emphasises student-directed, process-based learning (Snell, 2007).

2.2.3 Popular Music Education in Australia

Prior to the 1970s, when popular music became more accepted in school’s curricula and educators began to teach popular music ins schools, the teaching and learning of complex music notation and pieces of the classical canon had been the focus of the music syllabus (Dunbar-hall & Wemyss, 2000). There were uncertainties for the Australian educators with no background or training in popular music or teaching frameworks when popular education was introduced to the secondary music syllabus in the 1970s (Dunbar-hall & Wemyss, 2000). Presently, Australian music programmes accept popular music learning, instruments and equipment used in popular music-making (Snell, 2007).
Robertson (1987) referred to popular music as “the driving force behind youth culture” (as cited in Winter 2004, p. 239), asserting that popular music is a motivation for young students to learn music. Wemyss (1999) regarded music as an expression of culture, and the music knowledge is based on the same “culture” that nurtured it and must show its dynamic nature instead of presenting music as an “artefact frozen in time” (p. 30). She further explained that teachers need to handle cultural material accordingly, increase flexibility in classrooms, and enhance the cultural relevance to the present society (Wemyss, 1999).

By learning popular music, students can actively acquire concepts of improvisation, music as sound rather than music as notation and stylistic knowledge (Dunbar-hall & Wemyss, 2000). Winter (2004) suggested that students should learn music through an “integrated approach” that comprises listening, performance, and composition. He believed that learning popular music could provide experiences to solidify the three learning goals of the “integrated approach.”

Hannan (2006) pointed out the major difference between Western classical music and popular music, that is, the employment of music technology programmes to write music instead of writing on manuscript papers. The equipment used includes the MIDI sequencer and digital music editors, such as the Logic Pro and Pro Tools. Thus, students nowadays “work directly with sounds, not just symbolic representations of sounds” (Stephens, 2003, pp. 285-286). Hannan (2006) indicated that the kind of musicianship training programme to be included in popular music learners is difficult because of the variety of styles and areas. He continued that in most popular music practices, musicians do not play with scores. However, they learn to play music by ear from a recording or from their peers (Hannan, 2006). Through such practice, the teacher is no longer considered the only source of knowledge, but
collaborates to help students plan their own learning (Snell, 2007). Lebler (2008) claims that the learning process is often self-directed, including peer interactions and activities, with less involvement from teachers. This kind of learning process is intrinsically motivated.

2.2.4 Popular Music Education in Canada

Canadian music educators see popular music of each young person’s time holds unique meaning, provoking certain nostalgia that allows them to express thought and ideas (Snell, 2007). Adolescents feel ownership over popular music, a genre that is created for them and easily accessible (Snell, 2007). Bosacki et al. (2006) and Bosacki and O’Neill (2012) pointed out that popular music plays an influential role in the lives of adolescents to help develop and shape their identity and social relations, which are inseparably linked with youth culture.

Despite the fact that the value of popular music, especially for adolescents, has been observed by the educators, Countryman (2012) commented that Canadian music educators are still unsure about how to include popular music in their schools’ curricula even after all the years since the values of popular music education was acknowledged in the 1967 Tanglewood Symposium. Countryman (2012) identified three themes that elucidate the anxiety that educators feel about including popular music into secondary music classrooms: (1) music teacher preparation; (2) music education’s large-ensemble performance emphasis, and (3) professional isolation and role socialisation (p. 135). Music teachers often receive classical music training in Canadian universities, where the content is mainly composed of classical music and favours serious music while having a bias towards popular music (Countryman, 2012). Hanley (2000) cited Ross (1995), who stated that Canadian music teachers
neglected the expressive function of music education and merely focused on teaching facts and techniques. Countryman (2012) stated that “music educators turn students away by focusing on musical grammar, technique, and analysis at the expense of the essence of music –its expressiveness” (p. 137).

Hanley (2000) stated that secondary music performance-based education is created for the elite, and only a small group of “talented” students are chosen to join music ensembles. Snell (2007) criticised that Canadian music teacher training programmes as being out of date, mainly focusing on Western European art music, which leads teachers to feel unprepared to teach popular music and caused the disengagement of daily lives and school musical experiences. Regarding the style of teaching music, Snell (2007) also criticised the disconnect between the pedagogy and the students when music is taught as a separate activity from performing and composing, making it difficult for students to perceive the value of music as a whole experience. Snell (2007) further explained that the Ontario secondary curriculum emphasises on theory, analysis, and technique rather than creativity. Consequently, school music education and social musical meaning, music in schools, and music in real life are unconnected.

On the other hand, Canadian music education’s large-ensemble performance emphasis is another aspect that frustrates teachers and students when it comes to learning popular music in schools (Countryman, 2012). He explained that large ensembles are the major performance platforms in secondary school music programmes, due to factors such as tradition, convenience, limitation of school facilities and scheduling (Countryman, 2012). Students being selected in these performance groups already have sufficient musical skills on their instruments. However, most of the other students have insufficient skills to perform in large
ensembles and are frustrated with traditional musical notation (Countryman, 2012). He further commented that reading standard musical notation should not be the emphasis, and the teaching repertoire may involve more popular music by adopting Green’s (2001, 2008) informal learning pedagogy so that popular music can be one of the various musical styles that students should learn to enhance critical listening and creativity.

Countryman (2012) stated that many music educators see themselves as “custodians of Western European classical heritage” (p. 140) after years of intense elite classical musical training and are concerned about being scrutinised by colleagues and peers regarding their standards and knowledge. The professional preparation and the sophisticated experience of music teachers limits the possibility of other kinds of music and traps them in the “narrow sense of reading and manipulating the complex notation system of the Western European musical tradition” (Countryman, 2012, p. 141). Music educators must go along with the societal changes to connect music education with students’ realities. Countryman (2012) suggested that discussion sections are needed to share their pedagogical views and practices so that teachers are provided with opportunities to observe and review classroom practices among their colleagues and to experiment with new pedagogical approaches in their classrooms.

Teaching adolescents how to appreciate and recognise the values of popular music is crucial and influential to their identity development (Bosacki & O’Neill, 2012). Popular music should be included as an integrated experience of music learning so that its various features, such as performance technique, composition, arrangement, and social meaning in music could be embraced as an important part of music education (Snell, 2007).
2.2.5 Popular Music Education in Norway and Finland

Popular music education for students and teachers has been widely accepted in Norwegian and Finnish school curricula since the 1970s, with no limits for schools to include art, folk, and popular music (Väkevä, 2006). In Finnish schools, popular musical instruments and equipment are used in music classes and are very common among schools. These include microphones, keyboards, drum kits, electric basses and guitars, use of Garage Band in lessons, and textbooks containing recent popular hits (Westerlund, 2006; Kallio, 2017). Nordic scholars were some of the first educators to research how do popular musicians acquire their knowledge and skills (Väkevä, 2006; Tønsberg, 2013; Virkkula, 2016; Dyndahl et al., 2017). Meanwhile the necessity of including popular music in the school curriculum was first acknowledged in the upper secondary school grades (Väkevä, 2006). Early in 1971, a music teacher programme involving jazz, folk music, pop and rock was organised in Gothenburg, Sweden (Dyndahl et al., 2017), and by 2004, popular music programmes were established in all formerly classical music conservatories in Norway (Tønsberg, 2013).

Despite the long-established systems in popular music education in Norway and Finland, Anttila (2010) pointed out the problems existing in the current music education for secondary students. Anttila (2010) believes that music is essential to adolescents and that music is “a necessary component of their life” (p. 241). However, students feel demotivated in schools’ music lessons, and they drop out of music learning. Research projects on learning motivation were conducted in 2006-2008 that included over 600 students in Finland (Anttila, 2006, 2007, 2008, 2010). In the survey results, students reported that they wanted more active music activities such as singing and instrumental playing in lessons rather than music theory, history, and passive listening to music excerpts (Anttila, 2010). Students wished to learn
music that suited their taste and cultures; in other words, popular music of their choice.

On the other hand, Väkevä (2006) specified that the popular music included in the curriculum lacked pedagogical implications. He pointed out that the development of technology in music listening and making has opened tremendous possibilities for students to produce and consume music with their computers (Väkevä, 2006). Teachers are advised to be more sensitive to the recent developments and the trends in times and recognise how to integrate different styles of music in the teaching, which is the major problem seeking answers in music education (Väkevä, 2006). Music teachers need to help students identify their musical interests apart from any styles and genres. However, the music teacher education in Nordic countries may not be equipped for this situation (Christophersen, 2017).

2.2.6 Popular Music Education in Singapore

Studying music is compulsory in Singapore’s education system, where students are required to take up general music for the first eight years of their studies (Lum & Dairianathan, 2014; Chua & Ho, 2017). Primary and lower secondary school students have at least thirty minutes to an hour of music lessons per week. Popular music has been included in the curriculum content in Singapore’s music curriculum since the 1993 syllabus revision (Chua & Ho, 2017). In the 2015 general music syllabus, popular music is embraced to develop students’ confidence, creativity, collaboration, and self-directed learning, and most importantly, it offers exposure to different musical styles and genres in students (Ministry of Education, 2015). The latest revised general music syllabus in 2019 aims to provide students with opportunities to discover different cultures in music in both Singapore and the globe.
and to understand the value of music in their daily lives (Ministry of Education, 2019). The 2019 syllabus grasps popular music within a youth-based culture that includes the study of artists and bands from the late 1960s to the present (Ministry of Education, 2019). Students are required to sing, compose, and perform with the help of technology in their music productions. Music genres include late 1960s pop-rock, synthesiser pop, rhythm and blues, and soul.

The syllabus is structured and anchored to allow students’ involvement in listening, performing and composing, which are the core tenets of Singapore’s music curriculum (Ministry of Education, 2019). In order to develop students’ critical thinking skills, an informal learning setting is embraced within the Singapore music curriculum involving popular music (Chua & Ho, 2017). Students encounter enhanced music experiences where they can learn on their own and decide what they learn and how they learn the music (Chua & Ho, 2017). When autonomy is allowed in the learning process, students are more aware of and responsible for their learning, which in turn promotes critical thinking, global awareness, creativity, and inclusiveness could be promoted in students (Ministry of Education, 2019).

2.2.7 Popular Music Education in Hong Kong

In the local context, Hong Kong’s changing cultural and political position has affected the school’s music curriculum since 1997. After transferring the sovereignty from the UK to China, the Hong Kong education curriculum was reformed. The government took the initiative to assist youth in embracing their new identity. In music education, apart from the Western classical repertoire that was the focus before the Handover, the curriculum has expanded and now emphasises on local culture and identity, and Chinese music. Schools in Hong Kong started to include music materials
that promoted national awareness. Hong Kong’s transforming political culture is contingent on the “one country, two systems” principle, and the policies for music education encountered in Chinese culture influences the Western-based curriculum. Ho (2011) described the process as Sinofication.

Considering Hong Kong’s changing socio-political position, its local culture should be respected and embraced in school settings. Nevertheless, Ho (2011) indicated that the government and society considered popular songs “low-class.” School music teachers saw teaching popular music as a waste of time, because students had already gained much knowledge from the mass media. Moreover, many teachers did not teach popular music because they did not have the knowledge and were unfamiliar with the style.

In Ho’s research (2002) regarding Hong Kong adolescents’ song preferences, students were asked to rank their preferences for ten genres of music that they listened to, utilising a five-point Likert scale. The results revealed that Hong Kong students prefer popular songs, including Cantonese, Western, Japanese, and Mandarin. Meanwhile, Cantonese popular songs were the most preferred among the choices (Table 2.1).
Table 2.1

*Hong Kong Adolescents’ Song Preferences*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Music Styles</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cantonese popular songs</td>
<td>2.00</td>
<td>0.89</td>
</tr>
<tr>
<td>2</td>
<td>Western popular songs</td>
<td>2.04</td>
<td>0.80</td>
</tr>
<tr>
<td>3</td>
<td>Japanese popular songs</td>
<td>2.17</td>
<td>0.99</td>
</tr>
<tr>
<td>4</td>
<td>Mandarin popular songs</td>
<td>2.35</td>
<td>0.92</td>
</tr>
<tr>
<td>5</td>
<td>Western classical instrumental music</td>
<td>2.52</td>
<td>0.80</td>
</tr>
<tr>
<td>6</td>
<td>Western classical vocal music</td>
<td>2.90</td>
<td>0.86</td>
</tr>
<tr>
<td>7</td>
<td>Chinese classical instrumental music</td>
<td>2.92</td>
<td>0.90</td>
</tr>
<tr>
<td>8</td>
<td>Chinese folk songs</td>
<td>3.09</td>
<td>0.96</td>
</tr>
<tr>
<td>9</td>
<td>Other world musics</td>
<td>3.15</td>
<td>0.84</td>
</tr>
<tr>
<td>10</td>
<td>Chinese classical vocal music</td>
<td>3.65</td>
<td>0.95</td>
</tr>
</tbody>
</table>

*1 = very like, 3 = no comment, 5 = very dislike


Another study conducted by Fung et al. (2000), with similar findings as in Ho’s study, aimed to examine the musical style preferences of young Hong Kong students. The study involved 3,715 students from 15 primary schools and 10 secondary schools in Hong Kong. An ANOVA test was used to determine the interaction effects among ages, gender, and musical style preference. From the statistical data, the results showed that the students preferred Cantonese popular songs to the other suggested genres (Table 2.2).
Table 2.2

Music Style Preferences of Young Hong Kong Students

<table>
<thead>
<tr>
<th>Style</th>
<th>1 (n=249)</th>
<th>2 (n=232)</th>
<th>3 (n=249)</th>
<th>4 (n=232)</th>
<th>5 (n=249)</th>
<th>6 (n=232)</th>
<th>7 (n=249)</th>
<th>8 (n=232)</th>
<th>9 (n=249)</th>
<th>10 (n=232)</th>
<th>All (N=3,715)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western art</td>
<td>4.07 (.79)</td>
<td>4.18 (.70)</td>
<td>3.92 (.77)</td>
<td>3.88 (.72)</td>
<td>3.79 (.83)</td>
<td>3.61 (.78)</td>
<td>3.65 (.86)</td>
<td>3.38 (.78)</td>
<td>3.38 (.81)</td>
<td>3.37 (.70)</td>
<td>3.70 (.83)</td>
</tr>
<tr>
<td>Jazz</td>
<td>3.20 (1.11)</td>
<td>3.16 (1.07)</td>
<td>3.15 (.92)</td>
<td>2.90 (.91)</td>
<td>2.78 (.86)</td>
<td>2.61 (.76)</td>
<td>2.61 (.83)</td>
<td>2.37 (.72)</td>
<td>2.59 (.81)</td>
<td>2.26 (.66)</td>
<td>2.15 (.90)</td>
</tr>
<tr>
<td>Rock</td>
<td>3.14 (1.07)</td>
<td>3.13 (1.02)</td>
<td>3.14 (.88)</td>
<td>3.00 (.87)</td>
<td>2.78 (.85)</td>
<td>2.72 (.74)</td>
<td>2.90 (.76)</td>
<td>2.67 (.68)</td>
<td>2.92 (.68)</td>
<td>2.57 (.63)</td>
<td>2.88 (.83)</td>
</tr>
<tr>
<td>Castopop</td>
<td>4.37 (.79)</td>
<td>4.34 (.70)</td>
<td>4.42 (.70)</td>
<td>4.37 (.69)</td>
<td>4.19 (.84)</td>
<td>4.18 (.77)</td>
<td>4.08 (.84)</td>
<td>4.02 (.74)</td>
<td>3.84 (.78)</td>
<td>3.92 (.69)</td>
<td>4.15 (.79)</td>
</tr>
<tr>
<td>Salsa</td>
<td>3.31 (1.23)</td>
<td>3.23 (1.22)</td>
<td>3.38 (1.14)</td>
<td>3.01 (1.17)</td>
<td>2.73 (1.67)</td>
<td>2.45 (1.09)</td>
<td>2.18 (.99)</td>
<td>1.85 (.85)</td>
<td>2.14 (1.01)</td>
<td>1.73 (.78)</td>
<td>2.56 (1.20)</td>
</tr>
</tbody>
</table>

*Standard deviations are presented in parentheses
Rating 1 = “I dislike” or frowning face
Rating 5 = “I like” or smiling face
Underlined means indicate no significant differences in Scheffe post hoc tests (p<.05) across these adjacent grade levels.


Fung’s (2000) study concurred with Ho’s (2011) findings that students preferred local popular music to Western classical music. Both studies indicated that popular music has a vital ranking among adolescents’ musical preferences. Ho conducted a similar study in 2006, consulting local primary and secondary students on their attitudes towards different musical genres taught in school music lessons. The results showed that the most preferred musical style was popular songs (Table 2.3).
Table 2.3

Student’s Attitudes Toward Different Musical Genres Taught in Music Lessons in School

<table>
<thead>
<tr>
<th>Rank</th>
<th>Type of Music</th>
<th>Mean *</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Popular Songs</td>
<td>4.00</td>
<td>1.27</td>
</tr>
<tr>
<td>2</td>
<td>Traditional Western music</td>
<td>3.42</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>Including instruments and singing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Music of other countries</td>
<td>2.96</td>
<td>1.34</td>
</tr>
<tr>
<td>4</td>
<td>Traditional Chinese music</td>
<td>2.89</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>including instruments and singing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Jazz</td>
<td>2.76</td>
<td>1.31</td>
</tr>
<tr>
<td>6</td>
<td>Children’s songs</td>
<td>2.75</td>
<td>1.28</td>
</tr>
<tr>
<td>7</td>
<td>Traditional Chinese folk music</td>
<td>2.70</td>
<td>1.24</td>
</tr>
<tr>
<td>8</td>
<td>Cantonese opera</td>
<td>2.26</td>
<td>1.28</td>
</tr>
<tr>
<td>9</td>
<td>Beijing opera</td>
<td>2.08</td>
<td>1.18</td>
</tr>
</tbody>
</table>

*Where 1 = “no interest” and 5 = “most interested”

Note. From School music education and social change in Mainland China, Hong Kong and Taiwan, by W. C. Ho, 2001, p. 87. Copyright 2011 by Brill.

Despite having a rare chance to receive popular music education in schools, Hong Kong students favour local popular music. Ho (2011, 2017) stated that Cantonese popular song is indispensable to young Hong Kong students, and that educators should make music education closer to students’ daily lives by assisting them to appreciate and understand how popular music works, but not merely as entertainment.

In recent years, Ho (2017) has extended her popular music education research to the Mainland China. Students from Beijing, Shanghai and Changsha were surveyed in three separate studies on the most preferred musical styles that they wanted to learn in school music lessons, and the most favoured responses related to popular music
Moreover, students agreed that teachers should include popular music in school music lessons to enhance intrinsic and extrinsic motivations in learning. However, because the studies were conducted in Mainland China, the results could be taken as a reference.

Table 2.4

<table>
<thead>
<tr>
<th>Music Lessons (Shanghai)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rank</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
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<tr>
<td>6</td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>


2.2.8 Local Cantonese Popular Music

Ho (2003) stated that Cantonese is one of the most common and widely spoken Chinese dialects in the southern provinces of the Guangdong area and among
the Southeast Asian countries. The production of Cantonese popular music has thrived since the early 1970s, and the industry was very prosperous from the 1980s to the mid-1990s with demand from Hong Kong audiences (Ho, 2003; Wong, 2003). Cantonese popular music was very popular and influential, attracting non-locals to listen, and it is regarded as an authentic part of Hong Kong local culture (Ho, 2003). The local popular music industry had become a highly profitable business with the industry’s rapid expansion in the 1970s-1980s (Chow, 2007). In the 1980s, pop stars like Sam Hui, Alan Tam, Anita Mui, and Leslie Cheung were the most idolised singers with high sales records, and they staged over fifty concerts in the Hong Kong Coliseum, the most prominent popular music concert hall in Hong Kong with a seating capacity for more than 10,000. The popular music industry enjoyed its most glorious era. In the 1990s, the rise of the “Four Heavenly Kings” (Aaron Kwok, Andy Lau, Jacky Cheung and Leon Lai) dominated the popular music market. In recent years, Joey Yung, Eason Chan, and Hins Cheung have been some of the popular idols adored by young people.

Nevertheless, sales records have dropped dramatically since the mid-1990s, and Cantonese popular music is losing influence in the Asian popular music industry production, as the popularity is being taken over by Mandarin popular songs in Taiwan and China with the demand for new song styles (Wong, 2003; Chow, 2007). Attention has been switched to Mandarin pop stars in Taiwan and Singapore, such as Jay Chou, Stephanie Sun, and Mayday. Using Ho’s (2003) terms, Chow (2007) stated that Cantonese popular music gained popularity with the localisation of the rising local culture in the 1970s; however, it began to diminish under the effects of globalisation, and the local identity was lost. Wong (2003) has pointed out that Hong Kong Cantonese popular music is fading away, and local popular musicians must
refurbish the unique character of the genre, as Cantonese popular music lacks creativity and variety, alongside the growing market in Mainland China, Taiwan, and the Western countries.

2.3 Formal and Informal Learning

Coombs and Ahmed (1974) defined formal learning as “a hierarchically structured, chronologically graded ‘education system’ from primary level through the university which includes a variety of specialised programmes for full-time training” (p.8). Mak (2006) refined the concept as a form of learning in schools, institutions or conservatories, from the primary level to the university level. There is often a pre-designed curriculum, which is often structured and organised by school teachers. The teacher guides the learning, gives instructions in the lessons, and controls what to learn and the progress in the lessons (Mak, 2006). Students are required to achieve specific planned goals (Jenkins, 2011). Students are usually given assignments and assessments to test their knowledge in a formally organised manner. Students understand what they are going to learn and the how they learn (Mak, 2006). Learning is intentional.

The other type of learning is informal learning. Informal learning involves a self-motivated attempt to accumulate competence, skills, and insights in some daily tasks or experiences, where the learning is an unrestrained activity (La Belle, 1982; Jenkins, 2011). Coombs and Ahmed (1974) referred to informal learning as “the truly lifelong process where the individual acquires attitude, values, skills and knowledge from daily experiences and educative influences in his or her environment—from family and neighbours, from work and play, from the market place, the library and the mass media” (p.8). Mak (2006) defined informal learning as an active voluntary,
self-determined and explorative kind of learning (p. 4). It involves self-regulated processes in which intrinsic motivation dominates and regulates the process (Mak, 2006). Petnuchova (2012) explained informal learning, that is the result of daily activities, taking place when the learner has the needs, motivation, and opportunity of learning. Petnuchova (2012) further cited Marsick and Vople (1997), concluding the key characteristics of informal learning: (1) integration with daily routines, (2) internally or eternally triggered, (3) subconscious, (4) influenced by chance, (5) process of reflection, (6) linked to learning to others (p. 616–617). Examinations and objectives are not the concern, and learning is self-paced without a fixed curriculum (Dib, 1988). Informal learning is often defined as unstructured learning (Rogers, 2004).

Scholars have further made a distinction between formal and informal learning. Smith (2001) explained that formal learning is connected to schools and institutions, while informal learning is attached to the interactions with the social environment. Eshach (2013) stated that informal learning relates to situations in daily life that happen spontaneously when a person performing daily activities such as reading, listening to songs, or engaging in hobbies (Eshach, 2013). He further explained that there is no authority figure or mediator in informal learning, and that the learning is intrinsically motivated. While activities in formal education are often compulsory, activities in informal education are voluntary. Activities in formal education are teacher-directed, whereas activities in informal education are student-directed. Assessments and exams are not the goal of informal education. Eshach (2013) summarised the differences between formal and informal education (Table 2.5).
Table 2.5

Differences Between Formal and Informal Education

<table>
<thead>
<tr>
<th>Formal Education</th>
<th>Informal Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually at school</td>
<td>Everywhere</td>
</tr>
<tr>
<td>May be repressive</td>
<td>Supportive</td>
</tr>
<tr>
<td>Structured</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Usually prearranged</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>Motivation is typically more extrinsic</td>
<td>Motivation is mainly intrinsic</td>
</tr>
<tr>
<td>Compulsory</td>
<td>Voluntary</td>
</tr>
<tr>
<td>Teacher-led</td>
<td>Usually learner-led</td>
</tr>
<tr>
<td>Learning is evaluated</td>
<td>Learning is not evaluated</td>
</tr>
<tr>
<td>Sequential</td>
<td>Non-sequential</td>
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</table>


Melnic and Botez (2014) gave criteria for the forms of education (Table 2.6).

They explained that formal education is a systematic and organised education model, while informal education does not correspond to an organised curriculum. Informal education often does not include an objective. In formal education, there is usually systematised knowledge, whereas in informal education there can be information from various disciplines. In informal education, the learning happens in relaxing activities and everyday training situations. The process is rather spontaneous, heterogeneous, incidental, and unreported to goals.

Table 2.6

Criteria for Formal and Informal Education

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Formal Education</th>
<th>Informal Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>- A systematic organized education model</td>
<td>- Does not correspond to an organised and systematic</td>
</tr>
<tr>
<td></td>
<td>- Structured and administered to a given set of laws and norms</td>
<td>- Does not necessarily include the objectives and subjects usually encompassed by the traditional curricula</td>
</tr>
<tr>
<td></td>
<td>- Rigid curriculum regarding objectives, content, and</td>
<td></td>
</tr>
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</table>
There is no clear boundary between formal and informal learning, and they should not be considered two conflicting learning modes. Rogers (2014) commented that the boundaries of the types of learning are blurred and will change in different situations. Music learning is a complex process with hybrid varieties, where elements and features from formal and informal learning can be interconnected to make the learning process accommodate individual needs (Dib, 1988; Rogers, 2014).

To clarify the terms “education” and “learning,” Rogers (2004) proposed that the terms are precisely the same. “Learning” rather than “education” was used under the influence of the discussions on lifelong learning (Rogers, 2004). In the present study, the term “informal learning” is employed to discuss learning style.

In music education, Wright and Kanellopoulos (2010) commented on the informal learning strategy in classroom music pedagogy, and cited Folksetad (2006, p. 135) that “formal and informal learning are the two poles of a continuum in
learning situations” that combine interactive, non-linear, and self-directed processes. Rodriguez (2009) asserted that informal music learning supports the growth of more creative thinking in the classroom, which is able to revitalise music education. Aspects of informal learning in music will be further explained in the section—Learn by Ear.

2.4 Musicianship—Learn by Ear

In the process of learning music, visual and aural learning are two of the many approaches. Visual learning means to read music from descriptive music notations. Aural learning means to perform and mimic back what one hears on the first encounter with the music, without written notations: learning by ear (Lilliestam 1996; Reiss & Chancey 2011). Lilliestam (1996) cited Polanyi on learning by ear as a piece of “tacit knowledge,” which is an internalised and un-verbalised skill that is not formalised and systematised. In the present study, learning by ear refers to the process of playing music back from a recording without the aid of notation or other means of help.

Most classical music learners nowadays often learn reading notation first, regardless of which instruments they learn. This was a different case in the past. McPherson and Gabrielson (2002) indicated that the common practice of learning instruments before the mid-nineteenth century was that beginners imitated their teacher’s demonstrations by ear rather than reading from musical notation directly, through a form of musical apprenticeship. After the mid-nineteenth century, printed scores became popular due to advanced printing technology, which resulted in a change in the nature of music learning.
Reiss and Chancey (2011) described learning music by reading from notation first as passive and receptive. McPherson and Gabrielsson (2002) noted that music learning with a mere emphasis on notations and limited opportunity to learn by ear restricts overall musicianship and the development of skills needed to be a successful musician. Suzuki and Suzuki (1983) observed the way children learn their mother tongue language. Children learn to speak the language by listening to their parents’ daily conversations before they learn to read. He believed that music learners should learn by ear before they learn to read musical notations, as if learning a new language. Scholars have acknowledged the significance and benefits an ear-playing learning strategy; it is a fundamental skill that enriches other aspects of musicianship, such as improvising, sight-reading, performing rehearsed music, and performing by memory (Mainwaring, 1951; McPherson & Gabrielsson, 2002; Woody & Lehmann, 2010; Baker & Green, 2013; Varvarigou, 2014). By being involved in ear-driven activities, students are actively engaged in composing, and arranging, and musical collaboration with peers, conducive to a longer learning span and lifelong artistic expression (Blair, 1964; Woody, 2012). As regards learning popular music, Rodriguez (2004) asserted that imitation is a fundamental way of learning that is non-sequential and unintentional.

The concept of learning music by ear is within the informal learning practices suggested by Green (2006). In learning popular music, Green suggested that readers distinguish five main areas of informal learning practice from formal music education in which classical and musical skills are taught differently. To begin with, students choose the music they want to learn by themselves, and they might choose something they already know well and enjoy. Second, students are encouraged to aurally copy the chosen recordings by listening, rather than reading from notations. Third, students
always form groups in informal learning practices. Peer-directed learning takes place during their discussions, sharing, listening, watching, and imitating each other. Teachers are only required to provide a little guidance. Fourth, informal learning practices allow musical skills to be absorbed and learnt randomly without planning or fixed curriculum according to music chosen by students, unlike a formal music curriculum that needs exams and syllabus. Lastly, informal learning practices emphasise creativity, which involves listening, performing, improvising, and composing.

Rodriguez (2009) added that, despite the non-algorithmic nature of informal learning, the learning process is somewhat structured. In informal learning, a plan for instruction is needed between students and teachers within a flexible and dynamic relationship. A balance should be maintained between structured (formal) and unstructured (informal) learning for flexibility which tailors to learners needs. North and Hargreaves (2008) also clarified formal and informal learning in four aspects: the context of learning, autonomy and ownership, learning style, and learning content. First, the context of learning refers to where the learning process occurs at school, home, or some other environment. Second, autonomy and ownership are considered the role of students during the learning process. Informal learning practices often have the students direct the learning rather than the teacher taking the leading role in formal learning. Students will set their own learning goals and methods. Third, Folkestad (2006) defined learning style as “the nature and quality of the learning process” (as cited in North & Hargreaves, 2008). This definition of learning style is adopted in the current study, which is also similar to Green’s method: learning by ear, working in groups, integrating listening, performing, improvising and composing activities. Lastly, as pointed out by North and Hargreaves (2008), the learning content
consists of less “serious” genres, meaning popular music that surrounds students’ daily lives would be preferred, rather than classical “serious” music.

When students learn by ear, it enables them to learn independently. This learning process enhances the aural ability to listen to music. Green (2006) stated: “Once ears have been opened, they can hear more” (p. 21). When students acquire an aural ability, they are able to appreciate more kinds of music. Green’s approach also stresses improvisation and composing, allowing room for creativity. Informal learning practices provide no rules or boundaries for students, and their ideas are welcomed and accepted. They can choose from among their peers to form groups, and select their favourite recordings to learn. This learning style allows more opportunities for creative ideas. Furthermore, Green encourages class performances. After the students finish a cover version of a song of their choice, they will be asked to perform for the class.

Recent studies have explored the effects of ear-playing learning strategies on students and their responses. Baker and Green (2013) conducted a study integrating the informal learning practice approach (2006) with the ear-based learning methods. Sixteen pairs of students were invited to the case-control experiment, in which one student belonged to the experimental group, and another student belonged to the control group. Students in the experimental group undertook the Ear Playing Project (EPP) for 7–10 weeks, whereas students in the control group proceeded with their standard music lessons. In the first stage of the EPP, students were required to learn the notes of the bass riff of the specially composed pop-funk track by ear without notation. In the second stage, students were asked to select one classical piece by Bach, Handel, Mozart Beethoven, Clara Schumann, or Brahms. As in the first stage,
students learnt to address various melodic lines in the pieces. In the last stage, students choose a piece in any style and imitate the piece by ear.

After the EPP, students from both the experimental and control groups were tested on their aural abilities using the Associated Board of the Royal Schools of Music (ABRSM) examination assessment. In the test, the students were asked to play back a melody was played for them twice. The results demonstrated that the experimental group had better aural ability than the control group in pitch, contour, rhythm, closure, and tempo accuracy.

Varvarigou, who was the research officer of Baker and Green’s EPP project, reported the findings of the non-musical benefits in students. Varvarigou (2014) accounted that students enjoyed listening to and performing their favourite music in lessons and that they were more concentrated and aware of the dynamics and phrasing. Students developed a greater sense of internal tonal centre and sight-reading skills through ear playing. Thus, motivation, and confidence are enhanced in students. Varvarigou concluded that ear playing fosters critical thinking, creativity, and problem-solving skills, which are also helpful in non-music areas.

Woo dy and Lehmann’s study (2010) investigated differences in ear-playing ability between formal classically trained musicians (trained in one-to-one instrumental lessons) and those with vernacular music experience (experienced in jazz ensembles and popular music groups). Chosen music-major university students were required to listen to two melodies and perform them back, one playing on their instruments and the other by singing. The results affirmed that the vernacular musicians, who reported having more experiences with ear-based training, had better ear-playing ability than the formally trained musicians. On the other hand, it is worth
noting that imitating a melody by singing required less effort than playing it back on an instrument, which involves aural transmission to motor movements.

Rodriguez (2009) commented that informal learning in music allows the concepts and skills to develop from engagement in the learning process. Rodriguez (2009) further explained that the process of learning music by ear becomes efficient as learners progressively achieve the skill of predicting and remembering music elements, which promotes “the transfer and linkage between mental rehearsal and physical execution” (p. 37).

2.5 Musicianship—Sing by Ear

The concept of “play by ear” can be transferred to “sing by ear.” Jazz or popular musicians often create or learn a piece of music by ear. In singing, this might be the case in a cappella performance. The term *a cappella*, in Italian, means “in the manner of the chapel.” Holmes (2007) defined *a cappella* as a group of solo singers performing without instrumental accompaniment. Chen (2018) listed four types of a cappella singing: classical a cappella, pop/rock a cappella, jazz a cappella, and school a cappella. Classical a cappella groups are characterised by a classical singing style that focuses on tone colour and choral harmony, although not necessarily performing a classical repertoire. Pop/rock a cappella groups are the most common these days. Their members will be divided into parts. Usually, one takes the melody, one takes the bass, one mimics the percussive elements (beatboxing), and others sing the harmony parts. Jazz a cappella groups consist of mixed male and female voices imitating different instruments, and include jazz and pop elements in their repertoire.

In a cappella singing, group members transcribe a piece by dividing it into several parts: melody, bass, harmony parts, and percussion. As an example, take the
jazz a cappella group The Swingle Singers. They practised sight-singing by using Bach’s *Well-tempered clavier*, in which they observed some swing elements in the pieces. By then, they had started to include Bach’s masterpieces as vocal jazz transcriptions in their albums. Bach’s keyboard works are rebranded into vocalese by The Swingle Singers. *Vocalese* means singing the melody merely with vowels or syllables, without text. In their performances, they also employed scat singing, in which singers replace lyrics with nonsense syllables while trying to imitate musical instruments. The use of voice percussion also gives a steady rhythmic pulse.

On the other hand, in terms of creativity, Chen’s (2018) summarised the relationship between singing in a cappella and creativity. Within an a cappella group, creativity is nurtured in the collaborative process involved in the song arrangements based on the members’ sharing of individual personal thoughts, musical backgrounds and musical interests.

Concurring to the document of the Curriculum Development Council (CDC) (2003) in Hong Kong, the research project *Sing by Ear*, aligns with the three core areas of learning and teaching in the curriculum in Hong Kong: listening, creating, and performing. As stated in the curriculum guide, music educators are asked “to develop creativity, the ability the appreciate music and the effectively communicate through music…and to gain enjoyment and satisfaction through participating in music activities” (2003, p. 21). The Hong Kong music curriculum and the *Sing by Ear* approach shared the same learning objectives and aims. Thus, the possibility of *Sing by Ear* was explored in the present study.
2.6 Adaptation of Informal Learning in the *Sing by Ear* Project

The *Sing by Ear* project has adopted an informal learning style in the design of its teaching approach. The teaching approach is a semi-structured curriculum design within a student-directed environment. Students are provided with an opportunity to learn independently in a peer-directed setting. Teachers are not the authority of the curriculum and will act as coaches who give advice when needed. Freedom of choice will be given to students to choose their repertoire, which will allow them to learn quickly. The informal learning style focuses on the learners, and copes with their needs and interests in a flexible way (Dib, 1988).

2.7 Motivation Theories in Psychology

Heckhausen and Heckhausen (2018) summarised two characteristics of motivated human behaviour: (1) the striving for control and (2) the organisation of goal engagement and disengagement. Motivation research focuses on explaining these behaviours of goal pursuit, such as how humans sustain an activity or abandon it. According to Hancock (2004), there are four philosophical approaches to understanding motivation in action: behavioural, humanistic, cognitive, and sociocultural perspectives. Among the four approaches, Dweck and Leggett (1988) looked through cognition-affect-behaviour to explore maladaptive and adaptive responses in student motivation. From a cognitive perspective, McPherson and McCormick (2006) suggested that motivation theories explain how human behaviour varies depending on cognitive development and previous experiences.

To this end, the literature on motivation theories are reviewed in the following section through cognitive perspectives to understand students’ motivated responses.
2.7.1 Self-Efficacy Theory

From a social-cognitive perspective, self-efficacy refers to an individual’s belief in his or her self-worthiness and the personal ability to perform tasks necessary to complete attainments (Bandura, 1977, 1986, 1997). Bandura (1986) explained a self-system in humans that allows them to pursue control over their thoughts, feelings, and actions. This self-system enables individuals to learn from models, look for alternative solutions, regulate self-behaviour, and commit self-reflection. As such, self-efficacy is defined as people’s confidence in their ability and the process of managing over their own behavioural, motivational, and social circumstances. These self-assessments affect people’s experiences, including the achievement of specific goals, the level of the task they strive to attain, and the amount of effort spent (Schunk, 1991; Eccles & Wigfield, 2002). Individuals who have strong self-efficacy beliefs in their abilities are able to perform more complex tasks and challenging goals while maintaining a solid commitment (Bandura, 1994). They are more likely to sustain their motivation, accept setbacks, and recover from failure quickly. Inversely, individuals with lower self-efficacy doubt their abilities, quickly turn away, and give up on a goal when obstacles are encountered. They believe that their failure is due to insufficient levels in their capabilities (Bandura, 1994). Self-efficacy beliefs influence how people perceive, understand, and motivate themselves in actions.

Self-efficacy beliefs can be initiated by four main forms of sources: (1) mastery experiences, (2) vicarious experiences, (3) social persuasion, and (4) physiological and emotional states (Bandura, 1995). Encountering mastery experiences is the most effective way of building a strong sense of self-efficacy (Bandura, 1995). When people experience successes, they are more likely to build a vigorous belief in self-abilities. People expect fast and easy successes when they only
experience simple achievements. At the same time, they are easily discouraged when facing obstacles. A strong sense of efficacy requires perseverance and sustained effort. The second form of building self-efficacy beliefs is through vicarious experiences (Bandura, 1995). By observing that role models who have similar experiences succeed through sustained effort, the observer is more likely to judge their abilities similarly. The third way of establishing efficacy beliefs is through social persuasion (Bandura, 1995). Individuals are more likely to exert more sustained efforts when they are convinced that they have sufficient abilities to master a particular task, rather than self-doubting ability deficiencies. The last aspect of efficacy sources is from the physiological and emotional perspectives (Bandura, 1995). Diminishing stress reactions and negative emotions can help regulate self-efficacy beliefs.

Efficacy beliefs regulate human behaviours through four psychological processes: including cognitive, motivational, affective, and selection processes (Bandura, 2010). The cognitive process is about regulating of human behaviour, influenced by thoughts of self-appraisal in goal setting. When people have stronger self-beliefs, they set higher goals and are more willing or ready to face challenges (Locke & Latham, 1990). They anticipate success and build up ways to avoid failure. On the other hand, self-efficacy beliefs affect the self-regulation in the motivational process, in which people’s motivation is cognitively generated to predict outcomes and realise successful futures (Bandura, 1995). Self-belief influences the human motivational process in three ways. First, it affects the goals that people set and how much effort they spend; second, it determines how long they can sustain their goals when encountering obstacles; and third, it attributes their attitude to failures (Bandura, 1995). Self-efficacy beliefs control people’s thinking to regulate stress and depression.
feeling when they face difficulties. People who have a stronger self-efficacy belief can control anxiety arousal and avoidance behaviour. Thus, their immune function to stressors is enhanced (Bandura, 1995). Lastly, in the selection process, people with a higher sense of efficacy tend to select challenging tasks that they believe they can finish. However, people with a lower sense of efficacy avoid situations for which they feel they are not qualified (Bandura, 1995).

2.7.2 Expectancy-Value Theory

The expectancy-value theory was developed by Atkinson in the 1960s to examine the psychological state of the motivation to achieve in humans (Eccles, 1983). His model consists of four components: expectancy, value, fear of failure, and hope for success (Eccles, 1983). Atkinson (1964) believed that an individual favours doing what he or she expects to be successful and valuable, where these influenced the choices that an individual makes. Correspondingly, a person who displays higher hope than fear tends to persist in a task and achieve higher goals (Atkinson, 1964).

In the 1980s, Eccles further expanded the research into an educational perspective, conducted in school settings, and linked performance, persistence, and choice to expectancy for success and task value beliefs where expectancies and values are positively related (Eccles, 1983; Eccles & Wigfield, 2002). Expectancy for success indicates how convinced an individual is of his or her capability to achieve a successful outcome, while task value shows how important and satisfying the individual considers the task. In brief, a person’s expectancy for success and the task value he or she perceives are essential determinants of the motivation to perform tasks (Wigfield, 1994).
Eccles and Wigfield (1995) presented four major components of subjective task values: (1) attainment value, (2) intrinsic value, (3) utility value, and (4) cost. Attainment value refers to the importance of performing well in a task, while intrinsic value refers to the enjoyment and satisfaction gained from performing the task. Utility value is a rather extrinsic component that refers to how a person feels that the task is helpful for his or her plans. Lastly, the cost is associated with giving up the person’s things when achieving the task, such as time and energy.

2.7.3 Attribution Theory

Attribution is a social psychological process in which individuals explain the factors or conditions of their behaviour and events (Weiner, 1974). Kelley and Michela (1980) identified attribution as the perception or assumption of cause, where these assumptions affect reactions and determine future behaviours in individuals. Gaier (2015) pointed out that humans seek to understand their conditions by attributing causality to their performances, and these attributions manipulate their future actions. He simply defined attribution theory as “a theory that helps us identify why we do what we do” (Gaier 2015, p. 6). Based on Heider’s (1958) early research on attribution, Weiner (1972, 1974) suggested that success or failure may be attributed to the following causes: ability, effort, task difficulty, and luck. While success may be credited to high ability and effort, failure can be blamed on low ability and insufficient effort.

From an academic perspective, Fishman and Husman (2017) explained that students are often engaged in the attribution of success or failure, and research showed that the perception of causes profoundly influences students’ learning and motivational outcomes. He further stated that the process of attribution is
intermittently sparked by unforeseen and unfavourable incidents that engender stress and bad feelings that intimidate students’ beliefs. Research in attribution theory has delved into the consequences of such causal perceptions and how they lead to different motivational results in students. From an educator’s perspective, Gaier (2015) explained that it is essential for teachers to understand students’ adversity and what causes hardship in their learning processes. As a result, the teacher is equipped to find out what is behind the student’s behaviour and what affects their learning motivation to help the students accordingly.

In music, according to Asmus (1986), one way to analyse musical motivation is assisted by the attribution theory. A strong correlation was found between self-attribution in music and self-attribution in academics. An individual’s self-perception of success and failure dramatically impacts his or her performance on a task.

2.7.4 Goal Orientation Theory

Goal orientation is one of the critical constructs that has developed in educational psychology over the past few decades. It is a significant framework for examining learners’ academic motivation and explains the purposes and approaches employed by learners when achieving a task (Dweck, 1986; Midgley et al., 1998; Rashidi & Javanmardi, 2012). The theory concerns students’ adaptive and maladaptive patterns when engaging in a task, defines individuals’ reasons for achieving a goal, and provides a framework for motivational orientation research (Kaplan & Maehr, 2007; Nielsen, 2008). Bråten and Strømsø (2004) stated that goal orientation theory appears as the most constructive and prominent concept in academic motivation, while DeShon and Gillespie (2005) commented that goal
orientation is a clear motivational concept that effectively explains the adaptive approaches of some individuals towards better performances.

Originally developed from a research programme she conducted, Deweck (1986) conceptualised and identified the construct of goal orientation into two major types of goals: (1) a learning goal orientation and (2) a performance goal orientation. A learning goal orientation (often referred to as mastery goals or task goals) involves the improvement of competence and the attempt to expand on new skills by accomplishing something challenging (VandeWalle et al., 2001; Bråten & Strømsø, 2004). Moreover, learning goal orientation may be thought of as “a purpose of personal development and growth that guides achievement-related behaviour and task-engagement” (Kaplan & Maehr, 2007, p. 142). Students who adopt a learning goal orientation tend to employ adaptive strategies to enhance their skills and are less likely to give up when they face difficulties (Nielsen, 2008). Positive outcomes, such as self-efficacy, persistence, pride, critical thinking, and positive emotions, have been found when students adopt learning goal orientations and are more willing to work with peers (Kaplan & Maehr, 2007; Bartels et al., 2010).

The literature on performance goal orientation or ego orientation suggests that students tend to demonstrate and display their competence to others, seeking recognition and avoiding negative comments (VandeWalle et al., 2001; Ormrod, 2011; Zhou & Wang, 2019). Students who adopt a performance goal orientation perceive ability as a fixed entity, which is challenging to develop. Also, exerting effort is not considered a means for improvement but is only viewed as evidence of low ability (VandeWalle et al., 2001). Students who adopt performance goal orientations prefer easy tasks to avoid failure, as they focus on the perception of others regarding their ability (Elliot & Church, 1997; VandeWalle, et al., 2001).
2.7.5 Flow Theory

The concept of “flow” was developed by Csikszentmihalyi (1990), who was fascinated by examining happiness as a positive state of being. Csikszentmihalyi described happiness as “not being bored on the one hand but not feeling anxiety on the other when confronted with a task, job, or other activity” (Whitson & Consoli, 2009, p. 41). Based on this, flow theory originates in the pursuit of understanding the state of being intrinsically motivated and of complete involvement in an activity (Nakamura & Csikszentmihalyi, 2014). “Flow” describes the optimal state of happiness and concentration when a person is so profoundly engaged in the activity, and “the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it” (Csikszentmihalyi, 1990, p. 4).

A few conditions must be satisfied in order to engage in the state of flow. Being in flow is the experience of balanced challenges and skills (Csikszentmihalyi, 2014). Firstly, the task difficulty and ability must be matched to enter the state of flow so that the learner does not remain disinterested and does not become tense and worried. Learners will quickly become frustrated or bored if the challenge level falls outside of their ability. Secondly, a clear goal must be established. Learners feel secure when they know the reasons and goals they have for tasks (Csikszentmihalyi, 2014). Whitson and Consoli (2009) suggested that helping the learners develop short-term goals would help them achieve long-term goals, making the task more achievable for them. In addition, Csikszentmihalyi (2014) suggested that receiving immediate feedback is essential to the flow experience and intrinsic motivation. By receiving immediate feedback, students are more aware and sensitive to their signs of progress, and eventually, they will learn to give feedback to themselves, which is the ultimate goal of learning (Whitson & Consoli, 2009).
When a learner experiences flow, he or she functions at total capacity. Individuals are encouraged to persist in learning, as rewarding experiences and skills growth are promised in the state of flow (Nakamura & Csikszentmihalyi, 2014). When in flow, learners enjoy the activity so much that they only pursue the goal for their own sake, not for extrinsic rewards (Csikszentmihalyi, 2014). When learners experience flow in learning, they display adaptive motivational strategies, which allow them to make more progress (O’Neill, 1999). Moreover, learners are willing to persevere in tackling obstacles and seeking out challenges when flow is achieved. Thus, learning is continuous and rewarding.

2.8 Motivation Research in Music Education

Students tend to get frustrated during practice and become less interested in learning across time and levels in music learning. Researchers and educators have been interested in investigating the influence of motivation on learning and practising music, which may help teachers develop effective strategies to create a more motivating music classroom for students to persist in learning music (Burak, 2014; Cogdill, 2015).

McPherson and O’Neill (2010) conducted a motivation research based on an expectancy-value framework involving 24,143 students from eight countries. Music as a school subject is often not treated being as crucial as other subjects such as languages, mathematics, and science, while neglecting the value of artistic experience, personal fulfilment, and educational development in music (McPherson and O’Neill, 2010). Mcpherson and O’Neill’s (2010) research was performed to examine the situation of the declining motivation in students, their expectations and values of academic subjects and music across school levels and different subjects.
based on three constructs: competence beliefs, subjective task values, and perceived task difficulty. Four key issues were investigated in the research: (1) whether competence beliefs and values decreased across all eight countries; (2) whether perceptions of task difficulty rose across school levels; (3) differences in students’ valuation of competence beliefs, values, and task difficulty for music as compared to other school subjects; and (4) differences in competence beliefs, values, and task difficulty among males and females, and whether those students were not learning an instrument or voice (McPherson & O’Neill, 2010, p. 105).

In the research, 24,143 students (11,909 females and 10,066 males, aged nine to 21 years) were invited from eight regions: Brazil, China, Finland, Hong Kong, Israel, Korea, Mexico, and the US (McPherson & O’Neill, 2010). Questionnaires were distributed to the students, seeking information on whether or not their family owned a musical instrument and whether they were learning any instruments or taking voice lessons. Some questions examined whether students received lessons in the individual subject outside school, asked to have other lessons outside school, and how much they wanted to learn for the individual subject. Students were asked about their extracurricular activities, including how much time they spent on the activity in a week.

The questionnaire was designed based on three motivation measures: competence beliefs, values, and task difficulty (McPherson & O’Neill, 2010). For competence beliefs, there were four questions to ask whether the participants believed in their capability and capacity to succeed or accomplish good results in each school subject. In terms of values, ten items investigated students’ subjective task values in concerning the importance, interest, and practicality of engaging in each school
subject. For task difficulty, there were two items designed to seek out information regarding students’ impressions of how difficult they believed each subject to be.

The data collected were processed a multivariate analysis of variance (MANOVA). Cumulative mean ratings for competence beliefs, values, and task difficulty were examined with within-subject factors for school subjects (music, art, physical education, mother tongue, and mathematics) and between-subject factors (country, school level, gender, and whether the participant was a music learner). Regarding competence beliefs, a significant decline was found across all school levels in the combined region analysis, while female students and music learners showed firmer competence beliefs in music than male students and non-music learners. On values, the results revealed a decrease across school levels. As in competence beliefs, female students and music learners reported higher values for music than male students and non-music learners. For task difficulty ratings, a significant increase was found across school levels. Male students reported more serious task difficulty than female students in music, while music learners reported lower task difficulty than non-music learners (McPherson & O’Neill, 2010).

A further MANOVA was performed to examine the interaction of the three motivation measures across six school subjects (music, art, physical education, mother tongue, mathematics, and science) for each of the eight regions (McPherson & O’Neill, 2010). Independent factors include school levels (lower, middle, upper), gender, and music learner.

The results obtained answered the four key issues. First, whether competence beliefs and values decreased across all eight regions. The results showed that students between the lower and middle levels from all regions reported a decrease in competence beliefs for the school subjects, excluding Brazil. A significant decline in
competence beliefs in music was found between the school levels in all countries except Brazil. Except for Brazil, values declined between the three school levels for the school subjects in the other seven regions. As for values in music, the results also reported a decline in all regions except Brazil’s, indicating a significant increase between the school levels. The second issue was whether perceptions of task difficulty rose across school levels. There was a stable increase in task difficulty for most subjects between school levels for all regions except Brazil. There was no increase in task difficulty in music for Brazil; however, other regions showed a significant increase. The third issue concerned differences in students’ valuation of competence beliefs, values, and task difficulty for music compared to other school subjects. Students in Hong Kong, Israel, Mexico, and the US reported lower competence beliefs in music than those in China, Korea, and Finland.

As for Brazil, students reported high competence beliefs in music. In terms of values, Brazil students rated music at a higher rank than students in other regions. On task difficulty, students in China, Finland, Hong Kong, and the US perceived music as less complicated than other subjects, whereas Mexican students ranked music as a more complex subject. Lastly, there were differences in competence beliefs, values, task difficulty among males and females, and whether those students were not learning an instrument or voice. Female students reported greater competence beliefs for music and art than male students in all countries except Brazil. Regarding values, female students perceived higher values for music than male students in all regions except Brazil and China. Female students also reported lower task difficulty for music than male students in all regions except Brazil. Music learners perceived higher values in music in all regions, moreover a firmer competence beliefs and lower task difficulty than non-music learners in all regions except Brazil.
McPherson and O’Neill’s (2010) research focused on personal beliefs and expectations out of the motivation domains, such as self-system, social system, and motivated behaviour. Students’ expectations of their participation in different subjects were examined to grasp how their beliefs changed across school levels. Students’ decisions to persist in music or not were influenced by their beliefs concerning their capability to achieve high grades, value, and inherent difficulty (McPherson and O’Neill’, 2010). The results revealed a decline in competence beliefs and values in most school subjects, including music, across the three school levels. Meanwhile, students reported an increase in task difficulty in school subjects across school levels. On the other hand, in all countries except Brazil, female students reported firmer competence beliefs and values and lower task difficulty than male students. Lastly, music learners showed high competence and value and less task difficulty in music than non-music learners in all regions except Brazil.

The different results found in Brazil were also observed. A few Brazilian schools offered music in the formal school curriculum, and it was not a compulsory subject in schools (Hentschke, 2010). As a result, teachers offered more leisurely musical activities for students, and thus music was believed not to be challenging (Hentschke, 2010). On the other hand, most Brazilian students participated in musical activities such as bands, choirs, and orchestras outside school. Thus, most of the Brazilian students regarded themselves as music learners compared to students in the other seven regions, and therefore they placed high value in music (McPherson & O’Neill, 2010).

The study highlighted that music as a school subject was less valuable to students as they proceeded to higher levels of schooling and was a subject which they considered more complicated than the other subjects (McPherson & O’Neill, 2010).
The findings also suggested that, while music learners had firmer competence beliefs in music, they valued music as being lesser than the other subjects. The authors proposed that music was not always considered a more helpful subject than others in practical areas, such as employment (McPherson & O’Neill, 2010). The value and advocacy of music education need to be promoted by educators, and students’ motivation to learn music has to be understood from multiple perspectives.

Martin (2012) conducted a research on musical self-efficacy of middle school band students. Students’ self-efficacy beliefs, attributions for success, and failure in music were investigated. Self-efficacy concerns the individual’s persistence and achievement (McCormick & McPherson, 2003). An individual’s belief of self-efficacy is shown to have a significant association with his or her determination of achieving excellent performances. Bandura (1997) pointed out that when individuals perceive higher self-efficacy, they have a tendency to work harder and resist from negative emotions when they engage difficulties. In music, self-efficacy relates to students’ belief of his capability to achieve a desired musical outcome (Martin, 2012).

A total of 45 middle school band student were invited in Martin’s (2012) study. Self-efficacy were measured with Schumidt’s (2007) and Hendrick’s (2009) scale. Results show that students in the study had high feelings of self-efficacy when considering their skills for a successful outcome. Meanwhile, students firmly attribute their musical success and failure to musical ability. From the study results, Martin (2012) suggested music educators need to be aware of the discouraging comments upon students and the classroom atmosphere that they create as these experiences effect young musicians on developing their ability.
2.9 Self-Determination Theory in Psychology

The process of music learning requires the development of a set of skills that takes a long time and demands sustained motivation. On such grounds, researchers are concerned with the factors that contribute to why some students persist in the learning process, while others quit halfway (Evans, 2015; MacIntyre et al., 2018).

In motivation, the self-efficacy theory (Bandura, 1977, 1995, 1997; Pajares, 1996) and expectancy-value theory (Eccles et al., 1983; Wigfield & Eccles, 2000) are essential for addressing students’ learning processes and the effectiveness of the learning. As an impetus for these theories, Deci and Ryan (1985a) presented the self-determination theory (SDT) in the publication of *Intrinsic motivation and self-determination in human behaviour*, in which the theory combines with the earlier theoretical views on motivation but also focuses on the quality of the motivation and psychological growth (Valenzuela et al., 2018). A self-determination continuum (Figure 2.7) is proposed to describe different motivation levels, where the motivation lies on a scale between intrinsic motivation and amotivation, with four types of extrinsic motivation lying in between (Deci & Ryan, 1985a; Standage & Treasure, 2002).
Based on the SDT concepts developed by Deci and Ryan (1985a), Evans (2015) provided a conceptual compendium of SDT as a motivation approach in music education. He commented that SDT is an extensive theory of motivation that investigates the nature and sources of motivational quality (Evans, 2015). There are two important components in the SDT: the fulfilment of basic psychological needs of competence, relatedness, and autonomy; and the internalised motivation behaviour (Evans, 2015).

The fundamental concept of intrinsic motivation in SDT consists of three core basic psychological needs in the areas of relatedness, competence, and autonomy, which are essential for quality intrinsic motivation and engagement in humans, and the promotion of psychological growth and internal regulation (Deci & Ryan, 2008; Evans, 2015; Valenzuela et al., 2018).
Relatedness concerns the relationship and bonds in social perspectives and the desire to connect with others (Deci & Ryan, 2000a; Evans, 2015; Valenzuela et al., 2018). Roberts (2018) explained that relatedness refers to “feeling connected to others” (p. 13), which could be cultivated between teachers and students and among peers, and this social connection and belongingness are necessary for higher personal goals and more remarkable achievements. Miketinas et al. (2016) asserted that closeness and acceptance among social relationships are crucial, as they influence internal regulatory behaviours. The need for relatedness is satisfied when close bonds are formed among students, and they feel emotionally intimate with their peers, which offers mutual benefits (Evans, 2015; Valenzuela et al., 2018).

Competence focuses on the ability of an individual to perform and complete a certain task, and refers to the willingness of an individual to be effective in the required skills and interaction with the social environment, which provides adaptation advantages (Evans, 2015; Roberts, 2018). Increased indefatigability and perseverance are observed when an individual feels the ability to complete a task, which avoids anxiety, stress, and negative self-efficacy beliefs (Roberts, 2018; Valenzuela et al., 2018). Feelings of competence are necessary for sustained intrinsic motivation, as they lead one to encounter difficulties and put effort into improving one’s skills (Valenzuela et al., 2018).

The need for autonomy highlights a sense of freedom, independence, and self-governance, where choices are allowed according to learners’ desire, instead of being controlled by external rules or instructions (Miketinas et al., 2016; Roberts, 2018). In schools, students freely choose the activities they want to engage in, which facilitates a sense of volition and initiative. Thus, their feelings are acknowledged (MacIntyre et al., 2018; Valenzuela et al., 2018). The need for relatedness, competence, and
autonomy supports sustained intrinsic motivation, which is internalised and self-regulated. However, extrinsic motivation exists when internalisation is disrupted by external factors (Deci & Ryan, 2000a).

The SDT further describes four types of extrinsic motivation: external regulation, introjection, identification, and integration (Deci & Ryan, 2000a; Evans, 2015). External regulation represents the least internalised motivation and is controlled and affected by external rewards or threats (Evans, 2015; MacIntyre et al., 2018). Individuals only become involved in an activity when there are aspirations for rewards or avoidance of punishments; this discourages sustained motivation (Deci & Ryan 2000a; Evans, 2015).

Introjected regulation is a composite of extrinsic motivation and internalised regulation, in which the regulations are not fully endorsed within oneself, but only the pressure from the task is grudgingly accepted (MacIntyre et al., 2018). Self-consciousness, self-administration, and ego are examples of introjection, where pride, threats of guilt, and shame determine the sense of motivation (Deci & Ryan, 2000a).

Identified regulation is the process of transitioning from extrinsic to intrinsic motives, where an individual observes the value of the task to be completed, and identifies the significance of performing the task (MacIntyre et al., 2018). The individual feels that the initiation is from his or herself rather than from their environment, in which the process is more internalised and more autonomous (Deci & Ryan, 2000a).

Integrated regulation represents the consonance of personal goals and behaviour, involving the realisation of the importance of the behaviours and alignment with intrinsic personal goals (Evans, 2015). External regulation is
transformed into self-regulation, resulting in “self-determined extrinsic motivation” (Deci & Ryan, 2000a, p. 236).

In contrast, the continuum of SDT allows for the circumstances where an individual would feel unmotivated, which is a state called “amotivation,” in which he or she lacks the intention to complete the task and the efficacy to achieve the desired outcome (Deci & Ryan, 2000b). This kind of behaviour lacks regulation.

Evans (2015) updated Deci and Ryan (2000a) self-determination continuum with a division between intrinsic motivation and extrinsic motivation, elaborated with music learning behaviours (Figure 2.8).

![Figure 2.8](https://www.example.com/figure2.8.png)

**Figure 2.8**

**SDT Continuum with Music Behaviours**

<table>
<thead>
<tr>
<th>Type of Motivation</th>
<th>Amotivation</th>
<th>Extrinsic Motivation</th>
<th>Intrinsic Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioural regulation</td>
<td>No regulation</td>
<td>Relatively Internal</td>
<td>Intrinsic</td>
</tr>
<tr>
<td>Characteristic and behaviours</td>
<td>Impersonal</td>
<td>Guilt, shame, Social approval, Gino involvement</td>
<td>Behaviour is undertaken for its own sake</td>
</tr>
<tr>
<td>Music practice relevant behaviours</td>
<td>No intention</td>
<td>Understanding the value and importance of behaviour to identity</td>
<td>Identity pursuits are aligned with the self</td>
</tr>
<tr>
<td></td>
<td>No behaviour</td>
<td>“It is important for me to practise.”</td>
<td>“I know that I want to be a professional musician one day.”</td>
</tr>
<tr>
<td></td>
<td>Low perceived competence</td>
<td>“I will feel bad if I don’t practise.”</td>
<td>“I need to practise a lot.”</td>
</tr>
<tr>
<td></td>
<td>“I don’t want to practise.”</td>
<td>“I will feel proud of myself if I can practise.”</td>
<td>“I practise because music is the most important thing to me.”</td>
</tr>
<tr>
<td></td>
<td>“Practising seems pointless. I’m not a good musician anyway.”</td>
<td>“I choose music because it is an easy subject.”</td>
<td>“I love playing my instrument.”</td>
</tr>
<tr>
<td></td>
<td>“I don’t understand why I should bother practicing.”</td>
<td>“I practise because my mum said to.”</td>
<td>“I enjoy playing my favourite pieces.”</td>
</tr>
</tbody>
</table>


In brief, self-determination focuses on the quality of motivation in which the psychological process results in high performance, persistence, and positivity (Magno, 2011), while the basic psychological needs and the different types of internal and external regulation are connected (Evans, 2015).
2.10 Self-Determination Theory Research in Music Education

Evans (2015) recommended the use of SDT in music education research and commented on SDT as a comprehensive theory of motivation that appraises broader kinds of human social behaviours and focuses on the circumstances that promote people’s volition and initiatives. SDT focuses on the quality of motivation, examines the nature of motivation, and fulfils the basic psychological needs of competence, relatedness, and autonomy, thus providing unification to music education research on motivation (Evans, 2015). By combining the interpersonal, intrapersonal, and social aspects of motivation, the SDT consolidates the earlier motivation theories to pursue motivation studies and is thus pertinent to the present research.

SDT research has been conducted on music education in recent years. Evans et al. (2013) examined students’ decisions to persist or cease learning a musical instrument based on SDT and basic psychological needs. The sample involved 157 primary school students from Sydney who joined the longitudinal research in 1997 and participated in school band programmes. There were 87 females and 70 males in the sample. Follow-up data were collected for the research when the participants had finished high school at 18–20 years of age. A survey was used to investigate the three psychological needs of competence, relatedness, and autonomy when they were most involved in playing instrumental music and the moments when they quit playing. Quantitative results showed that students perceived a greater sense of fulfilment and less hindrance when deeply involved in music learning. In contrast, the students experienced a greater sense of hindrance and a more minor feeling of fulfilment when they decided to terminate music learning.

Evans and Bonneville-Roussy (2016) studied the motivation of university music students based on the context of self-determination theory. University music
students require a lot of deliberate instrumental practice and sustained motivation. Thus, the fulfilment of psychological needs and autonomous motivation are essential (Evans and Bonneville-Roussy, 2016). Instrumental lessons are often delivered in studio settings. Evans and Bonneville-Roussy (2016), citing Guant (2011), pointed out that a studio music environment is often demanding and controlling, allowing for less autonomy, less engagement, and less creativity in students’ learning. The study aimed to understand the motivation of music practice among university students and how the music learning environment affects motivation, practice frequency and preference of challenges based on needs satisfaction.

Four hundred and ten undergraduate music students who studied music performance and received regular studio music teaching were invited from universities in Australia and New Zealand. An online survey was conducted based on the psychological needs satisfaction scale and the autonomous motivation scale (Evans & Bonneville-Roussy, 2016). Participants were also interviewed about their practice frequency, quality practice frequency, preference for a challenge, and affective states during their practice time. The results showed that students who satisfied their psychological needs experienced more autonomous motivation. Experiencing autonomous motivation promotes the quality practice and a higher preference for challenges. Frequent positive emotions were also exhibited in the students who perceived autonomy motivation and satisfying psychological needs.

Learning music is a long-term process that requires enormous effort and sustained motivation, which involves both intrinsic and extrinsic motives (MacIntyre et al., 2018). MacIntyre et al. (2018) examined the motivation of musicians in the context of the four aspects in self-determination theory—intrinsic, identified, introjected, and extrinsic regulation—to consider the interactions with motivational
constructs, such as motivational intensity, the desire to learn, willingness to play, perceived competence, and musical self-esteem. A model was created with the four aspects (intrinsic, identified, introjected, and extrinsic regulation) on the SDT continuum to identify intercorrelations among the four items and the relationship to the five motivation-related constructs: desire to learn, motivational intensity, perceived musical competence, self-esteem for musical abilities, and willingness to play (Figure 2.9). The desire to learn reflects the emotional connection that the student has towards learning the instrument. Motivational intensity is the amount of effort that the student is willing to put into learning. Perceived musical competence reflects students’ confidence in playing music. Self-esteem for musical abilities reflects the attitude towards students’ self. Willingness to play reflects student’s readiness and willingness to play music on different occasions and for different audiences sizes.

**Figure 2.9**

*The Self-Determination Proposed Model*

![Diagram of the Self-Determination Proposed Model](image)

Key: MotivIntens = Motivation Intensity; PerComp = Perceived Competence; WTP total = Willingness to Play

According to the model, the inter-correlations among the four self-determination concepts are shown and supported by the three music-related variables: perceived competence, motivational intensity, and desire to learn. All four motives of the SDT are expected to contribute to the development of perceived competence. However, MacIntyre et al. (2018) predicted that the internalised motive contributes more to the difference in perceived competence. Increases in motivational intensity or effort are predicted as the outcome of increased motivation. On the other hand, the desire to learn is proposed as a reflection of the intrinsic qualities of motivation, leading to the growth of the SDT process. Eventually, the desire to learn catalyses enhancing motivational intensity or effort, supported by a thriving feeling of competence. The model here shows the circuit where the increases of the SDT motives and the desire to learn will result in enhancement of motivational intensity or effort, which then leads to the growth of perceived competence, displayed in an increased desire to learn (MacIntyre et al., 2018).

The intermediate variables of the path analysis reflected that the more input of motivational intensity results in higher perceived competence and self-esteem. Self-esteem is also reflected and supported by motivational intensity, as self-esteem results from previous achievements (Reeve, 2014, in MacIntyre et al., 2018).

Lastly, the final variable, willingness to play, is proposed as a product of competence and self-esteem. A path from the desire to learn to the willingness to play is also included, as there is a close relationship between practice and learning (MacIntyre et al., 2018).
In the study of MacIntyre et al. (2018), an international sample of 188 adult musicians was surveyed. Participants were asked questions on the instruments and genres they played, the frequency and duration of the practice, and open questions on their opinion about being musicians in the future. The survey contained 58 items to collect data on the seven aspects: 16 items for self-determination, 10 items for the desire to learn, 9 items for motivational intensity, 4 items for perceived competence for music, 10 items for musical self-esteem, and 9 items for the willingness to play. Significant correlations were found between the neighbouring SDT concepts, while a correlation was also found between introjected and intrinsic regulation (Table 2.10). There were also significant correlations between the music-related variables, where perceived competence and musical self-esteem, and desire to learn and motivational intensity have the most significant correlations. Furthermore, the inter-correlations are the strongest for the intrinsic regulation and the SDT concepts.

**Table 2.10**

*The Self-Determination Correlation Matrix*

<table>
<thead>
<tr>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Extrinsic</td>
<td>1.87</td>
<td>1.18</td>
<td>–</td>
<td>.54**</td>
<td>.14</td>
<td>–.08</td>
<td>–.08</td>
<td>.03</td>
<td>.13</td>
<td>–.03</td>
</tr>
<tr>
<td>2. Introjected</td>
<td>3.20</td>
<td>1.66</td>
<td>–</td>
<td>.50**</td>
<td>.28**</td>
<td>.18**</td>
<td>.23**</td>
<td>.22**</td>
<td>.08**</td>
<td>.13</td>
</tr>
<tr>
<td>3. Identified</td>
<td>5.63</td>
<td>1.21</td>
<td>–</td>
<td>.74**</td>
<td>.41**</td>
<td>.47**</td>
<td>.49**</td>
<td>.32**</td>
<td>.33**</td>
<td></td>
</tr>
<tr>
<td>4. Intrinsic</td>
<td>6.00</td>
<td>0.92</td>
<td>–</td>
<td>.51**</td>
<td>.51**</td>
<td>.56**</td>
<td>.39**</td>
<td>.41**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Desire</td>
<td>5.33</td>
<td>1.17</td>
<td>–</td>
<td>.67**</td>
<td>.50**</td>
<td>.49**</td>
<td>.53**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. MotivInten</td>
<td>4.78</td>
<td>0.81</td>
<td>–</td>
<td>.52**</td>
<td>.43**</td>
<td>.44**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. PerComp</td>
<td>5.52</td>
<td>1.17</td>
<td>–</td>
<td>.68**</td>
<td>.54**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. SelfEsteem</td>
<td>6.46</td>
<td>1.37</td>
<td>–</td>
<td>.60**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. WTP total</td>
<td>21.91</td>
<td>6.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: MotivInten= Motivation Intensity; PerComp= Perceived Competence; WTP total= Willingness to Play

The effectiveness of the proposed model and the correlations found were further evaluated using path analysis. After trimming the non-significant paths, the final model was modified from the proposed one (Figure 2.11).

**Figure 2.11**

*The Self-Determination Final Model*

![Diagram of the Self-Determination Final Model]

Key: MotivInten = Motivation Intensity; PerComp = Perceived Competence; WTP total = Willingness to Play


The final model shows that extrinsic motivation substantially affects perceived competence, while intrinsic and identified motivation have significant effects on all three variables. Although the final model shows that intrinsic motives are dominant in the motivational system, while extrinsic motives seem less prominent, the model still suggests that intrinsic and extrinsic motives are evident among the participants (MacIntyre et al., 2018). A positive feedback loop is established in the final model,
and if there is an increase in one of the variables, there will be a chain reaction to the other variables (MacIntyre et al., 2018).

MacIntyre et al. (2018) concluded that internalised regulation associates more strongly with the music-related variables than the extrinsic regulations. Intrinsic motives help foster the desire to learn, the intensity of motivation and enhancement of perception of competence, which are conducive to a healthy cycle in music learning.

Another scholar, Schatt (2018), examined the factors that affected the motivation of middle school band students in their instrumental practice and validated a modified survey instrument appertaining to SDT. The study aimed to explore the stages of self-determination that the middle school band students experienced during their practices. Relationship of SDT with the span of learning instruments, SDT with the amount of practice time per week, and SDT with grade level, gender, instrument and modes of learning were explored.

Seven hundred ninety-six middle school students (age 10–14) from 12 schools were invited for the study. Fifth-grade and eighth-grade students comprised the majority of the participants, since students started to join the music bands in the fifth grade; the eighth graders were considered more experienced music learners. Participants were asked to complete the Musical Practice Motivation Scale (MPMS) survey containing 28 items to gauge students’ motivation and perception of the practice. The Sport Motivation Scale (SMS-28) (Pelletier et al., 1995) was adopted and modified to the MPMS by Schatt (2013) for use in music ensemble settings. The items in the survey were designed to respond to the question “Why do you practice your instrument?” The 28 items were further divided into seven subscales according to the SDT continuum measuring the degrees of intrinsic and extrinsic motivation from Amotivation to Intrinsic motivation: (1) Intrinsic Motivation—To Know, (2)
Intrinsic Motivation—To Accomplish, (3) Intrinsic Motivation—To Experience Stimulation, (4) Extrinsic Motivation—Introjected, (5) Extrinsic Motivation—Identified, (6) Extrinsic Motivation—External Regulation, and (7) Amotivation (Schatt, 2018) (Table 2.12). Participants were required to respond to a 7-point Likert scale for each item, ranging from 1 (not at all) to 7 (totally agree).

Table 2.12

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation—To Know</td>
<td>Performing an activity for the pleasure of experiences that lead to learning, exploring, or attempting something new</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Accomplish</td>
<td>Engaging in a task for the satisfaction of attempting to achieve or create something</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>Desire to engage in an activity in order to experience inspiration in the form of sensations of pleasure, aesthetic experience, fun, or excitement</td>
</tr>
<tr>
<td>Extrinsic Motivation—Identified</td>
<td>Valuing and regarding a behavior as important, thereby engaging in an activity by choice</td>
</tr>
<tr>
<td>Extrinsic Motivation—Introjected</td>
<td>Engagement in an activity that is reinforced through internal feelings of guilt or anxiety when a stimulus is removed and no longer needed to initiate a behavior</td>
</tr>
<tr>
<td>Extrinsic Motivation—External Regulation</td>
<td>Behaviors that are controlled by external sources (i.e. rewards or constraints)</td>
</tr>
<tr>
<td>Amotivation</td>
<td>Relative absence of internalization; neither intrinsically nor extrinsically motivated</td>
</tr>
</tbody>
</table>

Note. From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University], p. 61. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The subscale of Intrinsic Motivation—To Know (Table 2.13) consists of 4 items and concentrates on students’ self-belief and desire to learn new skills. On the MPMS survey, responses of 7 on the items (totally agree) would reflect a high desire to participate in an activity for one’s own pleasure and a feeling of satisfaction derived from learning a new skill. Inversely, responses of 1 (totally disagree) on the
items would reflect that the students are frustrated about learning more about their instruments and new skills.

Table 2.13

MPMS Items from the Intrinsic Motivation—To Know Subscale

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Because I enjoy knowing more about the music that I practice.</td>
</tr>
<tr>
<td>4</td>
<td>Because I enjoy discovering new musical skills.</td>
</tr>
<tr>
<td>23</td>
<td>Because I enjoy when I learn new musical skills that I have never tried before.</td>
</tr>
<tr>
<td>27</td>
<td>Because I enjoy discovering new ways of performing on my instrument.</td>
</tr>
</tbody>
</table>

Note. From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University]. p. 64. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The subscale of Intrinsic Motivation—To Accomplish (Table 2.14) focuses on students’ desire to be successful when encountering a more challenging task. Students responding 7 (totally agree) to these statements would reflect that they desired to enhance their ability to accomplish the more challenging tasks. Conversely, students who responded 1 (totally disagree) would reflect that they do not want to take up the challenging task and refuse to perfect their abilities.

Table 2.14

MPMS Items from the Intrinsic Motivation—To Accomplish Subscale

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Because I feel really good about myself when I get better at challenging skills.</td>
</tr>
<tr>
<td>12</td>
<td>Because I enjoy when I improve some of my weak points.</td>
</tr>
<tr>
<td>15</td>
<td>For the satisfaction I experience while I am perfecting my abilities.</td>
</tr>
<tr>
<td>20</td>
<td>Because I enjoy when I perform certain challenging skills.</td>
</tr>
</tbody>
</table>

Note. From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University]. p. 64. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.
The subscale of Intrinsic Motivation—To Experience Stimulation (Table 2.15) relates to students’ aspiration to experience positive emotions from performing music. The statements emphasise the feelings and moods when playing an instrument and during the process of music-making. Responses of 7 (totally agree) on the statements reflect that students yearn for pleasure and more emotional experiences when making music. In contrasts, responses of 1 (totally disagree) would indicate that students are looking for extrinsic rewards and focus on the technical aspects of music-making.

Table 2.15

MPMS Items from the Intrinsic Motivation—To Experience Stimulation Subscale

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Because I enjoy exciting experiences.</td>
</tr>
<tr>
<td>13</td>
<td>For the excitement I feel when I am really involved in practicing.</td>
</tr>
<tr>
<td>18</td>
<td>Because of the strong emotions I feel when I make music that I like.</td>
</tr>
<tr>
<td>25</td>
<td>Because I like the feeling of being totally into an activity.</td>
</tr>
</tbody>
</table>

Note. From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University]. p. 65. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The subscale of Extrinsic Motivation—Identified (Table 2.16) focuses on the students’ perception that the activity is important. Students responding 7 (totally agree) to the items would indicate that they consider music practice as a means of musical growth but this may not merely be for musical reasons. In contrast, a response of 1 (totally disagree) would indicate a lack of motivation in music activities.
Table 2.16

*MPMS Items from the Extrinsic Motivation—Identified Subscale*

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Because, in my opinion, it is one of the best ways to meet people.</td>
</tr>
<tr>
<td>11</td>
<td>Because it is one of the best ways I have chosen to develop other parts of myself.</td>
</tr>
<tr>
<td>17</td>
<td>Because it is a good way to learn lots of things which could be useful to me in other areas of my life.</td>
</tr>
<tr>
<td>24</td>
<td>Because it is one of the best ways to maintain good relationships with my friends.</td>
</tr>
</tbody>
</table>

Note. From *Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination* by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University], p. 66. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The subscale of Extrinsic Motivation—Introjected (Table 2.17) corresponds to the dimension of introjected regulation in the SDT continuum, meaning that the participant will only join the activity when they know others value the activity. Students responding 7 (totally agree) to the items would reflect that they might feel guilty and anxious when they have not practised and cannot meet the requirements of their teachers or parents. On the contrary, a lower level of agreement on the items would indicate that the student does not feel pressured not to practise.

Table 2.17

*MPMS Items from the Extrinsic Motivation—Introjected Subscale*

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Because it is absolutely necessary to practice music if I want to be musical.</td>
</tr>
<tr>
<td>14</td>
<td>Because I must practice to feel good about myself.</td>
</tr>
<tr>
<td>21</td>
<td>Because I would feel bad if I was not taking time to practice.</td>
</tr>
<tr>
<td>26</td>
<td>Because I need to make music regularly.</td>
</tr>
</tbody>
</table>

Note. From *Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination* by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University], p. 66. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.
The subscale of Extrinsic Motivation—External Regulation (Table 2.18) refers to a person’s attitude towards external factors when accomplishing a task. A high score of agreement with the items would reflect that the participant considers others’ judgements and comments more critical than their own opinion. On the contrary, a lower agreement score with the items would indicate that the student is not worried about the external factors or penalty on their music-making.

**Table 2.18**

*MPMS Items from the Extrinsic Motivation—External Regulation Subscale*

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Because it allows me to be well thought of by people that I know.</td>
</tr>
<tr>
<td>10</td>
<td>For the reputation of being a musician.</td>
</tr>
<tr>
<td>16</td>
<td>Because people around me think it is important to be a musician.</td>
</tr>
<tr>
<td>22</td>
<td>To show others how good I am at music.</td>
</tr>
</tbody>
</table>

*Note.* From *Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination* by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University], p. 67. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The subscale of Amotivation (Table 2.19) indicates the lowest degree of self-determination on the MPMS. Students with high agreement scores regarding the statements would indicate that they do not see progress, accomplishment, or value in the music practices. Inversely, students with lower agreement scores concerning the statements would suggest that they are still interested and enjoy music practice and recognise some advantages from practising music.
Table 2.19

MPMS Items from the Amotivation Subscale

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>I used to have good reasons for practicing my instrument, but now I am asking myself if I should continue doing it.</td>
</tr>
<tr>
<td>5</td>
<td>I don't know anymore. I have the impression that I am not able to be successful on this instrument.</td>
</tr>
<tr>
<td>19</td>
<td>It is not clear to me anymore. I don't really think I enjoy practicing my instrument.</td>
</tr>
<tr>
<td>28</td>
<td>I often ask myself why I practice. I can't seem to achieve the goals that I set for myself.</td>
</tr>
</tbody>
</table>

*Note.* From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University]. p. 68. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.

The descriptive data collected were calculated for the seven MPMS subscales (Table 2.20). The three Intrinsic motivation subscales were valued higher than the extrinsic subscales. The Intrinsic Motivation—To Know subscale was rated the highest in agreement among the three intrinsic subscales. The Amotivation subscale was rated the lowest in agreement. The result shows that students practice instruments mainly for intrinsic rather than extrinsic reasons, where higher intrinsic motives could advocate persistence, commitment, and involvement (Schatt, 2018).

Table 2.20

Ranking of MPMS Subscale Scores

<table>
<thead>
<tr>
<th>Rank</th>
<th>Subscale</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Know</td>
<td>21.24</td>
<td>4.99</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>20.89</td>
<td>5.05</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>18.83</td>
<td>5.50</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>16.63</td>
<td>5.31</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>15.49</td>
<td>5.56</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>15.43</td>
<td>5.62</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>10.03</td>
<td>5.88</td>
</tr>
</tbody>
</table>

*Note.* The range of possible responses in this table is from 4 (“Strongly Disagree” on each of the four statements) to 29 (“Strongly Agree” on each of the four statements). From Middle School
The second research objective in Schatt’s (2018) study was to find out the relationship between middle school band students’ self-determination in practising and (1) their years of experience in learning the instrument and (2) the amount of time they spent on practice. Significant relationships were found between six of the seven subscales (except Extrinsic Motivation—External Regulation) and the variable—years of experience in playing a musical instrument. It indicates an inverse relationship between the self-determination and the factor of years of experience, in which the longer the participants had played their instrument, the less motivation they felt in their practice. On the factor of the amount of time spent on practising, results revealed that participants practise to achieve emotional satisfaction and aesthetic experiences rather than intellectual outcomes.

The last research question of the study aimed to examine whether grade level, gender, instruments, or private teaching might affect student motivation. Survey results showed a significant difference in motivation by grade level, except for the Extrinsic Motivation—External Regulation subscale. The fifth-graders reported higher motivation levels than the eighth-graders, indicating that motivation to practice declines over time. With regards to gender, only the Extrinsic Motivation—External Regulation subscale was found to be significantly different, showing that male students are more responsive to external factors in their music practices. Also, students who played different instruments showed differences in five of the seven subscales. In particular, woodwind and brass players rated the Intrinsic Motivation—To Know subscale higher than the percussion players. Lastly, the results found that
students are motivated to practise more if they learn the instrument in private settings. Schatt (2018) concluded that creating an autonomous learning environment could encourage students’ motivation in learning and practice.

2.11 From E-Learning to M-Learning in Music Education

Due to the outbreak of the COVID-19 pandemic when students were able to have face-to-face lessons, e-learning approach were adopted in the current study. With the rapid advancement of technology, knowledge in every aspect can be assessed online. The concept of e-learning flourished early in 1955. The concept of computer-assisted Instruction (CAI) is presented as a way of teaching problem solving (Zinn, 2000). Computer-assisted learning and the usage of technology in education have been studied and reported in various ways. Aparicio et al. (2016) summarised various electronic assisted learning concepts from different scholars ranging from the years 1960–2014 (Table 2.21).
### Table 2.21

**E-Learning Related Concepts**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
<th>Concept Focus</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBE</td>
<td>Computer-Based Education</td>
<td>Concept that focuses on the variety of computer uses in education.</td>
<td>(Barson, Levine, Smith, Scholl, &amp; Scholl, 1963) (Zinn, 2000)</td>
</tr>
<tr>
<td>LMS</td>
<td>Learning Management Systems</td>
<td>Supports registering services, tracks and delivering content to learners. It also reports learner progress and assessing results. LMS focuses on contents and teacher/student interaction.</td>
<td>(Becker, 1968) (Ismail, 2001) (Lee &amp; Lee, 2008)</td>
</tr>
<tr>
<td>CMI</td>
<td>Computer-Managed Instruction</td>
<td>CMI stresses the teacher’s tasks.</td>
<td>(Molnar &amp; Sherman, 1969) (Zinn, 2000)</td>
</tr>
<tr>
<td>CAE</td>
<td>Computer-Assisted Education</td>
<td>CAE concept refers to the use of computer for materials’ production and focuses on the students’ use of the computer in learning.</td>
<td>(Bitzer &amp; Others, 1970) (Zinn, 2000)</td>
</tr>
<tr>
<td>ALE</td>
<td>Artificial Learning Environments Mobile Learning</td>
<td>Artifacts’ usage as a mediator in learning within a specific environment.</td>
<td>(Fiol &amp; Lyles, 1985)</td>
</tr>
<tr>
<td>m-Learning</td>
<td>Mobile Learning</td>
<td>The first way to fight illiteracy. Pessanelli (1993) gives a futuristic approach to how learning could be in the 21st century, focusing the concept as modular plug-in school. Drummond &amp; Groom used the concept to conceptualize a cyber mobile library. m-Learning is the focus of flexibility in the learning class environment and the use of various learning sources.</td>
<td>(Darazsdi &amp; May, 1989) (Pessanelli, 1993) (Drummond &amp; Groom, 1997) (Rushby, 1998)</td>
</tr>
<tr>
<td>SRE</td>
<td>Self-Regulatory Efficacy</td>
<td>Concept focused on learner’s independent assessment of self-regulatory learning ability.</td>
<td>(Bandura, 1994) (Joo, Bong, &amp; Choi, 2000)</td>
</tr>
<tr>
<td>CSCL</td>
<td>Computer Support for</td>
<td>Concept that focuses on computers as a way to facilitate, augment, and redefine support</td>
<td>(Koschmann, 1994) (Shal, Koschmann, &amp; Suthers, 2000)</td>
</tr>
</tbody>
</table>
E-learning is not a new concept. Morri (1997) defined e-learning as “an interactive distance learning,” while Sun et al. (2008) defined it as learning on the internet that is available to access information, disregarding time and space.

Gunasekaran et al. (2002) summarised the benefits of e-learning in that using the technology in classrooms allows quality learning, faster access to education and
training, improvements in cost-effectiveness of education and clear accountability for learners in the process. Technology has removed the barriers of time and distance in learning and opened up new possibilities. As Sharples (2006) put it: “Technology creates new conditions for learning and can induce new ways of learning as well” (p.3).

Technology never stops evolving. Wireless mobile technologies, such as tablets, have gained significant popularity in the present millennium. This ambience stimulated educators to look for the potential of mobile devices in learning. Quinn (2000) and Traxler (2005) defined mobile learning as learning through mobile computational devices. O’Malley et al. (2003) described it as any learning that occurs when the learner is not in a fixed location and is offered by mobile technologies, while Crescente and Lee (2011) commented that mobile learning is where the learner can learn anywhere and at any time. Sharples (2006) recognised mobile learning as an extension of electronic learning. On the other hand, Mehdipour and Zerehkafi (2013) explained that mobile learning is a new stage of e-learning that completes the missing component of wireless features (p. 96). Mehdipour and Zerehkafi (2013) further summarised the features and applications of both electronic learning and mobile learning.

Traxler and Crompton (2015) identified four central elements in mobile learning: pedagogy, technological devices, context, and social interactions. This means that learning should take place across multiple contexts involving social interactions with the usage of electronic devices. Mobile learning focuses on the flexibility of the learner’s location, interactions with the devices and the ownership of the context for learning.
Scholars have observed the benefits of mobile technology in learning. With wireless technology, learners can access information regardless of location. It affords instant interactions with other learners, sharing information or collaborative works (Melhuish & Falloon, 2010; Ally & Preito-Blázquez, 2014). Up-to-date information and relevant resources can be easily obtained, which offers students formal and informal learning opportunities to learn independently, both inside and outside the classrooms (Mehdipour & Zerehkafı, 2013; Ally & Preito-Blázquez, 2014). Learning becomes more situated and personal when students can select the required content and topics (Melhuish & Falloon, 2010) and where teachers are no longer considered an authority for information (Norris & Soloway, 2011), resulting in higher-level and individual learning. Kearney et al. (2012) described three rationales for mobile learning: personalisation, authenticity, and collaboration. A framework is proposed to capture the three features of mobile learning (Figure 2.22).

**Figure 2.22**

*Framework Comprising Three Distinctive Characteristics of Mobile Learning*
Personalisation refers to learners’ ownership and agency regarding the pace, time, and learning content (Kearney et al., 2012). Learning activities can be adjusted to meet learners’ styles and approaches. Authenticity concerns the real-world relevance that learning tasks are contextual and situated in real-life practices (Kearney et al., 2012). Collaboration emphasises social interaction, conversation, and connection mediated by mobile devices. Learners can communicate with peers or teachers to exchange information across time and place (Kearney et al., 2012).

In addition to the benefits of mobile learning, research has extended to how mobile learning could affect students’ motivation. Ciampa’s (2014) study explored grade six students’ motivational affordances of employing mobile devices in learning with discussions on the six motivation elements suggested by Malone and Lepper (1987): challenge, curiosity, control, cooperation, competition, and recognition.

Challenge refers to the balance of difficulty and the definition of goals. When challenges and goals are balanced and defined, learners perceive more motivation. Curiosity involves the stimulation of sensory or cognitive curiosity within multimedia learning environments in which new information deepens interest levels. The concept of control is associated with motivation when choices and independence are provided to the learner, which supports a feeling of autonomy (Deci & Ryan, 1985a).

Cooperation refers to a group of students working together to achieve a community goal. Working in groups encourages student collaborations and greater productivity. Competition concerns indirect competition that could intrinsically motivate students with goal orientations when the individual struggles to outperform their best previous
achievements. Recognition refers to that learners being motivated when their achievements are recognised and appreciated by others. Ciampa’s (2014) study revealed that through mobile learning, challenge and immediate feedback cause the activity to be engaging, enjoyable, and motivating. When learners are able to interact with the mobile programme, they feel more control, and the learning is effective. Students also demonstrated higher motivation to learn when mobile devices offered multidimensional learning styles and easy access to new information. On the subject of competition, Ciampa’s (2014) study also found that a mobile learning environment promotes individual competence when competition allows optimal challenge and instant feedback. The integration of mobile learning into the classroom creates an inclusive learning environment in which learners engage actively in task-oriented interaction with classmates. Finally, Ciampa (2014) concluded that mobile learning provides students with satisfaction and recognition to develop sustained motivation.

Huang et al. (2016) researched the effects of mobile learning on motivation and the performance of learning English vocabulary in 80 fourth-grade students. A mobile learning tool was designed for students to learn English vocabulary. The results showed that students experienced improved learning performance when mobile learning was employed. In terms of motivation, significant improvements were also found in aspects of attention and satisfaction (Huang et al., 2016). Miller and Cuevas (2017) explored mobile learning and its effects on students’ academic achievement and motivation. Their study aimed to determine whether mobile learning is more effective in learning than using traditional methods. The results revealed that students have a higher perception of learning and academic motivation when employing mobile devices than when using traditional paper materials. Miller and
Cuevas (2017) concluded that students were more confident in learning and showed greater interest and motivation when using mobile devices.

In music, researchers have explored the relationship between technology, and music education, and instruction methods (Liu et al., 2021). Studies have indicated that the characteristics of convenience, connectivity, personalisation, and interaction in mobile learning in music education improve students’ learning attitudes, interests, engagement, performance, and motivation (Liu et al., 2021). Birch (2017) discussed mobile learning with high school music learners using the mobile application, SoundCloud. SoundCloud is an application that enables recording and uploading sound to an online platform. One hundred and fifty music students enrolled in the study, and a survey instrument collected information on students’ experiences in using SoundCloud to record and share their music performances. Birch (2017) examined four aspects: nomadicity, ubiquity, personality, and social interactivity. Nomadicity refers to the mobility of a tool (Kleinrock, 1996). When using SoundCloud, students can access teachers’ music materials at any location, encouraging them to reflect, self-assessment, and set up future goals. Ubiquity discusses the connectivity of the activity to the environment, providing instant information (Nyiri, 2002). Students are able to upload and access recordings instantly, which makes the learning an integrated and continual experience. Regarding personalisation, Birch (2017) explained having the chance to personalise learning experiences is crucial, especially for adolescent learners. By using SoundCloud as a music-learning tool, students were able to choose what music materials and expressions they would like to perform and share. Social interactivity refers to collaboration in the activity. Birch (2017) noted that mobile learning removes barriers to creating and communicating in music. In SoundCloud, students are able to work as
an ensemble groups for different arrangements and practice together. With the four affordances that SoundCloud offers in mobile music learning, Birch (2017) concluded that students responded positively and engaged actively in the use of the application in learning, which encourages mobile musicianship even outside classrooms.

In Hong Kong’s context, Chen (2015) investigated the interrelationships among mobile learning, motivation, and musicianship with the mobile application Auralbook to learn aural skills. The research findings show that students have improved clapping and singing performances by completing the application’s practices. In addition, with a game-based application, students have higher involvement and motivation to learn. Chen (2015) proposed a framework (Figure 2.23) to indicate the relationship between mobile learning, motivation and musicianship. With the technological advancements, students experience higher involvement and motivation in the learning process, thus fostering effectiveness in learning aural skills.

Figure 2.23

*Theoretical Framework of 3M: Mobile Learning, Motivation and Musicianship*
In another study, Chen (2020) explored the possibility of composing popular music with mobile tablets during a specially designed 12-week e-learning curriculum. Mobile tablets such as iPads are employed to explore sonorities in non-traditional ways, as students would not have to play on the actual instruments. Students were instructed to compose jazz 12-bar blues and rock music on iPads with the application GarageBand. The results found that students had a higher intrinsic value, attainment value, utility value, perceived cost, and expectancy in music lessons for instrumental and non-instrumental learners. Thus, students who are not as skillful can also learn, perform, and compose music. The student interviews mentioned that the music lessons were enjoyable, and that they became self-motivated. With mobile technology, the e-learning music curriculum has excellent potential to enhance learning motivation for students at all levels.

2.12 Theoretical Framework of the Present Study

The Sing by Ear approach is designed using two main concepts: informal learning and learning by ear. With these two concepts, the approach aims to create an informal learning model for teaching popular music in schools’ formal music curricula. Figure 2.24 presents the theoretical framework of the present study.
Learners study music from their desired repertoire in an enjoyable setting with positive results in motivation level and musicianship skills such as listening, performing and creating. The Sing by Ear approach is designed for popular music education, aimed at learning to sing cover songs by ears instead of reading musical notations, in an informal learning setting for classroom teaching with e-learning elements. Learners are arranged in a cappella groups.

As mentioned earlier, Hong Kong students have limited exposure to popular music in their schools’ formal music lessons. However, Hong Kong students prefer popular music, as it is indispensable to young students and directly related to their daily lives (Ho, 2011, 2017). Furthermore, the motivation level of students for learning music has been declining (Leung & McPherson, 2010). Secondary school students find music more challenging than other subjects, and their competence beliefs have declined. For these reasons, educators should find ways to provide a
platform for students to appreciate and understand how popular music works. Thus, popular music education is essential in the current music curriculum.

The *Sing by Ear* approach employs an informal learning setting. Students receive guidance from school music teachers for a flexible educational programme, that can accommodate students’ needs with topics they are interested in (Dib, 1988; Rogers, 2014). When learning the music by ears, students are able to acquire a greater sense of elements of musicianship, such as improvising, sight-reading, performing rehearsed music, and performing by memory (Mainwaring, 1951; McPherson & Gabrielsson, 2002; Woody & Lehmann, 2010; Baker & Green, 2013; Varvarigou, 2014).

Apart from musicianship, the *Sing by Ear* approach aims to elevate the intrinsic motivation level in students’ music-learning processes. Areas of relatedness, competence, and autonomy in SDT are essential for quality intrinsic motivation and promotion of psychological growth (Deci & Ryan, 2008; Valenzuela et al., 2018).

The present study explores the changes in the motivation levels based on the SDT concepts by implementing the *Sing by Ear* approach. Students’ perceptions on informal learning, popular music, and popular music education are examined, while their responses on learning musicianship through creating, performing, and listening to music are discussed. Using the two main concepts—informal learning and learn by ear—the *Sing by Ear* approach is designed to create an informal learning model for teaching popular music in Hong Kong secondary schools’ formal music curricula, where learners can learn music from their desired repertoire in an enjoyable setting to promote musicianship skills and motivation level.
Chapter 3
Methodology

The purpose of the study is to examine students’ responses and the differences in motivational levels after implementing the *Sing by Ear* approach as an informal learning practice in secondary schools’ music curricula, using the self-determination theory as a theoretical foundation. The concept of learning by ear is adopted in the *Sing by Ear* approach, which gives more details to explore aspects of musicianship.

3.1 Research Questions

The purpose statement addresses the following research questions:

1. What degree of self-determination do students report for formal school music lessons?
2. How does the motivation change, based on SDT, after implementing the *Sing by Ear* approach?
3. Are there any differences in students’ motivation levels by (a) gender, (b) grade level, (c) instrumental background and (d) span of instrumental learning?
4. How do the informal learning practice and learn by ear approach affect the learning process and musicianship in the *Sing by Ear* project?

3.2 Participants

Adopting a convenience-sampling method, 323 students from a local secondary school under the Direct Subsidy Scheme were invited to participate in the project on a voluntary basis. A secondary school under the Direct Subsidy Scheme
means the school may collect school fees for the support of the additional school activities and facilities, where the school have higher flexibility in resources deployment, curriculum design, and student admission (Education Bureau, 2021). The participants in the study included 163 male and 160 female students, aged 11-14 (n=323). Students’ previous musical training was preferred, but not necessary. They had been learning music in a formal music curriculum where they did not have any prior training in popular music. The students engaged in the Sing by Ear project in a classroom setting for three months (October 2020–December 2020).

3.3 The Sing by Ear Project

The Sing by Ear project was implemented in classroom settings to develop and provide students with learning experiences in musicianship, performing ability, and motivation to learn and enjoy in music classrooms by including local popular music from students’ everyday lives. Findings from this study provide a pedagogical framework for teachers to teach popular music in schools’ curricula.

Many teachers are uncertain and insecure about teaching popular music in classrooms (Ho, 2009; Rescsanszky, 2017). Since most local music teachers have been trained in a formal teaching approach, there is a need for designing a popular music curriculum for in-service music teachers. By combining informal learning practices and the learn-by-ear concept from informal learning, a teaching approach, the Sing by Ear project, was constructed, providing students with the opportunity to learn independently through a peer-directed setting. The approach aims to bring informal learning practice into the formal classroom setting, thus forming a semi-structured design curriculum to accomplish the prearranged task. Cox (2002) stated that “music education is a broad area encompassing both formal and informal settings,
and attention should be paid to the actual teaching and learning” (p. 697). Folkestad (2006) claimed that “both these aspects of learning are in various degrees present and interacting” (p. 143), while Feichas (2010) commented that “both informal and formal teaching can live together in harmony” (p. 52). Thus, there should not be clear boundaries between formal and informal learning. Both pedagogies in the school music classroom can be interconnected and need not be regarded as a dichotomy.

Based on the parameters of informal learning, the main areas in the semi-structured design curriculum are identified in Figure 3.1. First, students, and teachers are partners. The teacher is not the authority and does not take the role of a musical expert. Instead, the teacher serves as a coach and model who only gives advice when needs and weaknesses in students are observed (Rescasnszky, 2017). Students’ ideas are respected, and they are not required to follow the pre-sequenced standard (Feichas, 2010). Second, students are allowed to choose their repertoire. Students feel it easier to learn both consciously and unconsciously when the piece of music is already familiar to them, and this allows the teacher to bring new knowledge efficiently (Virkkula, 2016; Rescsanszky, 2017). Third, peer interactions and self-directed learning are encouraged. Students share their thoughts and ideas through discussions and interaction, in which they are more conscious of the learning process, and exchange skills with each other (Feichas, 2010). Fourth, as in Green’s EPP project, students are not required to read notations, and they aurally learn and sing the pieces by ear, and create cover versions. Lastly, the designed activities in the classes serve as guidelines for students to embark on their ideas and steer the direction of learning. The curriculum design emphasises “self-chosen and voluntary learning” that inspires creativity (Folkestad, 2006, p. 141).
3.4 Research Design

The purpose of the study is to explore the changes and aspects of motivational levels in students after using the *Sing by Ear* approach. In light of this, a mixed methodology that contains quantitative, descriptive data collection and qualitative observation was considered to be the appropriate method of inquiry (Creswell, 2018). According to Johnson et al. (2007), mixed-method research requires the analysis of different opinions and perspectives. Creswell and Plano Clark (2018, p. 5) added that the mixed research method concentrates on “collecting, analysing and mixing data in both quantitative and qualitative aspects, which gives a better interpretation of the research problem”. By combining both the qualitative and quantitative approaches, new knowledge could be gained, and the strength of the study is more significant than conducting qualitative and quantitative research separately (Creswell & Plano Clark, 2018). The present research was administered using the explanatory sequential approach (Figure 3.2). This approach involves two-phase data collection, starting with the quantitative phase and followed by the qualitative phase. The qualitative phase helps explore the quantitative phase and explains the initial results in more depth (Creswell & Plano Clark, 2018).

Figure 3.1

*Diagram of the Explanatory Sequential Approach*

3.4.1 Quantitative Phase

The quantitative phase of the current study was conducted in a one-group pretest-posttest design by comparing the pre-treatment and post-treatment responses (Johnson & Christensen, 2016). Figure 3.2 presents the design. In the design, the group of research participants was pre-tested (O1) on the dependent variable. Following the intervention (XT) administered to the group, the participants were post-tested (O2). The survey instrument was employed as a quantitative tool to explore the project’s reception and gain feasible information of the psychological perspectives (Nicholas, 2009). Pre-test scores and post-test scores were compared to determine the effectiveness of the intervention. The one-group pretest-posttest research design is employed chiefly in social research to examine the effectiveness of educational or behavioural programmes, curricula or instructors assessments (Cranmer, 2017).

Figure 3.2

One-group Pretest-Posttest Design

Note. From Educational research: Quantitative and qualitative approaches (5th ed.), by B. Johnson, and L. Christensen, 2016, p. 335. Copyright 2016 by SAGE.
3.4.2 Interview Phase

The case study approach was employed in the qualitative interview phase. A case study is a research method to study and focus on a particular phenomenon of educational experience in-depth and to evaluate more complex educational novelties, theoretical insights, programmes, or systems in a real-life context (Given, 2008; Freebody, 2003; Simons, 2009), where a more comprehensive understanding of the whole situation can be gained (Gerring, 2006). Case studies aim to answer specific research questions, exploring a range of more abstract evidence (Gillham, 2000). It is an approach for the in-depth critical investigation of a circumstance from multiple perspectives, used also to enhance understanding of knowledge, communities, and individuals (Simons, 2009; Hamilton & Corbett-Whittier, 2013). According to Yin (2002), a case study addresses the reason behind a situation. He defined it as “a contemporary phenomenon within its real-life context, especially when the boundaries between a phenomenon and context are not clear, and the researcher has little control over the phenomenon and context” (Yin, 2002, p. 13). In turn, Merriam (1998), defined case study as “an intensive holistic description and analysis of a bounded phenomenon, such as a programme, an institution, a person, a process, or a social unit” (p. xiii). In educational research, as Freebody (2003) explained, a case study intends to bring into an issue for which educators and researchers can contemplate the phenomenon of educational practice. Simons (2009) introduced the benefits of conducting a case study in which the complexity of programmes could be studied in-depth and contested opinions could be explored, while the influences of the critical factors and the interactions between the factors could be illustrated. Only qualitative research methods can provide an in-depth understanding of the situation and interactions among the human and social systems (Gagnon, 2010). Participants
are better able to tell their stories more reflectively and openly, resulting in the unanticipated revelation of information that the participant did not want to share in group interviews (Gagnon, 2010). Mills et al. (2010) stated that the case study approach is flexible, and that the researchers are not confined to the initial research questions but can include new insights in later stages. When a case study involves several cases, it is called a multiple-case study or cross-case study (Gerring, 2006). It specifies a more extensive case study research where multiple bounded cases are carefully selected to develop a more detailed and better understanding of the situation than a single case can support, and theorise a broader context (Mills et al., 2010). Multiple cases can increase the confidence in the vigour of the study by pattern-matching the results obtained, thus enhancing the validity of the conclusion and the generalisability of the findings (Freebody, 2003; Yin, 2009). The themes are examined from the cases, and similarities and differences in the factors are analysed to learn the concept and the process (Mathison, 2005; Schwandt, 2014).

In the present study, each student group was reviewed as a “student case” for collecting qualitative data in their learning process. The student cases were analysed for the multiple-case study. Nine student cases with three to four students in each group were invited to the interviews, which lasted 20 minutes each. The interviews were semi-structured and open-ended. Open-ended questions can explain participants’ responses and focus on their experiences (King & Horrocks, 2010).

3.5 Data Collection

3.5.1 Survey

In this survey, the primary purpose is to explore motivational perceptions and changes regarding formal school music lessons and the Sing by Ear project. For the
motivational focus, the survey statements were adapted from and modelled on survey items developed by Schatt (2018) in a SDT study to measure middle school band students’ motivation levels, namely the Music Practice Motivation Scale (MPMS).

Schatt (2018) examined students’ motivation in their music practice with the Musical Practice Motivation Scale (MPMS) (Appendix A), with the central question “Why do you practice your instrument?” The MPMS canvasses the statistical information and motivational factors regarding students’ music practice. The survey consists of seven subscales (28 statements) corresponding to the SDT continuum, from amotivation to intrinsic motivation (Table 3.3)

Table 3.3

MPMS Subscale Definitions

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation—To Know</td>
<td>Performing an activity for the pleasure of experiences that lead to learning, exploring, or attempting something new</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Accomplish</td>
<td>Engaging in a task for the satisfaction of attempting to achieve or create something</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>Desire to engage in an activity in order to experience inspiration in the form of sensations of pleasure, aesthetic experience, fun, or excitement</td>
</tr>
<tr>
<td>Extrinsic Motivation—Identified</td>
<td>Valuing and regarding a behavior as important, thereby engaging in an activity by choice</td>
</tr>
<tr>
<td>Extrinsic Motivation—Introjected</td>
<td>Engagement in an activity that is reinforced through internal feelings of guilt or anxiety when a stimulus is removed and no longer needed to initiate a behavior</td>
</tr>
<tr>
<td>Extrinsic Motivation—External Regulation</td>
<td>Behaviors that are controlled by external sources (i.e. rewards or constraints)</td>
</tr>
<tr>
<td>Amotivation</td>
<td>Relative absence of internalization; neither intrinsically nor extrinsically motivated</td>
</tr>
</tbody>
</table>

Note. From Middle School Band Students’ Motivation to Practice: An Examination of Factors That Influence Self-Determination by M. Schatt, 2013, [Doctoral dissertation, Case Western Reserve University]. p. 61. Copyright 2013 by OhioLINK Electronic Theses and Dissertations Centre.
In the survey for the current study, adjustments were made from Schatt’s (2013) MPMS survey for adaptation using the central question “How do you feel about music lessons in school?” for the pre-test survey (Appendix B). The pre-test survey items regard aspects of formal music lessons. To further avoid bias and uplift the validity of the results, a post-test survey with the same set of items with the central question “How do you feel about the Sing by Ear project?” was distributed to participants (Appendix C). The post-test survey items concern informal learning and the result of the project.

In the survey, the 28 items provide answers to the central questions, which also pertain to intrinsic motivation, perceived competence, perceived autonomy, and relatedness. The survey questions were further divided into the seven sections, according to the seven subscales in Schatt (2018):

1. *Intrinsic Motivation—To Know* concentrates on students’ eagerness and engagement to obtain new skills in an activity.

2. *Intrinsic Motivation—To Accomplish* focuses on students’ aspiration to complete a task and achieve success.

3. *Intrinsic Motivation—To Experience Stimulation* corresponds to the conscious desire to experience positive feelings.

4. *Extrinsic Motivation—Identified* refers to the extent to which the participant regards the activity as important and worth doing.

5. *Extrinsic Motivation—Introjected* indicates the level of introjected regulation experienced by the participants, in which they complete the task only because they may experience guilt if they do not.

6. *Extrinsic Motivation—External Regulation* rates the external factors that determine the attitude of the participant in completing the task, including
extraneous rewards or consequences.

7. *Amotivation*, the lowest level in the SDT continuum, indicates that the participant experiences no importance or achievements.

Pre-test and post-test survey responses were both required. Participants responded to what extent they agreed or disagreed on a 7-point Likert scale with $1 = $ strongly disagree, $2 = $ disagree, $3 = $ more or less disagree, $4 = $ neutral, $5 = $ more or less agree, $6 = $ agree and $7 = $ strongly agree.

3.5.2 Student Interviews

According to Gillham (2000), case study is one of a primary method in qualitative studies. In the present research, each student group was considered a “student case” for qualitative data. By using a convenient sampling method, nine of the student groups (three to four students each) were invited for a 20-minute interview. Self-determination and motivation in the learning process were the focus of the interviews. The school teacher took on the role of the moderator to facilitate the discussion and encourage the members to express their opinions (Krueger, 1994). The focus group interview is a way to collect qualitative data that involves an informal discussion between a small group of participants to elicit perceptions and ideas on the focused topic, which allows the researcher to capture the information that may be missed in previous research phrases (Wilkinson, 2004; Johnson & Christensen, 2016). There are advantages to conducting a focus group interview rather than a one-to-one interview, as the group dynamics and the interactions within the focus group allow for a more profound and richer range of data (Rabiee, 2004; Onwuegbuzie et al., 2009). The interview serves to obtain in-depth information that the survey cannot reflect, and
to further investigate students’ feedback on the project. The interviews for the present study were semi-structured and were conducted in Cantonese. They consisted of open-ended questions to help explain the participants’ responses and to focus on their experiences (King & Horrocks, 2010).

The interview questions (Appendix D) aimed to explore self-determination and motivation in students. This qualitative interview aimed to understand the deeper meaning of the experiences that students had with school music lessons and the Sing by Ear project (Maxwell, 2013). The interview questions were designed by referencing MacIntyre et al.’s (2018) self-determination model, to investigate the survey results from a qualitative perspective.

**Figure 3.4**

*The Self-Determination Model*

Four concepts from the self-determination model—intrinsic, identified, introjected, and extrinsic motivation—support the three music-related outcomes: the desire to learn, perceived musical competence, and motivational intensity.

Further investigating the survey results from the quantitative part of the study, students were asked in the interviews about aspects related to their (1) the desire to learn music—their eagerness or emotional attachment in the learning process, (2) perceived musical competence—their confidence in their skills and music learning or performing music, and (3) motivational intensity—the amount of effort and time that the student will spend on music learning. The desire to learn and perceived musical competence further correlate to the growth of their willingness to play and self-esteem concerning musical abilities. Students were interviewed on their self-belief about music playing or learning music, and their readiness to play music in different settings.

The process was audio-recorded for further review, and the conversations were transcribed and translated into English for analysis.

3.6 Data Analysis

3.6.1 Survey

Data were summarised and identified with trends and patterns with descriptive analysis. Descriptive data collected was also analysed by SPSS to examine the motivational outcomes in formal school music lessons and the Sing by Ear project by the factors (a) gender, (b) grade level, (c) instrumental background (i.e. instrumental learners versus non-instrumental learners), and (d) span of instrumental learning (i.e., less than 5 years, more than 5 years).
3.6.2 Cross-Case Analysis

A cross-case analysis method was employed to investigate themes, similarities, and differences, where concepts can be accumulated and combined to make generalisations across cases (Mathison, 2005). Cross-case analysis helps researchers define the combination of factors and establish explanations in different cases to enhance the understanding of how relationships may occur among the cases (Ragin, 1997). The interview data underwent the following processes: (1) data reduction, (2) data reorganisation, and (3) data representation, to generate themes and keywords in the data (Barbour, 2014). First, the data were condensed when there were repetitive statements and data irrelevant to the research question. Then, the themes and keywords were coded and drawn together for constant comparison analysis and pattern matching (Glaser, 1965; Kitzinger, 1995; Corbin & Strauss, 2014; Boeije, 2002; Freebody, 2003, Flick et al., 2004). Lastly, the codes were further categorised for discussion and explanation building, and a framework was formed (Creswell & Poth, 2018). Through this process, the research can move from induction when establishing concepts from data and to deduction by defining concepts with a broader collection of data on top of the already built concepts (Flick, 2018). The analytic approach to the interview data is the most common methodology adopted by qualitative researchers (Kvale & Brinkmann, 2009; Rubin & Rubin, 2011).

3.7 Procedure

The study was conducted in a classroom setting. Three hundred and twenty-three Secondary Form one and Form two students (10 classes) were invited for the project. Pre-test surveys were distributed to the students before the project. The
classes received the *Sing by Ear* training, which lasted for 10 weeks (October 2020 to December 2020).

Students were invited to form an a cappella group. Singing is easily accessible and can be adopted by every student, and does not require any instruments. Thus, the setting easily suits most schools in Hong Kong because of the limited resources and spaces in music rooms.

There were ten 40-minute classes for the *Sing by Ear* project, one class each week. In classes one and two, the music teacher introduced the basics of a cappella singing. In classes three and four, songs were rearranged into a cappella cover versions. The student groups were asked to choose a popular song of their choice. In classes five and six, the groups were asked to aurally copy the chosen recording and make a cover version of their own. Students could rearrange the piece with different styles or rewrite the lyrics. Some students sang along with the main melody line. Some students imitated the instrumental lines, while others improvised on the harmony parts. Students were encouraged to experiment with the melody lines for creative performances. Students also explored the rhythmic part with vocal percussion in classes seven and eight. The skills of beatboxing were introduced. Students could mimic instruments making use of their voices. Besides vocal percussion, students were not limited to creative ideas in the percussion session, such as creating instruments with different materials. Students rehearsed and recorded their singing parts in classes nine and ten. Their recordings were then combined for the collaborative a cappella cover songs. The participating students spent 400 minutes in the ten classes, and additional time for their own practice and peer discussions.

The class structure of the *Sing by Ear* project consists of the following parts:
6. A cappella singing style and skills are introduced to the class, which is divided into groups.

7. Groups are instructed in how to rearrange an a cappella piece.

8. Groups are assisted in learning their chosen piece by ear; some group members learn the melody line while others learn the accompaniment part.

9. Exploration of vocal percussion or creation of own percussion instruments.

10. Group practices and recording.

Post-test survey responses were required after the project. Nine of the student groups were invited to the focus group interviews by adopting a convenience sampling method.

3.8 COVID-19 Pandemic and Mobile Learning

Due to the outbreak of the COVID-19 pandemic, schools were suspended at the time of research, while social distancing measures were in place. Students were not allowed to receive face-to-face lessons on the school campus. Given this situation, mobile learning strategies were adopted for the Sing by Ear project. A set of a cappella teaching materials were designed and are available on the Sing by Ear website. The teachers were invited to use the materials to introduce the a cappella singing style and methods of rearranging a song. The teaching sections were delivered via Zoom. During the project, students were required to record their performances using the Acappella application. This application serves as a music platform that allows individuals to record, combine, and share their singing works online. At the end of the project, students groups were asked to combine their recorded performances to create an a cappella video.
The teaching materials and student performances are available on the following website: https://sites.google.com/view/singbyearproject.

3.9 Ethical Issues

The study was approved by the Human Ethical Review Committee (HERC) of the Education University of Hong Kong. The letters of collaboration were sent to the principal of the involved school to gain the permission for data collection. A consent form was provided to the participating students, and permission was solicited from their parents or legal guardians, since the targeted participants were under 18 years old (based on the guidelines from the HREC Operational Guidelines and Procedures, paragraph 29). Participants were informed of the project details and the data collection procedures in detail. Students’ participation in this research project was voluntary, and they had the right to withdraw at any time without penalty. Personal information was not included in any of the data collected. The original hard copies of the surveys were stored in a locked office. Audio-recorded data were stored on a password-protected computer. All of the data will be destroyed upon the completion of the research study.
Chapter 4
Survey Findings

The purpose of the survey was to examine students’ responses and the changes in intrinsic and extrinsic motivation after implementing the *Sing by Ear* approach as an informal learning practice in their secondary school’s music curriculum, using the self-determination theory as a theoretical foundation. This chapter contains a data presentation of the SPSS analysis conducted to discuss the research questions posed by the study. Moreover, a descriptive synopsis of the participants is presented.

4.1 Participants

Student participants (\(N = 323\)) from collaboration school completed the survey. As shown in Table 4.1, the participants consisted of 50.5% (\(n = 163\)) male, while the remaining 49.5% (\(n = 160\)) of the students reported female.

| Gender Distribution of Participants |
|-------------------------------|------|------|
| Male                          | 163  | 50.5%|
| Female                        | 160  | 49.5%|
| Total                         | 323  | 100% |

As shown in Table 4.2, there were 160 (49.5%) Secondary Form one students and 163 (50.5%) Secondary Form two students.
Table 4.2

*Grade Distribution of Participants*

<table>
<thead>
<tr>
<th>Form</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Form One</td>
<td>160</td>
<td>49.5%</td>
</tr>
<tr>
<td>Form Two</td>
<td>163</td>
<td>50.5%</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>100%</td>
</tr>
</tbody>
</table>

As shown in Table 4.3, there were 16 (5%) students reported age 11, 149 (46.1%) students reported age 12, 151 (46.7%) students reported age 13 and 7 (2.2%) students reported age 14. The mean age of the students was 12.46.

Table 4.3

*Age Distribution of Participants*

<table>
<thead>
<tr>
<th>Age</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>16</td>
<td>5.0%</td>
</tr>
<tr>
<td>12</td>
<td>149</td>
<td>46.1%</td>
</tr>
<tr>
<td>13</td>
<td>151</td>
<td>46.7%</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
<td>2.2%</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>100%</td>
</tr>
</tbody>
</table>

As shown in Table 4.4, 58.8% \((n = 190)\) of the students reported being instrumental learners, while the remaining 41.2% \((n = 133)\) reported themselves as non-instrumental learners.
Table 4.4

*Music Background Distribution of Participants*

<table>
<thead>
<tr>
<th>Instrumental Learner</th>
<th>190</th>
<th>58.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-instrumental Learner</td>
<td>133</td>
<td>41.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>323</td>
<td>100%</td>
</tr>
</tbody>
</table>

To categorise the student group, 41.2% \((n = 133)\) of students reported they had not learnt any instruments, 28.8% \((n = 93)\) reported they had studied the instrument for less than 5 years, while 30% \((n = 97)\) of the students reported they had studied the instrument for more than 5 years (Table 4.5).

Table 4.5

*Span of Instrumental Learning of Participants*

<table>
<thead>
<tr>
<th>Span of Learning</th>
<th>133</th>
<th>41.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 Years</td>
<td>93</td>
<td>28.8%</td>
</tr>
<tr>
<td>More Than 5 Years</td>
<td>97</td>
<td>30.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>323</td>
<td>100%</td>
</tr>
</tbody>
</table>

To further categorise the student group with gender and span of instrumental learning, 22.9% \((n = 74)\) of male students reported being non-instrumental learners, and 18.3% \((n = 59)\) of female students reported being non-instrumental learners. Among male students, 14.6% \((n = 47)\) reported they had studied the instrument for less than 5 years, and 14.2% \((n = 46)\) of female students reported they had studied the instrument for less than 5 years. Of the male students, 13% \((n = 42)\) reported they had studied the instrument for more than 5 years, while 17% \((n = 55)\) of female students reported they had studied the instrument for more than 5 years (Table 4.6).
Table 4.6

**Gender/ Span of Instrumental Learning Grouping Crosstabulation of Participants**

<table>
<thead>
<tr>
<th>Duration Grouping</th>
<th>Non-instrumental learner</th>
<th>Less than 5 Years</th>
<th>More than 5 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>74 (22.9%)</td>
<td>47 (14.6%)</td>
<td>42 (13%)</td>
<td>163 (50.5%)</td>
</tr>
<tr>
<td>Female</td>
<td>59 (18.3%)</td>
<td>46 (14.2%)</td>
<td>55 (17%)</td>
<td>160 (49.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>133 (41.2%)</td>
<td>93 (28.8%)</td>
<td>97 (30%)</td>
<td>323 (100%)</td>
</tr>
</tbody>
</table>

4.2 Post Hoc Internal Consistency Reliability Analysis of the Survey Instrument

Data from the survey were analysed to examine the student participants’ levels of self-determination towards formal school music lessons and their responses after completing the *Sing by Ear* project. The level of agreement or disagreement with 28 survey items was rated on a 7-point Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Individual survey items were grouped into seven, per the subscales of the self-determination continuum: (1) Intrinsic Motivation—To Know, (2) Intrinsic Motivation—To Accomplish, (3) Intrinsic Motivation—To Experience Stimulation, (4) Extrinsic Motivation—Identified, (5) Extrinsic Motivation—Introjected, (6) Extrinsic Motivation—External Regulation, and (7) Amotivation.

As shown in Tables 4.7 and 4.8, a post hoc internal consistency reliability analysis, Cronbach’s alpha analysis, was conducted to determine the internal consistency of the 28 survey items grouped according to the seven domains of both pre-test and post-test. Reverse scoring is employed in the statements of the Amotivation domain. For the pre-test, Cronbach’s alphas for the domains of Intrinsic
Motivation—To Know (4 items), Intrinsic Motivation—To Accomplish (4 items), Intrinsic Motivation—To Experience Stimulation (4 items), Extrinsic Motivation—Identified (4 items), Extrinsic Motivation—Introjected (4 items), Extrinsic Motivation—External Regulation (4 items), and Amotivation were .906, .906, .891, .877, .843, .810, and .882, respectively. For the post-test, Cronbach’s alphas for the seven domains were .882, .851, .813, .808, .819, .805, and .835, respectively. The results were highly consistent over the variables, proposing excellent consistency for the data collected in the study.

Table 4.7

Post Hoc Internal Consistency Reliability Analysis of the 28 Items in the Survey (Pre-test)

<table>
<thead>
<tr>
<th>Intrinsic Motivation—To Know</th>
<th>Cronbach’s alpha (4 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I enjoy knowing more about the music taught in lessons</td>
<td>.906</td>
</tr>
<tr>
<td>2. I enjoy discovering new music skills.</td>
<td></td>
</tr>
<tr>
<td>3. I enjoy it when I learn new musical skills that I have never tried before.</td>
<td></td>
</tr>
<tr>
<td>4. I enjoy discovering new ways of performing music.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intrinsic Motivation—To Accomplish</th>
<th>Cronbach’s alpha (4 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. I feel really good about myself when I get better at musical skills.</td>
<td>.906</td>
</tr>
<tr>
<td>6. I enjoy it when I improve some of my weak points.</td>
<td></td>
</tr>
<tr>
<td>7. I experience satisfaction while I am perfecting my abilities during the lessons.</td>
<td></td>
</tr>
<tr>
<td>8. I enjoy it when I perform certain skills that I could not do before.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intrinsic Motivation—To Experience Stimulation</th>
<th>Cronbach’s alpha (4 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. I enjoy exciting experiences.</td>
<td>.891</td>
</tr>
<tr>
<td>10. I feel excited when I am really involved in the lessons.</td>
<td></td>
</tr>
<tr>
<td>11. I feel strong emotions when I make music that I like.</td>
<td></td>
</tr>
<tr>
<td>12. I like the feeling of being totally into the lessons.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extrinsic Motivation—Identified</th>
<th>Cronbach’s alpha (4 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. In my opinion, it is one of the best ways to meet people.</td>
<td>.877</td>
</tr>
<tr>
<td>14. It is one of the best ways I have chosen to develop other aspects of myself.</td>
<td></td>
</tr>
<tr>
<td>15. It is a good way to learn many things that could be useful to me in other areas of my life.</td>
<td></td>
</tr>
<tr>
<td>16. It is one of the best ways to maintain good relationships with my friends.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extrinsic Motivation—Introjected</th>
<th>Cronbach’s alpha (4 items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. It is absolutely necessary to be in the programme if I want to be musical.</td>
<td>.843</td>
</tr>
<tr>
<td>18. I must be involved in the lessons to feel good about myself.</td>
<td></td>
</tr>
</tbody>
</table>
19. I would feel bad if I did not join the lessons.
20. I need to make music regularly.
Cronbach’s alpha (4 items)  

**Extrinsic Motivation—External Regulation**
21. It allows me to make a good impression on the people I know.
22. It is good to have the reputation of being a musician.
23. People around me think it is important to be a part of the lessons.
24. I feel happy to show others how good I am at music.
Cronbach’s alpha (4 items)  

**Amotivation**
25. I used to have good reasons for making music, but now I am asking myself if I should continue.
26. I don’t know anymore. I have the impression that I am not able to be successful in music.
27. It is not clear to me anymore. I don’t really think I enjoy music lessons.
28. I often ask myself why I make music. I can't seem to achieve the goals that I set for myself.
Cronbach’s alpha (4 items)  

**Table 4.8**

*Post Hoc Internal Consistency Reliability Analysis of the 28 Items in the Survey (Post-test)*

**Intrinsic Motivation—To Know**
1. I enjoy knowing more about the song I sing.
2. I enjoy discovering new music skills.
3. I enjoy it when I learn new musical skills that I have never tried before.
4. I enjoy discovering new ways of performing music.
Cronbach’s alpha (4 items)  

**Intrinsic Motivation—To Accomplish**
5. I feel really good about myself when I get better at musical skills.
6. I enjoy it when I improve some of my weak points.
7. I experience satisfaction while I am perfecting my abilities during the project.
8. I enjoy it when I perform certain skills that I could not do before.
Cronbach’s alpha (4 items)  

**Intrinsic Motivation—To Experience Stimulation**
9. I enjoy exciting experiences.
10. I feel excited when I am really involved in the project.
11. I feel strong emotions when I make music that I like.
12. I like the feeling of being totally into the project.
Cronbach’s alpha (4 items)  

**Extrinsic Motivation—Identified**
13. In my opinion, it is one of the best ways to meet people.
14. It is one of the best ways I have chosen to develop other aspects of myself.
15. It is a good way to learn many things that could be useful to me in other areas of my life.
16. It is one of the best ways to maintain good relationships with my friends.
Cronbach’s alpha (4 items)  

**Extrinsic Motivation—Introjected**
17. It is absolutely necessary to be in the project if I want to be musical.
18. I must be involved in the programme to feel good about myself.
19. I would feel bad if I did not join the project.
20. I need to make music regularly.
Cronbach’s alpha (4 items) .805

**Extrinsic Motivation—External Regulation**
21. It allows me to make good impression on the people I know.
22. It is good to have the reputation of being a musician.
23. People around me think it is important to be a part of the project.
24. I feel happy to show others how good I am at music.
Cronbach’s alpha (4 items) .835

**Amotivation**
25. I used to have good reasons for making music, but now I am asking myself if I should continue.
26. I don’t know anymore. I have the impression that I am not able to be successful in music.
27. It is not clear to me anymore. I don’t really think I enjoy the project.
28. I often ask myself why I make music. I can’t seem to achieve the goals that I set for myself.
Cronbach’s alpha (4 items)

### 4.3 Correlation Matrix of the Seven Domains

Tables 4.9 and 4.10 present the correlation matrix of the seven domains for the pre-test and post-test, respectively. Pearson Product-Moment Correlation Coefficients were calculated between the seven domains to find out the extent to which the domains are related.

Correlations were all found significant between the pre-test seven domains (Table 4.9). For Intrinsic Motivation—To Know domain, it was strongly correlated with Intrinsic Motivation—To Accomplish \((r = .776, p < .01)\), Intrinsic Motivation—To Experience Stimulation domains \((r = .727, p < .01)\), Extrinsic Motivation—Identified \((r = .669, p < .01)\), Extrinsic Motivation—Introjected \((r = .612, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .606, p < .01)\) domains. Lastly, Intrinsic Motivation—To Know domain was weakly, negatively correlated with Amotivation domain \((r = -.307, p < .01)\).

For Intrinsic Motivation—To Accomplish domain, it was strongly correlated with Intrinsic Motivation—To Experience Stimulation \((r = .753, p < .01)\), and
Extrinsic Motivation—Identified \((r = .673, p < .01)\) domains. It was moderately correlated with Extrinsic Motivation—Introjected \((r = .595, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .588, p < .01)\) domains. Finally, Intrinsic Motivation—To Accomplish domain was weakly, negatively correlated with Amotivation domain \((r = -.312, p < .01)\).

For Intrinsic Motivation—To Experience Stimulation domain, it was strongly correlated with Extrinsic Motivation—Identified domain \((r = .684, p < .01)\), Extrinsic Motivation—Introjected \((r = .650, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .647, p < .01)\) domains. It was weakly, negatively correlated with Amotivation domain \((r = -.279, p < .01)\).

For Extrinsic Motivation—Identified domain, it was strongly correlated with Extrinsic Motivation—Introjected \((r = .656, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .648, p < .01)\) domains. It was weakly, negatively correlated with Amotivation domain \((r = -.296, p < .01)\).

For Extrinsic Motivation—Introjected domain, it was strongly correlated with Extrinsic Motivation—External Regulation domain \((r = .677, p < .01)\). It was weakly, negatively correlated with Amotivation domain \((r = -.236, p < .01)\).

For Extrinsic Motivation—External Regulation domain, it was weakly, negatively correlated with Amotivation domain \((r = -.238, p < .01)\).

All correlations with Intrinsic and Extrinsic Motivation domains were strong, with an \(r\) of .60 or more. Correlations between Intrinsic Motivation—To Know and Intrinsic Motivation—To Accomplish domains \((r = .776, p < .01)\) were found strongest among the seven domains, followed by correlations between Intrinsic Motivation—To Accomplish and Intrinsic Motivation—To Experience Stimulation domains \((r = .753, p < .01)\), and correlations between Intrinsic Motivation—To
Know and Intrinsic Motivation—To Experience Stimulation domains \((r = .727, p < .01)\).

**Table 4.9**

*Correlation Matrix of the Seven Domains (Pre-test)*

<table>
<thead>
<tr>
<th>Domains</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic Motivation—To Know</td>
<td>13.03</td>
<td>4.07</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intrinsic Motivation—To Accomplish</td>
<td>13.36</td>
<td>4.25</td>
<td>.776**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intrinsic Motivation—To Experience Stimulation</td>
<td>13.49</td>
<td>4.39</td>
<td>.727**</td>
<td>.753**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Extrinsic Motivation—Identified</td>
<td>13.17</td>
<td>4.18</td>
<td>.669**</td>
<td>.673**</td>
<td>.684**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Extrinsic Motivation—Introjected</td>
<td>13.06</td>
<td>4.02</td>
<td>.612**</td>
<td>.595**</td>
<td>.650**</td>
<td>.656**</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Extrinsic Motivation—External Regulation</td>
<td>12.76</td>
<td>3.70</td>
<td>.606**</td>
<td>.588**</td>
<td>.647**</td>
<td>.648**</td>
<td>.677**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>7. Amotivation</td>
<td>20.21</td>
<td>3.77</td>
<td>-.307**</td>
<td>-.312**</td>
<td>-.279**</td>
<td>-.296**</td>
<td>-.236**</td>
<td>-.238**</td>
<td>—</td>
</tr>
</tbody>
</table>

**p < .01

Correlations were all found significant between the post-test seven domains (Table 4.10). For Intrinsic Motivation—To Know domain, it was strongly correlated with Intrinsic Motivation—To Accomplish \((r = .703, p < .01)\). It was moderately correlated with Intrinsic Motivation—To Experience Stimulation \((r = .576, p < .01)\), Extrinsic Motivation—Identified \((r = .491, p < .01)\), Extrinsic Motivation—Introjected \((r = .467, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .432, p < .01)\) domains. Lastly, Intrinsic Motivation—To Know domain was weakly, negatively correlated with Amotivation domain \((r = -.325, p < .01)\).

For post-test Intrinsic Motivation—To Accomplish domain, it was strongly
correlated with Intrinsic Motivation—To Experience Stimulation domain \((r = .645, p < .01)\). It was moderately correlated with Extrinsic Motivation—Identified domain \((r = .521, p < .01)\), Extrinsic Motivation—Introjected \((r = .444, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .451, p < .01)\) domains. Finally, post-test Intrinsic Motivation—To Accomplish domain was weakly, negatively correlated with Amotivation domain \((r = -.345, p < .01)\).

For post-test Intrinsic Motivation—To Experience Stimulation domain, it was moderately correlated with Extrinsic Motivation—Identified domain \((r = .537, p < .01)\), Extrinsic Motivation—Introjected \((r = .452, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .488, p < .01)\) domains. It was weakly, negatively correlated with Amotivation domain \((r = -.307, p < .01)\).

For post-test Extrinsic Motivation—Identified domain, it was moderately correlated with Extrinsic Motivation—Introjected \((r = .519, p < .01)\), and Extrinsic Motivation—External Regulation \((r = .515, p < .01)\) domains. It was weakly, negatively correlated with Amotivation domain \((r = -.259, p < .01)\).

For post-test Extrinsic Motivation—Introjected domain, it was moderately correlated with Extrinsic Motivation—External domain \((r = .576, p < .01)\). It was weakly correlated with Amotivation domain \((r = -.269, p < .01)\).

The post-test Extrinsic Motivation—External domain was weakly and negatively correlated with Amotivation domain \((r = -.288, p < .01)\).

In the post-test results, all correlations with Intrinsic and Extrinsic Motivation domains were in a range of moderately strong to strong, with an \(r\) of .40 or more. Correlations between Intrinsic Motivation—To Know and Intrinsic Motivation—To Accomplish domains \((r = .703, p < .01)\) were found strongest among the seven domains in the post-test results, followed by correlations between Intrinsic
Motivation—To Accomplish and Intrinsic Motivation—To Experience Stimulation domains \( (r = .645, p < .01) \), and correlations between Intrinsic Motivation—To Know and Intrinsic Motivation—To Experience Stimulation domains \( (r = .576, p < .01) \).

Table 4.10

**Correlation Matrix of the Seven Domains (Post-test)**

<table>
<thead>
<tr>
<th>Domains</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic Motivation—To Know</td>
<td>13.03</td>
<td>4.07</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Intrinsic Motivation—To Accomplish</td>
<td>13.36</td>
<td>4.25</td>
<td>.703**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Intrinsic Motivation—To Experience Stimulation</td>
<td>13.49</td>
<td>4.39</td>
<td>.576**</td>
<td>.645**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Extrinsic Motivation—Identified</td>
<td>13.17</td>
<td>4.18</td>
<td>.491**</td>
<td>.521**</td>
<td>.537**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Extrinsic Motivation—Introjected</td>
<td>13.06</td>
<td>4.02</td>
<td>.467**</td>
<td>.444**</td>
<td>.452**</td>
<td>.519**</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Extrinsic Motivation—External Regulation</td>
<td>12.76</td>
<td>3.70</td>
<td>.432**</td>
<td>.451**</td>
<td>.488**</td>
<td>.515**</td>
<td>.576**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Amotivation</td>
<td>20.21</td>
<td>3.77</td>
<td>-.325**</td>
<td>-.345**</td>
<td>-.307**</td>
<td>-.259**</td>
<td>-.269**</td>
<td>-.288**</td>
<td>—</td>
</tr>
</tbody>
</table>

** ** \( p < .01 \)

4.4 Self-Determination for Formal School Music Lessons

Data from the pre-test survey were analysed to examine the aim of the first research question—student participants’ levels of self-determination towards formal school music lessons. The level of agreement or disagreement with 28 survey items, grouped in seven domains, was rated on a 7-point Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Descriptive statistics were calculated for each of the domains. Each domain consisted of four survey items. Domain scores were calculated by adding the four
scores for each statement together. The sum of the scores allowed the domain scores to conceivably range from 4 (a “Strongly Disagree” response to each of the four items) to 28 (a “Strongly Agree” response to each of the four statements). The means and standard deviations for each of the domains are presented.

As shown in Table 4.11, the Amotivation domain was ranked at the highest level of agreement among the seven domains \((M = 20.21, SD = 3.77)\). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest \((M = 13.49, SD = 4.39)\), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement \((M = 12.76, SD = 3.70)\). Standard deviations ranged from Extrinsic Motivation—External Regulation \((SD = 3.70)\) to Intrinsic Motivation—To Experience Stimulation \((SD = 4.39)\).

### Table 4.11

**Self-Determination for Formal School Music Lessons (Pre-test)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.21</td>
<td>3.77</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>13.49</td>
<td>4.39</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.36</td>
<td>4.25</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>13.17</td>
<td>4.18</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>13.06</td>
<td>4.02</td>
</tr>
<tr>
<td>6</td>
<td>Intrinsic Motivation—To Know</td>
<td>13.03</td>
<td>4.07</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.76</td>
<td>3.70</td>
</tr>
</tbody>
</table>

### 4.4.1 Self-Determination for Formal School Music Lessons by Gender

To categorise students’ self-determination by gender, male students \((n = 163)\)
ranked the Amotivation domain the highest level of agreement among the seven domains ($M = 20.24, SD = 4.13$). Other than the Amotivation domain, the Extrinsic Motivation—Identified domain ranked second-highest ($M = 13.72, SD = 4.29$), while the Intrinsic Motivation—To Know domain scored the lowest level of agreement ($M = 13.22, SD = 4.20$). Standard deviations ranged from Extrinsic Motivation—External Regulation ($SD = 3.59$) to Intrinsic Motivation—To Experience Stimulation ($SD = 4.33$) (Table 4.12).

Table 4.12

Male Students’ Self-Determination for Formal School Music Lessons (Pre-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.24</td>
<td>4.13</td>
</tr>
<tr>
<td>2</td>
<td>Extrinsic Motivation—Identified</td>
<td>13.72</td>
<td>4.29</td>
</tr>
<tr>
<td>3</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.69</td>
<td>3.59</td>
</tr>
<tr>
<td>4</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>13.67</td>
<td>4.33</td>
</tr>
<tr>
<td>5</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.63</td>
<td>4.09</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>13.34</td>
<td>4.04</td>
</tr>
<tr>
<td>7</td>
<td>Intrinsic Motivation—To Know</td>
<td>13.22</td>
<td>4.20</td>
</tr>
</tbody>
</table>

As shown in Table 4.13, for female students ($n = 160$), the Amotivation domain was ranked the highest-level agreement among the seven domains ($M = 20.19, SD = 3.38$). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest ($M = 13.30, SD = 4.45$), while the Extrinsic Motivation—Identified domain scored the lowest level of agreement ($M = 12.61, SD = 4.01$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Experience Stimulation, $M = 13.30, SD = 4.45$; Intrinsic Motivation—To
Accomplish, $M = 13.09, SD = 4.41$; Intrinsic Motivation—To Know, $M = 12.84, SD = 3.95$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, $M = 12.83, SD = 3.81$; Extrinsic Motivation—Introjected, $M = 12.78, SD = 3.99$; Extrinsic Motivation—Identified, $M = 12.61, SD = 4.01$). Standard deviations ranged from Amotivation ($SD = 3.38$) to Intrinsic Motivation—To Experience Stimulation ($SD = 4.45$).

Table 4.13

Female Students’ Self-Determination for Formal School Music Lessons (Pre-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.19</td>
<td>3.38</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>13.30</td>
<td>4.45</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.09</td>
<td>4.41</td>
</tr>
<tr>
<td>4</td>
<td>Intrinsic Motivation—To Know</td>
<td>12.84</td>
<td>3.95</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.83</td>
<td>3.81</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>12.78</td>
<td>3.99</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—Identified</td>
<td>12.61</td>
<td>4.01</td>
</tr>
</tbody>
</table>

4.4.2 Self-Determination for Formal School Music lessons by Grade Level

To categorise students’ self-determination by grades, Form one students ($n = 160$) ranked the Amotivation domain the highest level of agreement among the seven domains ($M = 19.81, SD = 3.86$). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest ($M$
while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement ($M = 14.21$, $SD = 3.49$). Standard deviations ranged from Extrinsic Motivation—Introjected ($SD = 3.81$) to Intrinsic Motivation—To Experience Stimulation ($SD = 4.26$) (Table 4.14).

### Table 4.14

*Form One Students’ Self-Determination for Formal School Music Lessons (Pre-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>19.81</td>
<td>3.86</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>15.38</td>
<td>4.26</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>15.29</td>
<td>3.84</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>14.89</td>
<td>3.92</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>14.80</td>
<td>3.81</td>
</tr>
<tr>
<td>6</td>
<td>Intrinsic Motivation—To Know</td>
<td>14.54</td>
<td>3.84</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>14.21</td>
<td>3.49</td>
</tr>
</tbody>
</table>

As shown in Table 4.15, Form two students ($n = 163$) ranked the Amotivation domain as the highest-level agreement among the seven domains ($M = 20.61$, $SD = 3.66$). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest ($M = 11.63$, $SD = 3.67$), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement ($M = 11.34$, $SD = 3.34$). Standard deviations ranged from Extrinsic Motivation—Introjected ($SD = 3.34$) to Intrinsic Motivation—To Accomplish ($SD = 3.76$).
Table 4.15

Form Two Students’ Self-Determination for Formal School Music Lessons (Pre-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.61</td>
<td>3.66</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>11.63</td>
<td>3.67</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>11.56</td>
<td>3.75</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>11.48</td>
<td>3.74</td>
</tr>
<tr>
<td>5</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>11.47</td>
<td>3.76</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>11.35</td>
<td>3.46</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>11.34</td>
<td>3.34</td>
</tr>
</tbody>
</table>

4.4.3 Self-Determination for Formal School Music lessons by Instrumental Background

To categorise students’ self-determination by their instrumental background, students reported as instrumental learners (n =190) ranked the Amotivation domain the highest level of agreement among the seven domains (M = 20.01, SD = 3.88). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest (M = 13.85, SD = 4.45), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement (M = 12.93, SD = 3.86). Standard deviations ranged from Extrinsic Motivation—External Regulation (SD = 3.86) to Intrinsic Motivation—To Experience Stimulation (SD = 4.45) (Table 4.16).
Table 4.1

*Instrumental Learners’ Self-Determination for Formal School Music Lessons (Pre-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.01</td>
<td>3.88</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—to Experience Stimulation</td>
<td>13.85</td>
<td>4.45</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—to Accomplish</td>
<td>13.49</td>
<td>4.34</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>13.47</td>
<td>4.14</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>13.41</td>
<td>4.06</td>
</tr>
<tr>
<td>6</td>
<td>Intrinsic Motivation—to Know</td>
<td>13.38</td>
<td>4.20</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.93</td>
<td>3.86</td>
</tr>
</tbody>
</table>

As shown in Table 4.17, students reported non-instrumental learners (n = 133) ranked the Amotivation domain as the highest-level agreement among the seven domains (M = 20.51, SD = 3.60). Other than the Amotivation domain, the Intrinsic Motivation—to Accomplish domain ranked second-highest (M = 13.17, SD = 4.13), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement (M = 12.52, SD = 3.46). Standard deviations ranged from Extrinsic Motivation—External Regulation (SD = 3.46) to Intrinsic Motivation—to Experience Stimulation (SD = 4.27).

Table 4.17

*Non-instrumental Learners’ Self-Determination for Formal School Music Lessons (Pre-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
</table>
Table 4.18

Instrumental Learners’ (Less than 5 Years) Self-Determination for Formal School Music Lessons (Pre-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.51</td>
<td>3.60</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.17</td>
<td>4.13</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>12.97</td>
<td>4.27</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>12.74</td>
<td>4.22</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>12.56</td>
<td>3.92</td>
</tr>
<tr>
<td>6</td>
<td>Intrinsic Motivation—To Know</td>
<td>12.53</td>
<td>3.85</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.52</td>
<td>3.46</td>
</tr>
</tbody>
</table>

4.4.4 Self-Determination for Formal Schools Music lessons by Span of Instrumental Learning

To categorise students’ self-determination by their span of instrumental learning, students who reported having studied the instrument for less than 5 years ($n = 93$) ranked the Amotivation domain as the highest level of agreement among the seven domains ($M = 20.16$, $SD = 3.88$). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest ($M = 14.02$, $SD = 4.56$), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement ($M = 12.98$, $SD = 3.61$). Standard deviations ranged from Extrinsic Motivation—External Regulation ($SD = 3.61$) to Intrinsic Motivation—To Experience Stimulation ($SD = 4.56$) (Table 4.18).
As shown in Table 4.19, students who reported having studied the instrument for more than 5 years ($n = 97$) ranked the Amotivation domain as the highest level of agreement among the seven domains ($M = 19.86$, $SD = 3.89$). Other than the Amotivation domain, the Intrinsic Motivation—To Experience Stimulation domain ranked second-highest ($M = 13.68$, $SD = 4.35$), while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement ($M = 12.88$, $SD = 4.09$). Standard deviations ranged from Extrinsic Motivation—Introjected ($SD = 3.85$) to Intrinsic Motivation—To Accomplish ($SD = 4.75$).

**Table 4.19**

*Instrumental Learners’ (More than 5 Years) Self-Determination for Formal School Music Lessons (Pre-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>20.16</td>
<td>3.88</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>14.02</td>
<td>4.56</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.67</td>
<td>3.89</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>13.62</td>
<td>4.23</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>13.56</td>
<td>4.29</td>
</tr>
<tr>
<td>6</td>
<td>Intrinsic Motivation—To Know</td>
<td>13.29</td>
<td>4.03</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.98</td>
<td>3.61</td>
</tr>
</tbody>
</table>
4.5 Self-Determination for the Sing by Ear Project

Data from the post-test survey were analysed to examine the student participants’ levels of self-determination towards the Sing by Ear project. The level of agreement or disagreement with 28 survey items was rated on a 7-point Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Individual survey items were grouped into seven domains under the subscales of the self-determination continuum: Intrinsic Motivation—To Know, Intrinsic Motivation—To accomplish, Intrinsic Motivation—To Experience Stimulation, Extrinsic Motivation—Identified, Extrinsic Motivation—Introjected, Extrinsic Motivation—External Regulation, and Amotivation.

Descriptive statistics were calculated for each domain. Each domain consisted of four survey items. Domain scores were calculated by adding the four scores for each statement together. The sum allowed the domain scores to conceivably range from 4 (a “Strongly Disagree” response to each of the four items) to 28 (a “Strongly Agree” response to each of the four statements). The means and standard deviations for each domain are shown in Table 4.20.

Table 4.20

Self-Determination for the Sing by Ear Project (Post-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.24</td>
<td>3.01</td>
</tr>
</tbody>
</table>
The Intrinsic Motivation—To Accomplish domain was rated as the highest level of agreement among the seven domains ($M = 23.24, SD = 3.01$), while the domain of Amotivation scored the lowest level of agreement ($M = 7.83, SD = 2.63$). Other than the Amotivation domain, the Extrinsic Motivation—Introjected domain ranked second-lowest ($M = 22.27, SD = 3.12$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.24, SD = 3.01$; Intrinsic Motivation—To Experience Stimulation, $M = 23.15, SD = 2.87$; Intrinsic Motivation—To Know, $M = 22.94, SD = 3.25$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, $M = 22.42, SD = 2.98$; Extrinsic Motivation—Identified, $M = 22.37, SD = 2.97$; Extrinsic Motivation—Introjected, $M = 22.27, SD = 3.12$) and Amotivation ($M = 7.83, SD = 2.63$). Standard deviations ranged from Amotivation ($SD = 2.63$) to Intrinsic Motivation—To Know ($SD = 3.25$).

4.5.1 Self-Determination for the Sing by Ear Project by Gender

To categorise students’ self-determination for the Sing by Ear project by gender, male students ($n = 163$) ranked the Intrinsic Motivation—To Experience Stimulation domain as the highest-level agreement among the seven domains ($M = 23.03, SD = 2.98$), while the Amotivation domain scored the lowest level of
agreement ($M = 7.85$, $SD = 2.58$). Other than the Amotivation domain, the Extrinsic Motivation—Introjected ranked second-lowest ($M = 22.12$, $SD = 3.11$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Experience Stimulation, $M = 23.03$, $SD = 2.98$; Intrinsic Motivation—To Accomplish, $M = 23.00$, $SD = 3.17$; Intrinsic Motivation—To Know, $M = 22.64$, $SD = 3.37$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, $M = 22.26$, $SD = 3.18$; Extrinsic Motivation—Identified, $M = 22.19$, $SD = 3.10$; Extrinsic Motivation—Introjected, $M = 22.12$, $SD = 3.11$). Standard deviations ranged from Amotivation ($SD = 2.58$) to Intrinsic Motivation—To Know ($SD = 3.37$) (Table 4.21).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.03</td>
<td>2.98</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.00</td>
<td>3.17</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>22.64</td>
<td>3.37</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.26</td>
<td>3.18</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.19</td>
<td>3.10</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.12</td>
<td>3.11</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>7.85</td>
<td>2.58</td>
</tr>
</tbody>
</table>

As shown in Table 4.22, female students ($n = 160$) ranked the Intrinsic Motivation—To Accomplish domain as the highest-level agreement among the seven domains ($M = 23.49$, $SD = 2.83$), while the Amotivation domain scored the lowest level of agreement ($M = 7.81$, $SD = 2.70$). Other than the Amotivation domain, the
Extrinsic Motivation—Introjected domain ranked second-lowest ($M = 22.42$, $SD = 3.13$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.49$, $SD = 2.83$; Intrinsic Motivation—To Experience Stimulation, $M = 23.28$, $SD = 2.75$; Intrinsic Motivation—To Know, $M = 23.23$, $SD = 3.10$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, $M = 22.58$, $SD = 2.75$; Extrinsic Motivation—Identified, $M = 22.55$, $SD = 2.84$; Extrinsic Motivation—Introjected, $M = 22.42$, $SD = 3.13$). Standard deviations ranged from Amotivation ($SD = 2.70$) to Extrinsic Motivation—Introjected ($SD = 3.13$).

### Table 4.22

**Female Students’ Self-Determination for the Sing by Ear Project (Post-test)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.49</td>
<td>2.83</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.28</td>
<td>2.75</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>23.23</td>
<td>3.10</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.58</td>
<td>2.75</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.55</td>
<td>2.84</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.42</td>
<td>3.13</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>7.81</td>
<td>2.70</td>
</tr>
</tbody>
</table>

#### 4.5.2 Self-Determination for the Sing by Ear project by Grade Level

To categorise students’ self-determination for the Sing by Ear project by grade level, Form one students ($n = 160$) ranked the Intrinsic Motivation—To Accomplish domain as the highest-level agreement among the seven domains ($M = 23.69$, $SD =$
while the Amotivation domain scored the lowest level of agreement ($M = 7.85$, $SD = 2.72$). Other than the Amotivation domain, the Extrinsic Motivation—Introjected domain ranked second-lowest ($M = 22.38$, $SD = 3.33$). Extrinsic Motivation—External Regulation ($M = 22.63$, $SD = 3.19$) and Extrinsic Motivation—Identified ($M = 22.63$, $SD = 3.25$) have the same level of agreement. The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.69$, $SD = 3.07$; Intrinsic Motivation—To Experience Stimulation, $M = 23.51$, $SD = 3.00$; Intrinsic Motivation—To Know, $M = 23.36$, $SD = 3.34$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, $M = 22.63$, $SD = 3.19$; Extrinsic Motivation—Identified, $M = 22.63$, $SD = 3.25$; Extrinsic Motivation—Introjected, $M = 23.38$, $SD = 3.33$). Standard deviations ranged from Amotivation ($SD = 2.72$) to Intrinsic Motivation—To Know ($SD = 3.34$) (Table 4.2).

### Table 4.23

*Form One Students’ Self-Determination for the Sing by Ear Project (Post-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.69</td>
<td>3.07</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.51</td>
<td>3.00</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>23.36</td>
<td>3.34</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.63</td>
<td>3.19</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.63</td>
<td>3.25</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.38</td>
<td>3.33</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>7.85</td>
<td>2.72</td>
</tr>
</tbody>
</table>

As shown in Table 4.24, Form two students ($n = 163$) ranked the Intrinsic
Motivation—To Accomplish domain \((M = 22.80, SD = 2.90)\) and Intrinsic Motivation—To Experience Stimulation domain \((M = 22.80, SD = 2.70)\) as the highest-level agreement among the seven domains, while the Amotivation domain scored the lowest level of agreement \((M = 7.82, SD = 2.55)\). Other than the Amotivation domain, the Extrinsic Motivation—Identified ranked second-lowest \((M = 22.12, SD = 2.66)\). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, \(M =22.80, SD = 2.90\); Intrinsic Motivation—To Experience Stimulation, \(M = 22.80, SD = 2.70\); Intrinsic Motivation—To Know, \(M = 22.52, SD = 3.11\)) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, \(M = 22.21, SD = 2.75\); Extrinsic Motivation—Introjected, \(M = 22.16, SD = 2.90\); Extrinsic Motivation—Identified, \(M = 22.12, SD = 2.66\)). Standard deviations ranged from Amotivation \((SD = 2.55)\) to Intrinsic Motivation—To Know \((SD = 3.11)\).

**Table 4.24**

*Form Two Students’ Self-Determination for the Sing by Ear Project (Post-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>22.80</td>
<td>2.90</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>22.80</td>
<td>2.70</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>22.52</td>
<td>3.11</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.21</td>
<td>2.75</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.16</td>
<td>2.90</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.12</td>
<td>2.66</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>7.82</td>
<td>2.55</td>
</tr>
</tbody>
</table>
4.5.3 Self-Determination for the Sing by Ear Project by Instrumental Background

To categorise students’ self-determination for the Sing by Ear project by instrumental background, students reported as instrumental learners ($n = 190$) ranked the Intrinsic Motivation—To Accomplish domain the as highest-level agreement among the seven domains ($M = 23.43$, $SD = 3.09$). In contrast, the Amotivation domain scored the lowest level of agreement ($M = 7.71$, $SD = 2.64$). Other than the Amotivation domain, the Extrinsic Motivation—Introjected domain ranked the second-lowest ($M = 22.52$, $SD = 3.27$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.43$, $SD = 3.09$; Intrinsic Motivation—To Experience Stimulation, $M = 23.39$, $SD = 3.00$; Intrinsic Motivation—To Know, $M = 23.12$, $SD = 3.34$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—Identified, $M = 22.57$, $SD = 3.01$; Extrinsic Motivation—External Regulation, $M = 22.56$, $SD = 3.01$; Extrinsic Motivation—Introjected, $M = 22.52$, $SD = 3.27$). Standard deviations ranged from Amotivation ($SD = 2.64$) to Intrinsic Motivation—To Know ($SD = 3.34$) (Table 4.25).

Table 4.25

Instrumental Learners’ Self-Determination for the Sing by Ear Project (Post-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.43</td>
<td>3.09</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.39</td>
<td>3.00</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>23.12</td>
<td>3.34</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.57</td>
<td>3.01</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.56</td>
<td>3.01</td>
</tr>
</tbody>
</table>
As shown in Table 4.26, students reported as non-instrumental learners (n = 133) ranked the Intrinsic Motivation—To Accomplish domain the highest-level agreement among the seven domains (M = 22.98, SD = 2.89), while the Amotivation domain scored the lowest level of agreement (M = 8.02, SD = 2.62). Other than the Amotivation domain, the Extrinsic Motivation—Introjected domain ranked the lowest (M = 21.91, SD = 2.87). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, M = 22.98, SD = 2.89; Intrinsic Motivation—To Experience Stimulation, M = 22.81, SD = 2.66; Intrinsic Motivation—To Know, M = 22.67, SD = 3.11) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—Identified, M = 22.08, SD = 2.91; Extrinsic Motivation—External Regulation, M = 22.21, SD = 2.93; Extrinsic Motivation—Introjected, M = 21.91, SD = 2.87). Standard deviations ranged from Amotivation (SD = 2.62) to Intrinsic Motivation—To Know (SD = 3.11).

Table 4.26

Non-Instrumental Learners’ Self-Determination for the Sing by Ear Project (Post-test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>22.98</td>
<td>2.89</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>22.81</td>
<td>2.66</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>22.67</td>
<td>3.11</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.08</td>
<td>2.91</td>
</tr>
</tbody>
</table>
Extrinsic Motivation—External Regulation 22.21 2.93
Extrinsic Motivation—Introjected 21.91 2.87
Amotivation 8.02 2.62

4.5.4 Self-Determination for the Sing by Ear Project by Span of Instrumental Learning

To categorise students’ self-determination for the Sing by Ear project by their span of instrumental learning, students who reported having studied the instrument for less than 5 years (n = 93) ranked the Intrinsic Motivation—To Know domain as the highest-level agreement among the seven domains (M = 24.33, SD = 3.07), while the Amotivation domain scored the lowest level of agreement (M = 6.81, SD = 2.27). Other than the Amotivation domain, the Extrinsic Motivation—Identified domain ranked second-lowest (M = 22.33, SD = 2.85). The three Intrinsic Motivation domains (Intrinsic Motivation—To Know, M = 23.52, SD = 3.13; Intrinsic Motivation—To Experience Stimulation, M = 23.31, SD = 3.14; Intrinsic Motivation—To Accomplish, M = 22.74, SD = 3.43) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, M = 22.46, SD = 3.31; Extrinsic Motivation—Introjected, M = 22.32, SD = 3.48; Extrinsic Motivation—Identified, M = 22.19, SD = 3.34). Standard deviations ranged from Amotivation (SD = 2.54) to Intrinsic Motivation—To Know (SD = 3.22) (Table 4.27).
Table 4.27

*Instrumental Learners’ (Less than 5 years) Self-Determination for the Sing by Ear Project (Post-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Know</td>
<td>23.52</td>
<td>3.22</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.47</td>
<td>2.85</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.34</td>
<td>3.06</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.96</td>
<td>2.60</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.73</td>
<td>3.03</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.68</td>
<td>2.67</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>7.35</td>
<td>2.54</td>
</tr>
</tbody>
</table>

As shown in Table 4.28, students who reported having studied the instrument for more than 5 years ($n = 97$) ranked the Intrinsic Motivation—To Accomplish domain as the highest-level agreement among the seven domains ($M = 23.52, SD = 3.13$), while the Amotivation domain scored the lowest level of agreement ($M = 8.04, SD = 2.71$). Other than the Amotivation domain, the Extrinsic Motivation—External Regulation domain ranked the second-lowest ($M = 22.19, SD = 3.34$). The three Intrinsic Motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.52, SD = 3.13$; Intrinsic Motivation—To Experience Stimulation, $M = 23.31, SD = 3.14$; Intrinsic Motivation—To Know, $M = 22.74, SD = 3.43$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—Identified, $M = 22.46, SD = 3.31$; Extrinsic Motivation—Introjected, $M = 22.32, SD = 3.48$; Extrinsic Motivation—External Regulation, $M = 22.19, SD = 3.34$). Standard deviations ranged from Amotivation ($SD = 2.71$) to Extrinsic Motivation—Introjected ($SD = 3.48$).
Table 4.28

*Instrumental Learners’ (More than 5 Years) Self-Determination for the Sing by Ear Project (Post-test)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>23.52</td>
<td>3.13</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>23.31</td>
<td>3.14</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Know</td>
<td>22.74</td>
<td>3.43</td>
</tr>
<tr>
<td>4</td>
<td>Extrinsic Motivation—Identified</td>
<td>22.46</td>
<td>3.31</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>22.32</td>
<td>3.48</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>22.19</td>
<td>3.34</td>
</tr>
<tr>
<td>7</td>
<td>Amotivation</td>
<td>8.04</td>
<td>2.71</td>
</tr>
</tbody>
</table>

4.6 Changes in Self-Determination After the *Sing by Ear* Project

The second and third research question investigated the motivational changes based on self-determination after the implementation of the *Sing by Ear* project.

To address these questions, a mixed-design multivariate analysis of variance (MANOVA) was calculated. Pre-test and post-test scores were entered as the within-subjects factor. Between-subjects factors in the MANOVA were (a) gender, (b) grade level, (c) instrumental background, and (d) span of instrumental learning, with the seven domains as the dependent factors. No violations was found in the preliminary assessment for normality, homogeneity of variance-covariance matrices and multicollinearity. Assumption of homogeneity of variance-covariance was met by the Box M test, $p > .05$. Pre-test and post-test results on the seven dependent variables—Intrinsic Motivation—To Know, Intrinsic Motivation—To Accomplish, Intrinsic
Motivation—To Experience Stimulation, Extrinsic Motivation—Identified, Extrinsic Motivation—Introjected, Extrinsic Motivation—External Regulation, and Amotivation domains were calculated.

From the results of the MANOVA, there was a statistically significant difference between pre-test and post-test scores on the seven domains, $F (7, 309) = 485.3, p < .001$, Wilk’s $\Lambda = .083$, $\eta^2_p = .92$.

For the factor of gender, no statistically significant differences were found, $F (7, 309) = 1.38, p = .21$, Wilk’s $\Lambda = .97$, $\eta^2_p = .03$.

For the factor of grade level (Form one and Form two), significant differences were found, $F (7, 309) = 13.26, p < .001$, Wilk’s $\Lambda = .77$, $\eta^2_p = .23$.

For the factor of instrumental background (instrumental learner and non-instrumental learner), there were no significant differences, $F (7, 309) = 1.72, p = .10$, Wilk’s $\Lambda = .96$, $\eta^2_p = .04$.

For the factor of the span of instrumental learning (no experience in learning an instrument, 0 to 5 years of experience in learning an instrument, more than 5 years of experience in learning an instrument), there were no significant differences on the seven domains, $F (7, 309) = .94, p = .52$, Wilk’s $\Lambda = .94$, $\eta^2_p = .02$.

There was a significant interaction effect between pre-post results and the factor of grade level on the seven domains, $F (7, 309) = 6.31, p < .001$, Wilk’s $\Lambda = .88$, $\eta^2_p = .13$. No other significant interaction effects was found ($p > .05$).

4.6.1 Changes in Self-determination

There was a significant main effect found between pre-test and post-test scores of the MANOVA. An univariate $F$-test was conducted as follow-up test. In the
follow-up univariate F-test, significant differences were found in the pre-test and post-test scores, for all of the seven domains: Intrinsic Motivation—To Know, $F(1,315) = 1209.23, p < .001, \eta^2_p = .79$; Intrinsic Motivation—To Accomplish, $F(1,315) = 1273.62, p < .001, \eta^2_p = .80$; Intrinsic Motivation—To Experience Stimulation, $F(1,315) = 1230.71, p < .001, \eta^2_p = .80$; Extrinsic Motivation—Identified, $F(1,315) = 1181.28, p < .001, \eta^2_p = .80$; Extrinsic Motivation—Introjected, $F(1,315) = 1071.12, p < .001, \eta^2_p = .77$; Extrinsic Motivation—External Regulation, $F(1,315) = 1299.56, p < .001, \eta^2_p = .81$; Amotivation, $F(1,315) = 2684.36, p < .001, \eta^2_p = .90$ (Table 4.29).

Table 4.29

<table>
<thead>
<tr>
<th>Domains</th>
<th>Pre-test Mean</th>
<th>Post-test Mean</th>
<th>$F(1,315)$</th>
<th>Sig.</th>
<th>$\eta^2_p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation—To Know</td>
<td>13.03 (4.07)</td>
<td>22.94 (3.25)</td>
<td>1209.23</td>
<td>.000</td>
<td>.79</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Accomplish</td>
<td>13.59 (4.25)</td>
<td>23.24 (3.01)</td>
<td>1273.62</td>
<td>.000</td>
<td>.80</td>
</tr>
<tr>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>13.49 (4.39)</td>
<td>23.15 (2.87)</td>
<td>1230.71</td>
<td>.000</td>
<td>.80</td>
</tr>
<tr>
<td>Extrinsic Motivation—Identified</td>
<td>13.13 (4.02)</td>
<td>22.27 (3.12)</td>
<td>1181.28</td>
<td>.000</td>
<td>.80</td>
</tr>
<tr>
<td>Extrinsic Motivation—Introjected</td>
<td>13.06 (4.02)</td>
<td>22.27 (3.12)</td>
<td>1071.12</td>
<td>.000</td>
<td>.77</td>
</tr>
<tr>
<td>Extrinsic Motivation—External Regulation</td>
<td>12.76 (3.70)</td>
<td>22.42 (2.98)</td>
<td>1299.56</td>
<td>.000</td>
<td>.81</td>
</tr>
<tr>
<td>Amotivation</td>
<td>20.21 (3.77)</td>
<td>7.83 (2.64)</td>
<td>2684.36</td>
<td>.000</td>
<td>.90</td>
</tr>
</tbody>
</table>

From the results, the mean changes in the Amotivation domain ($M = -12.38$, $SD = 4.22$) ranked the highest after the Sing by Ear project. Other than the Amotivation domain, the Intrinsic Motivation—To Know ($M = 9.90$, $SD = 5.10$)
ranked the second highest in changes, while the Extrinsic Motivation—External Regulation ($M = 9.20$, $SD = 4.84$) domain ranked the lowest in changes. In addition, the mean changes in the three Intrinsic Motivation domains ranked higher than the three Extrinsic Motivation domains. The three Intrinsic Motivation domains (Intrinsic Motivation—To Know, $M = 9.90$, $SD = 5.10$; Intrinsic Motivation—To Accomplish, $M = 9.86$, $SD = 5.05$; Intrinsic Motivation—To Experience Stimulation, $M = 9.66$, $SD = 5.05$) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—Introjected, $M = 9.21$, $SD = 5.21$; Extrinsic Motivation—Identified, $M = 9.20$, $SD = 4.93$; Extrinsic Motivation—External Regulation, $M = 9.20$, $SD = 4.84$) (Table 4.30).

Table 4.30

*Ranking for All the Participants of the Seven Domains in the Self-Determination Changes*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domains</th>
<th>Mean differences in pre-test and post-test</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>-12.38 (reverse scoring)</td>
<td>4.22</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Know</td>
<td>9.90</td>
<td>5.10</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>9.86</td>
<td>5.05</td>
</tr>
<tr>
<td>4</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>9.66</td>
<td>5.05</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—Introjected</td>
<td>9.21</td>
<td>5.21</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Identified</td>
<td>9.20</td>
<td>4.93</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>9.20</td>
<td>4.84</td>
</tr>
</tbody>
</table>

4.6.2 Differences in Self-determination by Grade Level

Significant main effect was found in the MANOVA by the factor of grade
level on the seven domains. Univariate $F$-test was conducted as follow-up test to the MANOVA. In the follow-up univariate $F$-test, significant differences were found in the pre-post scores by grade level, for all of the seven domains: Intrinsic Motivation—To Know, $F\ (1, 315) = 14.02, p < .001, \eta^2_p = .04$; Intrinsic Motivation—To Accomplish, $F\ (1, 315) = 27.94, p < .001, \eta^2_p = .08$; Intrinsic Motivation—To Experience Stimulation, $F\ (1, 315) = 29.57, p < .001, \eta^2_p = .09$; Extrinsic Motivation—Identified, $F\ (1, 315) = 27.71, p < .001, \eta^2_p = .08$; Extrinsic Motivation—Introjected, $F\ (1, 315) = 29.74, p < .001, \eta^2_p = .09$, Extrinsic Motivation—External Regulation, $F\ (1, 315) = 22.84, p < .001, \eta^2_p = .07$; Amotivation, $F\ (1, 315) = 4.07, p = .05, \eta^2_p = .01$ (Table 4.31). Significant interaction effect is found between pre-test and post-test results, and the factor of grade level, $F\ (7, 309) = 6.31, p < .001, \text{Wilk’s } \Lambda = .88, \eta^2_p = .13$.

### Table 4.31

**Interaction Effect: Pre-Post by Grade Level**

<table>
<thead>
<tr>
<th>Domains</th>
<th>Grade</th>
<th>Pre-test Mean</th>
<th>Post-test Mean</th>
<th>Mean Change</th>
<th>$F$ (1, 315)</th>
<th>Sig.</th>
<th>$\eta^2_p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation—To Know</td>
<td>Form one</td>
<td>14.54 (3.84)</td>
<td>23.36 (3.34)</td>
<td>8.82</td>
<td>14.02</td>
<td>.000</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>Form two</td>
<td>11.56 (3.75)</td>
<td>22.52 (3.11)</td>
<td>10.96</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic Motivation—To Accomplish</td>
<td>Form one</td>
<td>15.29 (3.84)</td>
<td>23.69 (3.07)</td>
<td>8.41</td>
<td>27.94</td>
<td>.000</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Form two</td>
<td>11.47 (3.76)</td>
<td>22.80 (2.90)</td>
<td>11.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>Form one</td>
<td>15.38 (4.26)</td>
<td>23.51 (3.00)</td>
<td>8.13</td>
<td>29.57</td>
<td>.000</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Form two</td>
<td>11.63 (3.67)</td>
<td>22.80 (2.70)</td>
<td>11.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic Motivation—Identified</td>
<td>Form one</td>
<td>14.89 (3.92)</td>
<td>22.63 (3.25)</td>
<td>7.74</td>
<td>27.71</td>
<td>.000</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Form two</td>
<td>11.48 (3.74)</td>
<td>22.12 (2.66)</td>
<td>10.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation—Introjected</td>
<td>Form one</td>
<td>Form two</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.81)</td>
<td>(3.33)</td>
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<td></td>
</tr>
<tr>
<td>Exttrinsic Motivation—External Regulation</td>
<td>Form one</td>
<td>Form two</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.49)</td>
<td>(3.34)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>14.21</td>
<td>11.34</td>
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<tr>
<td></td>
<td>(3.49)</td>
<td>(3.34)</td>
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<td></td>
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<tr>
<td></td>
<td>22.63</td>
<td>22.16</td>
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</tr>
<tr>
<td></td>
<td>(3.19)</td>
<td>(2.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amotivation</td>
<td>Form one</td>
<td>Form two</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.86)</td>
<td>(3.66)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>19.81</td>
<td>20.61</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(2.72)</td>
<td>(2.55)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.85</td>
<td>7.82</td>
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<tr>
<td></td>
<td>-11.96</td>
<td>-12.79</td>
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<tr>
<td></td>
<td>4.07</td>
<td>.01</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.07</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

The result shows that Form two students had a greater increase in the mean scores than those from the Form one students. Non-parallel effect is shown in the figures 4.32, 4.33, 4.34, 4.35, 4.36, 4.37, 4.38, indicating the interaction effect of each of the seven domains by grade level. All the figures reveal a greater change in Form two students with a steeper slope than in Form one students, from pre-test to post-test scores.

**Figure 4.32**

*Interaction Effect of Intrinsic Motivation—To Know Domain by Grade Level*
Figure 4.33

Interaction Effect of Intrinsic Motivation—To Accomplish Domain by Grade Level

![Graph showing estimated marginal means of InToAccomplish by class level and grade level.](image)

Figure 4.34

Interaction Effect of Intrinsic Motivation—To Experience Stimulation Domain by Grade Level

![Graph showing estimated marginal means of InToExpStimulation by class level and grade level.](image)
Figure 4.35

Interaction Effect of Extrinsic Motivation—Identified Domain by Grade Level

Figure 4.36

Interaction Effect of Extrinsic Motivation—Introjected Domain by Grade Level
Figure 4.37

Interaction Effect of Extrinsic Motivation—External Regulation Domain by Grade Level

Figure 4.38

Interaction Effect of Amotivation Domain by Grade Level
From the results, the mean changes in the Amotivation domain ranked the highest after the *Sing by Ear* project for both Form one \((M = -11.96, SD = 4.11)\) and Form two students \((M = -12.79, SD = 4.31)\). For Form one students, the Intrinsic Motivation—To Know domain \((M = 8.82, SD = 4.88)\) ranked the second highest in changes other than the Amotivation domain, while the Extrinsic Motivation—Introjected \((M = 7.58, SD = 4.97)\) ranked the lowest. For Form two students, other than the Amotivation domain, the Intrinsic Motivation—To Accomplish domain \((M = 11.34, SD = 4.98)\) ranked the second highest in changes, while the Extrinsic Motivation—Identified domain \((M = 10.63, SD = 4.62)\) ranked the lowest. The mean changes in the three Intrinsic Motivation domains ranked higher than the three Extrinsic Motivation domains in Form two students: (Intrinsic Motivation—To Accomplish, \(M = 11.34, SD = 4.98\); Intrinsic Motivation—To Experience Stimulation, \(M = 11.17, SD = 4.85\); Intrinsic Motivation—To Know, \(M = 10.96, SD = 5.10\)) were ranked higher in the level of agreement than the three Extrinsic Motivation domains (Extrinsic Motivation—External Regulation, \(M = 10.88, SD = 4.61\); Extrinsic Motivation—Introjected, \(M = 10.81, SD = 4.94\); Extrinsic Motivation—Identified, \(M = 10.63, SD = 4.62\)) (Table 4.39 and Table 4.40).

Table 4.39

*Ranking of the Seven Domains in the Self-Determination Changes (Form One Students)*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domains</th>
<th>Mean differences in pre-test and post-test</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>-11.96 (reverse scoring)</td>
<td>4.11</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Know</td>
<td>8.82</td>
<td>4.88</td>
</tr>
<tr>
<td>3</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>8.42</td>
<td>4.77</td>
</tr>
</tbody>
</table>
Table 4.40

Ranking of the Seven Domains in the Self-Determination Changes (Form Two Students)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domains</th>
<th>Mean differences in pre-test and post-test</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amotivation</td>
<td>-12.79 (reverse scoring)</td>
<td>4.31</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Motivation—To Accomplish</td>
<td>11.34</td>
<td>4.98</td>
</tr>
<tr>
<td>3</td>
<td>Intrinsic Motivation—To Experience Stimulation</td>
<td>11.17</td>
<td>4.85</td>
</tr>
<tr>
<td>4</td>
<td>Intrinsic Motivation—To Know</td>
<td>10.96</td>
<td>5.10</td>
</tr>
<tr>
<td>5</td>
<td>Extrinsic Motivation—External Regulation</td>
<td>10.88</td>
<td>4.61</td>
</tr>
<tr>
<td>6</td>
<td>Extrinsic Motivation—Introjected</td>
<td>10.81</td>
<td>4.94</td>
</tr>
<tr>
<td>7</td>
<td>Extrinsic Motivation—Identified</td>
<td>10.63</td>
<td>4.62</td>
</tr>
</tbody>
</table>

4.7 Summary of Survey Results

Students’ data and responses provided insights for exploring the intrinsic and extrinsic motivation levels based on the self-determination theory.

4.7.1 Correlations Between the Seven Domains

Pearson Product-Moment Correlation Coefficients were calculated between the seven domains of pre-test and post-test results. Statistically significant correlations were found between all the domains with pre-test and post-test results.
In the pre-test results, correlations between Intrinsic Motivation—To Know, Intrinsic Motivation—To Accomplish domains were found strongest among the seven domains. The second strongest correlations were found between Intrinsic Motivation—To Accomplish and Intrinsic Motivation—To Experience Stimulation domains, followed by correlations between Intrinsic Motivation—To Know and Intrinsic Motivation—To Experience Stimulation domains. The Intrinsic Motivations domains have stronger correlations than the Extrinsic Motivation domains in the pre-test results correlation matrix.

In the post-test results, correlations between Intrinsic Motivation—To Know, Intrinsic Motivation—To Accomplish domains were found strongest among the seven domains. The second strongest correlations were found between Intrinsic Motivation—To Accomplish and Intrinsic Motivation—To Experience Stimulation domains, followed by correlations between Intrinsic Motivation—To Know and Intrinsic Motivation—To Experience Stimulation domains. The Intrinsic Motivations domains have stronger correlations than the Extrinsic Motivation domains in the pre-test results correlation matrix.

4.7.2 Self-determination for Formal School Music Lessons

Mean scores from the pre-test surveys were obtained to examine the levels of self-determination of students toward formal school music lessons. All students ranked the Amotivation domain at the highest level of agreement from the results. Except for the Amotivation domain, students rated the Intrinsic Motivation—To Experience Stimulation domain the second-highest level of agreement, while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement.
Categorising the students by gender, male students rated the Extrinsic Motivation—Identified domain at the second-highest level of agreement other than the Amotivation domain, while the Intrinsic Motivation—To know domain scored the lowest level of agreement. For female students, the Intrinsic Motivation—To Experience Stimulation domain ranked the second-highest level of agreement other than the Amotivation domain, while the Extrinsic Motivation—Identified domain ranked the lowest.

Categorising the students by grade levels, Form one students rated the Intrinsic Motivation—To experience Stimulation domain at the second-highest level of agreement other than the Amotivation domain, while the Extrinsic Motivation—External regulation domain scored the lowest level of agreement. Form two students ranked the Intrinsic Motivation—To Experience Stimulation at the second-highest level of agreement, while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement.

Categorising the students by their instrumental background, students reported as instrumental learners ranked the Intrinsic Motivation—To Experience Stimulation domain at the second-highest level of agreement other than the Amotivation domain, while the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement. For non-instrumental learners, the Intrinsic Motivation—To Accomplish domain ranked at the second-highest level of agreement, while the Extrinsic Motivation—External Regulation domain ranked the lowest.

Further categorising the students by the span of instrumental learning, students reported having studied the instrument for less than 5 years ranked the Intrinsic Motivation—To Experience Stimulation domain at the second-highest level of agreement, while the Extrinsic Motivation—External Regulation domain scored the
lowest level of agreement. Students reported as having studied the instrument for more than 5 years ranked the Intrinsic Motivation—To Experience Stimulation domains second-highest, and the Extrinsic Motivation—External Regulation domain scored the lowest level of agreement.

4.7.3 Self-determination for the Sing by Ear Project

Data from the post-test surveys were analysed to obtain the students’ levels of self-determination toward the Sing by Ear project. Students rated the Intrinsic Motivation—To Accomplish domain at the highest level of agreement among the seven domains, while the Extrinsic Motivation—Introjected domain ranked second-lowest other than the Amotivation domain. The three Intrinsic Motivation domains ranked higher in the level of agreement than the three Extrinsic Motivation domains.

Categorising the students by gender, male students rated the Intrinsic Motivation—To Experience Stimulation domain as the highest level of agreement among the seven domains and the Extrinsic Motivation—Introjected domain the second-lowest level of agreement other than the Amotivation domain. The three Intrinsic Motivation domains scored higher than the three Extrinsic Motivation domains. Female students ranked the Intrinsic Motivation—To Accomplish domain at the highest level of agreement, while the Extrinsic Motivation—Introjected domain ranked second-lowest other than the Amotivation domain. The three Intrinsic Motivation domains also ranked higher in the level of agreement than the three Extrinsic Motivation domains.

Categorising the students by grade level, Form one students rated the Intrinsic Motivation—To Accomplish domain at the highest level of agreement among the seven domains, while the Extrinsic Motivation—Introjected domain scored the
second-lowest other than the Amotivation domain. The three Intrinsic Motivation domains were ranked higher in the level of agreement than the three Extrinsic Motivation domains. Form two students ranked the Intrinsic Motivation—To Accomplish domain the highest among the seven domains, while the Extrinsic Motivation—Identified domain ranked second-lowest other than the Amotivation domain. The three Intrinsic Motivation domains also ranked higher in the level of agreement than the three Extrinsic Motivation domains.

Categorising the students by their instrumental background, instrumental learners ranked the Intrinsic Motivation—To Accomplish domain at the highest level of agreement. The Extrinsic Motivation—Introjected domain scored the second-lowest level other than the Amotivation domain. The three Intrinsic Motivation domain ranked higher in the level of agreement than the three Extrinsic Motivation domains. For non-instrumental learners, the Intrinsic Motivation—To Accomplish domain scored the highest level of agreement, and the Extrinsic Motivation—Introjected domain scored the second-lowest other than the Amotivation domain. The three Intrinsic Motivation domains were ranked higher in the level of agreement than the three Extrinsic Motivation domains.

Categorising the students by the span of instrumental learning, students who have studied the instrument for less than 5 years ranked the Intrinsic Motivation—To Know domain at the highest level of agreement among the seven domains, while the Extrinsic Motivation—Identified domain ranked the second-lowest other than the Amotivation domain. For students who have studied the instrument for more than 5 years, the Intrinsic Motivation—To Accomplish domain was also ranked at the highest level of agreement among the seven domains, while the Extrinsic Motivation—External Regulation domain was ranked second-lowest other than
Amotivation domain. The three Intrinsic Motivation domains were ranked higher in the level of agreement than the three Extrinsic Motivation domains.

4.7.4 Self-determination Changes After the Sing by Ear Project

A mixed-design MANOVA was conducted to determine the intrinsic and extrinsic motivation changes after the Sing by Ear project. A statistically significant main effect was found between pre-test and post-test scores of the seven domains.

An univariate F-test was performed as follow-up test to the MANOVA. Statistically significant differences were found in all domains. The mean changes in the Amotivation domain ranked the highest after the Sing by Ear project. Other than the Amotivation domain, the Intrinsic Motivation—To Know domain ranked the second highest in changes, and the Extrinsic Motivation—External Regulation domain ranked the lowest. In addition, the mean changes in the three Intrinsic Motivation domains ranked higher than the three Extrinsic Motivation domains.

The mixed-design MANOVA also investigated the differences in self-determination between (a) gender, (b) grade level, (c) instrumental background, and (d) span of instrumental learning as the independent factors.

Grouping the students by gender, there were no statistically significant differences found by gender in the seven domains.

A significant interaction effect was yielded between pre-test and post-test results, and the factor of grade level. An univariate F-test was performed as follow-up test to the MANOVA. The result shows that Form two students had a greater increase in the mean scores that those from the Form one students.

The mean changes in the Amotivation domain ranked the highest after the Sing by Ear project for Form one and Form two students. For Form one students, the Intrinsic Motivation—To Know domain ranked the second highest in changes other
than the Amotivation domain, and the Extrinsic Motivation—Introjected domain ranked the lowest. For Form two students, other than the Amotivation domain, Intrinsic Motivation—To Accomplish domain ranked the second highest in changes, and the Extrinsic Motivation—Identified domain ranked the lowest. The mean changes in the three Intrinsic Motivation domains ranked higher than the three Extrinsic Motivation domains in Form two students.

From the mixed MANOVA, no statistically significant differences were found between instrumental background, or the span of instrumental learning and the seven domains.
Chapter 5  
Multiple-Case Study

The qualitative part of the present research explores students’ motivation and learning process, and aspects of musicianship in the Sing by Ear project based on the self-determination theory and concept of learning by ear. In addition, their views on popular music education and informal learning practices were also collected. This chapter presents findings from the students’ accounts to capture the diversity of their music-learning experiences. Nine student cases with three to four students in each group were invited to the interviews, which lasted 20 minutes each. The interviews were semi-structured and open-ended. Open-ended questions can explain participants’ responses and focus on their experiences (King & Horrocks, 2010). There were 22 interview questions for each student group to gather background information, views of music, the learning process in the Sing by Ear project, and their motivation and self-value (Table 5.1).

Table 5.1  
Interview Questions

<table>
<thead>
<tr>
<th>Background Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
</tr>
<tr>
<td>2. Age</td>
</tr>
<tr>
<td>3. Instrumental learner or not/ what instrument/ years of experience</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you like music? What does music mean to you?</td>
</tr>
<tr>
<td>2. How do you feel about the formal music lessons at school?</td>
</tr>
<tr>
<td>3. What do you think about popular music in daily life?</td>
</tr>
<tr>
<td>4. Do you want more popular music in school music lessons?</td>
</tr>
</tbody>
</table>

Sing by Ear Learning Process
1. Do you like pop music?

2. How do you usually learn pop music?

3. Why did you choose the chosen piece to do in the project?

4. Did you listen to the piece may times and copy the recoding during the practice?

5. Did you create something new or add your own ideas to the original? How did you do that?

6. What do you think about the Sing by Ear project and informal learning?

7. Do you feel you have learnt something new during the Sing by Ear project? Any improvements? How?

8. Did you learn something from your peers?

**Motivation/ Self-value**

1. Do you enjoy making music?

2. Do you feel good about yourself when your group has come up with a piece of music of your own?

3. What kind of obstacles did your group encounter and how did you overcome them?

4. Do you feel good working with your friends? Is it easier to come up with creative ideas when you work with your friends?

5. Do you feel good when you have some music skills improved?

6. After the programme, do you feel more willing/ more confident in making music?

7. Will you still make music using similar method in the future?

Each interview was presented in the following section as multiple cases. A narrative approach was employed in which the cases started from participants’ background information to before moving on to their specific views on their learning process. The background information of the participants are included in Table 5.2.

**Table 5.2**

*Students’ Background Information*

<table>
<thead>
<tr>
<th>Case</th>
<th>Students</th>
<th>Age</th>
<th>Instrumental learner/ Non-instrumental learner</th>
<th>Span of instrumental experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>12</td>
<td>Yes (Trumpet)</td>
<td>6 years</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>12</td>
<td>Yes (Piano)</td>
<td>8 years</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Yes (Piano and violin)</td>
<td>2 years</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----</td>
<td>------------------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>Yes (Piano)</td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Yes (Guitar and piano)</td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (Piano and violin)</td>
<td>3 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Piano)</td>
<td>3 years</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>Yes (Piano)</td>
<td>5 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Yes (Violin and yangqin)</td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (Guzheng)</td>
<td>2 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Piano)</td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>Yes (Violin and clarinet)</td>
<td>3 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Yes (Singing and piano)</td>
<td>3 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Piano)</td>
<td>1 year</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>Yes (Dizi)</td>
<td>4 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (Piano and erhu)</td>
<td>9 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Violin)</td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>A</td>
<td>Yes (Percussion)</td>
<td>6 years</td>
<td></td>
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<tr>
<td></td>
<td>B</td>
<td>Yes (Trumpet)</td>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (Ukulele)</td>
<td>1 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Yes (Piano and guitar)</td>
<td>8 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (French horn)</td>
<td>3 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Erhu, piano and violin)</td>
<td>8 years</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>A</td>
<td>Yes (Piano)</td>
<td>5 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Yes (Violin and flute)</td>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>A</td>
<td>Yes (Piano)</td>
<td>3 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Yes (Clarinet)</td>
<td>4 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>No</td>
<td>0 year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Yes (Violin)</td>
<td>6 years</td>
<td></td>
</tr>
</tbody>
</table>
5.1 Students’ Cases

5.1.1 Student Case 1

Case 1 consisted of three students in their group project. Some of their background information was collected, such as age group and musical instrument learning experiences. Students A and B were 12 years old, while Student C was 13 years old. Student A has been learning the trumpet since age 6. Student B has been learning piano since age 4. Student C had studied piano and violin for 2 years, but was no longer learning them.

The students were asked about their music listening preferences. Student C expressed her favour in Western popular music:

**Student C:** I love Western popular music. Music helps me release pressure.

When the students were asked what they thought about formal music lessons at school, students commented:

**Student A:** My classmates and I used to dislike music lessons. That was so boring, and this made us dislike the teacher too.

**Student C:** In my primary school, the teacher was teaching knowledge from books and read-aloud music theory from books, so we did not have chances to play live music, and that was quite boring.

Students were then asked if they liked popular music and wanted to include popular music materials in school music lessons, and all students agreed enthusiastically:

**Student A:** I like to listen to Justin Bieber, Charlie Puff, and Shawn Mendes.

**Student C:** I like One Direction.

**Student B:** I seldom listened to popular songs before, but my group mates introduced their favourite popular songs to me, so I started listening pop songs now, especially
the Western pop songs. And we have to do the a cappella project, so now I have more chances to listen to popular songs.

The following questions were about the Sing by Ear a cappella project. First, students were asked about how they learnt or practised the song they had chosen:

Student A: I listened to the piece many times and wrote down the melody lines of the song.

Student C: We chose the part of the song with more rhythmic elements. I copied the main melody and percussion drums sections.

In terms of creativity, Students B and C described that they created maracas by using rice as the percussion part:

Student C: I have created some new sounds to add to the background music.

Student B: We created maracas by using rice and added them to our piece.

Students were asked to share opinions about informal learning:

Student A: I love this form of learning so much. We can have more of our ideas and decide the piece we want, and not just follow guidelines from teachers. I hope future music lessons could be like that too.

Student B: I like that too. It is more fun to interact with friends. I wish we could do more singing in our music lessons.

The next part of the interview concerned the students’ self-value. Students were asked if they had learnt any new skills in this project:

Student C: I have learnt how to produce popular songs. I understand that there are many elements in a popular song, for example, drums, melody, and harmony.

Student B: I feel good to have learnt how to make music, especially popular songs, like
Being a music producer.

After the project, all the students reported being more confident in creating music and singing:

**Student C:** I have learnt more about music production, and I feel good about myself. I feel confident in working with friends and sharing my ideas in music with them.

**Student A:** I always enjoy music. After this project, I feel I am more confident in singing.

**Student B:** I very much enjoy this mode of music lessons and music learning, and I wish to do this project again.

In summary, students from Case 1 were all instrumental learners. They loved music, especially Western popular music. They enjoyed the informal learning setting in the *Sing by Ear* a cappella project, and they hoped that they could have more popular music materials in future school music lessons. They listened to the song they chose during the project, learning and copying the parts by ear. A new element, maracas—the maracas with rice—was created for their project. After the project, they commented that they enjoyed participating in the activity and working with peers, learnt about the different music layers in popular music production, and felt more confident working with others to create music.

### 5.1.2 Student Case 2

Case 2 consisted of four students in their group project. Their background information was collected, including age group and musical instrument learning experiences. All of the students in Case 2 were 13 years old. Student A has been learning the piano for 6 to 7 years. Student B has been learning the guitar for a few months and piano for 7 years. Student C had studied piano for 3 years and violin for 1
year, but was no longer learning. Student D studied piano for 3 years, but was no longer learning.

The students were asked about their music listening habits:

**Student B**: I listen to music when I feel sad and bored. I feel better after listening to music.

**Student A**: Listening to music can make me feel relaxed.

**Student C**: I usually listen to music when I do homework or study. Listening to music can help me to focus.

**Student B**: There is no particular time I listen to music. I listen to music anytime when I can, like travelling to school or having lunch.

Students expressed their thoughts on music preferences:

**Student A**: I like Korean popular music.

**Student B**: I would accept classical music, but I would not say I like it so much.

**Student C**: I do not hate classical music, but I would not keep listening to it.

When the students were asked how they felt about formal music lessons at school, Student A replied that she felt relaxed during music lessons, while Student B commented that music lessons were quite interesting. The students were then asked if they liked popular music and wanted to include popular music materials in school music lessons, and all students provided positive responses.

The following questions were about the *Sing by Ear* a cappella project. Students were asked how they learnt or practised the song they had chosen:

**Student A**: I found the piece on YouTube, and then I listened to it many times to learn.

**Student B**: We listened to the piece on YouTube and sang along to practice.

We assigned melody parts to each of our groupmates. We all have a chance to
sing the melody and the harmony parts.

In terms of creativity, Student B explained that they created the harmony line. When they were asked to share opinions about informal learning:

Student C: I like this learning mode. As I can express my ideas, I can choose the pieces that I like to learn and be creative.

The next part of the interview concerned their self-value. Students were asked if they had learnt any new skills or made any improvements in this project:

Student C: I have become more creative.

Student B: I think I have improved my aural skills as I have to listen to the piece and find out the different elements in the music. Also, I had to listen to the melody and create the harmony parts on my own, so my theory and listening skills improved.

The students were then asked if they had learnt from their peers:

Student B: One of our groupmate is more capable in finding the pitch, so I have learnt some aural skills from her.

Student C: We have learnt to work together. At first, we did not know how to sing the harmony parts, but we discussed it many times and tried to create our version.

Finally, students were asked for comments on the *Sing by Ear* project, and all students responded that they hoped to have similar activities in the future with more popular music and peer projects.

All of the students in Case 2 reported that they loved popular music and felt happy after the project. They experienced satisfaction after overcoming obstacles in the process and afterwards created their version of the music. The students reported improved confidence in both creating and singing music. Student C explained that she
felt confident working with friends and sharing her ideas with them. Student B learnt to cooperate with her peers. She was alert and actively listened to others’ performances in the group project.

5.1.3 Student Case 3

Case 3 is composed of a group of four students, all of them 13 years old. Student A has been learning the piano for 5 years. Student B has been studying violin for 7 years and yangqin for 6 years. Student C has been learning the guzheng for 2 years, and Student D has been studying piano for 7 years.

The students were asked about their music listening preferences:

**Student B**: I often listen to music.

**Student A**: I listen to music all the time. Apart from listening to music, I also play my music on the piano.

**Student C**: I listen to music when I want to relax.

When the students were asked how they felt about formal music lessons at school, Students A, B, and C concurred that they found music lessons more relaxing than other subjects.

The students were then asked if they liked popular music and listened to it in their daily lives. Student D immediately said that she favoured Korean popular music and Western popular music. Student A liked Korean popular music, while student B enjoyed Cantonese popular music. All students hoped to have more popular music materials included in their school music lessons.

The following questions were about the *Sing by Ear* a cappella project. Students were asked about how they made decisions about and practised the song they had chosen:
Student A: As all of our groupmates like Korean popular music and BLACKPINK, so we chose a song from them. We sang along with the YouTube recording and practiced many times.

The students were asked if there were other music elements that they picked up other than the melody part:

Student B: We picked up the background music and sang the part. We also picked up the percussion part and tried to use some of our tools to create the beat.

Student C: We created a few versions of the background music by our voice.

Student A: We tried different instruments or tools to develop the percussion beat to find a better performance. We have been attempting a metal pencil case or some pens.

Student C: We also tried a soft pencil bag stuffed with some pencils. We found out this version can create a sound similar to drums. The process is interesting.

When the students were asked to comment on the informal learning mode:

Student A: I feel our group was doing good, as we can do our research on the pieces and we can use our creativity. We have learnt a lot from this project. We have a chance to create our idea and not just follow instructions from teachers.

The next part of the interview concerned self-value. The students were asked if they had learnt any new skills in this project:

Student B: I have learnt the skill to create a music video. And we have to match the sound with the visual image.

Student C: I have learnt how to make music with different sounds. Different materials create different tones. And also the feeling of rhythm.
Regarding peer interaction, students A and C admired the rapping skill and the musicianship of Student D:

**Student A**: I think student D is very good at rapping. I have learnt from her.

**Student C**: I think student D is outstanding in rhythm.

**Student A**: We have acquired some singing skills. We can sing better next time.

The students shared their skills and learnt from each other. All the students reported that they had enjoyed the project and felt satisfied with a good outcome:

**Student A**: In this COVID-19 situation, we can only use the a cappella app for the piece, and we felt challenged at first. We feel delighted after we tackling the problems and finally can see our work done.

**Student D**: We have recorded a few versions for better results. I was happy to see our groupmates worked so hard, and in the end we created good music and good result.

The students had fun when they solved their difficulties, worked together and created good results. They relished working as a group to share more creative ideas, offer help to each other, and solve problems more efficiently. They also felt more confident in creating music and trying out new ideas:

**Student B**: I was happy to have all my friends work and solve problems together.

**Student A**: It was so good to work as a group to have more creative ideas, and we can solve problems quickly when we have difficulties.

**Student C**: We offered help to each other.

**Student D**: We learnt from and advised each other.

**Student A**: I am more confident to try out new ideas.

In summary, the students from Case 3 were all instrumental learners. They loved popular music, especially Korean popular music and the music group
BLACKPINK. They enjoyed the informal learning in the *Sing by Ear* a cappella project, and they hoped to have more popular music materials in the future school music lessons. During the project, they listened to a recording on YouTube and learnt the parts by ear. They have created new percussion sounds by using a pencil bag. After the project, they commented that they enjoyed the activity, working with peers, and learning how to solve problems together. They also reported that they were more confident working with others in creating music.

Note: The BLACKPINK is a Korean music group comprised of four young Asian females, with their debut in 2016 (Zhao, 2021). The group features their talent in dancing and their dynamic Korean popular songs. Global success and international popularity were been gained with the group’s performance headlining in Coachella in 2019 (Solomon, 2021).

5.1.4 Student Case 4

Case 4 consisted of four students in their group project. Background information such as age group and musical instruments learning experiences were obtained. All of the students in Case 4 were 12 years old. Student A had been learning the violin for 6 years and the clarinet for 3 years. Student B used to study piano. He is now learning singing and has been studying this for 3 years. Student C is not an instrumental player, and he has never learnt any instruments. Student D is a self-learner. He has been studying piano online by himself for 1 year.

The students were asked about their music listening habits:

**Student B:** I like listening to music. It makes me happy after listening to music.

**Student A:** I also feel happy after listening to music.

**Student D:** I like listening to music, but I do not like singing.
**Student C:** I often listen to music, especially when I feel stressed, and I would sing along with the popular songs.

The students were asked about their music preferences:

**Student C:** I listen to all kinds of music except Korean popular music.

**Student A:** I usually listen to classical music.

When the students were asked how they felt about formal music lessons at school:

**Student C:** Music lessons were generally enjoyable and less stressful than other subjects.

**Student B:** I want more singing elements in music lessons.

The students were then asked if they liked popular music and wanted to include it in school music lessons. Student B showed a positive response, while Students A and C felt it was unnecessary.

The following questions were about the *Sing by Ear* a cappella project. The students were asked how they came up with the song they had chosen and how they practised it:

**Student B:** We have a few discussions and found a suitable piece for our voice ranges.

**Student A:** We listened to the recording on YouTube many times.

**Student C:** We followed YouTube and sang along.

**Student A:** We use our ears to learn and memorise the music.

In terms of creativity, student A explained that they created the harmony section and rhythmic sections:

**Student A:** We have added some beat sections and harmony sections. The harmony part is created on our own, and it was a random accident. One time, I sang the pitch wrongly
for the melody, but then I discovered the pitch is quite good for harmony part. After trying out a few more times, we employed it as the harmony part.

When they were asked to share their thoughts on informal learning:

**Student B:** I think it was excellent. It was fun, and we could control over what we wanted to try out.

**Student A:** I think it is good too. However as now we are in the COVID-19 situation, we did not have much chance to meet and discuss our music face to face. I think meeting face to face would be more efficient. In the end, we can record our work online.

The next part of the interview concerned their self-value. The students were asked if they had learnt any new skills or experienced any improvement in this project:

**Student A:** I learnt to use technology to create music.

**Student B:** I think I have improved my singing. Before I send my recordings to my groupmates, I have to listen to them before and see if there are any points that I can sing better. So I have learnt to be self-critical and improve on my own.

**Student D:** I feel my sense of rhythm has improved.

The students were then asked if they had enjoyed the project and wished to have similar activities in the future:

**Student B:** I hope to have similar activities in the future. However we could spend more time and making the music better next time.

**Student A:** I enjoyed working with my friends and learning from each other.

**Student B:** I loved to work with my friends because we could share different roles and be responsible for various tasks according to the strengths of the groupmates.

Students were asked if they felt satisfied after the project:
Student A: Although our work was far from perfect, we tried our best and had fun. We enjoyed the process.

Student D: We experienced some technical problems when using Zoom to communicate, but we figured out the solution.

In brief, students from Case 4 had different views on popular music, but they all felt happy after the project. They have shown the ability to be self-critical, reflect on their performances, and make improvements. They experienced satisfaction after overcoming difficulties in the process and enjoyed working as a group.

5.1.5 Student Case 5

Case 5 is composed of four 13-year-old students in their group. Student A studied Dizi for 4 years, but she was no longer learning. Student B had not studied any musical instruments. Student C has been learning the piano for 9 years and the Erhu for 7 years. Student D had been learning the violin for 7 years.

The students were asked about their music listening preferences:

Student D: I usually listen to Mandarin popular songs when I am doing homework or studying. I recently also listened to Korean popular songs.

Student B: I also like to listen to popular songs while doing homework and studying, and sometimes after dinner. I listen to many kinds of music, like electronic dance music, popular songs, and Korean popular songs.

Student A: My brother often listens to classical music, so I will join him when he listens. But I did not enjoy it so much.

Student C: I sometimes listen to classical when I revise.

When the students were asked how do they felt about formal music lessons at school:
Student C: It is not dull, but I feel it is too serious. Music should be exciting, fun and relaxing, and with more activities.

The students were then asked if they wanted to include more popular music in their music lessons and all students assented.

The following questions were about the a cappella project. The students were asked about how they selected and practised the song they had chosen:

Student C: One of our groupmate suggested this piece, other groupmates found it quite good and capable to sing, so we decided to use it.

Student D: Apart from the original version with the singer singing, we also listened to the version without the singing with just the accompaniment to come up with the harmony and percussion parts.

Student A: We listened to the piece many times and sang along during the practice.

Student B: We learnt the piece and memorised the music by ear.

Students were asked to comment on the informal learning mode:

Student D: I feel like I am more interested in the lessons, as I can choose the pieces that I like and like to work with my friends. I think I am more interested in music too.

Student C: In the formal music lessons, we just learnt a few songs and sang a few, which seemed boring to me. Now, this activity is more interesting. I had a fun time.

The next part of the interview concerned their self-value. The students were asked if they had learnt any new skills in this project or any areas in which they could improve:

Student C: I think our rhythm section was quite good, but our singing part could be better. We need more time to practice.
**Student A:** I think we have known each other more. Each groupmate has their strength and weakness, so we can always learn from each other.

All the students reported having enjoyed the group project and feeling satisfied with their hard work, although they felt there were some areas where they could improve:

**Student C:** I enjoyed the project. But I think we can do better and there are many points that we can improve. I think we have room to improve next time. I enjoyed to work with my friends during the process, though.

When the students encountered difficulties, they fixed the problem by shifting their roles and arranging the person with the best ability for the particular part:

**Student C:** It was hard to make our voices to harmonise, as we all have different voice qualities, so we have to discuss and practice more. Then we have to shift our roles to try and see which person to sing which part is better.

The students also felt more confident in singing and making music after this project:

**Student C:** As this is the first time to have a group music project in secondary school life, we can have a chance to learn from each other, and the lessons can be more enjoyable.

**Student D:** I feel more confident singing in front of others.

In summary, students from Case 5 enjoyed popular music. They learnt and practised the chosen piece by ear. The students enjoyed self-directed music lessons and felt more interested in music when they had more freedom in what they wanted to learn. Students commented that they liked to work with their peers, and they have learnt how to solve problems together.
5.1.6 Student Case 6

Case 6 is made up of four students in their group project. Students A, C, and D are 13 years old, while Student B is 14 years old. Student A has been playing percussion instruments in a band for 6 years. Student B has been playing the trumpet for 6 years. Student C used to play the ukulele for 1 year, but is no longer playing. Student D does not play any instruments, and he has never learnt any instruments.

Students were asked about their music listening habits:

**Student B**: I usually listen to music when travelling to school by train or by bus.

**Student C**: I often listen to music during my free time, but I cannot memorise them.

**Student A**: I also listen to music during my free time.

**Student D**: I listen to music whenever I feel like it.

Students were asked about their musical choices. Student A explained that he listened to different kinds of music, whether popular songs or the classical canon. He usually surfs YouTube and shuffles the playlist. Student C replied that she favoured Korean popular music. Students B and D agreed with each other and reported that they prefer Western popular music. When the students were asked about their experiences with formal music lessons at school, students B and D said that music lessons were relaxing but not fun. Students A grudgingly added that music lessons at school were not fun, but they did not have much homework and examinations for this subject.

The students were then asked if they wanted to include popular music materials in school music lessons:

**Student B**: Absolutely. We usually have classical music in school music lessons, and they are boring.
Student C: Since we have already learnt classical music in school music lessons since primary school. It has been 6 years already. So it must be interesting to have something new.

Regarding the Sing by Ear project, students were asked how they learnt and practised the piece. Student A explained that their groupmates went on YouTube, listened to the recording, and sang through the music to practise. Student B agreed and added that they spent much time practising.

Students were asked if they had learnt any new skills or experienced any improvements after the project:

Student C: I think I am better at singing, with better intonation and rhythm.

Student D: Although I have never learnt any instruments, I feel the rhythm and try to follow my groupmates’ work.

Student A: I have learnt how to arrange a popular song and the harmony section.

Student B: I have learnt the structure of a popular song like we have the melody, the rhythm drum section, and the bass sections.

The group was asked how they had memorised the song and created new elements for the original piece. Student B described that they had practised along with the recording and learnt it by ear. Student A showed how that they had made a new whistle line to the music, while student C remembered that the whistle part was fun.

Students were asked to share their thoughts on informal learning:

Student A: I think it was good as we can choose something we are interested to learn.

Student B: We have to be more disciplined on our timeline and progress.

Student D: It was good that we had the freedom to express our ideas and try out the ideas we created.
In terms of self-value, students were asked if they had learnt any new skills or experienced improvements in this project. Students B and C expressed that they found this project fun. Although they encountered some technical issues, they were glad that they finally solved them by themselves.

When asked if they had enjoyed the group project, student A enthusiastically responded that he had enjoyed it. Student C added that their groupmates were always so energetic about the project. They had so many ideas and spent time discussing everyone’s thoughts.

Students were asked if they felt more confident after the project and if they wanted similar activities in the future:

**Student A:** Definitely.

**Student B:** I feel good after finishing the project.

**Student A:** We had more fun in group projects. We did not need to read the theory from books, and we enjoyed the activity.

**Student C:** We enjoyed the activity with our peers instead of doing homework alone.

Students in Case 6 learnt the structure of a popular song: melody, rhythmic section, and bass. They learnt the piece, practised it, and memorised it by ear. They enjoyed group activities, working with peers rather than working alone.

5.1.7 **Student Case 7**

Case 7 comprised four 13-years-old students in their group. Student A had never learnt any instruments before but had recently been learning some ukuleles by herself. Student B is a pianist and guitarist. She has been learning the piano for 8 years and guitar for 3 months. Student C was a French horn player, but he had quit
some time ago. Student D plays the erhu, piano, and violin. He played erhu for 8 years, piano for 7 years, and violin for 4 years.

The students were then asked to share their music listening habits and preferences:

**Student D:** I love music. I usually listen to music when I travel to school and back home. I sometimes listen to music when I am doing homework. I also practice my instruments when I have free time.

**Student C:** I usually listen to music when I am doing homework. Also, I listen to music when I take transportation. I love electronic dance music.

**Student A:** I often listen to music during my free time.

**Student B:** I also listen to music when I am free or doing homework. After practising my piano, I usually pick out some pop songs that I listen to and try to play on the piano.

When asked how they felt about formal music lessons at school, student A mused and explained that music lessons were less stressful than other subjects and quite relaxing. Student C agreed with student A’s statement and revealed that the lessons were at the same time quite dreary. Student D agreed. All students showed positive responses when asked if they wanted to include more popular music in their music lessons.

Regarding the a cappella project, the students were asked how they had selected and practised the song they had chosen. Student C giggled and explained that, they had picked up a Christmas tune after spending a whole lesson on the discussion. Student A explained that they searched for the a cappella versions on YouTube of the piece they chose, listened to a few versions, and figured out the voice parts. Students B and D stated that they also practised with YouTube recordings and sang along. Student C said that he already knew the piece before this project, but as
practice, he added the piece to his usual playlist, listened to it often, and refreshed his memory.

For the harmony and accompaniment sections:

**Student C**: I imitated the percussion section in the piece. We discussed the possibility of adding percussion instruments to our piece.

**Student A**: We listened to some recordings, tried to find some tools with similar sound effect and tried with our piece.

**Student D**: The original piece has no harmony section, but we have followed some other a cappella recordings, modified them and added them to our version.

Students were asked to comment on the self-directed learning mode:

**Students A**: I think it is fun.

**Student B**: It is fun, as I always love music.

**Student D**: Formal lessons are rather boring. This learning mode is more exciting and makes me want to learn and participate more.

**Student C**: This is better than the usual music lessons. It is different from the normal lessons and I like it. It allows me to participate more and involve more in the activities.

The students were asked if they had picked up any new skills during this project:

**Student B**: I have learnt the structure of popular songs. I have never listened to the background parts or the harmony parts. I focused on the melody. But after this project, I also focus on the instrumental parts of the song. This activity allows me to learn about the piece with more depth and layers.

Students were also asked if they liked to work with peers or alone:

**Student A**: Yes, we can ask the groupmates to help solve some problems together when I cannot solve them alone. I can also help others when they needed.
**Student D:** It is more fun when we can interact with friends. We can share more ideas.

**Student C:** It allows us to be more creative when we work together as we can have fun and discuss.

**Student B:** With peer learning, we could have different voices and ideas from more diverse perspectives.

When asked if they had encountered any difficulties, Student A reported that they were mainly technical problems regarding recording and editing.

In terms of self-value, Student B chuckled and said that she felt more confident in playing music and singing in front of people. Student D agreed and explained that he used to be shy and would play music when alone, but he is now more assertive in sharing music with friends. All students agreed that the activity was enjoyable, and they would like to have more group and self-directed learning activities in the future.

In brief, students from Case 7 love music. They liked school formal music lessons, but at the same time felt a little bored. In the project, they learnt and practised the chosen piece by ear while imitating other a cappella versions for creative ideas. They enjoyed working in groups for more interactions and ideas. They all had enhanced self-value after the project.

**5.1.8 Student Case 8**

Case 8 comprised four 13-year-old students. Student A has been a pianist for 5 years. Students B and D have never played any instruments. Student C has been learning the violin and flute, both for 6 years.

The students were asked if they loved music and about their preferences concerning music types and music listening habits:
Student A: I love music. I always want to listen to music. I like popular music, especially Korean popular music. I usually listen to music when I have free time, like travelling to school or having lunch.

Student C: I also love music. I always bring with me my earphone. I listen to music all the time. When I am stressed about my studies, I listen to music to release stress.

Student D: I like Korean popular music. I dance and sing along with the music.

Student B: I like Cantonese and Mandarin popular music.

The students were asked to share their views on formal school music lessons. Student A replied that music lessons in school were less serious than other subjects, so she felt comfortable with it. Student B agreed. Student C suggested that the lessons would be more enjoyable if they could decide the materials they wanted to learn. Student D added that if the lessons could have more diversity and different kinds of music, they would be more attractive.

After that, the students discussed the a cappella project. Student C explained that their groupmates picked a familiar song for the project. Student A further explained their way of practising:

Student A: We paired our groupmates two by two. We sang our parts to each other and let the other listen to us to check if we sang correctly or if our pitches were accurate or not. Then we practice altogether again and then with the rhythm part.

Student C: We discussed which of our groupmates to sing which part. We have to try our voice ranges to see who is more suited to sing high pitches or who is more suited to sing the harmony parts.

Student D: We added a harmony part.

Student B: We created the harmony part by ourselves. We listened to the original recording, followed the pitches of the background music, and modified it a little bit to make our harmony section.
Speaking about the practice methods, Student C explained that they sang along with the recording and memorised the tune. For the rhythmic section, they created the beat for snapping fingers.

The students were then asked to share their opinions on the self-directed learning mode:

**Student C**: We have more freedom and choose the pieces we like. We feel more relaxed and also more interested in it.

**Student A**: It was exciting. We feel more devoted to the project and more engaged in the practices.

Apropos of peer learning and peer interaction:

**Student A**: My groupmates inspired me when I saw everyone was working so hard to practise.

**Student D**: Some of our groupmates are better at music, so we can seek advice from them to let us know which part we are more capable of singing, and also they can tell us if we are doing it correctly or not. I learn more about music, as I have never learnt any instruments before. They taught me how to create harmony and chords.

Concerning self-value and self-satisfaction, the students were keen to share their thoughts:

**Student A**: We were delighted with our product. We feel so good that after we spending much time practising and discussing, we finally can come up with a piece that we created and recorded a video. Although it was not perfect, we have learnt the skill and we can do better next time.

**Student C**: I think most of our schoolmates are not music experts in our school, and this is the first time to learn about a cappella for most of us. The teacher has provided us with
some guidance, which allowed us to do more research by ourselves and made us more eager to learn more about it.

**Student B**: As we wanted to make our song better, we visited YouTube to search for a cappella version of our song. We learnt from other versions and tried to make our version better. We are more willing to learn by ourselves.

Moreover, all students felt more confident in singing and creating music after the project. Regarding peer interactions, Student D suggested that, when working with peers, they had more fun and sparked more ideas and thoughts. Student C mentioned that they gained friendships; they learnt from each other and had more motivation to learn.

In short, students in Case 8 enjoyed the project a lot. They favoured popular music, especially Korean popular music. The students wanted more diversity in school music lessons. During the project, they were critical of themselves and figured out ways to practice. They created their harmony section and rhythmic sections, which were their ideas. They appreciated the self-directed learning mode, which allowed them to share more creative ideas and do their research. After the project, they learnt music skills and made friendships among their groupmates. They also had more confidence in music and more motivation to learn.

5.1.9 **Student Case Nine**

Case nine consisted of three 13-years-old students and one 14-years-old student. Student A had studied piano for 3 months 5 years earlier. Student B has been a clarinet player from the age of 9, and Student D has been a violin player since she was 8 years old. Student C had never learnt any musical instruments.
Students were asked if they loved music and about their music listening habits. Student A replied that she did not have a specific time to listen to music. It was predominantly random. She would sing along with the songs that she heard often. Student B shared that he usually listens to music in the shower. Student C revealed that she listens to music when she feels sad. She cries along with the tune when she feels sad to release her feelings. She also shared that she favoured popular music, especially Japanese and Korean popular music. After that, the students were asked to share their opinions on formal school music lessons. Student A revealed that she did not like classical music. Student B agreed and replied that music lessons in school were boring, as they would only learn classical music. Student D expressed that she wished there was knowledge about Korean popular music or other popular music in school music lessons.

The conversation then shifted to the contents of the a cappella project. Student C explained that their groupmates discussed and decided on the piece. Regarding practice, Student B accounted that the music was entirely new to him:

Student B: It was a new song to me. I listened to the recording and sang along many times to memorise the tune and the lyrics.

On creativity, Student D voiced that they created the harmony section:

Student D: I listened to the original recording over and over and discovered some background tunes. I imitated, vocalised, and modified a bit of the tune, and it became the harmony part.

Student C: We produced a percussion section by trying to beatbox and making sounds using some metal cases and pens.

Student B: I was the beatboxer in the group. I researched beatboxing and the beat patterns online, and then I watched some videos and taught myself some beatbox skills.
Student C: The self-directed learning mode was more appealing and more interesting than just learning classical music.

The students shared their views of the self-directed learning and peer learning:

Student B: I enjoyed choosing our piece with more autonomy in learning. This learning mode allowed me to be more involved in doing the research and motivated to learn.

Student A: Student D taught me about harmonising melodies.

Student C: Student A led me in singing.

Student B: I shared knowledge of beatboxing with everybody after doing the research.

Student C: I enjoyed the group project, and we could share our creative ideas, which sparked further ideas during the discussions, resulting in a wealth of ideas.

Student D: We provided comments to each other, which were critical and self-reflected during the process.

When it comes to self-value, Students B and D concurred that they felt satisfied after the project. Student B additionally explained that, although the process was not as easy, they tried hard to solve problems. They searched for answers online, spent time discussing with their peers, and finally solved the problems. Student A said that she felt more confident with singing as she had improved after practising, while Student B revealed that he became braver when needing to beatbox in front of others.

To conclude, students in Case 9 had a good time with the project. They preferred more popular music in school music lessons than classical music. They were motivated and more eager to learn by themselves during the project, as they felt more autonomy regarding what they wanted to learn from the project. They created their harmony and beatbox sections after reviewing the original recording and online research. The students also welcomed the self-directed learning mode, which sparked more creative ideas during their peer discussions. In addition, they expressed joy in
peer interactions and felt they had gained knowledge from each other. All students
commented that they have more confidence in themselves and have become more
motivated to learn.

5.2 Cross-case Analysis

The nine student cases are presented as a narration that entwines together the
student groups’ voices on music, formal school music lessons, the Sing by Ear
project, and thoughts on motivation and self-value after the project. The interview
data served to obtain complementary information that the qualitative SDT survey
cannot reflect and to investigate students’ feedback on the project further. In line with
the students’ voices, similar experiences were shared. The following section of this
chapter presents themes from the cross-case analysis. The cross-case matrix can be
found in Table 5.3.

The cross-case analysis provides a classification of themes developed from the
nine student cases described above. Themes and keywords are generated from the
data of the nine student cases by data reduction, data reorganisation, and data
representation (Barbour, 2014). Theoretical concepts and themes from the current
literature are listed for the deductive coding process (Linneberg & Korsgaard, 2019).
The themes and keywords condensed were drawn together for pattern matching
(Glaser, 1965; Kitzinger, 1995; Corbin & Strauss, 2014; Boeije, 2002; Freebody,
2003, Flick et al., 2004). The codes were then categorised for discussion and
explanation building (Creswell & Poth, 2018). Similarities between the data were
classified for comparison to reveal the relationships among the cases. Patterns
discovered were then categorised to establish the analysis framework. The student
cases generated seven themes: popular music education, learn by ear, creativity,
informal learning, musicality, peer interaction, and, lastly, self-confidence and satisfaction.

5.2.1 Popular Music Education

Students from all nine cases mentioned their affection for popular music. In particular, students in Cases 1 and 3 expressed that they favour Western popular music. In contrast, Cases 2, 3, and 5 referred to their interests in Korean popular music. In Cases 1, 2, 3, 5, 6, 7, and 9, students preferred more popular music materials in regular school music lessons. In Case 4, students revealed that they listen to popular songs and sing along when they feel upset. Students in Cases 6 and 9 stated their loathing for classical music in school music lessons.

5.2.2 Learn by Ear

Students in all cases mentioned that they listened to their chosen recording many times, sang along to practise, and memorised the piece by ear. In Cases 1, 3, 5 and 7, students also imitated the percussion parts in addition to the main melody. Students in Cases 3 and 5 indicated that they listened to the instrumental background music of their chosen pieces and looked for the harmonies. All students specified that they did not take any notes to memorise the song. They learnt the music all by ear.

5.2.3 Creativity

Regarding creativity, students added new elements to their projects over the original version of the songs. In Case 1, the students created maracas with rice. In Case 2, the students created a new harmony line over the melody. Students tested different school supplies to recreate the percussion beat and experimented with their
voices in Case 3. In Case 4, the students created the harmony and rhythmic section. Students from Case 5 modified the original rhythm and melody to create the new harmony. In Case 6, the students created a whistle section as an embellishment. Students from Case 7 explored creating percussion section using some tools and created their harmony section by modifying the original harmony. In Case 8, the students created harmony and a beat to perform by snapping their fingers. Lastly, in Case 9, students created the harmony, the percussion sections with some metal boxes and pens, and the beatbox section. All groups exhibited music creativity in the learning and trial processes.

5.2.4 Informal Learning

In terms of informal learning, students in all cases enjoyed expressing their ideas and not just following teachers’ instructions during the learning process. In Cases 2, 3, 4, 6, and 9, students mentioned that they had more space and freedom in this learning mode, allowing them to develop their creativity and try out more ideas. In Cases 3, 4, 5, 7, 8, and 9, the students articulated that the process was enjoyable in an informal learning setting. They felt more interested in learning and are more engaged and motivated to research music.

5.2.5 Musicality

Students in all cases showed a sense of musicality. Students in Cases 1, 4, 6, and 7 observed the structure and production of a popular song. In Cases 2, 4, 6, 8, and 9, students indicated experiencing enhancement in musicianship: rhythmic sense, aural skills, singing skills, and music theory knowledge. Students in Cases 4 and 5 said that they became more critical of their music performances.
5.2.6 Peer Interaction

In this group learning project, students in all cases reported enjoyment in working and creating music with friends. Students from Cases 2, 3, 5, 8, and 9 had shared and learnt different skills. They exchanged ideas and produced more creative connections. When facing difficulties, students in Cases 2, 3, 4, 5, 7, and 8 offered help and sought advice from each other. They learnt to use the person with the most suitable ability and solve problems more efficiently.

5.2.7 Confidence and Satisfaction

Students in all cases reported increased confidence in creating music and in singing. They felt more secure trying out and sharing new ideas with others. They experienced satisfaction with the final product after having spent effort on the project. Students in Case 9 mentioned that they could improve next time as they had already acquired the related skills.
Table 5.3

The Cross-case Matrix

<table>
<thead>
<tr>
<th>Case/Theme</th>
<th>Pop Music Education</th>
<th>Learn by Ear</th>
<th>Creativity</th>
<th>Informal Learning</th>
<th>Musicality</th>
<th>Peer Interaction</th>
<th>Confidence and Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>• Love western pop, • Classical music is rather boring • Want more popular music in music lessons</td>
<td>• Listened to the recording many times to practice • Imitated main melody and drums</td>
<td>• Created maracas by using rice</td>
<td>• Can have own ideas • Not just following guidelines from teachers</td>
<td>• Enjoy peer interaction and create music together</td>
<td>• Feel more confident in creating music • Feel more confident in singing and share ideas with others</td>
<td></td>
</tr>
<tr>
<td>Case 2</td>
<td>• Favours Korean popular music • Want more popular music in music lessons</td>
<td>• Listened many times on YouTube, sang along to practice</td>
<td>• Created harmony line</td>
<td>• Can express own ideas • Can choose the piece they want to learn</td>
<td>• Learn to create music videos • Improved singing skills and rhythmic sense</td>
<td>• More confident in singing and creating music</td>
<td></td>
</tr>
<tr>
<td>Case 3</td>
<td>• Love Korean, Western and Cantonese popular music • Want more popular music in music lessons</td>
<td>• Listened to the recording on YouTube • Pulled up the background music and sang the instrumental part • Imitated the percussion by ear</td>
<td>• Created harmony and rhythmic section in the trial process</td>
<td>• The trial process was interesting • Love to do research • Elaborated creativity, not just following instructions from teachers</td>
<td>• Learn to self-criticise and perform music</td>
<td>• Feel more confident in creating music and trying new ideas</td>
<td></td>
</tr>
<tr>
<td>Case 4</td>
<td>• Listen to popular songs and sing along when they feel upset</td>
<td>• Listened to the recording on YouTube • Learned and memorised the piece by ear</td>
<td>• Created harmony and rhythmic section in the trial process</td>
<td>• Fun and could control on what they want to try out</td>
<td>• Enjoyed peer interactions • Understood that everyone has own strength so the peers can assign the task for the best person</td>
<td>• Feel satisfied when the music product is finished</td>
<td></td>
</tr>
<tr>
<td>Case 5</td>
<td>• Love Korean popular music, Mandarin popular music, electronic dance music • Want more popular music in music lessons</td>
<td>• Listened to the recording and practiced • Listened to the instrumental background music to look for harmony and percussion elements • Memorised by ear</td>
<td>• Modified original rhythm and melody to become the harmony section</td>
<td>• Feel more interested in informal learning lessons • Able to choose the pieces they like • Can enjoy music more</td>
<td>• Understood and learnt from each other more • Fixed problems by shifting roles and arranging the person with the most suitable ability</td>
<td>• Feel satisfied with their hard work • Feel more confident to sing and make music</td>
<td></td>
</tr>
<tr>
<td>Case 6</td>
<td>• Favours popular songs • Want more popular music in music lessons • Classical music was boring • Want something new in lessons</td>
<td>• Listened to the recording and sang along • Memorised by ear</td>
<td>• Created a new whistle part</td>
<td>• Can decide what is interesting to learn • Have the freedom to express and try out ideas</td>
<td>• Improved singing skills, information and rhythmic sense • Can feel the rhythm and improve musical sense even for non-instrumental players</td>
<td>• Enjoyed group project • Enjoyed discussing everyone’s ideas</td>
<td>• Feel satisfied after the project</td>
</tr>
</tbody>
</table>
From the cross-case analysis, seven themes are identified: popular music education, learn by ear, creativity, informal learning, musicality, peer interaction, and,
lastly, self-confidence and satisfaction. The seven themes can be further categorised to explain the cross-relationships between the themes.

5.2.8 Popular Music Education, Learn by Ear, and Musicality

In the learning process of popular music education, students employ the aural approach: to listen and mimic what they hear without reading music notations. With this learn-by-ear approach, students are more alert to what they hear, and learn more independently. Learning by ear fosters the development of the internal tonal centre, including pitch, melodic contour, rhythm, harmony, instrumentation, and popular music structure. Student interviews reported the experience of musicality, and participants felt it was easier to create and make music by themselves.

5.2.9 Popular Music Education, Informal Learning, Peer Interaction, Creativity

In this popular music education programme, an informal learning approach is employed in which the programme is a more flexible curriculum to accommodate students’ needs and interests. Students are encouraged to explore their areas or songs of interest in the semi-structured lessons to complement the necessary guidance from the music teacher. Peer interaction is another crucial element of this programme. Students formed peer groups to work on the a capella project. They worked and shared ideas that inspired creativity. In the flexible informal learning setting, students’ interactions and creativity are shared and promoted.

5.2.10 Musicality, Peer Interaction, Self-confidence, and Satisfaction

Some of the students’ interviews mentioned their experience in aspects of musicianship, such as singing skills, music theory knowledge, and sense of rhythm.
These skills helped them to create music and share music with others with more confidence. Many students also remarked that they felt satisfied with their music products after working with their peers. They worked as a group, solved problems together, and created a music product in which everyone enjoyed the process, gained knowledge, and felt satisfied. Students also reported that they felt favourable towards this learning programme and felt more motivated to learn.

The above cross-case matrix shows the relationship found between the seven themes: (1) elements of popular music education and learning by ear fosters musicianship, (2) popular music education with the informal learning practice in the Sing by Ear project encourages peer interaction and sparks creativity, and (3) the process of peer learning and learning outcome in aspects on musicianship cultivate self-confidence and satisfaction.
Chapter 6
Discussion

This study explored the possibility of including popular music education in the current music curriculum. An informal teaching approach, *Sing by Ear*, was created that allows learning popular music in a classroom setting. Students’ responses were surveyed to examine their perceptions of popular music education, the informal approach, and aspects of musicianship. In music education, educators are concerned about students’ motivation levels, as they tend to become frustrated with learning across time and levels. The current study examined students’ reception of popular music education and their motivational responses using the self-determination theory (SDT) as a theoretical model. Self-determination theory provides a theoretical framework to observe students’ motivation, especially in relatedness, competence, and autonomy of basic psychological needs, which are the essential elements for quality intrinsic motivation (Deci & Ryan, 2008; Evans, 2015).

Surveys were distributed to the students to examine their motivation levels. The self-determination survey instrument was obtained from Schatt (2013) and modified by the researcher. Student interviews were conducted for further qualitative case studies to explore aspects on the informal learning process and on musicianship. Data collected from the students (n = 323) addressed the following research questions:

1. What degree of self-determination do the students report in formal school music lessons?
2. How does motivation changed, based on SDT, after implementing the *Sing by Ear* approach?
3. Are there any differences in students’ motivation levels by (a) gender, (b) grade level, (c) instrumental background, and (d) span of instrumental learning?

4. How do the informal learning practice and learn by ear approach affect the learning process and musicianship in the Sing by Ear project?

6.1 Response to Research Question One

In response to research question one: What degree of self-determination do the students report in formal school music lessons?

The pre-test survey results indicate that students tended towards items in the Amotivation domain in the SDT continuum as the highest level of agreement towards formal school music lessons ($M = 20.21, SD = 3.77$). The Amotivation domain indicates that the individual lacks the purpose to fulfil a task (Deci & Ryan, 2000b; Schatt, 2018). Four items in the survey asked whether students had good reasons and clear goals in music lessons. The items include: 25 (I used to have good reasons for making music, but now I am asking myself if I should continue); 26 (I don’t know anymore. I have the impressions that I am not able to be successful in music); 27 (It is not clear to me anymore. I don’t really think I enjoy making music); 28 (I often ask myself why I make music. I can’t seem to achieve the goals that I set for myself).

The high level of agreement in the Amotivation items indicates that students are neither motivated by internal nor external factors and lack purpose in formal music lessons. From the survey results for items 25 and 26, students generally showed disinterest in formal music lessons with solely Western classical music content.

Furthermore, according to the focus group interviews, students reported that they
experienced monotonous music lessons. Students in Case study 1, Case 6, and Case 9 reported that they do not appreciate music lessons as it was mainly classical music and dreary. They mentioned that the music teacher merely taught music theory from the book, and that there were no chances to play live music in formal music lessons.

Other than the Amotivation domain, students rated the Intrinsic Motivation—To Experience Stimulation as the second-highest level of agreement ($M = 13.49$, $SD = 4.39$). This domain is associated with students’ desire to encounter positive emotions in the process (Deci and Ryan, 2000b; Schatt, 2018). Four survey statements collected information on students’ aspirations of enjoyment during the music lessons. These items include: 9 (I enjoy exciting experiences); 10 (I feel excited when I am really involved in the project); 11 (I feel strong emotions when I make the music that I like); 12 (I like the feeling of being totally into the project). A high level of agreement indicates that students generally enjoy music. They desire excitement and involvement during lessons. From the interviews, students in Case 5 stated that they would like to have more exciting music activities in their formal music lessons.

The third rank goes to the domain of Intrinsic Motivation—To Accomplish ($M = 13.36$, $SD = 4.25$). This domain focuses on students’ desire to be succeed when they engage in a formidable task (Deci & Ryan, 2000b; Schatt, 2018). The four items include: 5 (I feel really good about myself when I get better at musical skills); 6 (I enjoy it when I improve some of my weak points); 7 (I experience satisfaction while I am perfecting my abilities during the project); 8 (I enjoy it when I perform certain skills that I could not do before). A third rank indicates that students’ stances towards accomplishing tasks in music lessons or enhancing music abilities are ambiguous. Students have doubts about taking up challenging tasks or improving themselves.
Students ranked the Extrinsic Motivation—Identified domain fourth out of the seven domains ($SD = 13.17$, $SD = 4.18$). This domain points to students’ instincts to contemplate an activity as valuable (Deci & Ryan, 2000b; Schatt, 2018). The four survey items include: 13 (In my opinion, it is one of the best ways to meet people); 14 (It is one of the best ways I have chosen to develop other aspects of myself); 15 (It is a good way to learn many things that could be useful to me in other areas of my life); 16 (It is one of the best ways to maintain good relationships with my friends). A neutral level of agreement indicates that students are uncertain about having formal music lessons and musical growth.

Students ranked the Extrinsic Motivation—Introjected domain as the fifth of the seven domains ($SD = 13.06$, $SD = 4.02$). This domain refers to the introjected regulation that the participant is contingent on the value others place on the activity (Deci & Ryan, 2000b; Schatt, 2013). The four survey items include: 17 (It is absolutely necessary to be in the project if I want to be musical); 18 (I must be involved in the project to feel good about myself); 19 (I would feel bad if I did not join the project); 20 (I need to make music regularly). A relatively low level of agreement suggests that the students join the activity because others ask them to, and they would not be missing much when they could not meet the standards of their teachers or peers.

The second-lowest ranking among the seven domains was the Intrinsic Motivation—To Know domain ($M = 13.03$, $SD = 4.07$). This domain focuses on students’ self-confidence and desire to learn new skills (Deci & Ryan, 2000b; Schatt, 2018). The four items include: 1 (I enjoy knowing more about the song I sing); 2 (I enjoy discovering new music skills); 3 (I enjoy it when I learn new musical skills that I have never tried before); 4 (I enjoy discovering new ways of performing music). A
low level of agreement indicates that students are generally disgruntled about learning music, and they have little desire to join the activity for their own satisfaction.

Students ranked the Extrinsic Motivation—External Regulation domain at the lowest level of agreement ($M = 12.76, SD = 3.70$). This domain refers to an individual’s attitude towards external factors when achieving a task (Deci & Ryan, 2000b; Schatt, 2018). Four survey items collected information on students’ perspectives on the recognition and reputation of being good at music. The four items include: 21 (It allows me to make a good impression of the people I know); 22 (It is good to have the reputation of being a musician); 23 (People around me think it is important to be a part of the project); 24 (I feel happy to show others how good I am at music). A low level of agreement indicates that students were not concerned with the verdicts and opinions of others. Also, judgements from others would not affect their music-making.

6.2 Response to Research Question Two

In response to research question two: How does the motivation change, based on SDT, after implementing the Sing by Ear approach?

Information on the self-determination for the Sing by Ear project was obtained from the results of the post-test surveys. The mean scores of all the domains from Intrinsic Motivation and Extrinsic Motivation are close, and lie on the top ranges of the Likert scale. Within the seven domains, students appeared to rank the Intrinsic Motivation—To Accomplish domain as the highest level of agreement towards the Sing by Ear project ($M = 23.24, SD = 3.01$). This domain emphasises students’ desire to be succeed when they engage in a challenging task (Deci & Ryan, 2000b; Schatt,
The four survey items include: 5 (I feel really good about myself when I get better at musical skills); 6 (I enjoy when it I improve some of my weak points); 7 (I experience satisfaction while I am perfecting my abilities during the project); 8 (I enjoy it when I perform certain skills that I could not do before). A high level of agreement reflects that students’ desire to improve their musical ability to gain success and accomplish their goals in the Sing by Ear project. From the focus group interviews, students in all cases reported improvement in musical skills, which they enjoyed; they were satisfied and gained confidence after the project. Students in Cases 1, 4 and 7 reported that they had learnt the structure of a popular song and production skills. In Cases 2, 4, 6, 8 and 9, students reported experiencing improved aural skills, sense of rhythm, singing skills, and music theory knowledge. In addition, students in all cases explained that they felt more confident after the project as they improved their abilities, figured out solutions to overcome challenges, and accomplished the task at the end.

Students ranked the Intrinsic Motivation—To Experience Stimulation domain at the second-highest level of agreement ($SD = 23.15, M = 2.87$). This domain relates to students’ desire to perceive positive emotions from performing music and the process of music-making (Deci & Ryan, 2000b; Schatt, 2018). The survey items include: 9 (I enjoy exciting experiences); 10 (I feel excited when I am really involved in the project); 11 (I feel strong emotions when I make music that I like); 12 (I like the feeling of being totally into the project). A high level of agreement suggests that students are eager for sensations of pleasure and excitement in making music in the Sing by Ear project rather than extrinsic rewards. From the group interviews, students from Cases 1, 3, 5 and 8 reported that they enjoyed the experience of creating their own a cappella version of the pieces they liked.
From the survey results, the third rank out of the seven domains is the Intrinsic Motivation—To Know domain ($M = 22.94, M = 3.25$). This domain refers to students’ self-worth and inclination to learn new skills (Deci & Ryan, 2000b; Schatt, 2018). The four survey items include: 1 (I enjoy knowing more about the song I sing); 2 (I enjoy discovering new music skills); 3 (I enjoy it when I learn new musical skills that I have never tried before); 4 (I enjoy discovering new ways of performing music). A relatively high level of agreement indicates that students demonstrated a high desire to participate in the Sing by Ear project for their own pleasure and the feeling of satisfaction acquired from learning new musical skills or knowledge. From the student interviews, students from all cases reported that they were delighted to obtain new skills in the project and feel more confident in making music. Moreover, students from Cases 1, 3, and 9 reported the pleasure of exploring the process for creating the different timbres of the percussion parts.

The fourth rank goes to the Extrinsic Motivation—External Regulation domain ($M = 22.42, SD = 2.98$). This domain consists of survey items that focus on the participants’ attitudes towards the external factors when accomplishing a task (Deci & Ryan, 2000b; Schatt, 2018). The four items include: 21 (It allows me to make good impression on the people I know); 22 (It is good to have the reputation of being a musician); 23 (People around me think it is important to be a part of the project); 24 (I feel happy to show others how good I am at music). A relatively neutral rank of agreement shows that students are not very worried about others’ judgement and negative comments on their music-making. At the same time, gaining external rewards was also not a factor for the students to participate in the project.

Students rated the Extrinsic Motivation—Identified domain as the fifth of the seven domains ($M = 22.37, SD = 2.97$). This domain refers to students’ belief that if
they consider music activities a means of musical growth, this may not solely be for musical reasons (Deci & Ryan, 2000b; Schatt, 2018). The survey items include: 13 (In my opinion, it is one of the best ways to meet people); 14 (It is one of the best ways I have chosen to develop other aspects of myself); 15 (It is a good way to learn many things that could be useful to me in other areas of my life); 16 (It is one of the best ways to maintain a good relationships with my friends). A relatively neutral rank of agreement reflects that students consider the activity valuable but might have more concerns about their musical growth than non-musical reasons.

The sixth rank goes to the Extrinsic Motivation—Introjected domain ($M = 22.27$, $SD = 3.12$). This domain relates to introjected regulation, meaning that the participant’s engagement in the task is supported by internal guilt or anxiety and that the participant considers others’ judgement more important than the comments of themselves (Deci & Ryan, 2000b; Schatt, 2018). The four survey items include 17 (It is absolutely necessary to be in the programme if I want to be musical); 18 (I must be involved in the programme to feel good about myself); 19 (I would feel bad if I did not join the programme); 20 (I need to make music regularly). A relatively lower score of agreement with the items suggests that students are not concerned with external factors or penalties when participating in the project.

Students rated the Amotivation domain at the lowest level of agreement on the *Sing by Ear* survey ($M = 7.83$, $SD = 2.63$). The Amotivation domain means that the participants are neither intrinsically nor extrinsically motivated, and they do not see any accomplishment or value in the process (Deci & Ryan, 2000b; Schatt, 2018). The four survey items include: 25 (I used to have good reasons for making music, but now I am asking myself if I should continue); 26 (I don’t know anymore. I have the impression that I am not able to be successful in music); 27 (It is not clear to me
anymore. I don’t really think I enjoy making music); 28 (I often ask myself why I make music. I can’t seem to achieve the goals that I set for myself). A low score of agreement with the items indicates that the students are interested in and enjoy the project and recognise some value in the making music.

In the spectrum of the self-determination continuum, the intrinsic motivation domains consist of the satisfaction of three psychological needs in the areas of relatedness, competence, and autonomy, in which the motivation is self-regulated and internalised (Deci & Ryan, 2000a, 2008; Valenzuela et al., 2018). These elements are indispensable for quality intrinsic motivation, psychological growth, and internal regulation (Deci & Ryan, 2000a, 2008; Valenzuela et al., 2018). In the study current study, students’ level of agreement leans towards the intrinsic domains of the Sing by Ear project. Students rated the intrinsic motivation domains (Intrinsic Motivation—To Accomplish, $M = 23.24, SD = 3.01$; Intrinsic Motivation—To Experience Stimulation, $M = 23.15, SD = 2.87$; Intrinsic Motivation—To Know, $M = 22.94, SD = 3.25$) higher than the extrinsic motivation domains. A higher level of agreement in the intrinsic motivation domains indicates that students perceive satisfaction in the psychological needs of competence, relatedness and autonomy in the Sing by Ear project. They are willing to learn new skills, accomplish challenging tasks, and experience excitement in the learning process (Deci & Ryan, 2000b; Schatt, 2018).

The three extrinsic motivation domains were rated at a lower level of agreement than the intrinsic motivation domains (Extrinsic Motivation—External Regulation, $M = 22.42, SD = 2.98$; Extrinsic Motivation—Identified, $M = 22.37, SD = 2.97$; Extrinsic Motivation—Introjected, $M = 22.27, SD = 3.12$). The results show that students’ motivation is not particularly concerned with external rewards or avoiding of penalties, where these external factors inhibit the sustaining growth of
motivation (Deci & Ryan 2000a; Evans, 2015). Furthermore, the results show that the students observe the musical value in the programme, but they are not worried about the penalty if they do not perform the task (Schatt, 2018; MacIntyre et al., 2018).

Further findings are discovered when students are categorised into different groups. A different ranking of the seven domains was noted among male and female students. While both male and female students rated the three Intrinsic motivation domains higher than the three Extrinsic domains, male students rated the Intrinsic Motivation—To Experience Stimulation domain the highest among the seven domains (\(M = 23.03, SD = 2.98\)) and female students rated the Intrinsic Motivation—To Accomplish domain the highest (\(M = 23.49, SD = 2.83\)). The result indicates that male students anticipated pleasure and emotional experiences in the *Sing by Ear* programme, while female students sought improvements in their ability to accomplish more challenging tasks. This concurs with Hallam’s (2013) finding that male instrumentalists tend to report higher levels of intrinsic enjoyment in music than females. Hallam et al. (2020) further explain the phenomenon, stating that male students reported more positive attitudes and confidence when technology is involved in the music process. On the other hand, studies found that females has higher levels of mastery goals (Meece & Holt, 1993; Yeung et al., 2011), which might explain the findings in the present research.

In the category of students’ span of instrumental learning, students who had studied their instruments for less than 5 years rated the Intrinsic Motivation—To Know domain at the highest level of agreement among the seven domains (\(M = 23.52, SD = 3.22\)). Students who had studied their instruments for more than 5 years both rated the Intrinsic Motivation—To Accomplish domain at the highest level of agreement (\(M = 23.52, SD = 3.13\)). The results indicate that students with relatively
less experience with their instrument reflected a strong interest in the learning process. They participated in the activity for enjoyment, and they felt satisfied when they acquired new skills. On the other hand, students who had more experience with their instruments displayed a desire to be succeed in the tasks.

A mixed-design MANOVA was performed to determine the intrinsic and extrinsic motivation changes after the Sing by Ear project. Statistically significant main effect was found between all participants and the seven domains.

Univariate F-tests was performed as follow-up test to further examine the changes of intrinsic and extrinsic motivation in self-determination. Results show that students had a higher level of agreement in the six domains of motivation, including all intrinsic and extrinsic motivation, while the Amotivation domain had a lower level of agreement after the Sing by Ear project. For instance, the results reflect an improvement in self-determination in the music learning process. The mean changes in the Amotivation domain ranked highest for the changes in self-determination after the Sing by Ear project (Pre-test: $M = 20.21$, $SD = 3.77$; Post-test: $M = 7.83$, $SD = 2.64$, $t(322) = -52.70$, $p < .001$, $d = -3.80$, Mean difference: $-12.38$, $SD = 4.22$).

After the Sing by Ear project, students’ level of agreement in the Amotivation domain decreased substantially, reflecting that they were interested in and enjoyed the music learning process. Other than the Amotivation domain, the Intrinsic Motivation—To Know domain ranked the second highest in the changes of self-determination after the Sing by Ear project (Pre-test: $M = 13.03$, $SD = 4.07$; Post-test: $M = 22.94$, $SD = 3.25$, $t(322) = 34.88$, $p < .001$, $d = 2.69$, Mean difference: $9.90$, $SD = 5.10$).

The third rank of changes in self-determination goes to the Intrinsic Motivation—To Accomplish domain (Pre-test: $M = 13.59$, $SD = 4.25$; Post-test: $M =$
23.24, $SD = 3.01$, $t(322) = 35.18$, $p < .001$, $d = 2.68$, Mean difference: 9.86, $SD = 5.05$).

The next rank is the Intrinsic Motivation—To Experience Stimulation domain (Pre-test: $M = 13.49$, $SD = 4.39$; Post-test: $M = 23.15$, $SD = 2.87$, $t(322) = 34.39$, $p < .001$, $d = 2.61$, Mean difference: 9.66, $SD = 5.05$). The Extrinsic Motivation—Introjected domain ranked the fifth in the changes of self-determination after the Sing by Ear project (Pre-test: $M = 13.06$, $SD = 4.02$; Post-test: $M = 22.27$, $SD = 3.12$, $t(322) = 31.80$, $p < .001$, $d = 2.56$, Mean difference: 9.21, $SD = 5.21$). The Extrinsic Motivation—Identified domain ranked the sixth in the changes of self-determination (Pre-test: $M = 13.17$, $SD = 4.18$; Post-test: $M = 22.37$, $SD = 2.97$, $t(322) = 33.52$, $p <.001$, $d = 2.53$, Mean difference: 9.20, $SD = 4.93$). Lastly, the Extrinsic Motivation—External Regulation domain ranked the last in the changes of self-determination (Pre-test: $M = 12.76$, $SD = 3.70$; Post-test: $M = 22.42$, $SD = 2.98$, $t(322) = 33.53$, $p <.001$, $d = 2.88$, Mean difference: 9.20, $SD = 4.84$). Results indicate that the three Intrinsic motivation domains have higher changes in the level of agreement than the three Extrinsic motivation domains.

According to the self-determination continuum by Deci and Ryan (1985a) and Evans (2015), quality intrinsic motivation in SDT consists of three critical elements: relatedness, competence, and the need for autonomy, which are the core of the basic psychological needs. Relatedness concerns the desire for social connection among peers or teachers (Deci & Ryan, 2000a; Evans, 2015; Valenzuela et al., 2018). Competence concerns the ability of the student to perform and complete a task and the willingness to improve and put in effort (Evans, 2015; Roberts, 2018; Valenzuela et al., 2018). The need for autonomy focuses on the sense of freedom with which the students are allowed to choose which activity to engage in according to their desire,
and their feelings are acknowledged (Miketinas et al., 2016; MacIntyre et al., 2018; Roberts, 2018; Valenzuela, 2018). These three elements support sustained intrinsic motivation, which is internalised and self-regulated (Deci & Ryan, 2000a; Evans, 2015).

In the current study, survey results indicate a greater increase in the intrinsic motivation domains. The results suggest that students experienced a quality intrinsic motivation that promotes psychological growth and internal regulation. In the Sing by Ear project, students worked in peer groups to express their views freely and try new ideas and songs based on their desire. From the student interviews, students commented that, in the informal setting of the Sing by Ear project, they could have their own ideas instead of following guidelines from teachers. This learning mode encouraged them to do their research, and they were more eager to complete the tasks. Thus, the areas of relatedness, competence, and the need for autonomy are satisfied, increasing the level of agreement in the intrinsic motivation domains.

6.3 Response to Research Question Three

In response to research question three: Are there any differences in students’ motivation levels by (a) gender, (b) grade level, (c) instrumental background, and (d) span of instrumental learning?

The MANOVA determined the changes in self-determination by factors of (a) gender, (b) grade level, (c) instrumental background, and (d) span of instrumental learning. A statistically significant main effect was found only with grade level as a factor from the results.

Univariate $F$-test was performed to further examine the results from the
MANOVA. The interaction effect was observed. Results show that Form two students had a greater change in the scores than that from the Form one students. Form two students displayed a notable increase in self-determination scores in the six motivation domains than the Form one students. The result suggests that a more remarkable improvement in the motivation levels was observed in the Form two students after the Sing by Ear project.

From the results, both Form one students (Pre-test: $M = 19.81, SD = 3.86$; Post-test: $M = 7.85, SD = 2.72, t(159) = -36.86, p < .001, d = -3.58$, Mean difference: -11.96, $SD = 4.11$) and Form two students (Pre-test: $M = 20.61, SD = 3.66$; Post-test: $M = 7.82, SD = 2.55, t(162) = -37.92, p < .001, d = -4.06$, Mean difference: -12.79, $SD = 4.31$) have the highest changes in the Amotivation domain. Other than the Amotivation domain, Form one students had the Intrinsic Motivation—To Know domain (Pre-test: $M = 14.54, SD = 3.84$; Post-test: $M = 23.36, SD = 3.34, t(159) = 22.84, p < .001, d = 2.45$, Mean difference: 8.82, $SD = 4.88$) as the second-highest changes in the level of agreement of self-determination after the Sing by Ear project. On the other hand, Form two students had the Intrinsic Motivation—To Accomplish domain (Pre-test: $M = 11.47, SD = 3.76$; Post-test: $M = 22.80, SD = 2.90, t(162) = 29.09, p < .001, d = 3.38$, Mean difference: 11.34, $SD = 4.98$) as the second-highest level of agreement in the self-determination after the project.

A transformational trend is found in that younger Form one students had a high level of agreement in the Intrinsic Motivation—To Know domain. The result indicates that Form one students were enthusiastic about completing the activity for their pleasure and considered exploring new skills as the main reason for participating in the activity. Meanwhile, the more mature Form two students had a high level of agreement in the Intrinsic Motivation—To Accomplish domain. The result suggests
that Form two students had a high desire to be successful and improve their skills for the activity. It may imply that the Sing by Ear project facilitates a sense of accomplishment upon finishing the a cappella project. Thus, Form two students perceived greater improvements in self-determination as they had a strong desire to be successful and improve their skills for the activity.

Research from McPherson and O’Neill’s (2010) and Leung and McPherson’s (2010) observed significant declines in music competence beliefs and values across the school grade levels. Meanwhile, a significant increase was found in the task difficulty rating across the school grade levels. Similar findings were also obtained in Schatt’s (2018) study. Students in higher grades experienced lower motivation in music practices than those in lower grades. Schatt (2013) cited Csikszentmihalyi (1990), who stated that enjoyment diminishes when the individual matures. It has been observed that students in higher grades encounter less motivation than those in lower grades. However, in the current research, with the Sing by Ear approach and the informal learning setting, students from higher grades (Form two students) resulted in a more remarkable improvement in their self-determination scores. Result suggests that different teaching strategies should be applied to students across grade levels according to their contrasting motivation characteristics to maintain their music learning motivation.

The MANOVA suggests no significant differences for the factors of gender, instrumental background and span of instrumental learning. The results reveal that students had similar scores regardless of gender and instrumental backgrounds after the Sing by Ear project. According to the previous sections of the findings, students have improvements in the self-determination scores of the six motivation domains and a lower level in the Amotivation domain. The findings imply that students regardless
after of gender and instrumental background can experience more motivation in learning music after the *Sing by Ear* project.

### 6.4 Response to Research Question Four

In response to research question four: How do the informal learning practice and learn by ear approach affect the learning process and musicianship in the *Sing by Ear* project?

From the findings in the qualitative data of the multiple-case study, the following section examines the perspective on students’ learning outcomes in the informal learning practice in the *Sing by Ear* project. This section provides answers to research question four and serves as complementary information to the quantitative results.

#### 6.4.1 Aural Learning Experience—Musicianship

In the present study, student groups were required to aurally copy recordings without the help of written notations and create a cover song in an a cappella setting. Aural learning, or learning by ear, is an important element in learning music, especially in popular music. Green (2008) commented that “music is an invisible entity, and its invisibility gives us difficulties when we try to apply names to its component parts” (p. 67); thus, “listening” is an inclusive skill in learning music. Most of the student groups reported that they had repeatedly listened to the recording to practise the singing and to memorise the melody. This process is known as “purposive listening” or “intensive listening” (Green, 2008; Mok, 2017), in which the listening possesses a certain aim—for example, to look for some musical details to be
used in certain ways after the listening experience. Green (2008) added that when a learner is not engaged in “purposive listening,” their listening will be imprecise, and the quality and detail are restricted.

From the student interviews, when students are engaged in “purposive listening,” they reported that they started to focus on the background music, rhythmic section, harmonies, and structure of the popular piece, instead of merely focusing on the melody and the lyrics before. Students’ listening experiences were deepened. Students in Case 1 reported that they knew more about the drumbeat patterns; students in Case 2 focused on the timbre of the instruments; students in Cases 4, 6, and 7 explained their experiences with the rhythmic and bass sections; students in Cases 1, 4, and 6 gained knowledge about structure and arrangements of popular songs; lastly, students in Cases 8 and 9 reflected their learning in harmonies and chords. When engaging in “purposive listening,” the informal learning practice in the Sing by Ear project provides the opportunity for students to develop musicianship, since Green (2008) explained that learning music through reading notation may neglect the development of the musical ear.

Students’ interviews reported the attention to the sound quality or timbre of the popular song and their creative work. Green (2008) asserted that “sound quality is one of those aspects of music that is extremely hard to codify in conventional staff notation…students who acquire musical skills and knowledge primary through aural copying start attending to fine aspects of sound quality right from the beginning of the learning process” (pp. 72–73). Students in Case 3 reported that they looked for different materials for the percussion parts to create the desired timbre. In the process of purposive listening, students are encouraged to listen to more details of the music and incorporate their ideas in the music-making process. As Green (2008) put it, “by
requiring pupils to listen to their ‘own’ music with the express purpose of playing it themselves, it seems to have enhanced the ability of them to listen analytically to musical details, sound quality, texture, accompaniment, instrumentals and structure” (p. 79).

Green (2008) explained the development of “critical musicality,” where learners become more critically aware of the musical properties, increasing aural musical understanding and appreciation. From the student interviews, it is evident that students became more critical and attentive to their musical performances. Students in Case 2 reported improved aural ability; students in Cases 4, 6, and 9 described enhanced skills in singing and rhythmic sense, and students in Case 5 became critical of their performance. Through informal learning practices and purposive listening, students are better able to make critical judgements on the quality of their musical performances and promote the development of critically aware musicality (Green, 2008).

6.4.2 Peer-Learning, Peer-Teaching

The informal learning setting encouraged students to work in peer groups throughout the Sing by Ear project. As Creech et al. (2020) commented, peer learning “involves mutuality in working towards a shared goal and requires that individuals articulate their views but also take on perspectives of other group members, leading to new understandings and reframing of ideas” (p. 192). From the interviews, students in Cases 2, 3, and 9 reported that they shared skills and solved problems together; students in Case 6 expressed that they explored ideas from every member, and students in Cases 7 and 8 respected the different perspectives from the members, allowing more creative sparks. Through the peer learning groups, students were able
“to explore, discover, construct and apply knowledge from their out-of-school musical lives” (Creech et al., 2020, p. 193).

Green (2008) commented that the role of each group member contributes an essential part of the final product and that the choice of learning strategy is in the hands of the members. In the current study, students’ interviews revealed that they recognised the make-up of personnel in their group and that every group member had different strengths and weaknesses in music for the different tasks in the project. Students in Cases 4, 5, and 8 reported that they tried to try different group members in different roles to find the person with more suitable ability. Students were unconsciously involved in learning during peer discussions and in exchanging ideas in this process. Through peer interactions, students become consciously aware of the learning process and regulate the effectiveness of the learning strategies (Creech et al., 2020). Meta-cognitive skills are also fostered when students have to find appropriate strategies to solve problems, pursue their musical interests, and control their learning process (Mok 2017, p.17).

Peer-directed informal learning often includes the exchange of skills and knowledge, and learning occurs through the teaching of each other (Green, 2008). In the interviews, students in Case 2 revealed that they learnt aural skills and harmony from their peers; students in Case 3 reported that they shared skills related to rapping and singing; and students in Case 8 described that they observed and instructed each other during the practice sessions. Students unconsciously obtained some skills during the peer-directed learning process by imitating each other. This process is described as a “teaching-and-learning exchange,” an effective peer-learning process that enhances learning when the peer teaches another (Green, 2008). In addition, MacDonald and Miell (2000) concluded that learners could develop knowledge and
critical thinking skills when actively engaging in, modifying, and elaborating on peers’ ideas.

6.4.3 Confidence and Satisfaction

O’Neill (2002) explained the importance of self-belief and confidence in developing musical ability. Learners with low self-belief display lower persistence in music learning, while learners with high self-belief display higher persistence through failure and enjoy exerting effort in the tasks (O’Neill, 2002). Self-belief is one of the elements that precede sustained motivation. In the present study, students interviews in Cases 1, 2, 3, 5, 7, 8, and 9 reported gaining confidence in creating music, singing and sharing their ideas. Students in Cases 4, 5, 6, 8, and 9 expressed satisfaction upon finishing the musical product. Although their final products may not be at professional standards, they gained confidence and recognised their ability to create music; as Cayari (2015) states, the “feeling of satisfaction facilitated experiences where the students felt accomplished as musicians” (p. 54). Findings also corroborate Varvarigou’s (2014) findings, that the ear-playing approach promotes the development of confidence in achieving new skills. In addition, Green (2008) commented that positive self-belief in the tasks is a necessary component of motivation and self-confidence in learning (p. 64). When confidence is developed, learners are able to work through failure in the learning process, which supports sustained motivation, and can “foster lifewide and lifelong musicing” (Jones, 2008, p. 11).
6.4.4 Unexpected Learning Outcome—Creativity

In the Sing by Ear project, students were required to aurally copy music with only the necessary guidance from their teacher. Miner (2007) suggested that musical creativity could be better fostered when students are engaged in improvisation and composition in an accepting environment with no stress or judgements. Welch (2012) claimed that “high negative stress is inimical to creativity” (p. 12). Within this informal learning setting, students were not limited to certain ideas or bound to specific regulations. Thus, creativity was actively involved in the project. The only instruction for the students was to create a cover song in an a cappella setting. There were no limitations on song choices, arrangements, or additional instrumentations. In such a context, the students unexpectedly came up with different creative ideas, which they infused into their musical products.

Miner (2007) saw musical creativity as “a cognitive process when an individual arranges familiar musical patterns in unfamiliar orders” (p. 1), and stated that students must develop audiation skills before they can improvise in a creative manner. In the present study, students aurally learnt and practised their songs of choice without written notations and then re-created their versions with unexpected creative elements. In Cases 1, 3, 7, and 9, students explored different materials to achieve the desired timbre for the percussion section. On the other hand, in Cases 6, 8, and 9, after some trials, students created a new rhythmic section by whistling, snapping fingers and beatboxing. While these creative elements were not required by the instructions of the Sing by Ear project, students unconsciously developed creativity in an informal peer-directed setting that “allows them to explore, try out ideas and solve musical problems” (Welch, 2012, p. 389). In an informal peer-directed setting, the students have more opportunities to engage in each other’s
performances and be creative in arrangements, especially in other-than-classical music (Welch, 2012).
Chapter 7
Conclusions and Implications for Music Education

7.1 Conclusions and Implications

The present study aimed to explore students’ self-determination motivation responses to popular music education and an informal learning approach by implementing a new teaching strategy in the formal school music curriculum. Self-determination has been examined in many subjects, yet few studies have been conducted within music education. According to Evans (2015), many music teaching strategies that teachers and parents employ are undesirable and attenuate motivation under the constructs of SDT. Schatt (2018) discovered a diminishing trend of motivation in band students across school grades. On the other hand, in the Hong Kong context, Leung and McPherson (2010) discovered that students across school grades considered music a more complex subject than other subjects. These students demonstrated declining competence beliefs and values in music. The result raises the need for music educators to be aware of the teaching strategy at different school levels, affecting students’ motivation to continue learning music.

Findings from the current study suggest that by implementing the Sing by Ear approach in teaching popular music, student participants, regardless of gender, grade level, or instrumental background, all showed positive results in the SDT motivation responses, especially in the Intrinsic motivation domains. Nevertheless, taking a closer look at the picture, students of different grade levels exhibit varying learning characteristics. The present study found that younger Form one students displayed a high desire to learn new skills. On the other hand, the Form two students displayed a
strong desire for musical growth and sense of accomplishment. Music teachers may need to adjust their teaching strategies in order to accommodate different students.

The SDT is a comprehensive motivation theory that focuses on the quality and nature of motivation (Evans, 2015). It is a framework that can explain music learning behaviours to various extents (Evans, 2015). As an extension of Schatt’s (2018) study on band students’ SDT motivation to practice, the current study bridged the gap to seek another perspective regarding SDT responses in singing a cappella. This study provided evidence that students can experience growth in all motivation domains in the SDT theory through the Sing by Ear project. Students can learn, create and enjoyably perform music without any prerequisites. They are willing to explore new skills, achieve challenging goals, and experience stimulation in the learning process (Deci & Ryan, 2000b; Schatt, 2018).

In this project, informal learning was employed in the curriculum design. Informal learning comprises semi-structured activities and flexible learning content that focuses on the learners’ needs (Dib, 1988; Rogers, 2014). Alongside the informal learning structure, students are encouraged to learn independently through a peer-directed setting, with only necessary guidance from the teacher. With this content, students can express their musical ideas and creativity during the learning process without following strict guidelines from teachers. According to the student interviews, students enjoyed researching music, creating their unique percussion parts, experimenting with different vocal lines, and even trying out the beatbox sections. They also favoured the project structure, which strengthens peer interactions. The students commented that working with peers allowed more creative sparks to help solve difficulties and achieve their goals quickly. Informal learning structures in peer-directed settings promote autonomy and relatedness, the core psychological needs that
foster quality intrinsic motivation (Deci & Ryan, 2008; Evans, 2015; Roberts, 2018; Valenzuela et al., 2018).

Another core learning concept in the Sing by Ear project is to develop musicianship through learning music by ear. In this project, students were required to sing the chosen songs from a recording without reading the notations. Scholars recognise that learning music by ear ameliorates aspects of musicianship, such as improvising, creating, sight-reading, and performing music by memory (Mainwaring, 1951; McPherson & Gabrielsson, 2002; Green, 2006; Woody & Lehmann, 2010; Baker & Green, 2013; Varvarigou, 2014). During the project, students “purposively” listened to and practised the chosen piece without the help of musical notations. With the “purposive listening” strategy and “critical musicality” (Green, 2008), students have deeper experiences and become critically aware of the musical details and qualities of the music, such as the background music, the rhythmic section, and the timbre.

The Sing by Ear project referred to Green’s ear-playing learning strategy (2006, 2013), which encourages autonomy through peer interactions. The peer groups shared skills, exchanged knowledge, and solved problems together. The process allowed them to transfer skills, explore new understandings, and develop critical thinking skills (MacDonald & Miell, 2000; Mok, 2017; Creech et al., 2020). When working in groups, students recognised group members’ strength and weaknesses for different tasks, and they were consciously aware of the learning process and the effectiveness of the strategies (Green, 2008; Creech et al., 2020). Creech et al. (2020) commented that “peer learning is inclusive and fosters positive and interdependent learning outcomes” and “offers much under-explored potential to enrich and deepen music learning” (p. 197).
Students reported satisfaction with the project. They were very happy with their creative projects and reported a gain in self-beliefs in creating music and singing. In the process of musical learning, self-belief and confidence are essential for developing musical ability and sustained motivation (O’Neill, 2002; Green, 2008; Jones, 2008). Although students’ work may not be at professional standards, they gained confidence in developing new skills, and recognised their ability to create music (Varvarigou, 2014; Cayari 2015).

Scholars have affirmed that formal school settings can repress creativity and music teachers “perpetually reproduce their own musical experiences” in the musical classrooms (Vitale, 2011, p. 8). In an informal learning setting, students can learn music in a positive and encouraging environment that fosters musical creativity (Miner, 2007). Unexpected creativity was ascertained in the students’ products. Students developed creativity when they explored peers’ ideas, solved musical problems, and critically revised their performances (Welch, 2012). Ho (2021) observed that “creativity expressed through music can address social and emotional development” (p. 2) and cited Kratus (2017) when stating that creative listening should be encouraged to help students identify characteristics of musical sounds, involving “individual, cognitive and affective responses to music” (p. 2).

The results of the current study support the possibility of including popular music education in school music lessons. Ho’s (2000, 2009, 2011, 2017) studies revealed that local students preferred popular music materials in music lessons and concluded that local music teachers have limited exposure to knowledge and teaching strategies for popular music, thus limiting students’ learning opportunities. During the interviews in this study, students expressed their interest in popular music, and in learning popular music materials, and live music activities during lessons. Music
lesson structures and content may have to be reconsidered. Educators may consider a diversity of musical genres for students to maintain students’ interest in learning music.

**Figure 7.1**

*Pedagogical Model of Popular Music Education for the Sing by Ear Project*

Based on the findings, a pedagogical model for teaching popular music in school classrooms was constructed. The model in Figure 7.1 presents a comprehensive pedagogy that may provide valuable insight for teachers and students and encourage quality and sustained motivation in learning popular music. The model shows two paths from popular music education to SDT motivation. The first path reflects that popular music education and informal learning practice facilitate creativity. In the *Sing by Ear* project, an informal learning approach is employed in
which students are encouraged to explore their interested areas and have peer interactions. With the flexibility in the informal learning mode, students can work in peer groups and are encouraged to exchange and try out ideas. Students’ interactions and creativity are shared and promoted in informal learning. As a result, students can become more engaged and self-motivated in learning.

The second path reflects that popular music education and concepts of learning by ear foster musicianship. Learning by ear consolidates elements of musicianship, such as internal tonal centre and rhythmic sense. In the process of learning popular music, students aurally playback or sing what they hear from the recording without the help of music notations. This way, they can be more sensitive to the music they hear and learn more independently.

Creativity and musicianship lead to confidence and satisfaction, which brings the path back to the central element of the model, SDT motivation. In an autonomous learning atmosphere, students are able to experience creativity, musicianship, then confidence and satisfaction, and finally, enhance motivation in learning music.

7.2 Limitations of the Study and Future Directions

The present study provides insights into a new curriculum for learning popular music in school classrooms. However, the limitations of this study should be observed. The convenience sampling of participants and the number of participants may have restricted diversity in this study. Students from different schools or regions may demonstrate varying characteristics. A sample of students from ages 11 to 14 was collected in this study. Further studies with different age groups and a larger sample sizes may add validity and generalisability. As stated in the significant findings and limitations of the current study, future research is needed to understand
motivation responses in students with informal learning curricula and popular music education.

E-learning using mobile technologies enables students to acquire knowledge with board scopes and possibilities to connect people and technology (Kukulska-Hulme et al., 2009). The design of the *Sing by Ear* approach is applicable to e-learning. According to Chen (2018), teachers have concerns about equipment setup, technical support, teaching training, and classroom management for mobile learning. Chen (2018) also pointed out that teachers desired interactive design and a self-directed learning mode in mobile learning. The present study provides a pedagogy and a structure for the teachers to teach popular music by employing mobile devices. Students are encouraged to interact with peers, learn independently, and develop creativity. As Birch (2017) commented, mobile learning is “a synergy between the students’ love for music and creative musical behaviour” (p. 38). Scholars have recognised the use of technology in music learning. Burnard (2007) saw e-learning as a “way of promoting creativity in the music classroom” (p. 38). On the other hand, Cayari (2015) noted that “students can refine their interpretation, analysis, transformation and performance of music by expanding music education programmes to include technological skills” (p. 42).

The study opens a new page of research into the psychology of popular music learning through the technology. The use of interactive mobile technologies has become a significant trend in education (Chen, 2017). Curriculum design and instructional design, SDT motivation, e-learning, and mobile learning are the key elements in the future trend of popular music education. Within a technology-enhanced educational system, it urges reconsiderations for teacher training to prepare the teachers to cater to the new generation of students (Ally & Prieto-Blázquez,
2014). Teacher-training institutions must provide in-service and pre-service secondary school teachers with training to combine content, pedagogical, and technological knowledge (Bauer, 2014). This thesis may serve as a pedagogical reference for educators and instructional designers to consider implementing a comprehensive teaching approach for popular music education.

Some directions can be suggested for future research. The study could be modified to suit a larger population in different age groups, such as primary and secondary schools. Research findings reveal a declining motivation level across secondary school levels, and perhaps it is worth looking into the picture for younger primary students. Moreover, the informal learning approach could be applied to other musical settings and genres, such as hip-hop music that involves composing with chord progressions, beat patterns, and lyrics for rapping which would not require advanced singing techniques. Finally, mobile learning can provide a platform for students to learn music from different sources without geographic limitations. Research attention could also be paid to different mobile technologies and how they could advance the music learning environment in popular music education.
References


https://www.doi.org/doi:10.1017/S0265051711000052


Green, L. (2013). *Hear, listen, play!: How to free your students’ aural, improvisation, and performance skills*. Oxford University Press.


Ho, W. C. (2011). *School music education and social change in Mainland China, Hong Kong and Taiwan*. Brill.
http://www.jstor.org/stable/23525061


https://doi.org/10.1080/14613808.2021.2007230


http://dx.doi.org/10.4135/9781412950558


Guidelines for learning/teaching/tutoring in a mobile environment. University of Nottingham. https://hal.archives-ouvertes.fr/hal-00696244/document

http://www.jstor.org/stable/40318998


kaleidoscope network of excellence mobile learning initiative. University of Nottingham, Learning Sciences Research Institute.


https://doi.org/10.1177/0255761406065473


https://doi.org/10.1037/0021-9010.86.4.629


https://doi.org/10.2307/1170017


https://doi.org/10.1177/1321103X9901300104


Musical Instrument Survey

Using the scale below, please circle one number per statement indicating the extent to which each of the following items corresponds with a reason you have for practicing your instrument.

WHY DO YOU PRACTICE YOUR INSTRUMENT?

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<th>Completely Agree</th>
<th>Agree A Lot</th>
<th>Agree A Little</th>
<th>Disagree A Little</th>
<th>Disagree</th>
<th>Completely Disagree</th>
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Please continue the survey on the reverse side of this paper.
23. Because I enjoy when I learn new musical skills that I have never tried before. 1 2 3 4 5 6 7
24. Because it is one of the best ways to maintain good relationships with my friends. 1 2 3 4 5 6 7
25. Because I like the feeling of being totally into an activity. 1 2 3 4 5 6 7
26. Because I need to make music regularly. 1 2 3 4 5 6 7
27. Because I enjoy discovering new ways of performing on my instrument. 1 2 3 4 5 6 7
28. I often ask myself why I practice. I can't seem to achieve the goals that I set for myself. 1 2 3 4 5 6 7


Please circle the best answer for each question below:

Gender: I am Male Female.

Age: I am ___________ years old.

Grade: I am in the _____ grade.

Instrument: I play the _________________ instrument in band class.

Years on Instrument: I have played this instrument _______ years in my school band.

Private Lessons: I _______ taken lessons outside of school on my band instrument.

I have taken a total of _______ years of private lessons on my band instrument.

Other Instruments: I have played these instruments for longer than 1 year: ________________________

Practice: I usually practice _______ days each week on my band instrument.

I usually practice _______ minutes per day on my band instrument.

What makes you want to practice your instrument? ____________________________

Thank you for taking the time to complete this survey!
# Music Lessons Survey

Using the scales below, please circle one answer per statement indicating the extent to which each of the following items corresponds the following question:

## How do you feel about music lessons in school?

<table>
<thead>
<tr>
<th></th>
<th>Completely disagree</th>
<th>Disagree a lot</th>
<th>Disagree a little</th>
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<th>Agree a little</th>
<th>Agree a lot</th>
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### A. Intrinsic Motivation—To Know
1. I enjoy knowing more about the music taught in lessons.  
2. I enjoy discovering new music skills.  
3. I enjoy it when I learn new musical skills that I have never tried before.  
4. I enjoy discovering new ways of performing music.

### B. Intrinsic Motivation—To Accomplish
5. I feel really good about myself when I get better at musical skills.  
6. I enjoy it when I improve some of my weak points.  
7. I experience satisfaction while I am perfecting my abilities during the lessons.  
8. I enjoy it when I perform certain skills that I could not do before.

### C. Intrinsic Motivation—To Experience Stimulation
9. I enjoy exciting experiences.  
10. I feel excited when I am really involved in the lessons.  
11. I feel strong emotions when I make music that I like.  
12. I like the feeling of being totally into the lessons.

### D. Extrinsic motivation—Identified
13. In my opinion, it is one of the best ways to meet people.  
14. It is one of the best ways I have chosen to develop other aspects of myself.  
15. It is a good way to learn many things that could be useful to me in other areas of my life.  
16. It is one of the best ways to maintain good relationships with my friends.
### E. Extrinsic motivation—Introjected

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<td>17. It is absolutely necessary to be in music lessons if I want to be musical.</td>
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<td>18. I must be involved in the lessons to feel good about myself.</td>
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<td>19. I would feel bad if I did not join music lessons.</td>
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<td>20. I need to make music regularly.</td>
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### F. Extrinsic motivation—External Regulation

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<td>21. It allows me to make a good impression on the people I know.</td>
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<td>22. It is good to have the reputation of being a musician.</td>
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<td>23. People around me think it is important to be a part of the lessons.</td>
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<td>24. I feel happy to show others how good I am at music.</td>
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### G. Amotivation

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<td>25. I used to have good reasons for having music lessons, but now I am asking myself if I should continue.</td>
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<td>26. I don’t know anymore. I have the impression that I am not able to be successful in music lessons.</td>
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<td>27. It is not clear to me anymore. I don’t really think I enjoy music lessons.</td>
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<td>28. I often ask myself why I join music lessons. Can’t seem to achieve the goals that I set for myself.</td>
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Please answer each question below:

**Gender:** I am  
**Male** / Female

**Age:** I am ________ years old.

**Do you play any instruments?**  Yes, I play ________________ / No.

**If yes, how many years have you played this instrument?**  ____________ years _____ months

Thank you!
Sing by Ear Survey

Using the scales below, please circle one answer per statement indicating the extent to which each of the following items corresponds with the following question:

How do you feel about the Sing by Ear project?

<table>
<thead>
<tr>
<th>Completely disagree</th>
<th>Disagree a lot</th>
<th>Disagree a little</th>
<th>Neutral</th>
<th>Agree a little</th>
<th>Agree a lot</th>
<th>Completely agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

A. Intrinsic Motivation—To Know

1. I enjoy knowing more about the song I sing.  
2. I enjoy discovering new music skills.  
3. I enjoy when I learn new musical skills that I have never tried before.  
4. I enjoy discovering new ways of performing music.

B. Intrinsic Motivation—To Accomplish

5. I feel really good about myself when I get better at musical skills.  
6. I enjoy it when I improve some of my weak points.  
7. I experience satisfaction while I am perfecting my abilities during the project.

C. Intrinsic Motivation—To Experience Stimulation

9. I enjoy exciting experiences.  
10. I feel excited when I am really involved in the project.  
11. I feel strong emotions when I make music that I like.  
12. I like the feeling of being totally into the project.

D. Extrinsic Motivation—Identified

13. In my opinion, it is one of the best ways to meet people.  
14. It is one of the best ways I have chosen to develop other aspects of myself.  
15. It is a good way to learn many things that could be useful to me in other areas of my life.  
16. It is one of the best ways to maintain good relationships with my friends.
### E. Extrinsic Motivation—Introjected

| 17. It is absolutely necessary to be in the project if I want to be musical. | 1 2 3 4 5 6 7 |
| 18. I must be involved in the project to feel good about myself. | 1 2 3 4 5 6 7 |
| 19. I would feel bad if I did not join the project. | 1 2 3 4 5 6 7 |
| 20. I need to make music regularly. | 1 2 3 4 5 6 7 |

### F. Extrinsic Motivation—External Regulation

| 21. It allows me to make a good impression on the people I know. | 1 2 3 4 5 6 7 |
| 22. It is good to have the reputation of being a musician. | 1 2 3 4 5 6 7 |
| 23. People around me think it is important to be a part of the project | 1 2 3 4 5 6 7 |
| 24. I feel happy to show others how good I am at music. | 1 2 3 4 5 6 7 |

### G. Amotivation

| 25. I used to have good reasons for making music, but now I am asking myself if I should continue. | 1 2 3 4 5 6 7 |
| 26. I don't know anymore. I have the impression that I am not able to be successful in music. | 1 2 3 4 5 6 7 |
| 27. It is not clear to me anymore. I don't really think I enjoy the project. | 1 2 3 4 5 6 7 |
| 28. I often ask myself why I make music. I can't seem to achieve the goals that I set for myself. | 1 2 3 4 5 6 7 |

Please answer each question below:

**Gender:** I am Male / Female

**Age:** I am ________ years old.

**Do you play any instruments?** Yes, I play ____________ / No.

**If yes, how many years have you played this instrument?** ____________ years _______ months
Appendix D
Interview Questions

Background Information
1. Gender
2. Age
3. Instrumental learner or not/ what instrument/ years of experience

Basics
1. Do you like music? What does music mean to you?
2. How do you feel about the formal music lessons at school?
3. What do you think about popular music in daily life?
4. Do you want more popular music in school music lessons?

Sing by Ear Learning Process
1. Do you like pop music?
2. How do you usually learn pop music?
3. Why did you choose the chosen piece to do in the project?
4. Did you listen to the piece may times and copy the recording during the practice?
5. Did you create something new or add your own ideas to the original? How did you do that?
6. What do you think about the Sing by Ear project and informal learning?
7. Do you feel you have learnt something new during the Sing by Ear project?
   Any improvements? How?
8. Did you learn something from your peers?

Motivation/ Self-value
1. Do you enjoy making music?
2. Do you feel good about yourself when your group has come up with a piece of music of your own?
3. What kind of obstacles did your group encounter and how did you overcome them?
4. Do you feel good working with your friends? Is it easier to come up with creative ideas when you work with your friends?
5. Do you feel good when you have some music skills improved?
6. After the programme, do you feel more willing/ more confident in making music?

7. Will you still make music using similar method in the future?