

**Effective Music Teaching in New South
Wales: How School Music Programs
Promote Consistent High Achievement
in the Higher School Certificate**

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Declaration

I certify that, except where due acknowledgement has been made, the work is that of the researcher alone. The work has not been submitted previously, in whole or in part, to qualify for any other academic award. The content of the thesis is the result of work carried out since the official commencement date of the approved research program. Any editorial work, paid or unpaid, carried out by a third party is acknowledged. The thesis is less than 80,000 words in length, exclusive of tables, maps, bibliographies and appendices.

This thesis contains material originally published in White (2020). This includes the authentic learning section of the Literature Review and the authentic learning section of the Discussion. The material contained in these sections was researched, analysed, and written by the author. The full article has been included in Appendix A.

Signed:

Dated:

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Abstract

There is a wealth of research that provides evidence for the vital presence of music education in our schools. However, there is less research examining how schools and music educators can curate learning environments that support high achievement, particularly at the senior secondary level. The aim of this study is to determine the key characteristics of high achieving school music programs in New South Wales (NSW), and to highlight the fundamental pedagogical practices of their teachers. It builds on previous research examining “the performance of established experts” (McPherson & Williamon, 2015, p. 341) and successful teaching practices (Ayres, Dinham, & Sawyer, 1999; Henriksen, Stambulova, & Roessler, 2010; Subotnik, 2004).

For the purpose of this study, high achievement is defined as exceptional performance in a high stakes senior secondary exam context; in this case, the Higher School Certificate (HSC) in NSW. This thesis explores how effective teaching, positive school cultures and co-curricular programs support the consistent achievement of students in the HSC teaching and examination context. It also explores the role of parents, how gifted education and authentic learning approaches are utilised in the classroom, and the effect of the Australian Tertiary Admissions Rank (ATAR). It aims to fill a gap in the literature related to high achievement in music education in Australia, but more broadly in the areas of effective music teaching, gifted education, and how high achieving music programs benefit school cultures.

This grounded theory study identified the top 10% of secondary school music programs in NSW through a quantitative analysis of HSC Music results from 2007–2016. Fifty teachers at 23 schools were interviewed about their pedagogy, processes, and philosophy. Teachers were asked about their programs, teaching approaches, and the perceptions of music in the broader school community. Data collected from the teacher interviews included discussions of resources, program design, their knowledge of content and context, and music’s place in the school’s culture. The results of the qualitative data show that robust cocurricular music programs, expert teachers, and supportive leadership are key contributors to their students’ high achievement. Gifted pedagogy, authentic learning practices, and parental perspectives were reported as also influencing the provision of

effective music programming. This research reinforces the need for equity in access to quality music education for all students and the importance of effective and informative advocacy.

Glossary of terms

ACARA: Australian Curriculum, Assessment and Reporting Authority. This is an independent national body that develops and maintains the Australian Curriculum, the National Assessment Program, ICSEA, and national reporting on schools. For more information about ACARA, please consult their website: <https://www.acara.edu.au/about-us>

All-round achievers: A student who has received a Band 6 or E4 for at least 10 of their units of study in the HSC. Also commonly known as “all-rounders”. This is recognised as a significant achievement. For more information about all-round achievers, please visit the NESA website:

<https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/results-certificates/merit-lists/all-round-achievers>

AMEB: Australian Music Examinations Board. This is an Australian music examination body, similar to Trinity College London. Students can achieve grade certification in a large range of instruments, speech and drama, and teaching. Grades range from Preliminary to 8th Grade, Associate in Music (AMusA), and Licentiate in Music (LMusA). It is considered a significant achievement for a high school student to have gained an AMusA or LMusA in their instrument. For more information about the AMEB, please consult their website: <https://www.ameb.edu.au/>

ATAR: Australian Tertiary Admissions Rank. This is a rank that is given to each eligible student in New South Wales, based on their assessment and examination performance throughout their final two years of high school. It is a rank that is used by universities to admit students into tertiary courses. For more information about the ATAR please consult the Universities Admissions Centre website:

<https://www.uac.edu.au/future-applicants/atar>. More information about the ATAR is also found in *Chapter 5. Discussion: Scaling and the ATAR.*

B6 or E4: Band 6 or Extension Band 4. In the HSC, student marks for each course are calculated from a combination of their final examination mark and their school-based assessment mark. These marks are then allocated to Performance Bands which align with a description typical of the performance by a student within that mark range. A Band 6 (B6) indicates that a student has received

a mark between 90–100 out of 100 for a 2 unit HSC course, which is the highest level of performance. Similarly, an Extension band 4 (E4) indicates that a student has received a mark between 45–50 out of 50 for a 1 unit Extension HSC course. For more information about HSC results, please consult the NESA website: <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/results-certificates/understanding-results>

BOSTES: Board of Studies, Teaching and Educational Standards. This was the state government education agency in NSW from 2014–2017, which was then renamed the NSW Education Standards Authority (NESA). The Distinguished Achievers lists from 2007–2016 were sourced from websites that are owned by NESA but are still linked to BOSTES. For the sake of clarity, NESA is the only educational agency referenced in the body of the thesis.

Concepts of music: In NSW, the Music syllabuses from Kindergarten to Year 12 articulate a focus on the concepts of music. In primary music education, the concepts “provide a basis for gaining musical knowledge and understanding” and students learn “how to use and describe them” (Board of Studies Teaching and Educational Standards, 2006, p. 85). The concepts set for study in primary school are duration, pitch, dynamics, tone colour and structure. From Year 7, the concepts of expressive techniques and texture are added, and by Stage 6 it is expected that through the concepts, students will be able “to examine the ways in which sound is used to create music and apply this to their own experience of performance, composition, musicology and aural” (Board of Studies Teaching and Educational Standards, 2009b, p. 15). The concepts contribute to framing how music is taught, discussed, and learned, especially in the senior years, as conceptual language is an important component of the written HSC exam papers in Music 1 and Music 2.

Distinguished achiever: The term given to any student who has achieved a Band 6 or E4 in any HSC course. Distinguished achievers are recorded and publicly listed each year on the NESA website and in a special section of the *Sydney Morning Herald*, a NSW newspaper. These records include the student’s name, school, and subject(s) where they have achieved the highest band possible. For further information about Distinguished Achievers, please consult the NESA website:

<https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/results-certificates/merit-lists/distinguished-achievers>

Encore: A concert featuring distinguished achievers in the Music 1, Music 2 and Music Extension courses from the previous year. The concert itself focuses on exemplary performers, but also often features pieces composed by students. The printed program also includes lists of students with highly commended musicology and viva voce submissions. It is one of a number of HSC showcases held to celebrate high achieving students in the creative and performing arts. For more information about *Encore*, please consult the NESA website:

<https://educationstandards.nsw.edu.au/wps/portal/nesa/about/events/hsc-showcases-and-events>

HREC: Human Research Ethics Committee. This is the committee at the University of Sydney that approves all research involving humans that is conducted by university staff and students.

HSC: Higher School Certificate. This is the highest level of attainment students can reach in secondary school in NSW. It is roughly the equivalent of GCE A Levels in England, or the International Baccalaureate. A student can achieve an HSC by completing at least 10 units worth of courses (including English) across Year 11 and Year 12. For more information about the HSC, please consult the NESA website: <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/about-HSC>

ICSEA: Index of Community Socio-Educational Advantage. This is a numeric scale created by ACARA. It represents the average level of educational advantage in the student cohort of each school in NSW. It is based on information about the school's geographical location, the occupation and educational level of the parents in the school community, and the school's proportion of indigenous students. It is not a measurement of school quality or school wealth. For more information about ICSEA, please consult the Guide to understanding the Index of Community Socio-educational Advantage (ICSEA) on the Myschool website: <https://www.myschool.edu.au/media/1820/guide-to-understanding-icsea-values.pdf>

Music 1, Music 2, Music Extension: These are the Music courses available for all senior secondary students to elect to study in Year 11 and 12. All courses contain different content and assessment

requirements and imply different levels of student ability required for successful completion. Music 1 and Music 2 are both 2 unit courses and cannot be studied together. Music Extension is a 1 unit course involving a major project (performance, composition, or musicology) that commences in Year 12. Students need to be enrolled in Music 2 in order to be eligible for Music Extension. For more information about these courses, please consult the following websites:

- *Music 1:* <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-creative-arts/music-1-syllabus>
- *Music 2:* <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-creative-arts/music-2-syllabus>
- *Music Extension:* <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-creative-arts/music-extension-syllabus>

NESA: New South Wales Education Standards Authority. Similar to ACARA, NESA is an independent authority specific to NSW. It conducts curriculum reviews, provides subject syllabuses for Kindergarten to Year 12, delivers the HSC, and provides other resources and programs for educational bodies in New South Wales. For more information about NESA, please consult their website: <https://educationstandards.nsw.edu.au/wps/portal/nesa/about/who-we-are/our-story>

NSW: New South Wales. This is the Australian state in which this study was conducted. It is located on the eastern seaboard of Australia, and its capital is Sydney.

SERAP: State Education Research Applications Process. This is the process that researchers must go through if they want to conduct any kind of research in NSW government schools. SERAP approval can also be required by non-government schools, or they may have their own approval processes. For more information about SERAP, please consult their website:

<https://app.education.nsw.gov.au/serap/Home/About>

Scaling Reports: Every year, a report is published from UAC about the results from the previous year's HSC candidates. It contains information about scaling, how ATARs are calculated, enrolment numbers for all subjects, gender splits, Band splits, and other quantitative and statistical information.

For more information about the Scaling Reports, please visit UAC's website:

<https://www.uac.edu.au/media-centre/publications>. The Scaling Reports can be found under the “ATAR” tab.

Stages: In NSW, schooling from Kindergarten through to Year 12 can be divided into year groups (Year 1, Year 2 and so forth), or into Stages. Stages generally refer to a period of two years across which students need to achieve certain outcomes in their subjects. The stages are divided as follows:

- *Kindergarten:* Early Stage 1
- *Year 1 and Year 2:* Stage 1
- *Year 2 and Year 3:* Stage 2
- *Year 5 and Year 6:* Stage 3
- *Year 7 and Year 8:* Stage 4
- *Year 9 and Year 10:* Stage 5
- *Year 11 and Year 12:* Stage 6

UAC: Universities Admissions Centre. UAC processes applications for admission to undergraduate courses at participating institutions, mainly those located in NSW and the ACT. It also calculates the ATAR for NSW students and processes applications for some scholarships. For more information about UAC, please consult their website: <https://www.uac.edu.au/>

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Chapter 1. Introduction

Context

Music education in Australian primary and secondary schools has evolved from its 19th century colonial origins of merely teaching students to sight sing in order to improve the quality of public worship (Bridges, 1974). We now live in an age where advances in digital technology and internet platforms have made music more accessible than ever before. Music is gradually evolving to become an important component of contemporary education in Australia, incorporating music appreciation, composition, and performance right from the beginning of a student's educational career. In accordance with the *Education Act 1990* (pt 3 div 1) all primary aged children in New South Wales (NSW) are required to study music in the key learning area of creative arts. Music is also a mandatory subject for students in Stage 4 (Years 7–8) and can be taken as an elective in Years 9–12. The music syllabuses incorporate increasingly complex conceptual and practical content and learning experiences as students progress in their educational careers—a long way from merely civilising the “lower orders” of Australian society (Bridges, 1974).

Highly-talented student musicians now have opportunities to develop their abilities and contribute artistically and financially to local and national communities. Music and the arts in Australia is a billion dollar industry, contributing up to \$14.7 billion to the national Gross Domestic Product (GDP) in 2017–18 and employing almost 200,000 Australians (Browne, 2020). Eighty-six percent of Australians believe the arts, including music, have a big impact on how we think, create, and develop, particularly in childhood (Australia Council for the Arts, 2017). There is a clear need to ensure that high-potential students are given the best opportunity possible to develop their talents in order to contribute to society in this way, as well as to enrich their own lives and learning. We can support teachers with their important role in the talent development of students to ensure they are equipped with research on effective strategies and practices that support high achievement. From an economic, social, cultural, and personal perspective, it makes sense to invest in equitable access to effective music education for all Australian students.

While the data for this research was collected prior to 2020, the completion and submission of this dissertation has come at a time when music needs to reframe and refocus how it is perceived by educational and government bodies. Despite its importance being acknowledged in literature and national statistical data, music and the creative arts more broadly were two of the hardest hit and poorly supported industries throughout the Covid-19 Pandemic. In Australia, tertiary music and arts courses were being pared back or discontinued due to funding cuts and redundancies (J. Ross, 2020; Visentin, 2020). A recent online survey (Australian Music Industry Network, 2021) estimated that up to \$345 million had been lost by workers in creative industries across Australia. The federal Australian government all but refused to acknowledge the billion-dollar contribution the arts sector made to Australia's GDP, nor provide adequate financial assistance to support the industry's thousands of casual and contract workers (Anatolitis, 2020; Caust, 2020; Morrow & Long, 2020). Anecdotally, it was also difficult to regain student engagement in classroom and co-curricular music programs in schools, even as restrictions eased throughout 2020 (Carey, 2020; Dunstan, 2020). The effects of this pandemic on achievement, enrolment, perception, and participation in school music programs will be felt for years to come.

Despite this contextual challenge, educators can take this opportunity to reframe and refocus the role music education plays in supporting the development of high achievement and high achievers. This study seeks to contribute to research that shows how effective teaching in music education can have a significant impact on learning outcomes for students, as well as their schools and communities. By learning about consistently high achieving school music education programs, their characteristics and cultures, and their teaching practices, we can help to articulate the importance of these factors and how they can support creative talent development. We can capture the stories of our best music teachers and help tell their stories to celebrate the impact of their expertise. Sharing this knowledge can help strengthen all of music education by ensuring that teachers in all education contexts have access to the teaching strategies that can best support our young musicians.

Aims

The aim of this study is to determine the key characteristics of consistently high achieving senior secondary school music programs, and to highlight the fundamental pedagogical practices of their teachers. In order to do this, a “top down” approach is employed by examining “the performance of established experts” in order to shed light on the “fundamental psychological mechanisms underpinning high-level performance” (McPherson & Williamon, 2015, p. 341). Similar case studies of musical talent development at The Juilliard School (Subotnik, 2004) and athletic talent development in Denmark (Henriksen et al., 2010) have investigated how an educative environment can produce marked high achievement and elite performance. A study conducted by Ayres et al. (1999) also followed a methodology of identifying successful teachers and their practices through high achievement of students in the NSW Higher School Certificate (HSC). This study builds on the evidence gained from that research, but with a narrower focus on the subject of music rather than a range of subjects.

For the purpose of this dissertation, high achievement is defined as exceptional performance in a high stakes senior secondary exam context—in this case, the HSC. In the HSC, a student’s achievement is calculated from a combination of internal (school-based) assessment performance, conducted over an 18-month period, and performance in externally marked final exams. This measurement of high achievement was chosen for study due to its objective nature: all students who complete an HSC Music course are marked against the same criteria, and extensive scaling processes are carried out to ensure students are fairly compared regardless of socio-economic, cultural, or geographical circumstances. While there may be examples of music teaching that can lead to exceptional achievement at other year levels, or using specific instructional techniques, this kind of data would be subjective and difficult to utilise for a study that is examining high achievement as a phenomenon. Further description of the structure of the HSC and why HSC results were used for this study can be found in *Chapter 3. Method*.

This thesis will explore how school and classroom factors support the consistent achievement of students in the HSC teaching and examination context. Key areas such as effective teaching, positive

school cultures and co-curricular programs will be investigated. It will also explore how parents influence student engagement with school music, how gifted education and authentic learning approaches are utilised in the classroom, and the effect of the Australian Tertiary Admissions Rank (ATAR). This study provides a lens into how schools and teachers in NSW have engaged in successful teaching and learning practices, and how strong music programs can be beneficial for students and school cultures. While there are aspects that conform to the boundaries of the NSW HSC format, the results have the potential to be extrapolated to similar international senior secondary contexts, where students can study music as part of a broader program of learning.

Literature Background

The literature review will consider research across several areas in music education and high achievement in schools. These include defining high achievement as a multi-dimensional construct (Guskey, 2012; Steinmayr, Meißner, Weidinger, & Wirthwein, 2014), as well as exploring what influences achievement in a music education context (Maehr, Pintrich, & Linnenbrink, 2002; Tan & Sin, 2020). The different influences on high achievement are then examined in further detail. The literature review will consider how the areas of school culture (Back, Polk, Keys, & McMahon, 2016; Gruenert & Whitaker, 2014), effective teaching (Juchniewicz, 2010; Seidel & Shavelson, 2007), gifted education (Abramo & Natale-Abramo, 2020; Kronborg, 2018), and student characteristics (Homel & Ryan, 2014; Schatt, 2011) contribute to high achievement. The roles of socio-economic status, innate ability, and parental support are also investigated, in general and music education contexts.

While some literature relating to music education is explored in the review, the majority of the research pertains to achievement in areas such as reading, writing, mathematics, and science. There is a gap in the literature that this study aims to fill, specifically related to high achievement in music education in Australia, but more broadly in the areas of effective music teaching, gifted education, and how high achieving music programs benefit school cultures. The literature review aims to unite

research in the areas of secondary music education, as well as literature from a range of subject areas, schooling systems, and socio-economic conditions.

Methodology

In order to effectively examine the phenomenon of high achievement in senior secondary music, a grounded theory approach was utilised with both quantitative and qualitative elements in a multi-phase design (Creswell, 2009, p. 13), which is summarised in Figure 1. The study began with a reconnaissance phase, where publicly available HSC results data was collated and examined in order to identify schools that demonstrated consistent high achievement in the HSC Music courses. An application was then made to the NSW Education Standards Authority (NESA) for deidentified HSC Music results and enrolment data for all schools across NSW from 2007–2016. This data was subsequently analysed in order to determine the top 10% of consistently high achieving schools during this period.

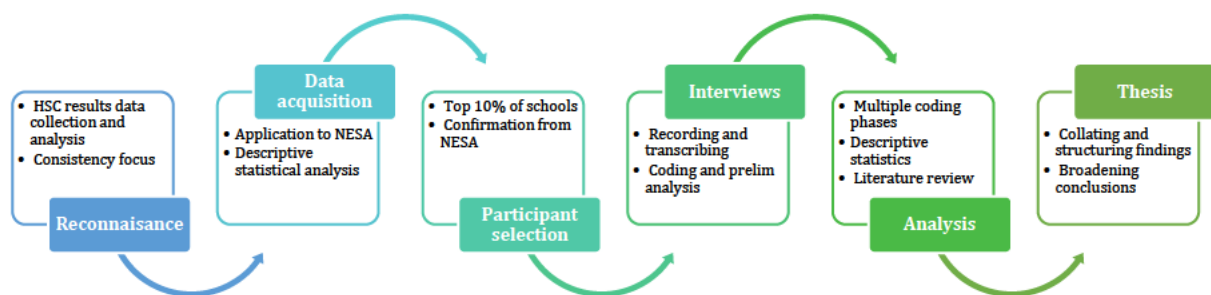


Figure 1: A brief summary of the grounded theory research process.

Once the top 10% of schools were formally reidentified by NESA, schools and participants were contacted and interviewed. Teachers were asked about their programs, teaching approaches, teaching philosophies, and the perceptions of music in the broader community. Data collected from the teacher

interviews included discussions of resources, program design, their knowledge of content and context, and music's place in the school's culture. This interview data was then coded and analysed.

Throughout this process, the interview data, descriptive statistical data, and evidence from the literature informed how the results were reported.

The HSC results data provided by NESA shows where our HSC Music students are achieving, both geographically and systemically, as well as how socio-educational advantage can influence the likelihood of high achievement in senior secondary music. The analysis of the qualitative interview data and the quantitative enrolment data, presented in *Chapter 4. Results* and *Chapter 5. Discussion* provides a comprehensive overview of the nature of senior secondary music education in NSW from 2005–2016. The key qualitative findings are based on recurring themes from the interviews, as well as areas of importance in relevant research.

Research questions

The research sought to answer a series of questions that focused on the more consistent aspects of high achievement in senior secondary music: the teachers, the school leadership, and the program design itself. To achieve highly in the HSC Music 1 and Music 2 courses, students require a music teaching program that can effectively nurture and guide their talents, skills, and musical knowledge. While students change every year, teachers and school culture would generally remain consistent across a 10-year period.

The following research questions shaped the study's aims, interview questions, and subsequent analysis:

1. What are the key characteristics of consistently high achieving school music programs?
2. What are the similarities and differences between schools with high achieving music programs?
3. To what extent, and in what ways, do teachers contribute to high achieving HSC music programs?

4. In what way does school executive leadership create and curate an environment for high achieving HSC music programs?
5. How is gifted pedagogy utilised in the HSC Music context?

The first question is the central question for this study. All music students should have access to the best school music program their school can provide in order for them to reach their potential. It is equally important for music teachers to be able to understand and learn about how high achieving school music programs work, and how teachers can advocate for and implement effective educational measures to encourage and develop the musical talent and ability within their own school. There are components of school music programs that could logically contribute to consistent senior secondary achievement, such as ensembles programs, music scholarship students, access to quality resources, or highly qualified and experienced teachers. This study aims to determine whether any of these components, or others, are present in the participating schools.

The second question is connected to the first. The similarities between high achieving programs could be interesting and potentially provide evidence of what works for secondary school music teachers to advocate for better funding or resources for their music programs. Differences between schools could come from how their teachers approach the content, their relationships with colleagues and students, contextual perspectives on the importance of music, or even in the diversity of instrumentation amongst their students. Alongside the data collected from the teacher interviews, aspects of the quantitative data, including student retention, school system and location, and socio-educational advantage were considered in answering this question.

The third question shaped the qualitative interviews. This study was primarily an investigation into music teaching in the field: What was happening in NSW schools that was driving consistent HSC Music achievement? Music educators, with their teaching experience, knowledge of musical content and exam context, and relationships with students, are best suited to describe how they shape and support their music cohorts.

Initially, the qualitative data collection phase was designed to interview teachers and senior executive members (principals, deputies and so forth) at the same schools, in order to get varying

perspectives on the same context. However, the majority of the interviews were eventually conducted with music teachers, or music teachers holding executive positions within a school. The fourth question was thus able to be explored through the perspectives of those within the music faculty.

The final question could be considered a subsidiary to the first question. The role of gifted education strategies in academic high achievement was an explicit component of the initial literature review from the beginning of this study. Therefore, a specific research question was generated to target this area of research and practice. In NSW, schools are required to provide talent development and quality learning opportunities for their high potential and gifted students across all domains (NSW Government, 2019). Therefore, gifted pedagogy may be a key influence on how teachers design and teach their senior secondary music programs. However, how this manifests in music education is not prescribed in any policy or syllabus, which is why it became a specific topic for investigation in the interviews.

This study will show that while there is no one way to *guarantee* high musical achievement in a senior secondary context, there are a number of areas in every teaching and learning environment that can be manipulated to serve the musical and academic needs of the students they support. This study can also be a means for music teachers to advocate for better resourcing, funding, and support for their programs, especially now as we begin to see a post-Covid future in music education. In conjunction with the literature, this research shows that well-resourced classroom and co-curricular programs, maintained by committed and effective teachers, enables high achievement for senior secondary music students and yields a range of benefits for schools, teachers, students, and their educational communities.

Chapter 2. Literature Review

Introduction

High achievement is a key component of this study. This literature review will examine how high achievement is defined in the context of secondary schooling, in music education, and the effect that teachers can have on the high achievement of their students. Much of the literature that is explored in this review involves classification of high achievement determined by external, standardised or summative examination, as opposed to a reliance on teacher or student perception. It is therefore important to note that this classification of high achievement means that only some of the literature utilised in this review focuses on high achievement in music education contexts, as much of the “achievement” in the literature relies on results in the areas of reading, writing, mathematics, and science. While this puts a small caveat on the relevance of some aspects of the research, it highlights the need for more research in the area of objectively recognised musical high achievement in secondary school contexts.

Academic achievement can be defined as “learned proficiency in basic skills and content knowledge” (McCoy, Twyman, Ketterlin-Geller, & Tindal, 2005, p. 2). It is a “multifaceted construct that can address different domains of learning, often measured in many different ways, and for distinctly different purposes” (Guskey, 2012, p. 5). Therefore, high academic achievement can be perceived and measured in different ways by students, teachers, and academic institutions. Commonly, it is evaluated through a person’s ability to demonstrate their learning via tasks requiring a written, oral, or physical demonstration of acquired knowledge, skills and competency. The measurement of academic achievement by way of tests and standardised assessments can also be considered an evaluation of a person’s intellectual capacity in a certain domain, and some measures of achievement can affect a person’s propensity to pursue higher education or particular career paths (Steinmayr et al., 2014).

This literature review explores the three broad areas that affect academic and school-based musical achievement: school, teacher, and student. The school represents the environment in which teaching, learning and subsequent achievement occurs. It can be influenced by the cultural practices inherent to

the school, as well as the socio-economic status of the community. Teachers are the people who guide the learning and knowledge acquisition that can lead to high achievement and are the primary focus of this research. By exploring the ways in which teaching strategies, teacher characteristics, gifted education, authentic learning pedagogy, teacher-student relationships, professional development, and teacher efficacy can affect high achievement, it can be determined why high academic achievement may be more probable in certain contexts. The research will also explore how student attributes, their participation in co-curricular activities, and parental relationships can influence academic achievement. The literature examined in these three key areas shows that high musical achievement in secondary school is affected by an array of elements, dependent on the teaching strategies and approaches utilised, and the educational context in which the achievement occurs.

In order to effectively examine the phenomenon of high achievement in senior secondary music education, a grounded theory methodology was utilised. Grounded theory is a systematic methodology in the social sciences involving the construction of theories through methodical gathering and analysis of data. As such, grounded theory studies often begin with exploration of relevant data, with a literature review conducted towards the end of the process as a means to aid the examination of the findings (Chun Tie, Birks, & Francis, 2019; Creswell, 2009). In the early stages of this study, preliminary research into the areas of teacher efficacy, effective teaching, and gifted education was explored to help inform its direction and appropriately situate the focus of interview questions and data analysis (Thornberg, 2012). However, as is practice, the literature review was augmented after the data was collected to “avoid unduly influencing the pre-conceptualization of the research” (Glaser & Holton, 2004). The data gathered from the research showed that high achievement in the senior secondary context can be influenced by a range of factors, which are discussed throughout the following chapter.

School

Technically, all aspects of education, including teacher and student-specific elements, can be considered to be part of the school's impact on high achievement. However, for the purposes of this literature review the School section will focus on two factors that can influence achievement on a broad scale: the culture of a school and the socio-economic status (SES) of a school community.

The literature referred to in this section contains several meta-analyses and reviews. These articles focus on issues including effective leadership practice (Waters, Marzano, & McNulty, 2003), the elements that contribute to "good teaching" (Rowe, Wilkin, & Wilson, 2012), the relationship between school culture and SES (Berkowitz, Moore, Astor, & Benbenishty, 2016), and the impact of poverty on high achievement (Burney & Beilke, 2008). The majority of the studies in this area are from the United States of America, however there are also perspectives from Australia, Britain, Italy and South Africa. Their assessments of high achievement are determined by data sourced from school systems, as well as other standardised testing procedures including the American College Testing (ACT, a standardised test used for college admissions), the Program for International Student Assessment (PISA, a measurement of the reading, mathematics, and science knowledge of 15-year-olds), and the Trends in International Mathematics and Science Study (TIMSS, an assessment in mathematics and science for students in Year 4 and Year 8).

There is a lack of available research that explores the connection between school culture, SES, high achievement and music education. There is some research that examines the role of SES in school-based music participation (Abril & Gault, 2008; Elpus & Abril, 2011; McPherson, Osborne, Barrett, Davidson, & Faulkner, 2015), however the majority of the research examined, particularly in relation to school culture, measures high achievement in areas such as mathematics, reading/writing, and science. This is not to say that the statements made in this section are unrelated to the music education context, but that similar studies involving objective measures of musical high achievement would be required to make conclusive correlations.

School culture

School culture refers to a school's way of operating, through the interaction of people, practices, processes, and spaces (Gonçalves Vidal & Paulilo, 2018). It is based on the patterns of people's experience of school life (Cohen, McCabe, Michelli, & Pickeral, 2009; Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013), and includes "norms, values, and expectations that support people feeling socially, emotionally, and physically safe" (Cohen et al., 2009, p. 182). Perceived by students, teachers, and professional staff, it shapes all educational experiences (Back et al., 2016). The research on school culture shows that it can have a positive impact on perceived success (Cooper, Ponder, Merritt, & Matthews, 2005; Ohlson, Swanson, Adams-Manning, & Byrd, 2016), student engagement (Gemici & Lu, 2014), and academic achievement (Ayres et al., 1999; Back et al., 2016; Berkowitz et al., 2016; Van Der Westhuizen, Mosoge, Swanepoel, & Coetsee, 2005).

There are many factors that can contribute to a positive school culture. One aspect of research focus is the impact of effective leadership, primarily at the principal or upper executive level. Rather than having a direct effect on student achievement, constructive leadership practices can curate a school culture where students and teachers feel supported in their pursuit of learning. The meta-analysis conducted by Waters et al. (2003) showed some of the most important ways leadership could positively impact student achievement. These included: principals being situationally aware, ensuring staff are familiar with contemporary teaching practice and theory, involving teachers in policy design and implementation, and fostering a sense of community and cooperation. Principals should be active within the school community, ingraining a culture of learning and making school strategies and activities compatible with its academic purpose (Karadağ, Bektaş, Çoğaltay, & Yalçın, 2017; Tichnor-Wagner, Harrison, & Cohen-Vogel, 2016). By managing systems, rather than details, supporting teachers, and acknowledging success, proactive leaders can impact student achievement through school culture and staff attitudes, and establish an effective organisational culture (Cooper et al., 2005; Productivity Commission, 2012; Sammons, Hillman, & Mortimore, 1995; Van Der Westhuizen et al., 2005).

Staff attitudes and relationships, including collegial collaborations, are also an important contributor to school culture, as “teacher beliefs about the capabilities of their faculty are systematically related to student achievement” (Goddard, Hoy, & Hoy, 2000, p. 503). Positive subcultures of faculty groups within a broader school hierarchy are important to maintain, as they can be “manifestations of the structures already in place—of department or grade levels” (Gruenert & Whitaker, 2014, p. 42). Teachers can collaborate in many ways, including observing and reflecting on each other’s classroom practice, working together to discuss and advise on student performance, and spending time planning future teaching in groups or faculties (Goddard, Skrla, & Salloum, 2017; Mora-Ruano, Heine, & Gebhardt, 2019; Reeves, Pun, & Chung, 2017). However, it is important to consider the educational context that staff are working in, in order to determine what kind of collaboration will positively affect student achievement (Reeves et al., 2017).

Collaborative school cultures enable teachers to share values and work together, building collective efficacy (Gruenert & Whitaker, 2014). Collective teacher efficacy is the shared belief of a group of teachers regarding their abilities to realise common goals and can have a positive effect on student achievement (Çoğaltay & Karadağ, 2017). This is because “a robust sense of collective efficacy among teachers tends to foster the types of effort, creativity, and persistence required to support student learning” (Goddard et al., 2017, p. 223). It can result in increased teacher leadership, high learning expectations, receptiveness to new ideas, and even greater job satisfaction and less stress (Donohoo, 2018), which could lead to a lower likelihood of teacher burnout (Capone, Joshanloo, & Park, 2019).

A psychologically safe learning environment can positively influence perceptions of a school’s culture and typical patterns of experiences, or rituals, within school life can inform a school’s cultural structure. School routines such as a morning assembly, the end-of-year prize-giving, and other annual ceremonies validate school values and norms: “unwritten rules that maintain coherence within a group” (Gruenert & Whitaker, 2014, p. 35). Rituals and ceremonies can be related to religious traditions, but they can also be a means of perpetuating the “storytelling” of the school, providing opportunities to recognise school heroes and heroines, and celebrate their achievements (Van Der

Westhuizen et al., 2005). Curating an ethos of achievement and a positive emotional climate can impart a sense of community and ensure a calm, well-disciplined and orderly teaching environment (Rowe et al., 2012; Sammons et al., 1995).

An attractive, clean, and well-maintained physical environment should also be a “pre-requisite for effective learning” (Sammons et al., 1995, p. 17). Classroom layout, supervision of school building areas, and the quality of school facilities can affect student outcomes and feelings about safety (Thapa et al., 2013). This can be due to the fact that leaving buildings in disrepair can affect the provision of instruction, and providing a functional scholastic environment communicates the importance and value of learning to students (Maxwell, 2016). Classrooms should be a welcoming place to spend time, be clean, tidy, and well organised, and incorporate informative displays to engender a sense of pride and respect in students (Rowe et al., 2012).

Existing research on classroom music education and school culture lacks a connection to the subsequent effects of these on high academic or musical achievement. A study by Barrett and Bond (2015) into music programs in rural and socio-economically disadvantaged Australian schools showed that the programs contributed to a positive school climate and community engagement, as well as developing social bonds and positive intrapersonal traits in the students. Rusinek’s (2008) examination of a Spanish secondary school music class also showed how inclusive and student-centred musical learning led to disaffected learners working to build the school’s musical culture, despite rejecting its academic culture. Both of these studies highlight the importance of school musical performances in building confidence, musical competence, motivation, and autonomy in students. By including musical performances as part of the rituals of a school, it is showing that music and student interests in music are valued by the school community, and these public displays of support can be a catalyst for change (Nikkanen & Westerlund, 2017).

There are a several elements that can influence the culture of a school. Positive and effective leadership can provide teachers with a supportive and constructive work environment, enabling them to focus on developing teaching practices that will most benefit their students. They can also foster a sense of community by ensuring the provision of activities and support structures that allow students

to feel valued and pursue their interests. A collaborative and collegial staff culture can lead to a focus on student outcomes from the policy level through to the individual classroom, and a functional psychological and physical learning environment can provide the school community with a sense of safety and calm. As the literature in this area demonstrates, there is no one element that guarantees a school culture that engenders high achievement. Rather, it is important for the key influencers on the culture of a school—leadership, teaching staff, and students—to understand their role within the community, and to be able to thrive. This relies on all members of a school contributing to a culture that is committed to improvement, encourages individual development, and has an overall focus on student achievement (Gruenert & Whitaker, 2014).

Socio-economic status

Socio-economic status (SES) is “the social and economic position of a given individual, or group of individuals, within the larger society” (Australian Bureau of Statistics, 2011, p. 1). It is often more than just a reflection of the financial wealth of a particular context, but also an indication of people’s ability to access material and social resources and activities. A person or community’s SES can be measured from a range of different data, dependent on its intended use. This can include information about a particular population’s consumption of certain goods, employment types, health, household structure, and income (Australian Bureau of Statistics, 2011).

The SES of a school community can have significant impacts on a range of student outcomes, including achievement, engagement, and aspirations. Considine and Zappalà (2002b) found that social and economic disadvantage affected student achievement and was particularly influenced by parent SES (determined by their educational level and location). High SES parents fostered high achievement and provided higher levels of psychological support, whereas low expectations fuelled low achievement. Low SES students experienced lower literacy and retention rates, more behaviour issues, and more negative attitudes towards school (Considine & Zappalà, 2002). Parent education was also a key predictor of academic achievement: “students whose parents had a university education were 4.5 times more likely to achieve outstanding results in Year 12” (Considine &

Zappalà, 2002b, p. 139). Higher parental education also correlates with higher student participation in music ensembles (Elpus & Abril, 2011), and lower parental education correlates with living in deprived communities and dysfunctional societal behaviour (Productivity Commission, 2012). This can weaken a student's attitude towards school and attendance, and "while not all students with these [parental] characteristics are low achievers, these factors generally place students at a greater risk of achieving less than their potential" (Productivity Commission, 2012, p. 254).

Academic engagement can also be affected by school or student SES. With regard to Distinguished Achievers in the NSW HSC (students who achieved 90/100 or more for a subject in Year 12), in 2017 19% of these students were from schools with a high SES and educational advantage, compared to only 1% of the lowest SES (Bonnor, 2019). Results from another Australian study of national census and educational data showed that only 61% of the most disadvantaged students complete school, compared with 89% of the most advantaged (Lamb, Jackson, Walstab, & Huo, 2015b) as "educational completion or participation increases with family SES (both parental education and occupation)" (Homel & Ryan, 2014, p. 24). Low SES students are also twice as likely to have a fixed mindset, meaning they are less likely to believe that their skills and abilities can improve and change through education (Department of Education and Training, 2018). Students living in poverty can have restricted access to educational and foundation building resources such as books, computers, and out of school activities, placing them at a disadvantage before they even enter schooling (Burney & Beilke, 2008). This is relevant to achievement in secondary school, as early school achievement is linked to senior school completion (Lamb, Jackson, Walstab, & Huo, 2015a) and can affect a student's aspirations to complete Year 12 or go to university (Homel & Ryan, 2014). This indicates that SES can not only affect academic engagement, but subsequent achievement into adulthood as "those with Year 12 have a greater likelihood of continuing further study, particularly in higher education, as well as entering the workforce" (Lamb et al., 2015b, p. 3).

There are some ways in which schools can combat the effects of SES on student outcomes. Curating a positive school climate can improve academic achievement, often beyond what would be predicted by school and student SES (Berkowitz et al., 2016). Having well qualified, experienced teachers in the

classroom can also contribute to academic achievement (American Psychological Association, 2012), and engagement in learning can be inhibited or facilitated by teacher support or bias (Burney & Beilke, 2008). Effective leadership can also mitigate the effects of low SES, through building supportive school networks and understanding the needs of their particular school context (Day, Gu, & Sammons, 2016; Pont, 2017; Vale et al., 2010). Homel and Ryan (2014) state that “potential interventions range from providing information... on the educational pathways that lead to particular careers, to improving the experience of schooling for young people and providing financial support for extracurricular activities” (p.27).

Participation in music learning activities could be an important contributor as an educational intervention. Research into music participation and achievement in Australia and the United States suggests that lower SES Australian primary students express more interest in instrumental learning than upper SES students (McPherson et al., 2015), but more privileged American senior students are more likely to participate in musical activities, due to the financial burden (Elpus & Abril, 2011). Low SES schools in the US tend to have a smaller variety of course offerings and less access to arts programs, due to financial and budgetary constraints affecting their ability to fully support music programs (Abril & Gault, 2008). Fees and instrumental hire costs can also make it difficult for students to continue with instrumental lessons, or for parents to contribute to music education programs (Pascoe et al., 2005). Pascoe et al. (2005) advocated for equity in the provision of music programmes in every Australian school, recommending governments and communities provide funding and financial support to ensure resources and facilities “for every Australian student to participate and engage in continuous, sequential, developmental music education programmes” (p. xxii).

Socio-economic status can affect student achievement, through access to educational resources and programs, retention rates, and the psychosocial impact on engagement and aspirations. It is possible for schools to impart measures that can combat these effects, such as curating a positive school culture, retaining qualified and effective teachers, and developing supportive leadership. However,

ultimately, the ideal way for a school to effectively combat the disadvantages inherent in a low SES community is through adequate funding to provide additional resources, activities, and support.

Teachers

The ways in which teachers contribute to the high achievement of their students is a primary focus for this study. The literature review for this section examines five key research areas: teaching strategies, teacher characteristics, teacher self-efficacy, teacher-student relationships and professional development. These areas of the literature yield information about their impact on student achievement in various areas of study including music education.

Similarly to the School component, the Teachers section contains a number of meta-analyses as well as government and educational association research documents about expert and effective teaching (Centre for Education Statistics and Evaluation, 2013; Department of Education & Training Victoria, 2005; Department of Education and Training, 2018; Forde & McMahon, 2019; Hattie, 2003; K. R. Kim & Seo, 2018). It also includes studies relating to teacher self-efficacy beliefs and job satisfaction (Caprara, Barbaranelli, Steca, & Malone, 2006), teacher-student relationships and adolescent behavioural engagement (Engels et al., 2016; Ibrahim & El Zaatari, 2020), and teacher professional development and its impact on instructional practices (Fischer et al., 2018).

There is some existing research that examines effective teaching in a music education context. These include the importance of curating a safe environment for risk taking (Wiggins & Espeland, 2012), developing reciprocal relationships with students (Juchniewicz, 2010), teacher self-efficacy in classroom and peripatetic contexts (Biasutti & Concina, 2017; Steele, 2010), and designing effective professional development using research and expertise in the field (Conway, 2011). Much of the research pertaining to music teaching in this section does not make direct claims related to high achievement. Rather, they focus on effective teaching in music education with the implication that an effective teacher can support student achievement at any level.

Effective teaching strategies

Student academic achievement can be attributed to the strategies teachers employ to convey information and encourage understanding in their students. According to Hattie (2003), what teachers

do, know, and care about can account for up to 30% of variance in achievement, and “a student in a high-impact teacher’s classroom has almost a year’s advantage over his or her peers in a lower-effect teacher’s classroom” (Hattie, 2012, p. 23). This section will therefore briefly explore literature that specifically pertains to teaching strategies in the areas of secondary education, music education, and effective teaching generally.

The first step in effective teaching is creating an optimal environment for learning in the classroom (Hattie, 2003), where students are supported and held accountable for their behaviour (Back et al., 2016). This can involve curating a physically and psychologically safe environment (Whitton, 2015), interacting socially with students to maintain management of the classroom (Juchniewicz, 2010), and ensuring a high proportion of time is spent on task during lessons (Sammons et al., 1995). Once a positive classroom climate is established, effective teachers can use a range of strategies to monitor learning and provide feedback, as well as influence surface and deep student outcomes (Hattie, 2012).

The study of effective teaching at the senior secondary level conducted by Ayres et al. (1999) yielded a range of strategies pertaining particularly to the NSW HSC and the teaching of older adolescents more broadly. Teachers would acknowledge “the rules of the game” of the HSC (Ayres, Sawyer, & Dinham, 2004, p. 155) and incorporate specific exam tips and syllabus references into their teaching. However, what was more important was ensuring that students could understand and apply knowledge and content. This was achieved primarily through facilitating group work, discussion, and question/answer sessions. Various questioning techniques were frequently used during observed lessons, and students were provided with open-ended problems to stimulate discussion and curate detailed notes. These strategies are acknowledged as being useful elsewhere in the literature (Burden & Byrd, 2019; Pascoe et al., 2005; Rowe et al., 2012; Whitton, 2015). However, “the complexity of question sequencing and the management of independent study may be crucial factors in effective teaching for this age” (Ayres et al., 2004, p. 163).

At the senior secondary level, collaborative and independent modes of learning and musical engagement are also important. Research suggests that teachers should be providing opportunities to extend the music education of the senior students by encouraging the initiation of individual projects,

working collaboratively with music providers in and out of school, and advising students about ensemble building beyond school (Pascoe et al., 2005). These teaching and learning experiences should be artfully scaffolded and connect authentically with how the students themselves experience music (Wiggins & Espeland, 2012).

Several aspects relevant to teaching generally can also apply to the music education context. A safe classroom environment is important, particularly in allowing students to take creative risks, and develop confidence and competence (Wiggins & Espeland, 2012). This can be established by maintaining a positive perspective on classroom behaviour, and consistently communicating expectations and consequences to students (Reese, 2007). Teachers should explore a diverse range of music, in genres students already value and within the unfamiliar (Bray, 2009). “Students bring individual soundscapes with them to the classroom” (Kennedy, 2002, p. 107), so it is the responsibility of the teacher to both validate their musical worlds and encourage exploration of repertoire that is appropriate for their students’ age and stage (Pascoe et al., 2005). All of the aforementioned aspects of effective teaching, including mastery of content, strong communication skills, and a passion for the subject, contribute to the artistry and attitude of the effective music teacher (Townsend, 2011).

Characteristics of expert teachers

Research that outlines the characteristics of the expert teacher can be considered a valuable component of educational literature. It can be used to encourage the development of these attributes in practitioners and to provide clarity in identification. These are characteristics that can delineate an expert teacher from being merely experienced or competent, moving beyond the length of a teacher’s career or how much subject knowledge they possess (Forde & McMahon, 2019), although these are certainly contributing factors. Expert teachers have a deep knowledge of domain content, effective instructional practices, and communication skills (Lachner, Jarodzka, & Nückles, 2016). They can organise knowledge efficiently, using it to inform and develop their practice. An expert teacher can

have a positive and meaningful effect on student achievement (Hattie, 2003), and improve outcomes for students from a range of family backgrounds (Hanushek, 2014).

Although teaching experience does not necessarily equate with teaching expertise, it can contribute to a teacher's ability to teach intuitively or with "automaticity" (Forde & McMahon, 2019; Hattie, 2003). This means that they have such a vast range of knowledge and experience that they are able to engage in spontaneous, relevant and significant teaching while still guiding student investigation effectively. They can be "arational" and intuit the right way to respond to and engage a classroom (Ayres et al., 1999). The teacher's repeated experience and deliberate practice allows their cognitive resources to be attuned to other, more higher-level cognitive activity in the classroom (Berliner, 2001) and have more of a flow to their practice (Forde & McMahon, 2019). It enables them to work effectively with the students and context in front of them.

Research on expert teachers also consistently states that a vast, comprehensive domain knowledge is important (Ayres et al., 1999; Hattie, 2003; Rowe et al., 2012), and can be a specific influence on improving student achievement (Hill, Rowan, & Ball, 2005). Expert teachers have deep representations of content, pedagogy, and best practice in explanation, and can more effectively combine these knowledge structures due to their experience in the field (Lachner et al., 2016). They also have significant context knowledge, of their students and school (Stigler & Miller, 2018), and of the broader educational context, such as examination and curriculum requirements (Berliner, 2001). Having comprehensive subject knowledge can be a key factor in teacher success, and can engender student subject confidence, motivation, and belief in eventual exam success (Ayres et al., 1999).

High levels of content knowledge and intuitive practice means that expert teachers are able to be flexible in the way they approach their teaching. Expertise in teaching can depend heavily on context, due to the range of influential variables, such as students, curriculum, resource availability, school and community culture, and SES. Teachers need to understand how to implement their knowledge and skill in order to effectively support student learning (Stigler & Miller, 2018). Expert teachers are able to solve pedagogical problems by being opportunistic and flexible (Forde & McMahon, 2019). By

quickly utilising their knowledge and skills appropriate for the given context, expert teachers can meet their students' needs and make lessons their own (Hattie, 2003).

Lastly, expert teachers are constant, reflective learners, and should have a desire to grow and continually improve (Nieto et al., 2010). They are able to learn along with their students, take time to evaluate and adjust methods, and retain contemporary knowledge of course content and skills (Polk, 2006). They also critically examine evidence, from research or personal experiences, to inform how they might challenge and adapt their own teaching moving forward (Rowe et al., 2012). Reflection by expert teachers is an ongoing process “which is essentially interactional, generating, sharing, reflecting and interrogating on the tacit knowledge that underpins practice” (Forde & McMahon, 2019, p. 158). By reflecting on their methods and approaches, teachers are able to honestly examine their practice, leading to positive changes in teaching and learning (Akiba & Liang, 2016).

Many of the attributes discussed here are relevant to teachers in all subject areas, including music. However, some research examining successful music teachers highlights the importance of enthusiasm, organisational prowess and teacher agency. Teachers in successful music programs are dedicated and knowledgeable, but also have high levels of enthusiasm, which when combined with enjoyable music lessons can create a positive classroom “buzz” (Harrison, 2004; Pascoe et al., 2005; Rusinek, 2008). Music teachers also need to be highly organised, particularly if they are involved in both classroom and co-curricular commitments (Pascoe et al., 2005) as they need to balance the time and cognitive resources required to manage learning expectations in different contexts. Experienced music teachers can have high agency, or potential to act, in the classroom, leading to an increased ability to improvise in any given situation and create an inclusive and flexible learning environment (Espeland, Kvile, & Holdhus, 2019). These characteristics of effective and experienced music teachers align with the aforementioned traits of flexibility and automaticity and reflect teaching that requires considerable content and context knowledge.

Teacher self-efficacy

Self-efficacy relates to the expectancy that a person “can successfully execute the behaviour required to produce the [intended] outcomes” (Bandura, 1977, p. 193). These expectations can differ in magnitude, generality and strength, and be influenced by social, situational and temporal circumstances. A teacher’s sense of efficacy is “a judgement about capabilities to influence student engagement and learning, even among those students who may be difficult or unmotivated” (Woolfolk Hoy & Davis, 2006, p. 117). It can be related to student achievement and motivation, and teacher behaviour, effort and aspirational levels (Tschannen-Moran & Woolfolk Hoy, 2001). Efficacy levels can be affected by “performance accomplishments, vicarious experience, verbal persuasion, and physiological states” (Bandura, 1977, p. 195) and are constantly being adjusted in the face of intrinsic and interpersonal experiences.

There is research that indicates that teacher self-efficacy can have a positive impact on student achievement. However, many studies in this area are compromised by the measures used to evaluate efficacy (Klassen, Tze, Betts, & Gordon, 2011; Tschannen-Moran & Woolfolk Hoy, 2001), the teaching context, and the professional experience and career length of the studied teachers (K. R. Kim & Seo, 2018). Teacher self-efficacy can increase student self-belief, leading to higher achievement in English (Shahzad & Naureen, 2017). Previous student achievement can increase teacher self-efficacy, leading to a reciprocal and cyclical relationship affecting future achievement and teacher confidence across different contexts (Caprara et al., 2006; Woolfolk Hoy & Davis, 2006). Teachers with high self-efficacy may have more emotional and cognitive resources to extend to students, rather than constantly looking inward to maintain their own efficacy. Their beliefs and behaviours affect those of their students, potentially leading to positive outcomes in motivation, self-regulation, and achievement (Woolfolk Hoy & Davis, 2006).

Teachers with positive self-efficacy exhibit several characteristics related to effective teaching. They are well organised, open to new ideas, and more persistent, resilient, and enthusiastic about teaching (Protheroe, 2008; Steele, 2010). They can effectively impart knowledge, values and morals to students, have good classroom management, can improvise, and have a mastery of the school’s

political and social systems (Friedman & Kass, 2002). A study of Italian instrumental teachers by Biasutti and Concina (2017) found beliefs about self-efficacy were predicted by a teacher's social skills, level of teaching expertise, and beliefs about the nature of musical ability. These beliefs and characteristics of teachers with high self-efficacy are then enmeshed with their environment and complex relationship systems, ensuring teachers become "producers and products of microenvironments within a larger school milieu" (Bandura, 1997, p. 249).

There is research that suggests teacher self-efficacy is an important and measurable construct and that "people's beliefs in their personal efficacy play a paramount role in how they organise, create and manage the environment that affects their developmental pathways" (Bandura, 1997, p. 163).

However, the criticisms of the study designs and measurement instruments indicate that the literature in this area cannot yet conclusively point to teacher self-efficacy as a contributor to an overall positive learning environment that can lead to high student achievement.

Teacher-student relationships

Relationships between teachers and their students are a strong contributor to positive school climate and high performance (Berkowitz et al., 2016; Cooper et al., 2005; Thapa et al., 2013) and can lead to higher levels of behavioural and academic engagement over time (Engels et al., 2016). However, it is difficult to design a study that can conclusively identify teacher-student relationships as being the main contributor to high, or even improved, student achievement. Rather, much of the research in this area examines perceptions and experiences of teachers already identified as effective by high student achievement outcomes, in order to define how positive teacher-student relationships manifest and can be cultivated.

According to the study conducted by Ayres et al. (1999), relationships with students was one of the seven factors that contributed to effective teaching. This would manifest through mutual respect and an informal, non-threatening teaching environment, where order and purpose was mutually accepted as being the classroom norm, reducing the necessity for overt disciplinary measures (Ayres et al., 1999; Ayres et al., 2004). Teachers stated that they also enjoyed associating with their students, as

well as “having friendly mature relationships... [demonstrating] caring, humour and commitment” (Ayres et al., 2004, p. 146). Engels et al. (2016) also found that adolescents have an increased need for positive and supportive relationships with adults, which can lead to higher levels of behavioural engagement and academic gains. Reciprocity and a balance of power in the teacher-student relationship was also linked to better engagement and behaviour by Ibrahim and El Zaatari (2020). Subotnik’s (2004) examination of teaching and learning at the Juilliard School established the importance of the teacher-student relationship in this high achieving talent development context. At Juilliard, teachers are highly sought after by prospective students, with the understanding that they can become mentors, career advisors, and provide important connections into the world of classical music performance. The teachers themselves considered the individual needs of their students in how they could best work with them. This could involve giving emotional support if necessary, setting expectations, and seeing “each student as a puzzle to be analysed and developed” (Subotnik, 2004, p. 146). Personalisation and responding to the individual needs of students is an important means of engendering trust and mutual respect (Rowe et al., 2012). Modelling a deep commitment to work and learning can also inspire students to follow their passions and achieve highly (Chrysanthos, 2019), and lead to broader positive connections with curriculum, assessment, school, and community (Cooper et al., 2005).

Teacher professional development

Teacher professional development (PD) is an example of a factor that does not necessarily *directly* lead to improvement in student achievement. Instead, effective PD can positively impact and improve teaching practice, which can then lead to improved student outcomes.

There are many ways in which PD can be delivered, including action research, case studies and peer observations (Department of Education & Training Victoria, 2005). However, a consistent theme in the literature is the importance of teacher collaboration. Collaborative practice as part of PD should be structured and purposeful, with the clear intention of improving student learning outcomes (Guskey, 2003). Collaborative PD should be relevant and supportive and can lead to the development of

professional learning communities within a school, supporting teacher practice on an ongoing basis (Department of Education & Training Victoria, 2005; Rowe et al., 2012). These communities can collectively share experiences and examine school data to improve instructional practice, as well as “engage in pedagogical investigations... and draw connections to their own students and classrooms” (Schmidt & Robbins, 2011, p. 99).

An important part of effective PD is specialisation – designing PD that is tailored to the specific needs of the teachers, within their domain of expertise. By working with the needs and areas of expertise of teachers, effective PD can encourage teachers to make more informed decisions about their practice (Centre for Education Statistics and Evaluation, 2013). This is certainly the case for music education – if PD is to be effective, it needs to be “meaningful, helpful, challenging, and self-directed enterprises in which teachers can become actively involved” (Schmidt & Robbins, 2011, p. 95). The skills and knowledge that music teachers require can affect how motivated they are to engage with certain PD (Bautista, Toh, & Wong, 2017), and PD designed to suit these needs can help to build teacher identity within their domain (Conway, 2011). Ideally, high quality PD in music education should focus on relevant subject matter, instructional strategies, improving student learning outcomes, and provide teachers with opportunities to actively participate in knowledge construction (Bautista, Yau, & Wong, 2016).

As well as being relevant to the teachers undertaking the PD, it needs to be connected to the context in which the teaching is taking place. Effective PD is embedded in actual teacher practice and is supported by and integrated into the existing school culture (Department of Education & Training Victoria, 2005). This is because “classroom instruction and student learning are situated in their local contexts” (Fischer et al., 2018, p. 116). It is important to consider the influence that teacher experience, student knowledge and understanding, and the socio-economic context of the school has on the effectiveness and relevance of PD. In this way, PD can be developed that is “school based and... catered to the unique school setting, student body, and needs of the collective school learning environment” (Ohlson et al., 2016, p. 122), and understood by teachers as something of value (Schmidt & Robbins, 2011).

Students

This section of the literature review examines three key areas related to student-centric aspects of the interview data: how parents, co-curricular music programs, and student characteristics can affect student high achievement. The literature consulted for this section also discusses indirect influences on achievement, such as student participation (Darling, Caldwell, & Smith, 2005), engagement (Foster & Jenkins, 2017), motivation (Maehr & Zusho, 2009), and aspirations (Homel & Ryan, 2014). It references studies from Australia, the United States of America, Portugal, and Hong Kong, and examines research in domains including music, mathematics, sport, and education more broadly.

Literature consulted for this review includes research that connects parental roles, co-curricular program participation and music education. This includes a review of parental influence on musical development (McPherson, 2009), how parents can support musical co-curricular participation (Conkling, 2018) and student musical self-concept (Sichivitsa, 2007), and the benefits of participation in co-curricular music activities (Bradley & Conway, 2016; Eccles & Barber, 1999; Gilman, Meyers, & Perez, 2004). However, several of these references focus more on aspects such as child development and learning transfer, rather than examining effects on achievement. The implication from the research is that while having supportive parents or participating in co-curricular music does not directly correlate with high musical or academic achievement, it can result in better school engagement and participation, supportive peer and family structures, and a stronger musical identity, which could then contribute to high achievement.

The research literature on student attributes includes a range of music education and broader academic reviews and studies. Achievement goal theory and motivation are defined and discussed (Duckworth & Kelly, 2007; Dweck, 1986; Dweck & Leggett, 1988; Homel & Ryan, 2014; Senko, Hulleman, & Harackiewicz, 2011) and explored in the context of music education (Hruska, 2011; Schatt, 2011; Tan & Sin, 2020). The importance of practice in the development of expertise is also investigated, with a range of perspectives on its role in musical performance (Ericsson & Charness, 1994; Ericsson & Harwell, 2019; Macnamara & Maitra, 2019; Mosing, Madison, Pedersen, Kuja-Halkola, & Ullén, 2014; Ruthsatz, Detterman, Griscom, & Cirullo, 2008; Ruthsatz, Ruthsatz, & Ruthsatz Stephens,

2014). These three areas of achievement goals, motivation, and practice are shown to be important student-driven factors that can contribute to eventual musical high achievement or performance success (Jarvin & Subotnik, 2010).

Parental influence on educational engagement

The literature regarding the importance of parental involvement in the education of their child shows that parents have a positive influence on the way in which children value and engage with their education. This is due to parents being the main influence on their child's attitudes, motivation and goals throughout childhood and adolescence (Costa & Faria, 2017). However, how this involvement manifests and its importance with regard to the academic achievement of the student can vary depending on context and learning stage.

How parents value education and their attitudes towards learning and the arts are key influences on a student's academic engagement and achievement, due to the probability that children will hold similar values and perspectives towards education as their parents (Wilder, 2014). Parents who value the arts lead to a higher likelihood that their children will participate in specialised arts programs (Ashbourne & Andres, 2015) and can influence the choices their children make regarding future music study (W. Ho, 2009). Parental modelling of musical enjoyment, participation in music, or encouragement of their child's engagement in musical pursuits can lead to more confidence and higher motivation for students to participate in musical activities (Sichivitsa, 2007). McClellan (2011) examined the importance of parents on the decisions that children make regarding their career progression, stating, "parental influences throughout the decision-making process has principal value in the adolescent's perception of one's self as a future music educator" (p. 60).

Parenting styles and approaches that are utilised can also affect potential academic achievement. The "authoritative" style of parenting has been linked to higher achievement at the adolescent stage (Boon, 2007; Collins & Laursen, 2004). This is a parenting style that incorporates a high degree of control, firmness and monitoring by parents, as well as being nurturing, warm, and holding high expectations of behaviour commensurate with the child's maturity level. Authoritative parents also socialise

children to the academic environment and expectations of the school context. This involves imparting on their children the importance and value of education, and encouraging their engagement both behaviourally and emotionally (M. Wang & Sheikh-Khalil, 2014). This parent-oriented motivation “may provide children with a particularly meaningful sense of purpose as they feel that they are working to fulfill the goals of central figures in their lives” (Cheung & Pomerantz, 2012, p. 829)—a sense of purpose that goes from higher engagement in school, to higher self-regulated learning, through to higher levels of academic achievement.

As indicated in the previous paragraph, the literature regarding the connection between parenting and student academic achievement is not necessarily direct. There is no research showing that a specific parenting strategy will lead to high academic achievement: it is more so related to how parents impact the motivation, attitudes, and perceptions of learning of their children that can then lead to higher school engagement and achievement (Boonk, Gijsselaers, Ritzen, & Brand-Gruwel, 2018). In fact, research suggests it is important for parents to be flexible in their type and level of involvement in their child’s education, dependent on age and capability (Boonk et al., 2018; Jarvin & Subotnik, 2010; Subotnik & Jarvin, 2005; Uppitis, Abrami, Brook, & King, 2017). For example, regarding parental involvement with child instrumental learning, Davidson, Sloboda, and Howe (1995) and Jarvin (2017) indicate that positive involvement early on can provide good extrinsic motivation for children to continue their learning, whereas later in their development it is better to allow for motivation to become more intrinsic and self-sustaining. Parents should enable their children to positively approach achievement through an innate need to feel “competent, autonomous, related and purposeful” (McPherson, 2009) and should “[create] the conditions under which academic success can be fostered” (Boonk et al., 2018).

Co-curricular music participation

There is literature that examines how the terms “co-curricular” and “extra-curricular” are defined and how their use can impact research and practice (Bartkus, Nemelka, Nemelka, & Gardner, 2012).

There can be some confusion with the terms regarding what is implied by the use of “co-” or “extra-”,

and how participation in these programs can be perceived depending on the individual student focus. The term “co-curricular” was used in all of the interviews, and is the term used on many NSW school websites to describe their supplementary musical activities. Given that this study was conducted in NSW, the term “co-curricular” will be used henceforth, in accordance with the NSW Department of Education content style guide (NSW Department of Education, 2021).

A common feature of many school music programs in Australia and internationally is a co-curricular music program. Co-curricular music can manifest in many ways: small and large ensembles, peripatetic instrumental instruction, and even individual school performance opportunities. Provision of and access to co-curricular music activities can be dependent on several factors, such as the way in which music is valued at the school, and the socio-economic context of the school and broader community (Ashbourne & Andres, 2015; Elpus & Abril, 2011; Homel & Ryan, 2014).

The literature in this area provides some evidence of potential benefits to academic achievement through co-curricular music participation, however these benefits are likely to be a result of “dual step transfer” (Bradley & Conway, 2016) as opposed to near or far transfer of learning. Learning transfer is based on the premise that “what is learned in school will apply in other settings, and that what is learned earlier will have some effect on later learning or performance” (Tunks, 1992, as cited in Forrester, 2018). Near transfer occurs when the requirements for a new task bears a large amount of similarity to skills or knowledge already learned, such as driving a truck after driving a hatchback car (Hajian, 2019). Far transfer occurs “when a set of skills generalizes across two (or more) domains that are only loosely related to each other” (Sala & Gobet, 2017, p. 515). Bradley and Conway (2016) propose that the benefits of co-curricular program participation, particularly in the development of non-cognitive skills such as motivation, self-efficacy and positive attitudes towards school experiences, results in enhancements to academic achievement through dual step transfer.

The term “dual step transfer” is not explicitly used in the literature examining co-curricular participation and academic achievement, but it is certainly implied in results from research. Darling et al. (2005) examined survey data about adolescent extracurricular activities and concluded that “participation... leads to processes that bind students to the adult-oriented values of the school (e.g.,

good academic performance, high academic [attitudes], and high academic aspirations)” (p. 72). The meta-analysis conducted by Gilman, Meyers, and Perez (2004) on the structured co-curricular activities of adolescents concluded that they can have positive effects on mental health, self-esteem, and school engagement, which can then lead to positive effects on school performance. Even a control group study conducted by Holochwost et al. (2017) that found participation in a Venezuelan orchestral music program had positive effects on achievement in reading, maths and language arts, couldn’t conclusively identify that the results were directly due to the musical content and not to other aspects such as developments in motivation, engagement, and memory.

Engagement with co-curricular music activities can also lead to social and peer-based benefits. A student’s peers can influence their participation, particularly in activities that can be personally and socially valuable (Gilman et al., 2004). Playing an instrument can become a part of a student’s identity (Bray, 2009), and participating in co-curricular music programs “can facilitate adolescents’ developmental need for social relatedness and can contribute to one’s identity as an important and valued member of the school community” (Eccles & Barber, 1999, p. 29). Music programs can also be seen by parents as having a positive effect on adolescent students, particularly in how it may connect their students with “desirable peers [who] share their children’s interests as well as the family’s cultural values” (Conkling, 2018, p. 35).

Participation in co-curricular music programs can certainly have tangible benefits for the students participating, including on their self-esteem, self-perception, and attitude towards schooling overall. These programs can also be “an indicator of a healthy school environment” (Kelley & Demorest, 2016, p. 101), raise school satisfaction levels (Gilman, 2001), and encourage students to continue to participate in music and arts-related activities as they mature (Foster & Jenkins, 2017). But the literature, as yet, cannot conclusively state that it will have a direct impact on academic achievement.

Student attributes for achievement: Beyond innate ability

While being musically or academically gifted may make someone more pre-disposed to high achievement in a particular domain, innate ability in and of itself does not solely lead to high

achievement. This section will examine other individual level factors and psychosocial skills that research contends can contribute to high achievement, specifically in the realms of achievement goal theory, motivation, and deliberate practice.

Achievement goal theory was postulated by Dweck (1986) as a means of examining how motivational processes (the goals people pursue) influence learning. It is “less concerned about what individuals are trying to achieve, and instead focuses more on understanding why” (Maehr & Zusho, 2009, p. 78). In Dweck’s (1986) article, she drew connections between intelligence theories, goal orientations and behavioural outcomes. A belief in fixed intelligence leads to performance goals focused on judgements of competence, but malleable intelligence leads to learning/mastery goals focused on *increasing* competence. These goals highlight the difference between a student’s focus on evaluations of ability versus effort: “a focus on ability judgements can result in a tendency to avoid and withdraw from challenge, whereas progress through effort creates a tendency to seek and be energised by challenge” (Dweck, 1986, p. 1041). These goal foci can set in motion cognitive, affective and behavioural patterns that may be maladaptive, or promote persistent challenge seeking and sustained performance (Dweck & Leggett, 1988).

Subsequent literature and reporting support the positive effects mastery goal orientation can have on musical achievement. Schatt’s (2011) examination of the literature showed that music students tended to pursue performance goals, where ability was believed to be more influential than effort, leading to short term or temporary success. Focusing on mastery goals could be more beneficial, leading musicians to aspire to more complex activities, persist through challenges and may result in greater achievement. Intrinsic motivation was an important part of musical development, and teachers could affect student perceptions of success and failure, and their motivational magnitude. The literature review by Tan and Sin (2020) also found that higher achievement in music was linked to mastery-approach goals and intrinsic motivation, and “while performance-approach goals may be adaptive in certain domains, they have been found to be detrimental and maladaptive for musicians” (p. 16). Teachers can influence student motivation through the way they curate the classroom motivational environment, by attributing praise to effort rather than talent, and encouraging the belief that

knowledge, skills and abilities can be developed with practice. Mastery goals enable music students to focus on the learning process and can reduce the difference between high and low aptitude learners (Hruska, 2011), whereas performance goals have a deleterious effect on musicians, possibly in connection with performance anxiety (C. K. J. Wang, Tan, & Dairianathan, 2018).

Perseverance in the face of challenges is also associated with mastery goals (Senko et al., 2011), in that they “focus children on effort, as a means of utilising or activating their ability, or of surmounting obstacles” (Dweck, 1986, p. 1043). This can also be termed “grit”, and may be as important as IQ in contributing to achievement (Duckworth & Kelly, 2007). It requires passion and sustained commitment, a “function of intensity, direction, and duration of one’s exertions towards a goal” (Duckworth & Kelly, 2007, p. 1098) and is related to the Big Five personality trait of conscientiousness (Burrus & Brennerman, 2016). Along with having an intense focus and making good choices about practice behaviours, persistence is key to learning and achievement in music education (Maehr et al., 2002). Perseverance and commitment to practices and activities that develop talents can be a key factor in reaching high levels of expertise and achievement (Olszewski-Kubilius, Subotnik, & Worrell, 2015).

Effective skill and knowledge development are also related to the attainment of expertise through deliberate practice. Ericsson and colleagues have explored this subject extensively, in various domains including sport, chess, and music (Ericsson, 2020; Ericsson & Charness, 1994; Ericsson & Harwell, 2019; Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson & Lehmann, 1996; Ericsson, Prietula, & Cokely, 2007). Deliberate practice is highly structured, requires highly focused attention, and includes repeated experiences designed to improve a person’s current level of performance (Ericsson et al., 1993). Early exposure and specialisation can be important for certain domains, such as ballet, music and sports (Ericsson & Lehmann, 1996), and the pursuit of expertise could require at least a decade of intense practice and preparation (Ericsson et al., 1993) or even the duration of the majority of a lifetime to “attaining the highest levels of performance in a highly constrained activity” (Ericsson & Lehmann, 1996, p. 274)

There is some criticism of Ericsson's postulations about the importance of deliberate practice in high achievement. Ruthsatz et al. (2008) found that while deliberate practice was a mediating factor in musical expertise, it was only the case after considering high intelligence and musical ability. Innate ability and the existence of prodigies also refutes the idea of expertise being gained only through practice, with innate ability being particularly essential to the uniqueness of prodigious talent (Ruthsatz, Ruthsatz, et al., 2014). The study conducted by Mosing et al. (2014) of Swedish twins found no association between practice and musical discrimination, suggesting that practice may not "causally influence the ability to discriminate musical sounds" (p. 1800) and that it could instead be attributed to genetic or environmental factors. And Williamon and Valentine (2000) were critical of the definition of deliberate practice posited by Ericsson et al. (1993), saying it was "too global" (p. 371). Their study of 22 pianists of different skill levels found that "amassing large quantities of practice provided few benefits for performers—musically, communicatively or technically" (Williamon & Valentine, 2000, p. 370). Ericsson et al. (1993) was further critiqued by Macnamara and Maitra (2019), whose replication of the 1993 study found that "deliberate practice cannot account for why some individuals acquire higher levels of expert performance than others" (Macnamara & Maitra, 2019, p. 18).

Along with innate ability, there are a number of elements that can contribute to a student's academic or musical high achievement. Optimal intrapersonal circumstances include a goal orientation towards effort and mastery, an intrinsic motivation to learn and develop, and commitment and perseverance through challenging tasks. Quality practice processes and a focused teaching and learning environment can also pave the way to success, expertise, and high achievement.

Pedagogical approaches

Throughout the course of this study, it became clear that there were two distinct pedagogical approaches that were being utilised by the interview participants in their teaching of senior secondary music students. These were gifted pedagogy and authentic learning pedagogy. Gifted pedagogy, particularly in the realm of musical giftedness and talent, was an area of research that featured from the beginning, given the focus on high achievement. The hypothesis was that there would be a high likelihood that consistently high achieving schools would feature students who possessed high potential or gifted capabilities. This would particularly be the case for academically selective schools in NSW. Teachers of highly capable and identifiably gifted students should thus be able to articulate the strategies they utilise to cater for such students. The range of gifted education techniques and approaches described by teachers were prompted by a specific question asked in the interviews.

In contrast, authentic learning pedagogy was an element that arose directly from the interview data and was not an initial area of research focus. As teachers began discussing the ways in which they approached their senior secondary teaching, it became clear that part of their focus for students in this school stage was to contextualise their learning as much as possible, and to blur the boundaries between school and professional practice. Though “authentic learning” was not a term used by the teachers, the way in which participants described their senior secondary classroom teaching and learning, and their curation of the broader school musical environment, all featured key elements of authentic pedagogy (White, 2020). This led to an examination of relevant literature about authentic learning strategies.

As the literature about gifted and authentic learning pedagogy concerns teaching approaches, student characteristics and supportive school practices, it seemed appropriate to address these two areas as separate entities. What follows is a comprehensive examination of the literature in both areas, including research examining the pedagogies in broad academic contexts (Callahan, 2017; Herrington, Reeves, & Oliver, 2014; Hodges, Tay, Maeda, & Gentry, 2018; M. Kim, 2016; Lombardi, 2007; Roach, Tilley, & Mitchell, 2018) and music education contexts (Abramo & Natale-Abramo, 2020; Evelein, 2006; Subotnik, Jarvin, Thomas, & Lee, 2016; Wiggins, 2007).

Musical giftedness and talent

Introduction

In the context of music education, the themes of giftedness, talent development and expert performance have been explored in various ways by educators, researchers and theorists. While giftedness is not necessarily synonymous with high achievement, musically-gifted students theoretically have the highest capacity for achieving at a high level in comparison to their similarly aged peers. Therefore, it is logical to examine literature pertaining to highly capable students, how to identify them, and the strategies that can be used to support their potential for high achievement.

This section explores how musical giftedness can be defined, identified, and catered for within school and classroom settings. It considers research from some key theorists in the fields of academic and musically-gifted education, including Gagné (1995), Renzulli (1978), Haroutounian (2008), McPherson (1997), and Subotnik (2004). While a range of theories of giftedness are described, Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2003) and the seminal work by Subotnik, Olszewski-Kubilius, and Worrell (2011) are what underpin the context for this study, as they significantly inform the structure and language of the NSW High potential and gifted education policy (NSW Government, 2019). Further evaluation of how this policy manifests in the participating schools can be found in *Chapter 5. Discussion: Musically-gifted students*.

Definitions of musical giftedness

According to Gagné, "Giftedness is... the possession and use of untrained and spontaneously expressed superior natural abilities (called aptitudes or gifts), in at least one ability domain" (Gagné, 1995, p. 106). These gifts can then subsequently manifest as talents through the developmental processes of learning, training and practicing. Giftedness manifestation and development is influenced by a range of factors. These include: intrapersonal catalysts such as physical and mental traits; goal management abilities; environmental catalysts in the personal and broader community of the gifted person; developmental processes, from biological maturation through to formal institutional learning; and chance (Gagné, 2003). Essentially, giftedness is a person's ability to learn and aptitude for

knowledge acquisition in a particular domain: “the easier or faster the learning process, the greater the natural abilities” (Gagné, 1995, p. 107).

Renzulli’s (1978) theory of giftedness takes the form of a Venn diagram, where three key “ingredients” converge to contribute to a person’s giftedness. For a person to be considered gifted, they must demonstrate above average ability, a motivation for commitment to the tasks and problems found within the person’s domain of ability, and a marked creativity and originality of thinking and approaches to the domain. Similar to the application of Gagne’s definition, to delineate musical giftedness using Renzulli’s definition means assessing a student’s ability and potential via their demonstration of ability. In this way, a musically-gifted student could be identified as one with a significant aptitude beyond their age peers for musical tasks; a marked commitment to and motivation for pursuing and completing musical challenges; and an ability to demonstrate creative, original and flexible musical thinking throughout the musical process.

Gagne’s and Renzulli’s theories of giftedness rely on a student’s ability to demonstrate their giftedness. This presents a difficulty with Renzulli’s theory: that gifted students must be equal parts able, committed and creative. What if you have a student who is able, and creative, but not committed—an “invisible underachiever” (Chaffey & Bailey, 2006)—or lacks formal training and skills in order to be able to demonstrate their ability? This is where the concept of “potential” becomes an important aspect of how giftedness is defined, particularly for students who, through uncontrollable circumstances such as their SES or home environment, may lack the formal training that can allow them to effectively demonstrate this giftedness. Potential is the key variable for giftedness in earlier childhood, with achievement and eminence the focus in later adolescence and adulthood as this potential is developed (Subotnik et al., 2011). McPherson (1997, p. 69) states, “the identification of gifted children is essentially a task of trying to predict an individual's potential to succeed musically, prior to any formal music training”. This task is made difficult by the heterogeneity of gifted children, and the ways in which individual differences can affect knowledge, skills, and motivation (Pereira Da Costa & Lubart, 2016). Haroutounian (1995) agrees that the identification of artistically-gifted students should recognise a student’s potential for talent, potential

beyond musical performance or production, and into creative and expressive musical involvement. This potential is best identified by those with expertise in the area, either in gifted education or the specific talent domain.

This concept of potential leads to the ultimate difficulty in defining musical giftedness because of the many ways in which it can manifest. McPherson and Williamon (2015) identified eight different areas of musical talent: “performing, improvising, composing, arranging, analysing, appraising, conducting, and teaching” (p. 352). Haroutounian (2000) counted music awareness and discrimination as key elements of musical giftedness. Gagné (1999) stated that,

The best indicator of giftedness for music is the rate of progress during the first months of learning a task. This means that before the start of formal training it might not be possible, without appropriate tests, to assess with any degree of precision the presence of high aptitudes (p. 42).

This could mean that a musically-gifted student could only be identified as such during or after some kind of formal musical training, in order to allow the musically-gifted student to express their propensity for music in such a way that can be recognised by others with musical expertise. In many cases, “what determines whether individuals are gifted or not is not *who they are* but *what they do*” (Subotnik et al., 2011, p. 22). It is entirely possible that the musical potential of students can go unnoticed simply because they have not found the right medium for expression. As such, it is important for music teachers to be able to identify high musical potential beyond the demonstration of instrumental skill or musical knowledge.

An acute form of giftedness exists in children who are identified as prodigies, capable of performing in a particular domain at an adult, professional level before they have reached adolescence (Ruthsatz, Ruthsatz, et al., 2014). They are highly capable of connecting the basic knowledge learned by similarly aged peers with more sophisticated understanding and cognitive processing (McPherson & Lehmann, 2012). The existence of prodigies provides evidence that innate ability is a key component in developing high expertise at a fast rate, alongside dedicated practice and early identification (McPherson & Lehmann, 2012; Ruthsatz et al., 2008; Ruthsatz, Ruthsatz, et al., 2014). Feldman and

Morelock (2003) examined the nature of prodigiousness and found that, like giftedness generally, it can also be influenced by intrapersonal, environmental and historical factors. Due to the specialised nature of the precocity, accessibility to the domain of giftedness is also important, as is the individual's commitment and passion to pursue higher levels of knowledge and expertise in the given area. But first, there must be "a child of unquestionably extraordinary native ability" (Feldman & Morelock, 2003, p. 462).

To summarise, musical giftedness could be defined and recognised by these characteristics: potential, proficiency and creativity. Without formal training, musically-gifted students can still show the potential to succeed musically, by the spontaneous expression of ability in areas such as aural discrimination, performance, or composition. A musically-gifted student is capable of learning and demonstrating musical knowledge at a faster, easier and more natural rate than similarly aged peers. And musically-gifted students are capable of demonstrating musical creativity in such a way that it is recognised as music by those with expertise.

Characteristics of the musically gifted

All children are inherently musical. This is evident from the nonsense songs they sing to themselves, to dancing along with music they hear, and even making up songs and chants in the playground (P. S. Campbell, 2008). So how is it possible to distinguish between all the children who find joy in music, and those who are musically gifted? Intellectual giftedness occurs in the population at a rate of between 1 in 6 to 1 in 1 million children (Gross, 2004), depending on the IQ range. While there are no official numbers in the literature regarding the prevalence of musically-gifted children, their characteristics have been explored through the study of identified children in case studies and more general overviews (Bamberger, 2013; Evans, Bickel, & Pendarvis, 2000; Garces-Bacsal, Cohen, & Tan, 2011; Haroutounian, 2000; P. S. K. Ho & Chong, 2010; Subotnik et al., 2016). In this instance, Haroutounian's (1995, 2017) four key perceptual/cognitive processes inherent in talented artists will be used as a means to comprehensively address the typical characteristics of a musically-gifted student.

Perceptual Discrimination, in essence, means “fine sensory awareness”. In the case of musically-gifted students, perceptual discrimination is something that develops the more they are exposed to and understand about music, at a faster rate than similarly aged peers. They are capable of identifying pitches, rhythms, tone colours, and how they connect together. They may be able to easily connect with a melody or rhythm in a song, hear and understand differences in the sounds of instruments, and perceive and connect with the nuances of sound that alter and create emotional meaning in music. This could be seen as a kind of “fluidity” in the ability to learn—being able to quickly shift between musical sound, structure, notation and/or instrumentation (Bamberger, 2013). These sensitivities to pitch, rhythm, patterns and timbre are also the focus of many musical aptitude tests for young children (Marek-Schroer & Schroer, 1993).

Marek-Schroer and Schroer (1993) also noted that these kinds of aural and innate abilities should ideally be coupled with an intense fascination for music itself. This intellectual curiosity and emotional engagement with music may be notable to parents during a child’s “sensitive periods” (Shavinina, 2010) when they may become increasingly obsessed with learning about and engaging with music (McPherson & Lehmann, 2012). It could also be noted as “compulsive musical pursuit” (Ohio Department of Education, 2009, p. 10) or “over-excitabilities... an intense emotional commitment to one or more forms of music” (McPherson & Williamon, 2015, p. 347).

Metaperception relates to the joy found in experimenting with musical sounds, internally and externally. This could also be defined as the ability to “think differently and produce music imaginatively” with “fluency, fluidity and originality” (Lancaster, 2003, p. 5). Marsh and Young (2015, p. 24) describe the creative aspects of musical play, including the transformative processes where “short motifs or ideas are revisited, repeated, and gradually transformed, within themselves, by extending or by combining with other ideas”. Through musical play and experimentation, “children consciously consider formal, rhythmic, and melodic appropriateness and demonstrate a sophisticated array of innovative processes” (Marsh & Young, 2015, p. 25). This particular process may not necessarily be unique to musically-gifted students, but students with more musical proficiency would be able to experiment with more complex musical ideas, formally and informally.

Creative interpretation is the product of metaperception. It is the most discernible part of the artistic process and is where choices made through perceptual discrimination and metaperception are finalised, resulting in an artistic performance, description or product that is, ideally, “a uniquely personalised statement” (Haroutounian, 2017). This aligns with the conclusion made by McPherson and Williamon (2015) regarding the importance of musicality in a child’s imitation of sounds and songs: “the two most important core ingredients of musical giftedness, therefore, seem to involve sensitivity to structural and to expressive (in contrast to technical) properties of music” (p. 344). This sensitivity to musical properties could manifest as an ability to create songs with musical patterns, add or improvise musical embellishments in performance, and demonstrate an understanding of formal musical components, even if there is a lack of correct terminology (Abramo & Natale-Abramo, 2020).

Dynamic of Performance is the learning process related to the “doing” of music: learning through listening, performing, composing, singing, tapping a rhythm. The immediacy of this process is shared by the student and the audience, and the learning is shaped by the time taken to learn, the context of the learning, the student’s knowledge and abilities and the reaction from the audience. This is the process where musical gifts can come to life, where the musically gifted can both demonstrate their knowledge while they simultaneously learn more about music, and where the audience (teachers, parents or others) are able to appreciate the student’s musical capabilities and observe their potential.

In extremely rare cases, a child may “display extraordinary talents” and be “endowed with unusual human potential” (Kenneson, 1998, p. 34). Prodigies are generally defined as “a child who, before the age of 10, performs at the level of a highly trained adult in some cognitively demanding domain” (Feldman & Morelock, 2003, p. 459). The research on musical prodigies indicates they typically possess the following characteristics:

- *Exceptional working memory*: Working memory allows learners to store information in order for it to be applied and incorporated with additional information as it is received. Musical and auditory memory is considered to be a domain specific skill for musical prodigies (Ruthsatz, Ruthsatz Stephens, & Ruthsatz, 2014) as it can contribute to their

ability to translate heard and imagined musical ideas effectively onto instrumentation, often without repeated playings or notation.

- *High performance ability at an early age:* This is the primary marker of a prodigy – that they are capable of reaching a professional level of achievement in their specialty domain exceedingly quickly, often prior to the age of 10 (Gagné & McPherson, 2016; Kenneson, 1998; Ruthsatz, Ruthsatz, et al., 2014). This is due to a combination of innate potential, optimal environmental influences, and considerable investment in skill acquisition (McPherson & Lehmann, 2012). This commitment to development at such a young age can lead to an extraordinary display of talent which can be both wonderful and “spooky” (Fisher, 1973).
- *Narrow focus on talent:* Simonton’s (2017) case study examination of Mozart as a child prodigy indicates that he had an asymmetrical development; his musical ability was prodigious, but otherwise his development was mostly age-typical. This is quintessential of prodigies and could be due to a child’s exposure to certain aspects of a domain during a sensitive period in their overall development. An obsession with music and an intrinsic motivation to commit to significant skill acquisition can transform an initial fascination into a more lasting period of growth and learning (McPherson & Lehmann, 2012; Shavinina, 2010).

While all children have the ability to be musical, fewer will demonstrate musically-gifted potential, and even fewer will be able to demonstrate prodigious talent. Of all the characteristics described here, the most notable aspect is the pace at which both the gifted and prodigious can learn about music.

While this characteristic on its own would not necessarily render a diagnosis of “musically gifted”, it could be the key for teachers, parents, and adult experts looking to identify students who could benefit from musical enrichment more suited to their innate capabilities.

Identification and nurturing of gifts

There are two primary paths of measurement of musical giftedness: through demonstrated student achievement, or intuitive, expert assessment. Identifying students through demonstrated achievement assumes that the student has attained a certain degree of formal musical knowledge and skills and is capable of demonstrating those knowledge and skills at a level beyond their age peers. This can narrow the field of students to be identified as musically gifted to those who may have had formal instruction or training in order to be able to accurately demonstrate their level of musical knowledge through an instrument or composition. However, there are several voices in the musical giftedness literature who advocate for identification of musically and artistically gifted and talented students to come from multiple sources and processes, rather than one high-stakes audition or similar test protocol.

Lancaster (2003) provided a broad overview of various aspects of identification research up to the point of publication. For effective identification of musically-gifted children, there are several factors that need to be considered:

- *Context:* The learning environment and socio-cultural context of the identification is a key aspect to be considered when examining potentially musically-gifted students. This can include establishing what is musically valuable and available to a student and how that could affect their skills and knowledge, or even how it may affect the judgement of those with musical expertise.
- *What is being identified and how:* Students who are gifted or proficient in different musical genres would need to be identified with this in mind, as would students with and without formal musical training. Identification strategies could involve the assessment of performance, which would rely on the assumption of trained skills and formal musical knowledge, or evaluation of intuitive musical potential. Identification of musical potential could involve assessing musical discrimination skills, particularly with pitch and rhythm; musical creativity; or potential for perfect pitch. The criteria for identification would then

determine whether this would be best assessed with a performative audition strategy or a broader, multi-phase method.

- *Other influences:* Factors that could potentially influence the demonstration and development of musical talent could include the economic circumstances of the family and community; access to musical expertise and ensembles; acquisition of formal musical knowledge and skills; age of the student; the musical experience and knowledge of the assessor; anxiety in a testing environment; and intrinsic motivation and interest in music.

In providing an alternative strategy to a high-stakes audition for identification, Haroutounian (1995) advocated for musically-gifted students to be identified through a process that assesses a student's potential and talent within several contexts, over a period of time, and from different musical perspectives. Students should be assessed on their musical problem-solving skills, in small groups and solo, and non-performance abilities demonstrated through assessment should be considered. In this way, "underserved populations" of musically-gifted students can be considered—that is, students who are musically gifted but have not had the benefit of formal musical instruction or instrumental practice. Identifying students in this way focuses on the musicality of the student, not just the musical performance skills.

Another example of a multi-stage identification process was examined by Baum, Owen, and Oreck (1996). The Talent Identification Instrument was essentially a series of auditions, conducted over seven weeks, with students assessed by five panellists on how well they were able to learn and interpret the specified curriculum over that time. An approach such as this can be beneficial, especially if the tasks and learning program are differentiated for diverse learners. But this can also be very time consuming and labour intensive for the teachers, panellists, and the students. The intention is good, but the application is impractical.

A shorter, multi-stage identification process used at the School of Art in Singapore is described in Andreasen (2014). Students were selected based on teacher nominations, and then underwent a whole day of practical and aural testing, assessed by a panel of three. A similar three-stage process is advocated for in Callahan (2017). The process is initiated by a referral or nomination of a student for

consideration of giftedness. The student then undergoes screening and assessment, using a range of observations and academic data, after which they are placed in a program that suits their academic needs and abilities. The importance of teacher referral and multiple sources of ability data in Korea is also emphasised in Cho (2016), although their identification practices are restricted to the top 1.87% of the population, and focus on the STEM domain.

Essentially, literature in the area of the identification of the musically gifted is increasingly showing that it is important to consider musical giftedness from many different aspects in an effort to include all students with all levels of formal and informal knowledge. Although a high-stakes audition scenario is problematic, it is concise and absolute, can effectively demonstrate a student's musical ability at a given point in time, and is time and labour effective. A longer, more information-dense process is much more inclusive, and can allow for multiple opportunities for students to demonstrate their potential for musical giftedness. However, this can be highly time and resource consuming for schools. A formal identification process would need to ensure that potentially musically-gifted students could be fairly and effectively identified, but also be considerate of the time and commitment required from those involved in the process.

School support and teaching strategies

Once a student has been identified as musically gifted, the school becomes an important place for a student's musical development. Teachers can have an enormous and lasting impact on the academic and talent development of children, and schools have the potential to provide a range of opportunities for students to develop their talents. This section will explore some of the key techniques teachers and schools can employ in order to effectively cater for gifted students. This will include literature that addresses the education of both academically and musically-gifted students.

Acceleration

Acceleration as a means of effectively serving gifted students in an educational setting has been employed in schools as early as 1868 in St Louis, USA. Students who exhibited outstanding academic ability could be eligible for “grade promotions” (Jolly, 2009). While the most common conception of acceleration is grade-skipping, where a student who is highly capable across a range of subjects is able to move to a grade one or more above their typical age peers (Ford, 2012), acceleration in an academic context can be carried out in several different ways. Relative to grade skipping, students could also opt for early entrance to an institution. In the Australian context, this could be kindergarten (primary school), Year 7 (high school) or university. Another option is “telescoping the curriculum” (Jolly, 2009), where a student or group of students may learn a year or two years’ worth of content within a shorter, intensive period of time. This option could be taken for a single subject, or students could also choose content-area acceleration (Ford, 2012), where they are able to grade skip in a particular subject.

Providing access to different options for acceleration for students can ensure that they are able to interact with peers of similar and advanced age and abilities (Southern, Jones, & Stanley, 1993). This can be an ideal way of catering for students whose academic abilities mean that they “require more specialised and directed services” (Ford, 2012, p. 102). VanTassel-Baska (2005) advocated for acceleration, in any form, as being a non-negotiable aspect of gifted programs in schools in order to effectively respond to the needs of gifted learners. Acceleration programs can provide regular challenges for gifted learners and allow them to work in their field of passion (Dai & Chen, 2013). While students may encounter issues with social, emotional, or physical maturity that may be in contrast to their academic ability (Ford, 2012) there is no conclusive evidence that this is a comprehensive reason to not employ acceleration for all cases (Jolly, 2009).

With regard to acceleration in the context of music education, scheduling and access to appropriate resources and programming could be a greater practical issue than intrapersonal maturity. An individual student could theoretically only be restricted in progressing on their instrument by their own motivation and financial capabilities. A school music program could provide opportunities for

younger, gifted performers to accelerate into senior bands and orchestras, performing with older students at similar ability levels. Content-area acceleration specific to music classes could mean difficult negotiations with high school timetabling, however if the school has proximity to a tertiary music program, gifted performers could take undergraduate performance units as early credit for future degrees (Brooker, 1999).

Enrichment

Enrichment can generally be described as “a process that extends instruction beyond the bounds of the curriculum” (Southern et al., 1993, p. 390). Passow (1958) described several ways in which the curriculum can be modified for gifted learners, including adjusting depth of content, the kind of content presented, and connecting content to the interests of gifted learners. Merely adjusting content may not be enough, however, as this could easily become another form of acceleration (Southern et al., 1993) and assumes that the original content is arcane and pointless. Quality enrichment opportunities are of great importance at all stages of talent development (Subotnik et al., 2011).

Where the purpose of acceleration is to move a student into an academic context that is more suited to their advanced cognitive abilities, enrichment is a strategy that can be utilised by schools to cater for gifted students “in an effort for them to remain with their chronological peers” (Jolly, 2009, p. 45). In most cases in the literature, discussion of enrichment programs revolves around exploration of key ideas and strategies, with some studies examining aspects such as benefits for academic achievement or socioemotional benefits. Enrichment programs can have positive effects on academic achievement for gifted learners, by providing them with challenging content in an area of interest (M. Kim, 2016). Connection with like-minded students can also contribute to a supportive, positive learning environment and assist in building positive relationships with peers (M. Kim, 2016). However, it is worth noting that though research in this area indicates positive results, the reason why can be multifaceted and not necessarily just due to the enrichment itself (Golle et al., 2018; M. Kim, 2016). Enrichment can also take the form of advanced opportunities outside of class time—after school or outside of school—utilising community and expert resources to supplement learning (VanTassel-

Baska, 2005). This kind of enrichment in specific domains, such as music, can be a way to identify and nurture students with specific abilities, especially in the younger years (Olszewski-Kubilius & Thomson, 2015). Musical enrichment programs and activities could take the form of selective choirs, orchestras, bands, state-wide music camps, or teacher-guided individual musical projects (McPherson, 1997; Wood, 1985).

The Schoolwide Enrichment Model (SEM) is an example of a specific design, utilising opportunities in and out of the classroom, in an effort to extend gifted learners (Reis & Renzulli, 2009; Renzulli, 2012). It aims to develop academic and “creative-productive” giftedness (Reis & Renzulli, 2009). In essence, this means extending curriculum and learning opportunities to incorporate a broader range of content, complexity and skills, with the eventual purpose of students applying this knowledge and skills to create something new. The SEM has three types of enrichment, each leading on from one another:

- *Type 1*: Students are exposed to a range of ideas that may not be covered in the standard curriculum. This could involve utilising a range of resources (including external experts) to spark student interest.
- *Type 2*: Involves the pursuit and development of more specific skills and processes, usually in a topic area stimulated by Type 1 exposure. This can be more student directed, with the aim being advanced skill development.
- *Type 3*: An extension of Type 2, where students can apply their advanced knowledge and skills to the creation of something new. This should be almost completely student-driven, ideally with support and resources provided by the school. The result is a high-level product of significant interest and meaning for the student, and further development of student commitment, resilience, and time management.

Being a schoolwide model, this can be implemented with all students, with the purpose being to encourage independent learning skills. However, the nature of Type 3 enrichment means that students of higher-level capabilities would most benefit, due to the higher level of skills and knowledge required. A key element to the success of a Type 3 program is support. In a study of 10 gifted

secondary school students, creating a research-based presentation in a Type 3 program, students emphasised the support from teachers, expert mentors, parents, and like-minded peers being key to their achievements in their projects (Brigandi, Weiner, Siegle, Gubbins, & Little, 2018).

Appropriate instruction strategies

While acceleration and enrichment are educational strategies that essentially occur outside of the classroom environment, research in gifted education also provides descriptions of ways in which teachers may be able to differentiate their teaching for gifted students within a mixed-ability classroom. As with the education of all students, there is no single strategy that will effectively meet the learning needs of all gifted and talented students in a school setting. The way in which the teaching of gifted students should be approached would depend on a range of factors, including age, level and domain of giftedness, the school's available resources, and the teacher's knowledge of gifted pedagogy. This section endeavours to discuss some of the more commonly recommended and studied strategies.

When differentiating for gifted learners, the pacing of instruction and depth of curriculum content should be considered (Rowley, 2008). Students who are academically gifted often require instruction at a faster pace, due to their potential to acquire knowledge and skills more quickly than their peers. This pacing of instruction should also encourage higher level thinking, through complex questioning or even curriculum compacting, where students are assessed for prior knowledge in an area of study and encouraged to pursue more advanced study (Ford, 2012). Teachers should adjust their pacing of instructions for gifted students appropriately, and ensure students are able to understand and apply more advanced knowledge, as well as capably pursue a topic with breadth and depth (Tomlinson, 2005).

Students should be encouraged to pursue short term (proximal) goals that are at least moderately challenging, in order to enhance motivation for study and build confidence (American Psychological Association, 2017). These goals should provide opportunities for adult recognition of student learning and progress (Vialle & Rogers, 2009) and should be styled as mastery goals—oriented towards the

acquisition of skills and developing competence (American Psychological Association, 2017).

Regular public demonstrations and performances can enable students to clarify their skills and ideas, as well as open themselves to critique and discussion with teachers and others with expertise (Jarvin, 2017; Subotnik, 2004).

The pursuit of mastery goals can be part of a broader programming aim to develop autonomy and confidence in gifted students by allowing them to pursue their specific domain of talent (Cross & Cross, 2017). This could mean scheduling time for students in class to explore their interests or creating individualised learning programs based on student needs (Dai & Chen, 2013). Independent study can be a means for mature and self-motivated students to develop organisational and research skills while exploring their passions (Ford, 2012), and teachers can help gifted students to find their unique niche or style of expression (Subotnik et al., 2011). Ideally, autonomous and individualised study programs are student directed, but require regular check-ins with teachers in order to monitor progress and ensure successful accomplishment (Councill & Fiedler, 2017).

Ability grouping is the practice of grouping students based on prior skill or knowledge attainment. For gifted students in particular it means allowing them to interact with others who are at a similar cognitive and ability level and ensure a more efficient facilitation of differentiation in the learning context (VanTassel-Baska, 2005). There is research that indicates there are academic and achievement benefits to ability grouping for gifted students (Neihart, 2007; Preckel et al., 2019; Rogers, 2007; Steenbergen-Hu, Makel, & Olszewski-Kubilius, 2016) as well as benefits in working with like-minded peers with similar level goals and ideas (Brigandi et al., 2018). However, these benefits may not extend to socioaffective adjustments (Neihart, 2007), and grouping by ability may exacerbate existing educational inequalities (Boaler, 2005; Spina, 2019). Flexible grouping—using many different types of groups within a classroom setting—can be a positive approach to teaching and learning that is responsive to gifted students’ needs, and alleviate concerns about static ability grouping (Ford, 2012). It allows students to work in multiple group contexts based on readiness, interest, particular task requirements, content, assessment evidence, and/or intended learning outcomes (Ford, 2012; Little, 2018). Flexible grouping, in combination with high expectations and

effectively differentiated instruction can lead to equitable teaching and learning experiences and support for students of all abilities (Francis, Taylor, & Tereshchenko, 2019).

The role of the teacher in gifted education is also of great importance, with a positive teacher-student relationship being “incredibly important, maybe the most important thing” (Jarvin, 2017, p. 135; Subotnik et al., 2016, p. 13). A teacher of gifted students should be highly capable, passionate, and analytical (VanTassel-Baska, 2005), as well as professionally trained in order to effectively cater for the needs of gifted students (Rowley, 2008). Teachers are instrumental in fostering relationships between key stakeholders in the lives of gifted students, such as peers, parents, and mentors, and should hold high expectations and knowledge to encourage student achievement (Brigandi et al., 2018). As is evidenced by the previous discussion and description of teaching strategies, effective teachers of the gifted need to be skilled in differentiation, organised, creative, and have significant in-depth knowledge, but also be enthusiastic, a good communicator, and willing to take risks (Vialle & Rogers, 2009).

Giftedness, including musical giftedness, is the possession of significant innate ability, which can manifest as the capacity to learn skills and knowledge quickly, beyond the rate of similarly aged peers. While musically-gifted students can be identified by their instrumental prowess, it is also important to identify untrained students with high musical potential. This can be demonstrated through a fluid sensory awareness, a fascination and joy for music, and an ability to develop knowledge and skills through creative musical exploration. Once identified, there are a number of ways in which schools can provide support and enrichment for their musically-gifted students, that can ensure their abilities are valued, challenged, and nurtured. Musically-gifted students can exist in any learning environment, and as the NSW High Potential and Gifted Education Policy states, all gifted students, including those in creative domains, should “have access to quality learning opportunities that meet their needs and aspirations” (NSW Government, 2019, p. 2). This requires expertise in effective identification practices, and time and commitment to ensure their potential is fulfilled.

Authentic learning

Introduction

The following review of authentic learning literature is from an article written by the author as a result of the study's outcomes. The article was published by the *British Journal of Music Education* prior to the submission of this thesis (White, 2020). It contains a detailed overview and description of authentic learning pedagogy and its application in music education contexts. A complete copy of the article can be found in Appendix A.

Authentic learning is a pedagogy that has its roots in situated cognition (B. G. Wilson & Myers, 2000; R. A. Wilson & Clark, 2009) and situated learning (Clancey, 1995). In its early iterations, situated cognition was developed as a means of exploring “cognitive extensions” (R.A. Wilson & Clarke, 2009) – essentially, what the brain is doing during the learning process. This, therefore, becomes less about pedagogy and more about neuroscience. Situated learning is also inherently theoretical, but is more logically connected with contemporary conceptions of authentic learning. According to Clancey (1995), situated learning proposes that knowledge is constantly being constructed all day, every day, and how we understand and behave in situations is controlled by our perceived roles within a community. It is a reaction against the perception of learners as information processors and instead facilitates learning to be inclusive, contextual and communal. Teachers should focus on cultivating learning processes, and design tasks and activities that enable skill and knowledge transfer (Choi & Hannafin, 1995). This notion that students should apply transferable knowledge and skills to learning in authentic “real world” contexts is what forms the fundamental premise of authentic learning.

Definitions of authentic learning

Authentic learning has been explored and defined in relation to various contexts – tertiary education (Roach et al., 2018), library science (Callison & Lamb, 2004), anatomy science (Pawlina & Drake, 2016), mathematics (Herrington & Oliver, 2000; Herrington et al., 2014) and constructivism (Wiggins, 2007). It can be linked with the theory of experiential learning (Kolb, 2015) and problem based learning (Radinsky, Bouillion, Lento, & Gomez, 2001; Roach et al., 2018). The following is a brief review of the relevant literature, framed by the key characteristics as outlined in Rule (2006).

Learning should take place in an authentic context and utilise authentic procedures and resources

The authentic context is the basis of authentic learning. However, this does not necessarily mean that authentic learning can only occur in a literally authentic environment like a professional science lab, or a working music studio, or government cabinet meeting. It means that teachers should utilise procedures and examine issues that closely align with those inherent in professional practice and make use of real-world relevant resources, knowledge and procedures (Rule, 2006; O'Connor, Jeanes, & Alfrey, 2016).

Effective implementation of authentic procedures within a classroom should improve engagement and enable knowledge and skill transfer and application (Choi & Hannafin, 1995). This can be achieved by offering students opportunities to explore multiple perspectives and roles (Herrington & Oliver, 2000) and make informed decisions that have a real impact (Callison & Lamb, 2004). Ideally, students should also have opportunities to explore and utilise real-world tools, a technique termed “occupational realism” (Pawlina & Drake, 2016) as a means of making learning relevant and useful.

The application of this in a music classroom would involve consideration of the type of music learning taking place. Different musical genres (rock, orchestral, electronic, choral) would elicit different resource and process requirements, and the concept of authentically reproducing traditional and cultural music can be fraught with difficulty (Folkestad, 2005). Classroom musical learning

should connect with how the learners experience music (Wiggins & Espeland, 2012), and facilitate collaborative working towards realistic and culturally relevant goals (Evelein, 2006).

Learning should focus on inquiry and metacognition, and the process of learning, rather than the product

A key purpose of authentic learning is to design and sequence activities in ways that enable students to explore ideas, define and solve problems, and utilise and apply knowledge and skills from a variety of subject areas (Herrington & Oliver, 2000; Pawlina & Drake, 2016). In professional contexts, people use multiple sets of skills and knowledge to solve problems and work creatively. Authentic learning tasks should be designed to enable this multidisciplinary application.

Inquiry-based learning strategies are strongly connected to the scientific method, in that students are encouraged to investigate ideas and processes, with expert guidance (Lazonder & Harmsen, 2016). According to Bianchi and Bell (2008), as students become accustomed to inquiry learning processes, they gradually become more involved in the facilitation of these processes, until they are actively devising and guiding their own research. The latter stages of inquiry learning are therefore much more suitable for more experienced and knowledgeable students (Barron & Darling-Hammond, 2008). More experienced students would be more familiar with the activities, materials, context and research skills required (Colburn, 2000), as well as being able to devise “driving questions” and evaluate the relevance of questions to the overall research (Barron & Darling-Hammond, 2008). Through inquiry-based learning, students also develop skills such as informed judgement, patience, commitment, pattern recognition and flexibility (Lombardi, 2007).

In the senior secondary school music classroom, inquiry-based learning involves using musical processes to solve musical problems (Wiggins, 2007) for a range of musical ability levels (Evelein, 2006). It means designing tasks that utilise student musical abilities in creative ways, enabling high-level application of complex compositional and performance techniques in contemporary music processes. While music educators would not necessarily use the scientific method as a means of teaching and learning about music, students would certainly be capable of learning how to experiment

with music through compositional processes, explore ideas about how sound changes, how sounds are made, and why music is effective in various contexts.

Learning should be social, collaborative, and incorporate the knowledge and skills of students and professionals

Collaborative learning can be broadly defined as a situation where learners collaborate with “interactivity, synchronicity and negotiability” (Dillenbourg, 1999, p.8). According to Rule (2006), using groups of learners to solve a problem provides them with experience in how to work with a broad community of knowledge, experience, culture and expertise, particularly if student groups are able to call on professionals in the area to assist. Working collaboratively allows for multiple roles and perspectives from those within the group (Herrington & Oliver, 2000; Herrington et al., 2014), and by engaging with professionals in the field, students are able to better understand the learning process (C. Campbell, Faulkner, & Pridham, 2010).

In the music education context, much collaborative learning could be considered “legitimate peripheral participation” (Lave & Wenger, 1991; Herrington & Oliver, 2000) where learners are able to observe a community of practice as a means of gaining an understanding of the professional community and its particular terminology and culture, before moving in to participate fully. This is effectively what is taking place when students participate in school co-curricular ensemble programs, or engage in informal classroom pedagogies such as the model utilised by Green (2008), and the Musical Futures structure (Jeanneret, McLennan, & Stevens-Ballenger, 2011). Students are able to experience how to make music in legitimate, collaborative ways that are also appropriate for their knowledge and skill levels. Particularly in the co-curricular context, students are also learning from the more experienced players, and from the expert conductor leading the ensemble. In this way, students can collaboratively and interactively learn in an authentic musical context.

Learning should be student-centred

Student-centred learning occurs when students are empowered and motivated to make their own choices and decisions about their learning pathways (Rule, 2006). Student-centred approaches to learning are already inherent in the first three outlined components of authentic learning. Focusing on student-centred learning means defining the role the teacher plays in the authentic classroom. The importance of consultation with professionals indicates that having a music teacher who is also a working musician would mean students benefit from the combined expertise of the music professional and educator (White, 2019). The language used to define the teacher's role in the literature is often akin to facilitation and design of learning and assessment – as an enabler of meaningful, real-world experiences, or as a mentor and model for students (Callison & Lamb, 2004; Abrahamson et al., 2006; Quigley, 2014; Pearce, 2016) . Teachers taking on the role of facilitator can lead students to self-reflect and peer-evaluate, and aim for mature levels of independence and resilience (Hansen & Imse, 2016).

Summary of Literature Review

This literature review provided an examination of the components that can contribute to high achievement in a musical, academic context. The majority of the literature referenced related to achievement in the secondary or senior secondary learning context, to maintain relevance to the overall study focus.

Owing to the fact that this is a study examining high achievement in senior secondary music education, each section of the literature review endeavoured to make connections to the music education context. However, in some cases, it was not possible to source enough literature that pertained to both music education and high achievement. This indicates that there are several research areas that would benefit from further study, including the relationship between music education, high

achievement, and SES; how participation in co-curricular music activities can facilitate or contribute to high musical and academic achievement; and the difference in achievement levels that can be made under expert music teacher instruction. While this thesis cannot claim to provide conclusive evidence for these areas of investigation, it does seek to fill these and other gaps related to high musical achievement.

As identified in Gagné's (2003) Differentiated Model of Giftedness and Talent, there are several catalysts that can influence individual attainment, including environmental aspects, intrapersonal traits, and sheer chance. Factors such as the school's physical, psychological and socio-economic context, the abilities and characteristics of the teacher, and the personality and familial context of the student all shape the pursuit of high achievement. Many of these factors are also interrelated. The socio-economic status of a community can impact all aspects of schooling, both financially and psychologically. The school's culture is shaped by its teachers and students, and in turn influences community perceptions and behaviours. The attitudes and abilities of students can influence the way in which a teacher approaches their class, and potential time dedicated to learning versus classroom management. The literature shows that there is no one guaranteed pathway to high achievement: it is unique to each learning context, teaching domain, and individual student. However, the literature also shows that high achievement is possible in almost any circumstance. It requires effective evaluation of the academic milieu, which can then inform what measures to take to mitigate negative influences and enhance positive effects.

As evidenced in the literature, one of the most significant influences on student achievement is the teacher in the classroom. Their knowledge, characteristics, strategies, and relationships with students can have immediate and long-term impacts on student knowledge, skills, understanding and self-efficacy. The choices teachers make can have direct effects on the potential for all students in their domain to achieve highly. The following study seeks to explore how teachers do this, in the context of high achieving senior secondary schools in NSW, Australia.

Chapter 3. Methodology

Introduction

This chapter details the processes and methods involved in the identification, investigation and implementation phases of the research. Broad information about senior secondary music education in NSW, Australia, will be provided in order to contextualise the chosen grounded theory study design and investigative foci. The context description is followed by an account of the steps taken in the quantitative data analysis process: how the data was acquired, what information the data provided, how it was analysed, and the other types of data considered for validation analysis. The qualitative research procedures, including participant selection, the interview structure and process, and how the qualitative data was coded and analysed, is then elucidated.

The purpose of a grounded theory study is to “develop a conceptual theory that explains participants’ behaviour” (Breckenridge, 2014, p. 3) by continuously analysing data throughout the collection process, and examining patterns of interaction and influence between “actors” in a given context (Strauss & Corbin, 1994). In order to investigate the phenomenon of consistent high achievement in HSC Music, this study utilised a mixed methods grounded theory approach, using quantitative analysis to inform the qualitative data collection. New ways of understanding the many facets of high achievement as well as the sociocultural constructs of their teaching environments could be discovered by investigating schools identified as producing consistent high achievement in the HSC Music courses (Hutchinson, 2004).

The structure of the method design was both sequential and equivalent (Fitzpatrick, 2014). There were two distinct, sequential phases of research which were equally utilised to examine consistent high achievement in NSW schools:

1. Quantitative analysis of HSC results data in order to identify consistently high achieving schools across a 10-year period, 2007–2016.
2. Qualitative data collection by way of interviews with teachers at high achieving schools.

Although the two major phases of the study were sequential, quantitative analysis of data was ongoing throughout the qualitative data collection and analysis process. This is in line with the grounded theory approaches to coding, including constant comparison, theoretical questioning and the development of concepts and their relationships (Strauss & Corbin, 1994), where it is imperative for the researcher to continue to consider multiple perspectives as a theory emerges. The coding of the qualitative data was also informed by examination of contemporary research and literature, since in grounded theory the literature review is considered to be “another source of data to be integrated into the constant comparative analysis process once... basic conceptual development is well underway” (Glaser & Holton, 2004, section 3.4 "Use of the literature").

Study context

In Australia, the responsibility for the provision of educational services and training falls to each individual state and territory government. In NSW, the Department of Education provides policies and guidelines for institutional and educational processes, and revises the curriculums set out by the Australian Curriculum, Assessment and Reporting Authority (ACARA) to suit the NSW school learning context and requirements.

For example, in NSW, syllabus requirements for music education in schools change throughout primary and high school¹. From Early Stage 1 to Stage 3 (Kindergarten to Year 6), Music is one of four disciplines (including Dance, Drama, and Visual Art) that comprise the Key Learning Area of Creative Arts. Teachers are required to teach at least one and a half hours of Creative Arts per week, but it is not prescribed as to what that Creative Arts learning must entail.

In high school, Music is a mandatory subject for all students in Stage 4 (Year 7 and 8). From there, students may choose to do Elective Music in Stage 5 (Year 9 and 10). In Stage 6 (Year 11 and 12), senior secondary students then have the option to do Music 1 or Music 2 for their HSC. These are 200 hour courses, typically completed across two years, and count as two units towards a student’s HSC.

¹ The information about curriculum and education requirements in NSW was sourced from the NSW Government Education website - <https://education.nsw.gov.au/teaching-and-learning>

Music 2 students also have the option of doing Music Extension in Year 12. This is a 100 hour course, and as such only counts as one unit. The syllabus content for each Stage of music education has some prescriptions regarding conceptual and skill learning that students should undertake, but most content, such as musical works studied, instruments played, or compositional techniques learned, is determined by the teachers and music faculty at each individual school. There are no pre-requisites for students to undertake either Stage 6 Music course, however it is stated in the Music 2 syllabus that “most students will enter the course from the Elective [Stage 5] course” (Board of Studies Teaching and Educational Standards, 2009b, p. 5).

The choice to focus on high achievement in senior secondary music was necessitated by the availability of objective data about students in this phase of schooling. It is entirely possible that there are many schools in NSW yielding outstanding achievement and results in primary school music, or at other points in secondary schooling. However, it would not be possible to collectively source this information and the results and markers of achievement would be determined by the subjective judgements of the teachers implementing the learning. This is due to the non-prescriptive nature of the syllabus: Teachers are expected to incorporate the concepts of music, as well as performing, listening, and composing in their teaching at each stage, but how they do this varies from school to school. Therefore, it would be difficult to reliably investigate and report.

However, each year, information about NSW HSC Distinguished Achievers² is made publicly available, and includes the student’s name, school, and courses in which they achieved a Band 6 or E4. This Band 6 is achieved through a combination of marks from internal assessments (from their teachers), and external exam processes (from NESAs). A Band 6 in Music 1 or Music 2 is a significant achievement, and according to the marking criteria means that students have developed their skills and knowledge to such a level they can display “extensive understanding of the concepts of music in a diverse range of aural experiences”³ and “perform with expertise displaying stylistic interpretation and

² Students who received a ‘Band 6’ (90+/100) in a two unit HSC course, or a ‘Band E4’ (45+/50) in a one unit Extension HSC course.

³ Quote sourced from <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-creative-arts/music-1-syllabus/pbd>

a high level of technical skill”⁴. While it may be possible for any school to have a student capable of performing at this level at any time, examination of the available information from the Distinguished Achievers lists showed a number of schools with several students each year receiving a Band 6 in Music 1, Music 2 and Music Extension. The availability of this information, and the questions that arose from preliminary analysis, influenced the design of the study and eventual approach to data collection.

Identification process

Step 1. Distinguished Achievers reconnaissance

Prior to commencing the research and receiving the official data from NESA, some reconnaissance research into HSC Music results in NSW was conducted. This involved examining the publicly available Distinguished Achievers lists, from 2007–2016, and counting the number of Band 6s in Music 1 and Music 2, and Band E4s in Music Extension that schools received each year.

Based on this preliminary investigation, it was evident that there was a wide range of schools each year with students that were achieving Band 6s and Band E4s (from here on collectively referred to as “Band 6s”) in the HSC Music courses. However, these results needed to be viewed in the context of the whole school Music cohort for each year to ascertain if the number of Band 6s achieved was meaningful in any way to the current study. For example, there were several schools each year who were receiving large numbers of Band 6s, however determining high achievement using this information would lead to the conclusion that only schools with large cohorts are capable of high achievement. Instead, it would be more important to determine what percentage of each school’s cohort was achieving these Band 6s. A school with 10 Band 6s is impressive, but if it is 10 out of 30, that is only 33% of their students. Four Band 6s seems small, but four students out of five would be 80% of students.

⁴ Quote sourced from <https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-creative-arts/music-2-syllabus/pbd>

However, evaluating high achievement based on the percentage of a cohort that has achieved a Band 6 in HSC Music in one year could also be problematic for several reasons related to sampling bias. It may be that the particular year group had a highly capable musical cohort compared to other years, or the cohort was small, thereby providing a greater chance that a higher percentage of students would achieve a Band 6. For this reason, the decision was made to examine the HSC Music results for all NSW schools over a period of 10 years. In this way, a determination of consistent high achievement would rely less on the quality of the candidature, which would change every year, and more on the schools and teachers providing the content and skill development.

Step 2. Data acquisition

In June 2017 an application was made to NESAs for population and enrolment data for HSC Music courses from 2007–2016. This application required information about the research proposal including the study’s context and background, methodology, ethics approval, and its educational value. In August 2017 a substantial data file was received. It contained:

- All Year 12 student enrolment data for HSC Music 1, HSC Music 2 and HSC Music Extension courses, from 2007–2016. This data contained information about the number of students enrolled per course, per school, across NSW every year. It also showed the achievement band received by each student.
- The average cohort mark for each course at each school, each year.
- All student enrolment data for Year 10 and Year 11 Music courses, from 2005–2015. The Year 10 data showed the number of students enrolled in Music at each school, each year, from 2005–2014, as well as the grade (A–E) they received. The Year 11 data showed the number of students enrolled in Preliminary Music 1 or Preliminary Music 2 at each school, each year, from 2006–2015, as well as their grade (A–E) from 2012–2015.

This data had been both student and school deidentified. No student names, official student identifiers or genders were provided, and each school was allocated a random number.

Step 3. NESAs data analysis

To begin the data analysis process, all the Year 12 data was isolated into separate files by year. The original data was grouped with students as cases with the following variables, as shown in Table 1:

- *M_SCH*: Main school attended by student.
- *T_SCH*: School where HSC Music course was completed.
- *Course*: The number of the course studied by the student.
 - 15290 = Music 1
 - 15300 = Music 2
 - 15310 = Music Extension
- *Units/Hours*: How many units each course is worth. Music 1 and Music 2 are worth 200 hours, or 2 units, each. Music Extension is only 100 hours, or 1 unit.
- *Result*: Showed the Band (1–6 for Music 1 and Music 2, E1–E4 for Music Extension) the student received upon completion of the Music course.
- *T_LOC*: Where the school is located. Schools were allocated to Sydney, Country (Rest of NSW), and Not NSW.
- *T_SEC*: The sector the school is in. Sectors identified were Government, Government Selective, TAFE College, Catholic and Independent.

Table 1: *Original NESAs data example*

Year	Level	Student	M_SCH	T_SCH	Course	Units	Result	T_LOC	T_SEC
2011	12	2378111	128125	128125	15290	2	4	SYDNEY	GOVT
2011	12	2378121	128125	128125	15290	2	5	SYDNEY	GOVT

Note. These two exemplar students are at the same Sydney Government school and both completed Music 1 in 2011. The first student achieved a Band 4 and the second student achieved a Band 5.

In most cases, the M_SCH and T_SCH variables were the same. However, there were instances where students chose to complete their HSC Music courses through another school or institution, such as a Distance Education Centre, in which case the M_SCH number would be different. Cohort numbers for this study were calculated based on the T_SCH data.

These data were transcribed into separate Excel spreadsheets in order to calculate the percentage of Band 6 students per subject, per school, each year. A spreadsheet was created for each year, with separate sheets for Music 1, Music 2 and Music Extension. Each school was renamed by combining their T_SCH number with their T_LOC and their T_SEC. For example, the school in Figure 1 would become 128125SG—a Sydney Government school. Each column would then contain the Band results received by students in each cohort.

Once these data had been translated, a new spreadsheet was created to collate the analysis data. In this spreadsheet, each school became the case. The following variables for Music 1, Music 2 and Music Extension were then calculated for each school:

- Number of Band 6s or Band E4s received by the cohort
- The average cohort mark
- Total number of students in the cohort
- Percentage of Band 6s or Band E4s of the total cohort

Table 2: *Sample of school results from 2008*

School	B6s M1	Av mark	Enrol M1	B6% M1	B6s M2	Av mark	Enrol M2	B6% M2	E4s ME	Av mark	Enrol ME	B6% ME	Total B6	Total enrol	Overall
159SGO					2	88.6	3	66	0	40	2	0	2	5	40
1604SI	0	82	2	0	2	95	2	100	1	49	1	100	3	5	60
160SG	1	90.6	2	50	0	76.6	5	0	1	41	3	33	2	10	20
1610SCA	2	82.8	15	13									2	15	13

Note. The schools shown are a Sydney Government Selective School, a Sydney Independent school, a Sydney Government school, and a Sydney Catholic school. The next four columns show data relating to Music 1, followed by four columns of data for Music 2, and four columns of data for Music Extension. The final three columns show the total Band 6s/E4s, the total enrolment, and the percentage of Band 6s/E4s received for the school in that year. With these example schools, the Sydney Government Selective school did not have any enrolments in Music 1, and the Sydney Catholic school had no enrolments in Music 2 or Music Extension.

Many schools only provided one course (Music 1 or Music 2), however there were several schools each year that provided combinations of Music 1, Music 2 and Music Extension. Thus, after all data had been analysed per Music course, the total number of Band 6s were tallied, the total number of all students were tallied, and the percentage of Band 6s was calculated from the total cohort at each school.

This process was carried out for each year. The collated data for each year was then combined in one spreadsheet which contained all data for every school, every year. Each school's total percentage of Band 6s was calculated from its total cohort over the ten years from 2007–2016 (inclusive). Schools were then ordered from highest overall percentage to lowest.

Table 3: *Sample of the percentage of Band 6s and E4s from all students who undertook a Music course at three schools during the years 2007–2016*

School	Total	Total	Total	Total	Total	Total	Total	Total	Total
	B6	enrol	B6	enrol	E4	enrol	B6/E4	enrol	B6/E4%
	M1	M1	M2	M2	ME	ME	07-16	07-16	07-16
	07-16	07-16	07-16	07-16	07-16	07-16			
209964SCA	4	32	0	0	0	0	4	32	12.5
2099976SI	2	17	1	1	1	1	4	19	21.05
209CG	0	43	0	0	0	0	0	43	0

The purpose of analysing the data in this way was twofold. Primarily, this process would inform how consistently high achieving schools would be identified via the percentage of Band 6s of their cohorts for each year. It also provided a means for unofficial reidentification of schools—a process made possible by comparing Band 6 results from the NESA data with the publicly available Distinguished Achievers list.

Validation analyses

A range of other analyses were conducted on the data acquired from NESA, and other publicly available data⁵ that was sourced from websites including Myschool, the Board of Studies, and the Scaling Report documents released by the Universities Admissions Centre (UAC) each year. This was to assess the plausibility of the results generated from the initial data analysis (Di Zio et al., 2016) and to ensure the thoroughness of the overall interpretation (Mays & Pope, 2020). A comprehensive depiction of music education and achievement in NSW during the period of 2005–2016 was provided by the following additional data and analysis.

Descriptive statistics

A spreadsheet containing basic descriptive statistics for each year based on data from NESA and the Scaling Reports was created. Presented in this way, it was possible to see any gradual changes or patterns in the data. It included:

- Total HSC candidature for each year

⁵ Publicly available data about schools, students, and the HSC was obtained from the following sources:

- The Myschool website, which publishes consistent school-level data on all schools across Australia: <https://myschool.edu.au/>
- The Board of Studies statistics archive website, which contains information about HSC Distinguished Achievers, All Rounders and other student-level data: https://www.boardofstudies.nsw.edu.au/ebos/static/ebos_stats.html
- The UAC Scaling Reports, which are published every year and contain information about the ATAR, scaling, candidature and other HSC data: <https://www.uac.edu.au/media-centre/publications>

- Number of schools each year with an HSC Music cohort, and schools specifically offering Music 2
- Total HSC Music enrolment
- Total Music 1/Music 2 enrolment only
- Music enrolment as a percentage of the total HSC cohort
- Average marks for Music 1, Music 2 and Music Extension
- Number of schools offering Music, total enrolment and B6/E4 percentage for each sector (Government, Selective, Independent and Catholic)
- Average and mode cohort sizes for Music 1, Music 2 and Music Extension

Table 4: *Sample of the descriptive statistics calculated from the data available from NESAs and the Scaling Reports*

Year	Total HSC candidature	Schools w/ Music	Total Music enrol	% Total HSC	Total B6/E4	B6/E4%	Schools w/ M1	Schools w/ M2
2014	71706	622	6239	8.70	1537	24	606	171
2015	72238	614	5824	8.07	1285	22	594	156
2016	72014	619	5847	8.12	1344	22	602	154

Note. The columns in Table 4 show the total number of students who completed the HSC in that year, the number of schools with a Music cohort, the total candidature, the percentage of HSC students who completed a Music course, the total number of Band 6s/E4s, the percentage of the candidature that received a Band 6/E4, the number of schools offering Music 1, and number of schools offering Music 2.

Schools with >50% cohort achievement per year

Any time a school, in any year, received a cohort achievement of over 50% Band 6s, they would be included in this list. From this list it was possible to see the schools that were showing a pattern of consistent high achievement, as well as other trends, such as schools with gradual improvement or

decline, with sporadic or alternating years of high achievement, and schools with one or two stand out years.

Table 5: *Sample of Sydney Independent schools and their Band 6/E4 percentages*

School	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Mean
658SI	77	100	100	84	50	64	27	80	87	77	74.6
659SI	27	21	34	27	90	30	50	63	50	100	49.5
660SI	50	33	66	37	56	63	60	78	66	78	58.7
661SI	89	75	100	88	73	70	70	76	80	84	80.5

All schools Band 5 and 6 percentage

A spreadsheet was created with the percentage of each school's cohort, each year, which received a Band 5 and/or 6. While no school received 100% Band 6s across the 10 years, seven schools had never received a result lower than a Band 5, with four more schools only receiving one Band 4 across the whole 10 years.

Table 6: *Sample of three schools and their Band 5 and 6 percentages*

School	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Mean
77SGO	100	100	100	100	100	100	100	100	100	100	100
554SI	100	100	100	100	72	80	100	91	92	100	93.5
83CG	92	60	85	88	88	76	88	75	77	81	81

Scaled marks 2009–2016

Every year, a process called “scaling” is carried out by the NSW Vice-Chancellors’ Committee – Technical Committee on Scaling on the raw marks all students achieve in their HSC courses. After

HSC results are released, a Scaling Report is also released, providing information about all HSC eligible subjects, including gender split, enrolment numbers, performance bands, and how marks were scaled at different points. The Scaled marks document contained a breakdown of the scaling of marks for Music 1, Music 2, Music Extension and other HSC subjects for the years 2009–2016, with scaled marks informed by the Scaling Reports and online ATAR calculators. A more comprehensive description of the scaling process can be found in the section *Chapter 5. Discussion: Scaling and the ATAR*, and comparative examples of scaling in different subjects can be found in Appendix B.

All rounders

In the HSC, an “all rounder” is a student who has received Band 6s or E4s for at least 10 HSC units. Every year, an average of 1255 students (1.8% of all candidates) qualify as an all rounder based on their HSC results. An analysis was conducted of the subjects taken by students identified as all rounders in each year’s HSC. The analysis showed the number of all rounders who completed a Music course as part of their HSC, as well as the all rounder students who completed any HSC course early or accelerated.

Top placements

Every year, NESAs reveals the names and schools of students who have placed in the top 5, top 10, or top 20 of a course’s candidature, depending on the number of students who enrolled in the course. The Top placements spreadsheet collated all the schools with students who had been in the Top 5 or Top 10 in the state for Music 1, Music 2 and/or Music Extension.

Table 7: Sample of top placements

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
School 1		M17	M24	ME1, M21			ME4		M12	ME2, M23	8
School 2			M17, M18	M17							3
School 3	M23	ME2					ME5				3
School 4			M15		<i>ME1,</i> <i>M21</i>						2

Note. The data in each column denotes the subject (Music 1 = M1, Music 2 = M2, Music Extension = ME) and the placement. For example, in 2016 School 1 had a student achieve 2nd place in Music Extension (ME2), and 3rd place in Music 2 (M23). The italicised data for School 4 in 2011 indicates that the same student achieved both placements.

Enrolment data

The enrolment data for Years 10, 11 and 12 for each course at each school in each year was collated.

This data showed retention rates for individual schools and courses, as well as for the different sectors, regions, and for Music overall.

Table 8: Sample of the analysis of enrolment data for Years 10–12 from 2014–2016

School	Y10 2014	Y11 M1	Y11 M2	Y11 total	Y12 M1	Y12 M2	Y12 ME	M1/M2 total	Loss 10-11	Loss 11-12	Loss 10-12
117CG	20	7		7	6			6	13	1	14
316SG	20	8	3	11	4			4	9	7	16
606SI	21	7	4	11	5	1	1	6	10	5	15
726CCA	16	10		10	9			9	6	1	7

Note. The first column indicates the school code. The following eight columns show each school’s enrolment for Year 10; Year 11 Music 1, Music 2, and combined; Year 12 Music 1, Music 2, Music Extension, and combined Music 1 and Music 2. The final three columns calculate the number of students lost between Year 10–11, Year 11–12, and Year 10–12.

Encore program data

Encore is a concert at the beginning of each year celebrating excellence from the previous year’s HSC Music cohort. Along with the Distinguished Achievers and All Rounders lists, it is a means of publicly acknowledging the exceptional achievement of students from the previous year’s Music 1, Music 2 and Music Extension cohorts. Students from across NSW are invited to perform their HSC pieces or compositions at the Sydney Opera House. This document contained an analysis of all *Encore* programs from 2007–2016, tallying the number of students from each school selected to perform each year.

Table 9: *Sample of the data used for analysis of the Encore programs*

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
School 1	1	1		1	1	1	2	1	1	2	11
School 2		1			1	3			4		9
School 3			1					3	1		5
School 4			1					1	1	1	4
School 5	1					1	1				3

Note. This data shows how many students at each school had a student accepted as a performer and/or composer at *Encore*.

Schools with external students

A spreadsheet was created to list the schools each year which had students from schools different to the T_SCH number. This was partly a means of assisting in identification of schools, but also to

examine patterns of attendance of students completing HSC Music courses outside of their main school.

Table 10: *Sample of analysis of the external student data.*

	Music 1	Music 2	Music Ext	Band 6	E4	Total students
2007	35	12	8	6	4	55
2008	65	13	10	14	3	88
2009	40	9	8	6	7	57
2010	34	17	14	13	6	65
2011	29	11	6	10	4	46
2012	44	17	8	8	2	69
2013	45	12	7	6	7	64
2014	30	10	4	9	3	44
2015	35	12	10	12	6	57
2016	44	14	9	12	6	67

Note. Table 10 shows the number of students who completed Music 1, Music 2, or Music Extension at a school different to their main teaching school each year. It also shows the number of students who achieved a Band 6 or an E4, and the total students overall.

All of these supplementary analyses served to create a more complete description of the state of music education in NSW during the period of 2005–2016. Some analyses, including the *Encore* program data, top placements, All rounders and all schools Band 5 and 6 percentage, showed that many of the schools identified as being in the top 10% in the initial analysis could be identified as high achieving via other means, confirming the plausibility of the initial analysis. The descriptive statistics, enrolment data and schools with external students analyses provided valuable information about the music education context more broadly. This included data about subject retention, student movement in and out of schools, and how Music was progressing as a subject in the HSC.

Participant selection process

Initially, the intention was to identify only schools with an overall cohort consistency of 50% or greater Band 6 achievement across the 10 years. However, once the initial analysis was completed and the schools were ordered by percentage, it was clear that this would not present an ideal sample. Of the 716 schools that had an HSC Music cohort across the years 2007–2016, only 49 schools had a high achievement percentage over 50%. Seven of these schools were then ineligible for consideration, as they did not actually have a Music cohort each year. One of these schools had actually achieved 100%, as they had only had two students complete HSC Music 1 in one year, and both had received a Band 6. This left a total of 42 schools, many of which were Sydney-based, high socio-economic, independent schools. Based on this small number, the decision was made to broaden the school selection to the 90th percentile, or top 10% of schools so as to create a suitable sample for the study. As per the conditions of the original data application, this top 10% of schools were formally reidentified by NESA. This formal reidentification was important, as it confirmed the validity of the informal identification processes and ensured a correct list of schools for contact was provided.

The top 10% of schools were purposefully stratified in order to include a range of variations of schools to best represent the schools in the top 10% (Coyne, 1997). Stratification is “a process that first divides the overall population into separate subgroups and then creates a sample by drawing subsamples from each of those subgroups” (Morgan, 2008, p. 2). This means that the schools in the top 10% were defined by sector, cohort type, location and music course offering, and the schools selected for initial contact were those that would best represent this range. If a school declined to participate in the study, it would be replaced by the next more similar school (e.g. another independent co-educational school in the Sydney region).

Contact procedures

Contact procedures for schools began in February 2018, initially by phone, with most inquiries handled by the Head of Music or similar staff member. Contacts were informed about the general nature of the study and asked if they would be interested in participating. If they indicated interest, an

email was sent containing the Quality Music Teaching Introduction, the Participant Information Statement and the Participant Consent Form (Appendices C, D, and E). The HREC Approval Letter and the State Education Research Applications Process (SERAP) Approval Letter were also provided upon request (included in Appendices F and G). The participants were given the option to respond with dates and times for an interview on their campus, or to decline to participate. A week out from the interview date, a reminder email was sent, containing the interview topics and questions.

Fifty teachers from a total of 23 schools agreed to be interviewed for this study. Three more schools agreed to participate, but it was not possible to organise suitable interview times. The remaining schools either did not consent to participate or were not able to be effectively contacted in a timely manner. A list of the participants can be found in Appendix H.

Interviews

All interviews with teachers were conducted in person at their schools—in staffrooms or classrooms. In doing so, it allowed teachers to feel comfortable in the interview context, and to have any resources they use in close proximity. Many teachers would get up during the interview to find books, programs, or resources to show the researcher, and would also provide a tour of the facilities, showing their classrooms, rehearsal spaces, and practice rooms.

The interviews were semi-structured, in that a list of questions were followed for each interview (see Appendix I), but there was some flexibility and occasional changes of sequence and question formats (Brinkmann & Kvale, 2018), and some aspects of the participant's answers were pursued in more depth. This was to ensure teachers were able to produce a rich account of their teaching experience through guided professional conversation (Thornberg, 2012).

The interviews were conducted over a period of six months in 2018. Each interview was recorded using an Olympus digital voice recorder, with the audio files saved to a secure hard drive. Field notes were also taken by the researcher, during and after the interviews. The interview audio was then transcribed into NVivo prior to coding and analysis. The majority of the interviews were transcribed

directly into NVivo by the researcher. Four of the interviews were transcribed by a paid transcription service. The text from these interviews were then imported into NVivo.

Coding

Once the interviews had been recorded, the audio files were uploaded into NVivo, a qualitative data analysis software program. Through NVivo, it was possible to listen to the audio files at different speeds during the transcription process, in order to ensure accuracy. Transcription files were labelled with the participant's school letter (A–W), their name and pseudonym.

The interview data was coded through a multi-stage process. Initially, for the first few interviews in particular, comprehensive notes were handwritten after the interviews were conducted, identifying possible points or comments of interest that could be used as a focus during the coding process. These included categories such as “school support”, “vocal/choral music”, “the ATAR”, and “student autonomy”. These observations did not impact the structure of the subsequent interviews; rather they were used as a means of generating possible open coding categories once interviews began to be transcribed.

Once the first few interviews were transcribed into NVivo, two approaches were taken to begin the open coding process. Open coding refers to the initial coding of qualitative data into broad categories that can be gradually compared and linked to form more substantial and meaningful categories, or nodes (Breckenridge, 2014; Bryant, 2017). First, a word frequency search was conducted on the first nine transcribed interviews during the early stages of data collection. Most of the words yielded from this search were not useful for coding purposes, as they included words that were literally used frequently by the interviewees, such as “really”, “get”, “year”, “might”, and “music”. However, other words, such as “students”, “community”, “attributes” and “make” were of more interest, particularly when viewed in the original context they were mentioned. Some of these lead to the creation of broad nodes titled “Students”, “Teachers”, “School”, and “Teaching strategies”.

As well as this approach, interview responses were coded into teacher responses to specific questions. There were 16 questions formally asked of each teacher, and each response was coded into specific areas related to the question’s broad context. For example, responses to the question “How long have you been teaching at this school?” was initially coded under “Teaching experience”. A codebook was developed to help define the nodes as they were created and provide comprehensive descriptions for future data allocations.

From this initial coding exploration, subsequent coding processes were carried out as more interviews were conducted and transcribed. Through the process of examining responses in both the interview context and in the context of other responses, similarities, patterns, and core areas of concern began to emerge. In some instances, this was due to the specific nature of the questions asked. For example, all teachers commented on their attitudes and perceptions towards the ATAR, and their approaches to gifted pedagogy, because they were asked questions that specifically pertained to those subjects. This led to the creation of nodes titled “ATAR or marks comments” and “Gifted or advanced students”. Other nodes were created “in vivo” (Creswell, 2009), using terms that came up with some frequency during the interviews, such as “Accompanist” and “HSC marking”. The full list of nodes, subnodes, and their definitions can be found in Appendix J. The main nodes used for coding can be found in Table 11.

Table 11: *Main nodes from NVivo*

Codes		
Name	Files	References
Accompanist	17	35
Assessment	18	24
+ ATAR or marks comments	45	99
+ Authentic learning	48	304
Beyond curriculum	9	11
Change of school position	6	7

Codes

Name	Files	References
+ Co-curricular programs	48	365
Course requirements	7	9
Critical reflection	41	145
Dissatisfaction	36	112
Executive support	39	96
+ Gifted or advanced students	45	143
HSC marking	14	23
+ Knowing students	43	244
Miscellaneous	28	56
MusExt	6	7
Music 1	29	63
Music 2	26	75
+ Parents	34	110
Positivity	23	49
Post-school	48	100
+ Resources	41	151
+ School requirements or culture	47	239
School timetabling or class choices	40	91
Sight singing, singing generally	42	144
Sport	21	30
Staff support	32	61
Stage 6	1	3
Student autonomy	26	55
+ Student loss	21	41
Student stories	29	44
Teacher as ensemble leader	46	76
Teacher as musician	43	98
+ Teacher beliefs	47	288

Codes

Name	Files	References
Teacher flexibility or innovation	32	70
Teaching experience	41	133
+ Teaching strategies – composition	33	86
+ Teaching strategies – concepts	25	55
Teaching strategies – general	43	162
Teaching strategies – listening	25	62
+ Teaching strategies – performance	32	83
Teaching strategies – score reading	11	14
Teaching strengths	6	10
Value of music	36	48
Workload	41	66
Year 11	1	2
Year 12	1	7

Note. The '+' symbol indicates there are subnodes connected to the main node.

In some cases, separate nodes were created as subsidiaries of original, broader nodes. For example, many responses to questions in the “Pedagogy and curriculum design” section of the interview were initially coded as “Teaching strategies”. As the interviews progressed, these responses were then recoded into more specific areas, such as:

- Composition
- Concepts
- General
- Listening
- Performing
- Score reading

In some instances, responses in a broad node were then coded even further, usually if there were a large number of references (200+), or there were identifiably different types of responses evident. The node “Teaching strategies – composition” broke into the following subnodes (in italics) with further definitions supplied from the codebook:

- *Assessment*: Composition assessment design or implementation.
- *Composers*: Teaching that focuses on or stems from composers.
- *Improvisation*: Using improvisation as a teaching strategy, or learning how it’s used as a composition technique.
- *Integration*: Using other learning experiences (performing, listening, musicology) to learn about composition.
- *Scores*: Any mention of teaching with or about scores
- *Strategies (Teaching)*: Descriptions of teaching strategies or approaches.
- *Techniques (Composition)*: Learning about or application of composition techniques (aside from improvisation).

Coding responses in this way helped to reveal similarities or consistencies in discussion about particular topics, to show the number of different teachers who mentioned something relating to a particular node or subnode, and to potentially reveal differing opinions or experiences amongst the teachers.

Once all interviews had been coded through this process, the nodes with the most responses and those with the most unexpected results were explored and analysed using a focused, or selective, coding process. This involved expanding upon significant nodes established in the initial coding process and exploring how all the data may relate to that particular node (Breckenridge, 2014; Charmaz, 2006; Glaser & Holton, 2004). The broad nodes used for this process included:

- ATAR or marks comments
- Co-curricular programs
- Gifted or advanced students

- Teaching strategies
- Authentic learning
- School requirements or culture

The responses were analysed in terms of their context in the original interview, their relationship to other comments within the topic, and how they relate to what was evident about the topic in relevant literature or research. In some instances, such as the node “Co-curricular programs”, the interview comments were the driving force in reporting – the interviews helped to paint a picture of the presence and influence of co-curricular programs in high achieving schools. In other cases, particularly the nodes “Authentic learning” and “Gifted or advanced students”, research and literature significantly shaped the way the results were reported, placing the teacher’s responses in a broader educational context.

Summary of Methodology

The methodological structure of this study conformed to the general components of a grounded theory study (Corbin & Strauss, 2008; Strauss & Corbin, 1994). The overall aim was to investigate a phenomenon—consistent high achievement in senior secondary music—and to interview teachers in the field in order to develop a theory that could explain the phenomenon. While some aspects of the study design, including the reconnaissance phase and the initial quantitative data analysis are not typical of a grounded theory study, the purpose of the initial and ongoing quantitative analysis was to establish patterns of achievement and define aspects of the NSW educational environment, beyond what could be learned in the interviews. In this way, the situational conditions could be determined and provide a context for the information provided by the teachers in the interviews (Corbin & Strauss, 2008).

Chapter 4. Quantitative Results provides the outcomes of the analyses conducted on the data acquired from NESA and other sources. It gives an overview of the state of music education in NSW from 2005–2016 and provides a quantitative context for the interview results in *Chapter 5. Discussion*.

Chapter 4. Quantitative results

Introduction

This chapter explores the quantitative data collected for this study. It includes data specific to the schools identified in the top 10%, as well as data about all schools that had at least one HSC Music candidate during the years 2007–2016. The quantitative data serves to validate the identification of the high achieving schools and show that their high achievement extends beyond the scope of consistent Band 6 attainment, as well as to provide a comprehensive picture of the shape of HSC Music in NSW secondary schools during this period of time.

The following quantitative results are drawn from data derived from the following sources:

- The original data provided by NESA
- The Myschool website (<https://www.myschool.edu.au/>)
- The UAC Scaling Reports 2007–2016
- Distinguished Achievers lists 2007–2016
(https://www.boardofstudies.nsw.edu.au/bos_stats/hsc-dist-achievers.html)
- The School profile 2008–2016 data set (<https://data.aurin.org.au/dataset/acara-school-profile-2008-2016-na>)

Reidentification of schools

As mentioned in the previous section, the top 10% of schools (72 schools) were formally reidentified by NESA in order to pursue further contact with their teachers. A further 612 schools were subsequently reidentified by the researcher, through comparing Band 6/E4 results in the NESA data with publicly available Distinguished Achievers lists, found on the Board of Studies website. This brought the total of reidentified schools to 684 out of 716.

As a result of this comprehensive identification of schools, it was possible to construct tables containing a range of information about each school⁶, including:

- Index of Community Socio-Educational Advantage (ICSEA) score
- Suburb
- Postcode
- Cohort type (Boys, Girls, or Coeducational)
- School type (7–12, K–12, or 11–12)
- Local government electorate
- State government electorate
- Average school population
- Average Aboriginal and Torres Strait Islander population
- Average EAL/D (English as an Additional Language/Dialect) student population

Descriptive statistics: All schools

Candidature

Table 12 contains information about the total HSC candidature for each year, the number of students who completed Music 1 or Music 2 each year, and the percentage of the total candidature that completed an HSC Music course each year.

⁶ The majority of this information was sourced from the Myschool website, as well as from the dataset *School Profile (point) 2008 – 2016*. This dataset was assembled by ACARA and distributed by AURIN: <https://data.aurin.org.au/dataset/acara-school-profile-2008-2016-na>

Table 12: *HSC and Music candidature for each year*

	Total HSC enrolment	M1/M2 enrolment	M1/M2 percentage
2007	65005	5482	8.43
2008	65757	5634	8.57
2009	66612	5615	8.43
2010	68536	5742	8.38
2011	69309	5733	8.27
2012	69638	5834	8.38
2013	70686	5860	8.29
2014	71706	5767	8.04
2015	72238	5404	7.48
2016	72014	5394	7.49

On average, 8.1% of all HSC candidates completed Music 1 or Music 2 as part of their course load. This percentage of the candidature has gradually been falling from 2007–2016 (from 8.4% to 7.4%) while the total HSC candidature has been rising (from 65,005 students to 72,014 students). This shows that while the overall number of students completing an HSC Music course has remained reasonably steady during this 10-year period, the increase in students completing their HSC has not resulted in a proportional increase in students enrolling in HSC Music.

Schools

A total of 81% of all 876 secondary schools in NSW offered an HSC Music course at some point during the years 2007–2016, with an average of 68% of schools offering Music in each year. When examining student-level data, 54% of HSC Music students were in government schools, 4% were in selective schools, 26% were in independent schools and 14% were in Catholic schools. Total numbers of schools are shown in Table 13.

Table 13: *Schools and sectors offering at least one HSC Music course*

	Total schools	Government	Selective	Independent	Catholic
2007	569	314	20	151	84
2008	582	322	20	154	86
2009	588	319	21	162	85
2010	594	324	19	162	88
2011	605	330	21	168	86
2012	603	330	21	165	87
2013	608	326	19	171	91
2014	622	336	20	175	91
2015	614	329	20	176	89
2016	619	326	20	179	93

Cohort sizes and retention rates⁷

In Table 14, the years at the top of the columns indicate the Year 12 completion year, with the Year 11 cohorts one year earlier and the Year 10 cohorts two years earlier. Year 12 numbers consist of Music 1 and Music 2 enrolments only.

Table 14: *Descriptive statistics for enrolment and cohort sizes, 2005 - 2016*

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Y10	13006	12842	13144	13151	12636	13016	13510	13751	12562	11645
Total Y11	6997	7042	7402	7620	7591	7428	7416	7222	7412	7198
Total Y12	5394	5404	5767	5849	5835	5735	5742	5615	5635	5484
Average Y10	18.68	18.8	19.07	19.05	18.58	19.34	19.8	20.43	19.12	18.11
Average Y11	11.28	11.41	11.88	12.35	12.48	12.25	12.29	12.15	12.56	12.47

⁷ For a more complete table showing the cohort averages and retention rates for government, selective, independent, Catholic, Sydney, and Country schools, please see Appendix K.

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Average Y12	8.72	8.78	9.27	9.63	9.67	9.47	9.66	9.54	9.68	9.63
Mode Y10	20	13	19	15	11	17	22	18	13	17
Mode Y11	10	10	11	10	9	7	9	10	11	7
Mode Y12	8	8	5	8	7	7	8	6	8	6

Year 10: Every year, an average of 12,928 students completed a Music course in Year 10. The average size of a Year 10 Music class across the decade was 19 students. Selective school cohorts were generally higher than average, at 23 students, and independent school cohorts were smaller, at 14 students.

There were 76 schools across NSW that only offered Music up to Year 10. In some cases, this could be because the school was part of a “college” system, with multiple school sites catering to different levels of schooling. In other cases, the school may only have become functional during the later part of the decade selected for study and did not yet have a Year 12 cohort. There were at least six schools where this could be the case, as they only showed small Year 10 cohorts (one to six students) from 2012–2014. For other cases, it is not possible to determine from the data why the schools only offered Music until Year 10.

Year 11: The average Music cohort size (Music 1 and Music 2) dropped significantly in Year 11, down to an average of 12 students. This was due to an average loss of 44% of all students from Year 10 – Year 11. This loss was higher in Country schools—an average of 49% of all students—than in Sydney schools—39% of all students. This loss was also higher on average in Catholic schools—50% of all students—than it was in government and selective schools—44% of all students—and independent schools—39% of all students.

Year 12: From Year 11 to Year 12, there was another drop in total student numbers—23% overall. On average, 27% of government students dropped HSC Music, while only 18% of independent school students dropped HSC Music. From Year 10–12, there was an average loss of 58% of all students (White, November 29, 2019).

Music 1 and Music 2

Generally, Music 1 candidature was significantly higher than Music 2—an average of 4908 students for Music 1, versus an average of 738 students for Music 2. Table 15 shows the number of enrolments in each course at school and student level.

Table 15: *School and student level enrolments in Music 1 and Music 2*

	Schools with M1	Students in M1	Schools with M2	Students in M2
2007	556	4795	163	687
2008	569	4886	172	748
2009	576	4882	172	733
2010	586	4995	169	747
2011	588	4997	161	736
2012	590	5126	163	708
2013	595	5010	176	850
2014	606	5002	171	765
2015	594	4710	156	694
2016	602	4677	154	717

This difference was also reflected in the number of schools each year with a cohort in each course – an average of 586 schools with Music 1, versus 165 schools offering Music 2. The number of schools offering Music 2 during this time fluctuated but ultimately dropped, from 163 schools to 154 schools. The number of schools offering Music 1 gradually rose, from 556 schools to 602 schools.

Average and mode cohort sizes

As shown in Table 16, the average size of a Music 1 cohort was eight students, and four students for a Music 2 cohort, with the total average Music cohort at a school being nine students.

Table 16: *Mode and mean cohort sizes for Music 1, Music 2, and Music Extension*

	Mode Music 1 cohort	Mean Music 1 cohort	Mode Music 2 cohort	Mean Music 2 cohort	Mode Music Ext cohort	Mean Music Ext cohort
2007	6	8.6	1	4.2	1	3
2008	8	8.5	2	4.6	1	3.2
2009	6	8.4	1	4.2	1	3
2010	8	8.5	1	4.4	1	3.3
2011	7	8.5	1	4.6	1	3.3
2012	7	8.6	1	4.5	1	3.3
2013	6	8.4	1	4.8	1	3.5
2014	5	8.2	1	4.4	1	3.5
2015	4	7	1	4	1	3
2016	4	7	1	4	2	3

An analysis of the average cohort sizes for each course showed a gradual decline in numbers across the decade, most notably in Music 1. This is also reflected in the mode cohort sizes for Music 1. The small numbers for Music 2 and Music Extension could be a reflection of the fact that most schools offer Music 1 only which the majority of students then choose to do, and only one or two students in a school may elect to take Music 2 and Music Extension.

External students

Table 17 shows the year, the number of schools that accepted students, the number of schools that sent at least one student, the number of external students who completed Music 1, Music 2, and Music Extension, the number of Band 6s achieved by all external students, the number of E4s achieved by all external students, and the total number of external students.

Table 17: *Distribution of external HSC Music students*

	Accept	Sent	M1	M2	ME	B6	E4	Total
2007	12	39	35	12	8	6	4	55
2008	15	44	65	13	10	14	3	88
2009	10	37	40	9	8	6	7	57
2010	13	40	34	17	14	13	6	65
2011	9	34	29	11	6	10	4	46
2012	13	40	44	17	8	8	2	69
2013	11	44	45	12	7	6	7	64
2014	10	29	30	10	4	9	3	44
2015	12	41	35	12	10	12	6	57
2016	12	42	44	14	9	12	6	67

Each year, an average of 12 schools accepted HSC Music students from an average of 39 other schools across NSW. The majority of these schools were from the government sector, however there were also some Catholic and independent schools that both sent and accepted HSC Music students to and from other schools. About 60% of external students each year did Music 1, and about 20% did Music 2. Of the schools identified, those participating in sending or accepting external Music students were either Distance Education schools, schools within a reasonable proximity of one another, or schools within a college system. Some schools that were part of this analysis were not part of the overall data analysis, as they had only sent students elsewhere to complete a Music course and not offered Music at their school at all during the 10-year period.

Although there are only a small number of schools that send and accept students in order for them to complete their HSC, it is a consistently occurring phenomenon and worth reporting, particularly given that up to 20% of these students would go on to achieve a Band 6. The reasons for students completing their HSC Music studies at an external school could be many and varied: They may attend a small, rural school that lacks the facilities or staff to run HSC Music; they may attend a school that is part of a college system where certain subjects are only run on certain campuses; or they may wish

to enrol in Music 2 at a school that will only run the Music 1 course. Only two schools in the top 10% accepted external students, however in each case it was only one student in one year which is not enough to skew overall results.

Index of Community Socio-Educational Advantage (ICSEA)

ICSEA is a scale created by the Australian Curriculum, Assessment and Reporting Authority (ACARA) as a means of providing an indication of the level of educational advantage of students at a particular school (Australian Curriculum Assessment and Reporting Authority, 2012). It is calculated from a combination of data about the students' parent's occupation and education levels, as well as the school's geographic location and its proportion of Indigenous students. These data are sourced by ACARA from census records and student enrolment records.

The average school ICSEA value is 1000, with standard deviations of 100 points. The lower the ICSEA, the lower the level of educational advantage is for students who attend that school.

Conversely, the higher the ICSEA, the greater the educational advantage. Higher ICSEA is connected with greater numbers of Distinguished Achievers (Baker, 2019b) and access to more "academic" subjects (Baker, 2019a).

From the schools able to be identified from the dataset, the average ICSEA was around 1020—close to the average of all schools nationwide. However, the average ICSEA value for schools in the top 10% was 1162, >1.5 standard deviations higher than the average for all schools. All but eight schools in the top 10% had an average ICSEA above 1100.

When examining whether ICSEA is a predictive value of high achievement using a simple linear regression model, analysis of the available ICSEA data and Band 6 percentage for 672 schools showed a coefficient of determination⁸ (R^2) of .52 in Figure 2.

⁸ **R-squared (R^2)** is a statistical measure that represents the proportion of the variance for a dependent variable that is explained by an independent variable or variables in a regression model. It is measured between 0 and 100%. The higher the R^2 , the more likely it is that the variable being measured explains the changes in the dependent variable.

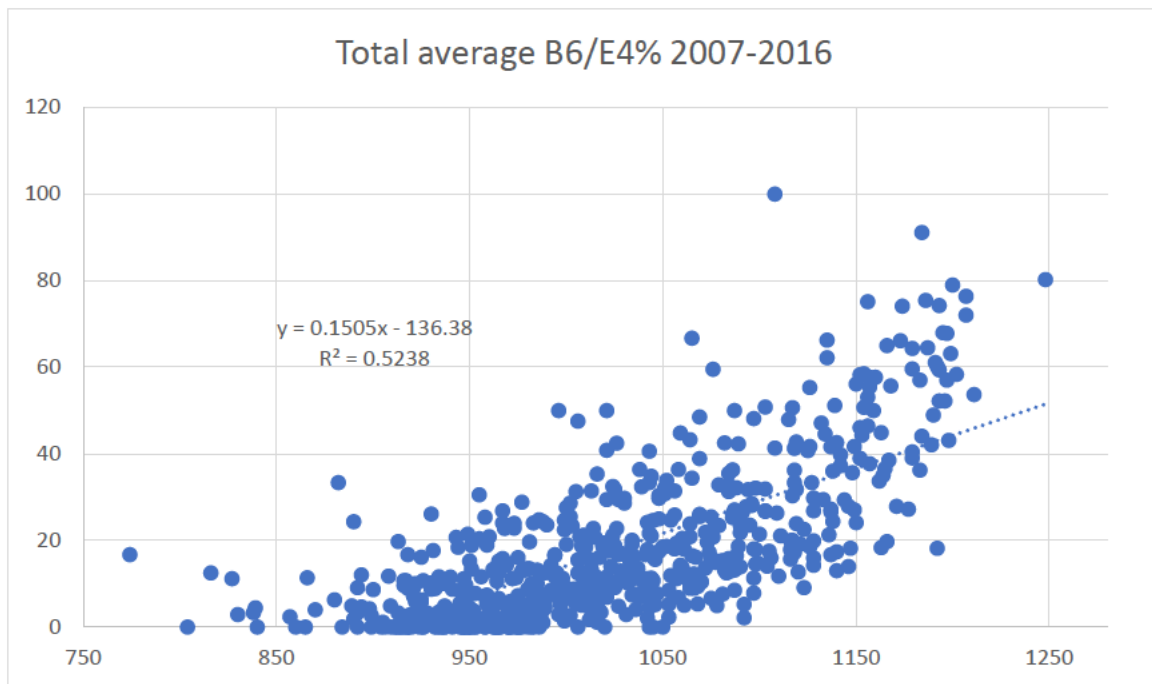


Figure 2: A simple linear regression model, showing the school's total percentage of Band 6s on the X axis, and the school's average ICSEA value from 2007–2016 on the Y axis.

This means that the ICSEA value of a school can potentially account for up to 52% of the reason for high achievement in HSC Music. In other words, half of the reason why a student has the ability to achieve a Band 6 is because they attend an educationally advantaged school. A similar analysis with all schools with a Music cohort for at least eight out of the 10 years, and a minimum total Music enrolment of 30 students, showed an R^2 of .57. Figure 3 used data from 513 identified schools, which had a Music cohort in at least eight out of the 10 years, and a total cohort across the decade of at least 30 students—an average of three students a year.

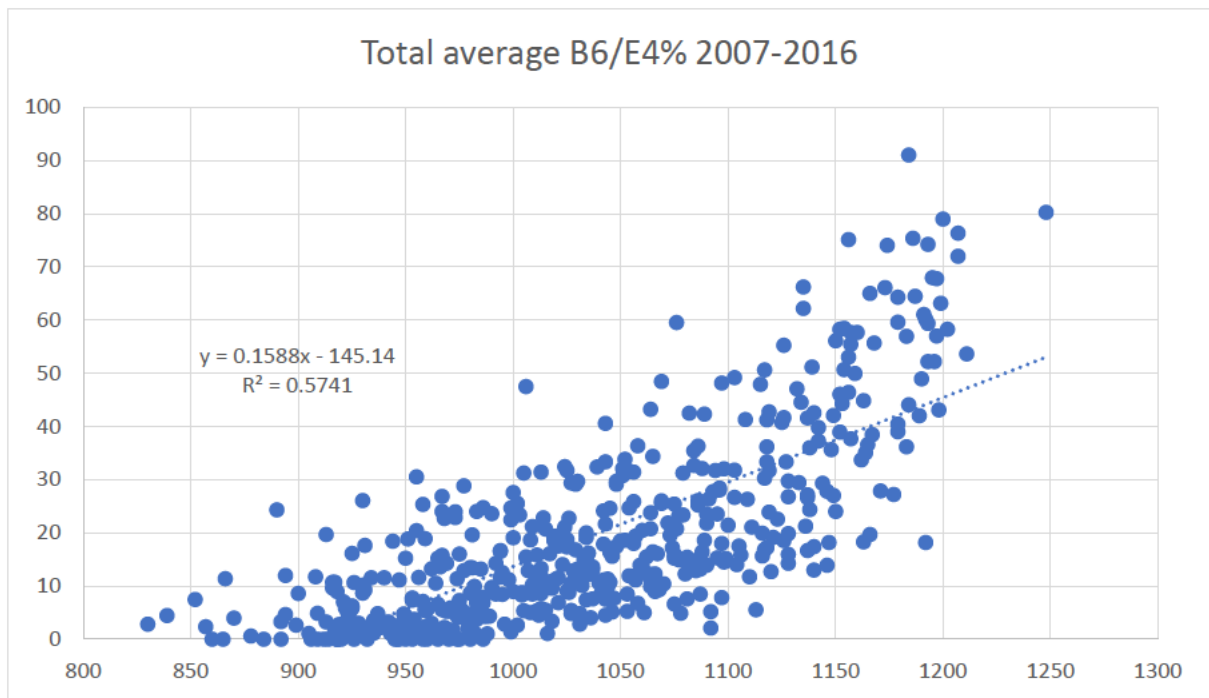


Figure 3: A simple linear regression model, showing the school's total percentage of Band 6s on the X axis, and the school's average ICSEA value from 2007–2016 on the Y axis.

This evaluation of the data is not necessarily descriptive, in that there is no way to tell what components of ICSEA have the most influence, or how exactly that influence manifests in teaching and learning. However, it does provide a strong indicator that the level of educational advantage of a school community is a factor in student achievement levels in HSC Music.

Descriptive statistics: Top 10% schools

Distribution

A descriptive statistical analysis of the total schools data showed that the distribution of the top 10% of schools was not in line with the percentage distribution of the overall numbers of schools.

Comparisons of distributions are shown in Tables 18, 19, 20, and 21.

Table 18: *Distribution of all schools by sector*

	Number of schools	% of total
Government schools	388	54.18%
Selective schools	21	2.93%
Independent schools	204	28.49%
Catholic schools	101	14.10%
Total	716	

Table 19: *Distribution of the top 10% of schools by sector*

	Number of schools	% of total
Government schools	5	6.94%
Selective schools	18	25%
Independent schools	45	62.5%
Catholic schools	4	5.56%
Total	72	

Table 20: *Distribution of all schools into the regions of Sydney, Country and Other*

	Number of schools	% of total
Country and Other schools	344	48.04%
Sydney schools	372	51.95%
Total	716	

Table 21: *Distribution of top 10% schools into the regions of Sydney, Country and Other*

	Number of schools	% of total
Country and Other schools	14	19.44%
Sydney schools	58	80.56%
Total	72	

Of all the schools that offered HSC Music for students from 2007–2016, the majority of the schools were from the government sector, followed by the independent sector. However, in the top 10% of high achieving schools, independent schools made up almost two thirds of the top 10%, followed by selective government schools. In terms of overall systems, HSC Music was offered fairly evenly across Sydney and greater NSW. However, the highest achieving schools were overwhelmingly in the Sydney region.

This is not to say that there have not been high achieving students in the Catholic system, or that there are few good music programs in schools across greater NSW. This data reveals that, in terms of consistency, Sydney schools and independent schools are significantly outperforming others. This is a reflection of the consistent variables, that being the school, the program and the teachers (as opposed to the students). And while the percentage of selective government schools is not as great as the independent schools in the top 10%, it is worth noting that 18 out of 21 fully selective government schools, or 85%, are in the top 10% of high achieving school music programs, compared to 23% of all independent schools.



Figure 4: A map of New South Wales, showing the state borders. The Australian Capital Territory is a separate territory within the state of New South Wales.

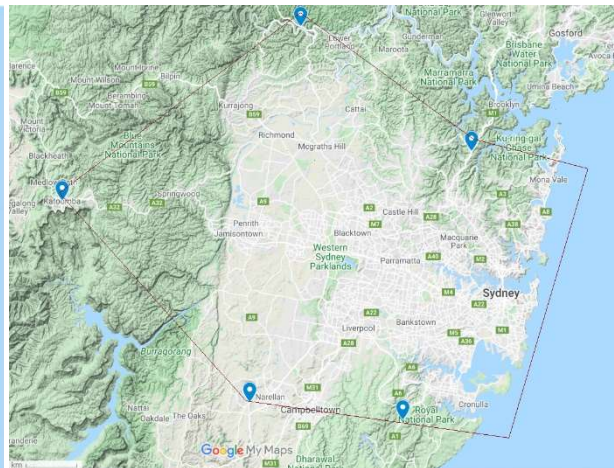


Figure 5: A map indicating the borders to the Sydney region, as defined by the NESA data.

Note. In Figure 5 the suburb markers, clockwise from the top, are Colo, Berowra, Heathcote, Camden, and Katoomba. Generally, schools that were located outside this area were classified as “Country – Rest of NSW”.
 Maps generated from Google Maps: <https://www.google.com/maps>.

Of the top 10% of schools, four schools were officially categorised by NESA as Catholic schools. This means they are systemic Catholic schools: schools which are primarily government funded, financially accessible to a broad range of people, and offer education within a Catholic religious context.

Within the independent school categorisation, there were also Catholic congregational schools. These are Catholic schools that operate independent of their diocese and are typically run by an established Catholic religious order, such as the Sisters of Mercy or the Christian Brothers. In the top 10%, 10 of the independent schools were Catholic congregational schools.

Girls, boys, and coeducational schools

Similar to the sector data, there is some disparity between the ratio of single-sex and coeducational schools in the identified schools and the top 10%.

Table 22: *Number and percentage of girls, boys, and coeducational schools*

	Girls	Boys	Coeducational	Total
All identified schools	71 (10.3)	60 (8.7%)	553 (80.8%)	684
Top 10%	29 (40.2%)	11 (15.2%)	32 (44.4%)	72

As shown in Table 22, although the majority of schools in both circumstances are coeducational, girls’ schools have a far greater representation in the top 10% than do boys’ schools. All of the boys’ schools in the top 10% are Sydney schools, and all but two girls’ schools are also Sydney schools.

Validation analysis results

HSC cohort marks

Part of the data received from NESAs included average HSC cohort marks, as opposed to individual HSC marks. Using this, it was possible to determine which schools had cohorts that had achieved average HSC marks above the median marks provided in the Scaling Reports for each year. This information is shown in Table 23 (Music 1) and Table 24 (Music 2).

Table 23: Number of schools who received average cohort marks above the median and one standard deviation (1SD) above the median in Music 1, and the number of years they achieved this

Music 1	1	2	3	4	5	6	7	8	9	10
All schools	90	61	48	56	58	50	53	56	52	82
Top 10%	0	0	1	1	2	1	3	9	10	40
All schools 1SD	98	33	19	20	16	8	3	1	1	0
Top 10% 1SD	3	6	10	18	15	8	3	1	1	0

Note. The schools in the top 10% are included in the numbers for “All schools”.

Table 24: Number of schools who received average cohort marks above the median and 1SD above the median in Music 2, and the number of years they achieved this

Music 2	1	2	3	4	5	6	7	8	9	10
All schools	68	35	18	16	15	13	5	10	7	15
Top 10%	4	4	4	4	6	11	5	9	7	15
All schools 1SD	45	12	5	3	2	2	1	1	0	0
Top 10% 1SD	18	9	4	3	2	2	1	1	0	0

Note. The schools in the top 10% are included in the numbers for “All schools”.

Forty of the top schools achieved above median HSC marks for their Music 1 cohort every year, with 10 more achieving above median results nine out of the 10 years. Fifteen schools achieved above

median HSC marks for their Music 2 cohort every year, with seven more achieving above median results nine out of the 10 years.

When combining the Music 1 and Music 2 cohort course marks for each school, 57 schools in the top 10% achieved above median cohort marks every year. Seven of these schools achieved above average cohort HSC marks in both courses for all 10 years.

There were 65 schools in the top 10% that achieved average cohort marks one standard deviation above the median in Music 1 in at least one year from 2007–2016. Twenty-eight schools achieved this in five or more years, with one school achieving average cohort marks one standard deviation above the median for nine out of the 10 years, the most of any school in the state.

Forty schools in the top 10% achieved average cohort marks one standard deviation above the median in Music 2 in at least one year from 2007–2016. Six schools achieved this in five or more years, with one school achieving average cohort marks one standard deviation above the median for eight out of the 10 years, the most of any school in the state.

90th percentile Band 6 percentages

Another means of validating the top 10% school music programs is to examine their performance year by year. An analysis was carried out on the percentage of Band 6 results achieved by each school each year, with the schools that fell in the 90th percentile for each year identified. Table 25 shows how the top 10% compared with all schools in Music 1, Music 2, and a combination of Music 1 and Music 2.

Table 25: *Number of schools who were in the 90th percentile in any given year, and the number of years this occurred*

	1	2	3	4	5	6	7	8	9	10
Music 1										
All schools	129	52	30	22	17	8	13	1	3	0
Top 10%	2	4	9	12	15	8	13	1	3	0

	1	2	3	4	5	6	7	8	9	10
Music 2										
All schools	71	20	7	4	3	2	1	0	0	0
Top 10%	26	14	6	4	3	2	1	0	0	0
Combined										
All schools	126	43	22	18	12	7	9	6	2	7
Top 10%	2	6	7	14	12	7	9	6	2	7

Note. The schools in the top 10% are included in the numbers for “All schools”.

Forty-three of the top schools were in the 90th percentile of Band 6 achievement percentage overall for at least five out of the 10 years, and seven schools were in the 90th percentile every year. Forty of the top schools were in the 90th percentile of Band 6 achievement percentage for Music 1 in five or more years, with three schools in the 90th percentile for nine out of 10 years.

Only six schools were in the 90th percentile of Band 6 achievement percentage for Music 2 in five or more years, but all six of these schools were in the top 10%. Due to the smaller number of schools with a Music 2 cohort each year compared to Music 1, the Band 6 percentage required to be in the 90th percentile each year is very high (83% or higher every year, compared to 50% or higher for Music 1), meaning only a small number of schools are in this percentile each year—around 17 schools—compared with 70 schools for Music 1. Having six of the top 10% of schools consistently achieving this highly in Music 2 is significant, with another 24 top 10% schools in the 90th percentile for Music 2 for two or more years.

Band 5 and Band 6 results

Seven schools achieved 100% Band 5 and 6 marks throughout the 10 years, meaning that all students who completed Music 1, Music 2 and Music Extension at that school received at least 80/100 or 40/50

for their HSC Music courses. All top 10% schools received a minimum of 81% Band 5 and 6 marks, making all but three schools one standard deviation above the average for Band 5 and 6 achievement.

Encore

Fifty-three schools in the top 10% had a student perform in the *Encore* concert in one or more of the years 2007–2016. Thirty-six schools had students perform in two or more years, and 14 schools had five or more students perform during the 10-year period.

HSC top achievers in course

Forty-three schools in the top 10% had at least one student from their school top the course in Music 1, Music 2 and/or Music Extension, with 11 schools producing top students in five or more years.

Three schools—all of which are girls’ schools—have had at least one student top the state in eight out of ten years, the most of all schools across the state.

During the 10-year period, 37 top achievers were also selected to perform at *Encore*. Twenty-five of these students came from top 10% schools.

All rounders

Table 26 shows the percentage of all students at all schools who achieved all rounder status with subjects that included at least one HSC Music course. Table 27 shows the total All rounders for all top 10% schools, the total with a Music course, the students with Music 1, Music 2, and Music Extension, and the number of top 10% schools with at least one Music course All rounder each year.

Table 26: *Percentage of all rounder students at all schools who received a Band 6 in an HSC Music course each year*

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Music 1	1.84	2.84	2.73	2.21	1.80	2.48	2.11	1.92	1.92	2.47

Music 2	3.77	4.43	3.31	4.27	4.42	5.27	5.75	4.72	5.31	5.08
Music Ext	2.90	3.18	2.57	3.13	3.15	4.34	4.29	3.68	4.15	3.12

Table 27: Numbers for top 10% schools for each year

Top 10%	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total ARs	746	837	873	922	960	930	918	915	907	960
Total Music	45	65	57	66	63	82	74	73	74	81
Music 1	8	22	18	18	12	20	12	18	14	17
Music 2	37	43	37	48	50	62	60	54	59	63
Music Ext	27	29	30	35	36	49	48	41	47	39
Schools w/ Music	24	37	34	34	30	43	34	36	36	35

Each year, an average of 2.2% of all rounder students achieve a Band 6 in Music 1, with 4.6% achieving a Band 6 for Music 2 and 3.4% achieving an E4 for Music Extension. While these are only small numbers, it is notable that there are twice as many all rounders who achieve highly in Music 2 compared to Music 1, despite there being around six times as many students overall who are enrolled in Music 1. The schools in the top 10% produce, on average, 65% of all of the all rounders across the state.

Almost every school in the top 10% produced at least one all rounder student with a Music course during the years 2007–2016. An average of 7% of all rounders each year have an HSC Music course as part of their 10 units, a similar percentage to Geography, Physical Education, and French Continuers.

Summary of Quantitative Results

The primary purpose of the quantitative analysis for this study was to identify the top 10% of schools who demonstrated consistent high achievement in HSC Music courses during the years 2007–2016.

Once these schools had been identified, the data provided from NESAs, along with publicly available information from Myschool, ACARA, and UAC served to validate the top 10% identification, and to provide a picture of the HSC Music courses throughout this time.

As shown by the descriptive statistical analysis of the NESAs data, the HSC Music courses were offered across NSW, as well as at select schools in the Australian Capital Territory (ACT) and overseas. They were offered in government, selective, independent, and Catholic schools, and were gradually being offered at more schools as the decade progressed. However, as a percentage of overall HSC candidature, enrolment in the HSC Music courses declined. The data analysed could not provide an explanation for this.

Music 1 was consistently the most popular course for study during this time. It was offered at almost four times as many schools than Music 2 each year, with many schools only offering Music 1, rather than both courses or only Music 2. The average Music 1 cohort size was also twice as large as the average Music 2 cohort.

There were a large number of students lost between Year 10 and Year 12 cohorts. An average of 56.25% of Year 10 students dropped music before finishing the HSC (White, 2019), with the majority of them leaving between Year 10 and Year 11. An average of 750 of these students each year are those who did music at a school that only offered Music up to Year 10. The reasons for this loss of students could be many and varied, and some will be explored in the following Discussion section. However, based on the quantitative data alone, it is not possible to identify a specific cause for students dropping Music in Year 10 or Year 11.

The identification of the top 10% of students showed that while the HSC Music courses were well represented in schools across NSW, consistent high achievement seemed to be more localised. Specifically, independent and selective Sydney-based schools were over-represented in the top 10%, as were girls' schools. This information, considered along with ICSEA accounting for at least 50% of Band 6 achievement, and the fact that the top 10% schools account for an average of 65% of all rounders each year, indicates that economic and academic advantage contributes significantly to the likelihood of a student achieving highly in HSC Music. The fact that there are high achieving

individuals and cohorts across the state every year shows that these are not the *only* contributing factors, but they do mean that students in economically and academically advantaged schools are more likely to achieve a Band 6 in HSC Music.

This finding is commensurate with the literature regarding high achievement and SES. Low SES in school communities contributes to low literacy and retention rates, negative attitudes towards schools, dysfunctional behaviour patterns, lower attendance and completion rates, and lower school engagement overall (Considine & Zappalà, 2002a, 2002b; Homel & Ryan, 2014; Lamb et al., 2015a, 2015b; Productivity Commission, 2012). All of these factors could contribute to a student's ability to engage appropriately with the school environment and expectations, potentially from the beginning of their schooling career. This would not necessarily lead to a complete lack of achievement and success in all areas, but it would challenge the likelihood of a student's ability to engage with the demands of senior secondary academia.

Regardless of the contributing factors, the validation analyses showed that the top 10% of schools consistently achieved highly in several ways. These schools were high overall achievers, with at least 81% of students at each school achieving a Band 5 or higher, and seven schools having 100% of their students achieving a Band 5 or higher. Many schools had students identified as Top Achievers in one or more of the Music courses during the decade, as well as have students selected to perform at *Encore*. The top 10% schools were also consistently in the 90th percentile for achievement each year, and consistently earned cohort marks above the yearly mean.

The quantitative analyses conducted for this study served to validate the identification of the top 10%, but also revealed that consistent high HSC Music achievement should be considered within the economic and academic context of the NSW education system. The presence of high achievement, consistent or otherwise, in schools that lack the academically focused environment of selective government schools or the economically privileged context of high ICSEA schools is worth investigating in future research and could reveal a vastly different approach to how teachers elicit high achievement in these contexts.

Chapter 5. Discussion

School culture and the value of music

As established in the literature, the school environment where teaching occurs can have a significant impact on the quality of learning and the achievement of its students. The culture of a school is reflected and embodied by all dimensions of its community: the people, the buildings, experiences, beliefs, relationships, values, and practices (Gonçalves Vidal & Paulilo, 2018; Thapa et al., 2013). School cultural beliefs and practices can also enhance or undermine the work conducted by the music faculty. If music is not seen as a part of the school's identity, it can be difficult for music educators to feel valued or supported. A focal point for this study was on the place of the music faculty in the school's culture and how its staff and students contributed to daily school life and important ceremonies. When the teacher participants (Appendix H) were asked specifically about how music was valued at their school, they provided examples of various aspects of their school's culture and how it influences musical pedagogy, or how their musical choices and opportunities contribute to and shape the school's academic culture. Overall, teachers were keenly aware of the role music played at their school, with comments ranging from its "incredible" and "strong" importance, through to others who saw their position as "fragile" and executive perceptions "divided". It was interesting to see the different ways in which music contributed to the "storytelling" of the school (Van Der Westhuizen et al., 2005).

Music as a core part of school culture

Several teachers spoke about how music was a fundamental part of the school's culture, although this manifested in many different ways. CO at School D said, "I think there's a really strong culture of what it is to be a musician in this school, and it holds a social status". This comment was made after describing how about a third of school's student population were involved in the co-curricular music program, making musical participation a normal, almost expected part of student life. JJ made a similar comment about the musical culture at her school, saying, "[t]here's an incredible culture of the

music and the drama kids and the dance kids being the cool kids”, indicating that music and the arts were positive, desirable aspects of the school’s academic and social environment.

JJ also mentioned how student participation in music at her school, as an academic subject or an co-curricular activity, was encouraged as a means of being more balanced in their overall academic focus. The high-performing student musicians and artists contributed to the general ethos of the school. “We have music contributing to our balanced understanding of how you be an adult. It's not just being academically good, it's actually also being creative. It is a big part of how we function”.

This concept of “balance” was also mentioned by AB, in talking about how the music program at her school had flourished in recent years. “It's a given that in order for a student to have balance in their education they would need to be in an ensemble of some sort... the staff know that music is a focus of the school now”.

Other teachers described different ways in which their schools acknowledged the importance of music as a fundamental part of their culture. BC believed the musical tradition at his school stemmed from a previous music teacher, who was a strong choir master and organist. “I think he was responsible for the singing tradition here being loved and cherished, so it became part of the school's identity for itself”. This singing tradition meant music was a core component of student life at his school. “It's not mandatory that students participate in ensembles here, but they end up doing it right up to Year 12, because it's seen as a service to the school and the community”.

For BM, the importance of music in her school’s culture was evident in the way the school came together each year for an enormous performance evening:

The whole school stops for music in the last week of this term, and we all go to the Town Hall in preparation for this concert, and also the whole school participates in [a large choral piece]—singing a piece of music in four-part harmony. So that definitely helps with building up the whole music culture.

And LC and GM both couldn’t pinpoint precisely how or why music was important to their schools, aside from their consistent, pervasive presence. For LC, this meant music at every school event.

“Music's not seen as an add-on, it's seen as fundamental to the school and at special events at the

school, there's always an ensemble performing or an individual musician performing". For GM, frequent opportunities for musical performance and attendance at school was a way to provide experiences for students beyond the classroom. "The performing arts here... are of a standard, and happen often enough... they're such a part of the school that the students actually can have that sense that their lives are not just about what's in the classroom".

The ways in which these teachers describe the importance of music at their school indicate they are working within a collaborative school culture, where teachers and staff share values and music enables the school to function as a cohesive whole (Gruenert & Whitaker, 2014; Sammons et al., 1995). Music provides a way for students to positively engage with their school community routines and rituals and understand how to be a normative member of the culture (Gruenert & Whitaker, 2014). In this way, music education and participation is seen as fundamental to the way in which the school community perceives itself: it both "constructs and mediates social meanings" (Nikkanen & Westerlund, 2017, p. 123).

Music program and marketing

Several teachers commented on how the school's music program not only contributed to the school culture but could be used by the school to promote itself as an excellent academic and musical learning community. Teachers saw the music programs and performance opportunities as logical ways in which a school could market itself to potential students and parents, and also build a positive reputation for musical excellence within the educational and local communities.

For some teachers, the strength of the music program was an element that their schools were already using as part of the way they promoted themselves to the community. As EE said, "It's particularly important, from the school's point of view, the extra-curricular music, because I think it's quite a big selling point. It's definitely something the public sees". AA said her school used the music program as a point of difference for future students. "It is one of our draw cards and something that separates us from other schools in the region. We're renowned for our music here". FS said the student's expectations of musical excellence contributed to building more musical excellence. "They come into

the school knowing that the school has a good reputation for doing music and we meet, or surpass, their expectation and that has its own momentum”.

The co-curricular music program at HS and CO’s school was “the most marketable thing that the school has” (HS) and “very much the front face of the school” (CO). The school would use various student ensembles and performers for a range of in-school and community events, as a means of “showing the larger community how well we’re doing” (CO), and even use international music tours as a means to promote the school. To HS, this was a logical and valuable way to both instil importance in the school’s music program and build a positive representation of the school for the public:

Like any school, you market with your music. They're things that you can send out there, that's where your school's reputation comes from. You can do sport and art and all the things, but you always see, a good school has a really great band program, with lots of pictures of musicians on their website.

By using their music program as an example of the educational excellence future families can expect, these schools are providing tangible manifestations of their organisational culture and what they perceive to be valuable (Van Der Westhuizen et al., 2005). By building and promoting successful music programs, schools are able to indicate how their high expectations can manifest and “provide the standards of conduct that help members understand what the [school] values” (Gruenert & Whitaker, 2014, p. 35).

Music in religious schools

Several teachers at religious schools spoke about how music is an inherent part of the religious traditions of the school. This is an important way in which music can become a sacred part of a school’s culture, by being intertwined with religious rituals and ceremonies (Gruenert & Whitaker, 2014). At School E in particular, hymnal singing was a core part of their culture, tradition and ritual.

Their everyday morning prayer routine was often partnered by student performances, choral accompaniment and multi-part harmonies, sung by students and staff. CC said,

Every day, there's an opportunity if they'd like... the students sing in the hall, and there's descant lines shooting over the top of other harmony parts. Sometimes there are three and four part harmonies, at 8.30 in the morning, every single day.

For BC, the musical component of their morning prayers heightened the spiritual aspect of the experience. "I don't think it matters what your position is on spirituality, or Christianity, but a whole lot of people singing together is a lovely, spiritual experience, and that's what they do". Singing can provide school communities with the opportunity to develop key competencies and musical understanding when utilised in both formal and informal contexts, and can have a positive impact on the collective well-being of a school community (Rickson, Legg, & Reynolds, 2018).

This concept of music being closely linked with religious practice was described in different ways by other teachers. Essentially, with music being a key component of religious rituals and events, musical traditions were an ingrained part of the school environment. EF at School I said, "Music's a big part of our Catholic celebrations, so it's not something that is separate, it is a part of our culture at the school, and the kids know that". MS said that as a "church school, we have lots of choirs, and we have chapel which is just sort of singing". AT felt that there was a cultural tradition of music being valued very highly at her school:

Because it's a Jewish community they sing prayers at lunch, they sing at Shabbat and in the morning, and every important event has music in it. I like schools where music is recognised for the value it has for ceremonies and all the rest.

For HF, the importance of music was a key element of her philosophy as a teacher, and her school's Catholic culture. Throughout her interview, HF referred to the idea of music as a "gift", and that students with this gift should share it with others, to develop their skills and to contribute to the school's Catholic ethos and community. "We're very much grounded as a Catholic school, so it's about how can they best serve others, and that might be bringing their gifts of music to the church community or seeing the creative potential in everyone". Students would always have opportunities to

perform for liturgies and masses, which helped build the strong reputation music held within the school. “In our school philosophy [it’s about]... what can we do for that child to develop them in music, as part of developing their holistic education”. Music in religious schools can support the building of adolescent religious and social identity, as well as engendering a sense of connectedness throughout the community (Colville Fletcher & Barrett, 2019). It can be an indicator of some of the shared values and collective efficacy of the teaching community, a marker of collaborative school cultures (Gruenert & Whitaker, 2014).

Music and sport

Of all the other subjects, sport seemed to be one of the main competitors for students’ time in school, primarily because of the co-curricular commitment. Several teachers mentioned sport as being an important element of the school’s co-curricular program, and an important part of offering a rounded, holistic educational experience for their students. However, despite wanting to support students in a balanced education, it could lead to difficulties. As DW said, “[w]e definitely encourage them to do sport, debating, public speaking... all those things as well, which ultimately leads to clashes because there’s a limit”.

Some teachers found this clash with sport difficult. HF said that sport was valued more highly than music at her school because, “we come from a regional surfie culture... most parents don’t have a background in music”. TS said that because School W was so sport-oriented, “the perception is that the musical is not for cool kids”, and she would find it difficult to encourage enthusiasm for it amongst the students. PT saw this preference for sport over music affect the out-of-school opportunities they could provide for their students: “It’s okay for them to do sport here, there and everywhere, yet we’re allowed one eisteddfod per ensemble per year”. At School A, sport is compulsory through to Year 12, something which HW was constantly having to contend with when it came to negotiations about rehearsals and training sessions with students, parents and teachers:

When you're talking about the school community, people understand, yeah music, they're good at what they do, but there's a sense in some areas that, well, it is a voluntary co-curricular program, and sport is compulsory so... how does that fit in?

Some teachers found different ways to work with the sporting community. GG said that his school was “sport mad”, but he used the nature of competition and sporting vocabulary as a means to connect music with something his students were passionate about. “This school is very competitive, and the students respond to competition, so we've used that kind of dynamic to assist us in music. We also talk a lot about the concept of teams. So, an ensemble is just a team”. The teachers at School A enjoyed a reasonably collegial relationship with their sport faculty and would be constantly negotiating with them in order to help students attend a balance of rehearsals and practices. AC said there was always the option of “give and take”: “Bands have two rehearsals, most sporting teams have 2 training sessions, we're happy to give up one either side because we understand that music is important to the school, sport's important to the school”. Sometimes that negotiation was dependent on the roles the student played in the sporting or musical ensemble, as HW said describing a recent discussion about an over-committed student, “Well he's my lead flute player... and he's in the [lowest grade football team]... so maybe he doesn't need to come to two trainings and he can come to band”. TS at School W took a different approach. She was also at a school with a high focus on sport but felt she shouldn't have to compromise the importance of commitment to musical rehearsal and attendance, especially for parents of students who had “music as their extra but sport [as] their main focus”. She wasn't interested in allowing students to pick and choose which rehearsals to attend because the music department had high standards to uphold, and some parents had found that mindset difficult to engage with:

We don't just go, oh, we're so grateful that you're coming. No, we provide a service, and you're welcome to come to that service. Come into choir, anyone can join choir, but you must be there every Tuesday morning. “Oh, I'm a bit busy now so I'm not going to do this semester, but I'll probably come back...” No thank you. We want our ensembles to be quality, and that takes the whole team, like sport, being there regularly for rehearsals and all of that.

Another teacher, AB, admitted she had “copied” the sport program structure at her school in the way that she had set up her ensembles and peripatetic program, a now thriving program that she had gradually been building during her time as Head of Music. She now had the expectation that her school would always have specialist music roles on staff—a head of strings, a composition specialist, an accompanist, and so forth:

It's presumed that a music department needs those roles, and I copied sport with that. Sport employ all of these coaches to help maintain sport in the school, so I used sport as the model as we involve just as many students and we need staffing to maintain that.

As well as this, AB created a support program for the school’s gifted, high achieving and committed music students—similar in structure to a program for the school’s gifted sports stars. Students in the program are able to get special consideration for their high levels of practice and performance commitments:

[The program] has 24 students who are around that AMus level, practising more than what you would expect a student to practice, so 10–15 hours a week. If they have an exam coming up that they're flagged by their other teachers... so-and-so's doing their LMus so they're practising 15 hours a week, so could they possibly have an extension on their assessment task? They're also allowed to opt for a period once a fortnight that they miss that class.

They're also given more time with our accompanist, and they also do two recitals in the year.

Leadership

As established in the literature, the leadership of a school, particularly the principal and senior executive, can have a significant impact on a school’s culture (Cooper et al., 2005; MacNeil, Prater, & Busch, 2009; Price, 2012; J. A. Ross & Gray, 2006; Van Der Westhuizen et al., 2005; Waters et al., 2003). The participants discussed their varying perceptions of their senior leadership, and how it impacted the way they felt music was valued and perceived in the school community. As whole, these

statements were a mix of positive, conditional, and negative perceptions, even from teachers at the same school.

For those who spoke positively about the support they received from their executive, it was linked to principals who had interest, or expertise, in the domains of music or creative arts. For the majority of the period of 2007–2016, the principal at School D had been a music teacher. HS said the principal had been “unwaveringly supportive of music, to the point where we were probably doing too many gigs a year”. In a point of agreement, CO said that “the culture and attitude of the executive [had a] filter down effect through to the staff” which had resulted in “a lot of stability and long-term support [for music]”. The principal at School E was also music trained, which CC said meant that “music was held to a high esteem”. School E’s head of music, BC, said that this could be problematic as “she monitors everything you do, and can perceive when you’re not doing a good job”, but on the whole it meant that music “was at the very heart of the school” and a core part of the school ethos.

The teachers at School P enjoyed a principal and executive who were “very supportive of the music program and the arts more generally”. They had significant financial support to put on multiple productions every year, as well as the ability to push back against other faculties who might feel that “the music and arts program impinged on their academic time”. At School A, teacher AC had worked under two principals during his time there, both of whom had been “fabulous supporters of music” and he believed “really contributed to the success of the program”. MS said their current principal knew “the value of the arts, [and] that then transcends into other things”.

DD was a former principal and music teacher and provided some insight into how she would endeavour to build a supportive learning environment and positive culture at her schools.

Acknowledging that her music teachers wanted to be involved was of key importance in curating a collegial environment. “They want to help, they want to be supportive. They like working with the school, and as a leader that’s my role, to find ways of getting them to do that”. Being a principal also meant being present at performances and events – not just in music, but in everything that went on. “The netball finals... you have to make sure if you see one then you have to see them all. And then there’d be basketball finals... it just went on and on”. Building a supportive culture also involved

investing in “a lot of resources, a lot of training, all of that sort of stuff. All those structures you put in place to make sure people can do what you're asking them to do”. DD’s advice for other leaders was to make sure that music was valued in the school community, and to make the effort to understand what music teachers need:

It needs to be seen as a worthwhile activity, not just as something those kids over there do but an integral part of the school. And when your music teacher says, I just can't do another performance on assembly, you go, that's fine. Like, seriously, it's fine. So, it's trying to be understanding but at the same time, supporting what they can do and what they want to do.

Other teachers provided mixed perceptions of their school leadership. Some of these views came down to a lack of understanding from the executive about just what music teachers do. BA said that, “while we are appreciated, and the executive are aware of the extra time we as a faculty put in, I don’t think they really get the idea of what’s going on day to day”. This would result in a budget that was “a quarter of the budget of other faculties”, having a smaller staff allocation, and having to ask for things to be taken seriously. BA understood that all faculties have their challenges and commitments to students, but to him as a music teacher,

When it comes to equality amongst the whole school, it also feels like... cutting a teacher here, and maybe we won't run Music 2. Did you want to run Music 2? Oh sorry, we didn't ask... there's a lot of that stuff going on, like an after-thought in that regard.

PT noted “the upper echelon in the school, they’re divided” with regard to how much interest they had in the goings on of the music faculty. This meant that there were supportive structures to allow the music department to pursue opportunities for their students and co-curricular program, but a distinct lack of tangible appreciation of the staff work and commitment. PT wanted to have “more push from the top to support us, actively, not just talking the talk, but walk the walk too”. She talked about how students would be celebrated for their achievements on assemblies, but teachers and peripatetic staff would be essentially ignored at staff meetings:

It doesn't take much to be told congratulations, or a shake of the hand. I'm not someone that needs external gratitude all the time, I'm not someone that needs it to feel good, but when it's

a big thing, then I do expect it, and when it's not there, then I just think it devalues what we do.

At GG's school, music and the arts were "a fragile part of the school" and were very reliant on "every ounce of support, whether it's verbal, practical or financial". At the time of the interview he had recently gone from working under a principal who "made significant statements about valuing music, art and drama" to a distinct lack of acknowledgement from the new executive. GG believed supportive statements were critical, for senior school management to be "seen to be supportive, that they're in attendance, they get up and, post the event, say how fantastic it is". He was also fighting for the new executive to continue to trust and value his expertise as a life-long music educator, and to provide "continual support and not destroy the things that work so well".

School culture summary

For many of these high-achieving schools, music was a fundamental part of their school's culture, embedded in everyday routines, and valued by the community. This helped students see music as viable, worthy and "cool", and ensured the teachers felt appreciated for how they could contribute to the identity of their school. Where religious traditions served to highlight the important role music could play, sport was seen as a competitor for student time and focus, and a potentially more dominant cultural force. However, it was possible for music and sport to coexist in a school's culture, and for music teachers to effectively collaborate with sports staff and use sporting structures and ideas to support students and encourage musical engagement.

The leadership of a school had a significant impact on the way in which music was appreciated in the school community, and how the music faculty perceived their expertise and commitment was valued. As evidenced by the responses of the teachers, this didn't mean that music had to be at the forefront of the school. However, public acknowledgement of the work and time music teachers put in to maintain student engagement, participation, and achievement in co-curricular opportunities, as well as providing day-to-day classroom teaching and management, may make teachers feel more valued.

Consideration of the financial and resource needs of a highly functioning music faculty was also important.

Positive school cultures are characterised by collegial and collaborative staff, a focus on improving student outcomes including engagement and achievement, positive learning environments, and a shared vision that promotes a sense of community (Back et al., 2016; Gruenert & Whitaker, 2014; Ohlson et al., 2016; Sammons et al., 1995). Music teachers and faculties can be a key component, by using their co-curricular programs for school promotion, seeking opportunities for music to be embedded in school rituals and traditions, and working with other faculties to ensure students are able to engage with all aspects of a well-rounded education.

Musically-gifted students

Introduction

As part of the original study design, a logical connection between high achievement and gifted education was made. This is not to say that all high achievers are gifted, nor that all students who are gifted will be able to reach high levels of achievement. Rather, given “the easier or faster the learning process, the greater the natural abilities” (Gagné, 2003, p. 62), and that “all schools serve high potential and gifted students” (NSW Government, 2019), it stands to reason that schools in the top 10% for Band 6 achievement in HSC Music would likely be working with some musically-gifted students.

Teachers play a key role in the development of giftedness and talent in their students, as they can become facilitators of fast-paced, deep, and complex learning (Rowley, 2008) and curate exemplary environments for elite performers (Subotnik, 2004). For this reason, a question asked during the interviews was about how teachers catered for and supported the musically-gifted students in their classroom. While this was a specific question in the interview, teachers also generally talked about strategies for working with gifted or advanced students at various points throughout the interview. Their responses brought up several different issues related to the education of gifted students, musical or otherwise.

An interesting similarity across almost all of the responses was what was missing from their approaches to gifted students: any references to official gifted policies, key research, identification strategies, or gifted education theories. This is particularly notable given that over a quarter of the teachers who were interviewed were teaching in government selective high schools: schools specifically designed to cater for academically gifted students. In New South Wales, the Department of Education’s High potential and gifted education policy, or HPGE policy (NSW Government, 2019) is based on the Differentiated Model of Giftedness and Talent by Gagné (2003) and the seminal work of Subotnik et al. (2011). This policy includes guidelines on the responsibilities of educators to implement strategies to identify, provide resources and opportunities for, and utilise inclusive strategies for the teaching of gifted students in their schools and classrooms. The policy states that

teachers in “specialist settings”, including selective high schools, should possess additional training or skills in gifted education in order to provide targeted talent development, extension, and advanced learning for gifted and high potential students (NSW Government, 2019).

Although references to research and relevant terminology was not evident in their professional rhetoric, it was somewhat present in the way they described their practice and approach to their gifted students. However, the primary focus of their descriptions was on students with “performative”, or successful, giftedness: students who had already achieved highly on their instrument, or were knowledgeable about music theory, or were in the Music 2 course instead of Music 1. There was a paucity of discussion about how they applied formal methods of identification to recognise students who were musically gifted but lacked training or resources. As such, the way in which this section is structured relates to how the teacher’s responses connect with key components of gifted education pedagogy—identification, acceleration, enrichment and differentiated instruction—even though the teachers themselves may not have used these exact terms.

Identification strategies

As recommended in the literature (Callahan, 2017; Haroutounian, 1995; Lancaster, 2003) and the policy (NSW Government, 2019), identification of gifted students can come from multiple sources. When asked about how they identified the musically-gifted students at their school, the teachers in this study provided a range of methods and approaches. Only a few teachers had formal means of identifying students as, if not musically gifted, at least musically advanced, in performance abilities, musical knowledge, or aural abilities. The music students at KW’s school were auditioned prior to enrolment and identified as musically gifted through that process, “So when we get them, there are very, very few who are not able to do certain things”. BJ, the Head of Junior School Music in a K–12 school, said that in Year 3 his students participated in “a music-type of evaluation, where they have to listen... for aural discernment and things like that, which gives us a baseline”. For HW, also at a K–12 school, this kind of testing happened in Year 7, when they would get a large influx of new students to the school:

We get all of our Year 7s to do a little quiz and ask them about what instrument they play and what level they're at, and then their class teacher will just go through and identify, oh hang on, look at this kid, he's a piano player and he's 7th grade.

GH also utilised this kind of identification in Year 7:

At the beginning of the year we just tend to question them, like, who's played an instrument before, who's been in an ensemble, who can tell me what this particular symbol is? So, we kind of do it orally rather than to do a written test. And then when they start playing instruments, it's quite obvious which kids are able to read music or are able to improvise because they've got that musical knowledge.

Most teachers identified their gifted students through more informal processes. Observation was a key technique, usually observing students in the classroom, or co-curricular ensemble programs, or even in peripatetic lessons. LB said he worked closely with all the music staff at his school to identify musically-gifted students. "We identify them pretty early. All of the peripatetic staff who work in these programs, which are academic-based programs, they're always on the lookout for those kids that are obviously gifted musically". At ILM's school, there would be multiple "views" of the student—from the classroom teacher, or their ensemble leader, or even the school accompanist. "We identify the kids' needs and talk about it. So, no problems there, we know what they're doing, we don't really let any kids slip through that net". DD relied on identifying the students who were excelling in certain musical areas. "I think identification is either through performance or through... they're really good at composition or they're really good at... there'll be something that they're really good at". And CO found that sometimes the musically-gifted students in Year 7 and 8 would just identify themselves. "They're very keen to tell you that they're good in the first couple of lessons. Look at me!"

There was also an association between Music 2 and giftedness, or at least the perception of being musically advanced and highly capable. GS said that, "most of the students in my Year 11 and 12 Music 2 class would be pretty musically gifted", a sentiment echoed by FC. "By 11 and 12, the kids doing Music 2 are top end anyway... they are upper end students, so they are driven, by nature".

There was an implication that you either do Music 2 because you're musically gifted, or you have to

be musically gifted in order to do well in Music 2. LC provided an example of a current Year 12 student doing Music 2 and Music Extension who “completed his LMusA in saxophone [by the end of] Year 11, did his AMusA at the beginning of Year 11”. JH described a similar Music 2 student, “doing 4 Unit Maths and Physics and things. He passed his LMus in Year 10, fantastic, and a great musician”.

Other teachers described how they would plan their Stage 5 music programs to suit the more advanced students who would then logically move into Music 2. ILM said that he was “designing the Year 11 Music 2 course for those kids who have been through that pathway and done the Music 2 program in Year 9 and 10”. These students would typically be “highly musically literate and motivated to dig deep into music”. NP described a Stage 5 Extension program they had at their school, which provided opportunities for gifted and advanced music students to explore topics like Jazz in more depth, or work with like-minded and similar ability students to create something like a stage musical. “It's designed to get a higher product out of you, and a bigger skill set when you get to Year 11. I'm just envisaging a lot of these kids are going to be able to springboard into Music 2”.

When considering these descriptions of identification methods in the context of broader gifted pedagogy, there are some aspects that align with recommended practice, including consulting with a range of sources (such as peripatetic teachers, or music test results) and seeking early identification, either in the primary school or the beginning of Year 7. However, much of what the teachers described in relation to identification was reliant on demonstrated ability—students who were “really good” performers or composers, or had achieved highly in AMEB exams—or connected with the kind of student they assumed would pursue the HSC Music 2 course, as opposed to Music 1.

While this approach may successfully identify students whose musical gifts can be effectively exhibited, it would be much harder to identify musically-gifted students who are underachievers, twice exceptional, linguistically or culturally diverse, or from a lower socio-economic background, especially if the assumption is that identification comes through student self-selection into a course of study. The HPGE policy states that “objective, valid and reliable measures, as part of formative assessment, should be used to assess high potential and gifted students” (NSW Government, 2019).

Based on the responses from these teachers, it is not clear that many teachers interviewed have objective and valid screening measures in place, and instead are relying heavily on teacher observation. This could mean that many musically-gifted students are not being effectively identified, and that there is a focus on performative success, rather than gifted potential. Identifying gifted potential in this way can be problematic, as it may not be possible to measure motivation and creativity, as well as focusing on achievement rather than aptitude, disadvantaging those without formal training (Baum et al., 1996; Chaffey & Bailey, 2006; Haroutounian, 1995, 2017).

Teaching strategies and approaches for the musically gifted

For students who were identified as musically gifted or advanced, teachers then described a range of approaches and strategies they utilised to engage and educate these students. These strategies included acceleration, enrichment, and appropriate instruction and pacing. Again, as with identification, teachers did not always use this terminology when describing their approaches—the term “extension” was used more commonly. The HPGE policy (NSW Government, 2019) recommends schools provide gifted and high potential students with “quality learning opportunities”, “tailored resources”, and “evidence-based talent development” in order to meet their specific learning needs. While the policy and literature also recommends flexible or ability grouping (Neihart, 2007; VanTassel-Baska, 2005; VanTassel-Baska & Brown, 2007), this was not a strategy that was utilised by teachers in the classroom, but instead considered as a strategy to utilise through the co-curricular music programs.

Acceleration

Almost half of the teachers talked about acceleration opportunities and options that were made available, either for individual students or entire cohorts who had been identified as being musically and academically capable. Teachers at School O and School P both described individual students that had been accelerated during their time at the schools. JS at School O said they had had “a couple of kids accelerate”, including one student who eventually received a 50/50 for Music Extension. “He was in Year 10, and he did Extension. So... that was great, for him”. GM at School P spoke about a

student who was completing Music Extension in Year 12, after compacting Year 11 and Year 12 Music 2 into one year. “His performance and theoretical knowledge was at a standard where I could safely say he could knock this over in 12 months. It’s not completely uncommon, but it was pretty action packed”. GM was also considering options for another particularly able cohort coming up through the school,

That student I mentioned before may be the first of a few like that. There are possibly some kids in [our current] Year 9 group that I could do double time with, and the school is very happy to accommodate a lot of extension.

Other teachers described accelerating young, capable performers into higher level ensembles. DW described how they would occasionally have younger students playing in the senior ensembles at the school, but it was “fairly unusual”,

Sometimes, we have very advanced students. We've got a student in Year 6 at the moment, who played in the top string ensemble at the Opera House on Sunday. We've had a few students in Year 5 and 6 - wind instrument students - who have gone straight to the Senior Orchestra because they're good enough.

LB would also accelerate students in the ensemble program, but again, it would only be for the few, occasional stand-outs:

In the symphony orchestra, I would have... maybe... 4 Year 7s in the senior group. My concert master, for example, he's not in Year 12, he's in Year 10, which is unusual, because normally that's a senior position, but he's just really, really good.

As described in the literature, acceleration is an essential component of gifted pedagogy and programming (Dai & Chen, 2013; VanTassel-Baska, 2005; Vialle & Rogers, 2009) as an effective means of providing gifted students with an appropriate level of content and skill acquisition that is commensurate with their capabilities. While there were not many teachers in this study who explicitly used acceleration as a means of meeting the needs of their gifted students, the ways in which students were accelerated were all reasonably straightforward to facilitate in a school. Advanced learning pathways and acceleration “should be available and supported”, as recommended by the HPGE policy (2019) in order to “optimise [a student’s] growth and achievement”. Accelerating a gifted performer

into a higher-level ensemble may only mean changing the afternoon they need to stay at school and rehearse. Accelerating students into Stage 6 classes for particular subjects may be more difficult to negotiate through timetabling, but is certainly possible to do, with a supportive teacher and accommodating school. Further discussion of acceleration can be found in *Chapter 5. Discussion: Scaling and the ATAR*.

Opportunities for enrichment

Outside of the classroom, teachers described various ways in which they and the school would support and cater for their musically-gifted students. As described in the previous section, some students who were identified as gifted performers could be accelerated into higher level performing ensembles. Teachers also articulated other ways they could recognise and cater for students with high performance ability. At School C, AT said that, “If there's a particular group of kids who look like they might need extension, they might get a chamber ensemble that we form around them”.

Organising students of high musical ability in this way is a form of flexible grouping, allowing students to work with others who are at a similar cognitive or ability level (VanTassel-Baska, 2005). It can allow for more efficient delivery of differentiation—in the case of chamber groups, exploring more complex music that is challenging for all players, rather than repertoire suitable for mixed ability ensembles.

Many teachers talked about the positive effect these environments would have on students, having kids from different year groups interacting and learning with and from one another. This technique of creating musical groups especially for gifted performers was also utilised by IM at School K:

In addition to concert band and string ensemble and jazz ensemble, the gifted kids are put into smaller ensembles, like string quartets and piano trio or flute quartet. We draw kids from across all years together, to be put into these smaller ensembles, and that's a way to extend them.

Some teachers also used the high-stakes context of HSC exam performance as another area where they could engage their high-performing students from different year groups, as accompaniment for the students being examined. This was something that was frequently done at AS's school:

Sometimes we have top students that will also be involved in HSC performances, and they could be from any year group. They've had a top electric bass player who's been doing HSC accompaniment since Year 7. She's in Year 10 now.

HF saw utilising these students in the younger years as being useful experience for them to be able to reflect on in their own future performances:

They've had that experience of going into the HSC room, in Year 9 or 10, as a backing musician, so when they get to Year 12 they know, this is actually no big deal. They go in just knowing, we're here to share what we've done. So that builds up their confidence by being in [HSC] ensembles in some of the junior years.

Other teachers also described internal opportunities beyond ensemble playing, to encourage musically-gifted students to develop in other ways, and to provide opportunities for their talents to be recognised. The students at School A had a plethora of co-curricular activities they could be involved in—orchestras, bands, choirs, rock groups—but the music department also offered opportunities like concerto competitions, where high level performance students could perform solo with the school's symphony orchestra. HW saw these as not just enrichment for the students, but beneficial for the school. In speaking about a student who had achieved his AMus on piano in Year 7, HW endeavoured to provide opportunities for him to utilise his skills beyond practising for hours by himself:

You've got to do some chamber music, go and do a piano trio over here, and then we want you to play the national anthem at the assembly, yes we know it's very easy but we want you to play it anyway. So, he's seen to be doing some stuff for the school, not just sitting at home playing his piano, he's actually involved.

HS saw the extensive co-curricular program at his school as another resource for HSC students to utilise, particularly in composition. It was another way to not only challenge his gifted composers but

encourage them to be involved in this key part of the school community, beyond just performing in the ensembles. “You've got this thing here that you can write for, and even if you're writing a simple band piece, you've got this wonderful group of wind ensemble kids who can sight read it, for example”. At EF's school, they held a large music gala day every year, where students could be involved in various ways, both demonstrating their musical talents and supporting their school House communities:

Students have an adjudication process for two weeks, and the best may get a position to perform solo. That's part of the culture of the school, that those kids do get a shot and they really do put that up quite high on a pedestal. There's a lot of accompanying pianists can do with the school choirs. There's a House driven competition, so they get points for the House. If you get to be Music Captain or vice captain, you are conducting a choir. You meet with them and you prepare them. So, it's not just about performing, it's about other ways that you can be musical.

The variety of enrichment activities described here show that the teachers design their co-curricular programs to accommodate and challenge musically-gifted students in a range of ways. Using co-curricular and inter-school musical opportunities to extend and cater for musically-gifted students can provide the benefits inherent to ability grouping and enrichment. Forming advanced or elite ensembles for gifted musicians allows for more effective facilitation of differentiation (VanTassel-Baska, 2005) and can have socio-affective benefits for highly capable students to gain experience in an advanced context (Neihart, 2007). Correspondingly, enrichment programs and opportunities can help musically-gifted students form positive relationships with like-minded students (M. Kim, 2016) and positively affect their attitude towards and enjoyment of music (Golle et al., 2018).

Appropriate instruction strategies

Most of the ways in which teachers in this study catered for their musically-gifted students came from how they accommodated them in the classroom. The HPGE policy (NSW Government, 2019) advocates for differentiation procedures and programs for gifted students that are purposeful,

supportive, and effectively meet the learning needs of advanced students. Differentiated instruction can ensure that musically-gifted students are acknowledged and challenged with content appropriate for their ability (Councill & Fiedler, 2017), with possible alterations to learning content, processes, outcomes, and environments (Vialle & Rogers, 2009). However, effective differentiation may require consideration of significant changes in teaching content and timetabling to accommodate the needs of highly capable students (Haroutounian, 2017), which can be difficult to achieve in a comprehensive classroom. Almost all of the participants gave examples of how they tried to differentiate for their students and provide challenging options for classroom work and assessments.

Some teachers offered specific examples of how they designed and differentiated tasks. Task differentiation for gifted learners can include varying complexity, developing skills in self-direction, and providing a variety of approaches to expressing learning (Tomlinson, 2005). Both DW and TB described resources they had made to help structure their classroom activities—resources that enabled students of varying levels within the music class to cover similar content that suited their abilities. DW created booklets to use in class which had progressively harder individual and group parts for students to work on. She would also play three different rhythmic dictations—easy, medium, hard—in each lesson, and provide more challenging options and expectations in composition tasks. “There's every level to extend the students in that respect”. TB went through a series of example activities he would ask students to do through exploration of a Corelli trio sonata:

I might say to the class, here's a dictation, can you write out the top line. Those who are more advanced, I might say, can you write out the lower line as well. If they get that done quickly I'll say, memorise it because I'll get you to play it for me at the keyboard in a second, or if they've got absolute pitch, I might say, I'll get you to do it at the keyboard but in a different key, so that they're challenging their default setting. I'm always trying to think, if someone gets that done quickly, what's the next thing they can do?

Two teachers, MS and JJ, described the different ways they accommodated individual students with particular passions, a strategy which can support and encourage a student's commitment to learning in their particular area of interest (Tomlinson, 2005). MS had a gifted tuned percussion player who chose

to do a musicology essay for his Music Extension project. Through this student, MS saw the importance of “synchronicity, where composition and musicology, or performance and musicology, it all becomes one”. This student chose to examine the extension of tuned instruments in vaudeville through to mainstream music. “He looked at how tuned percussion was initially used in circuses and dance and all that vaudeville-esque type stuff, and then started to become more of a dominant instrument in the middle of the 19th/20th century”. Through his essay and the repertoire of his performance program, MS was able to continue to challenge this student, and “allow the kid to be extended and show off that really high level of, not just technical, but musical thinking”.

JJ had a student with an incredible knowledge of the *Rite of Spring* by Stravinsky, so she asked him if he would be interested in teaching the class. Not only did this provide him an opportunity to communicate his passion and knowledge to his peers, but it meant JJ could help him build skills in an area that was not his strength. “Because there was nothing that I could teach him about the work, I thought, what he needs to learn more about is how he shares his knowledge of music”. This was something that JJ thought was important for many of her gifted students—developing the skills needed for them to communicate their knowledge to others:

Most of them [the gifted or advanced students] at this point don't know how to say what they know, and therefore they're building that extra skill so that hopefully, by the time they take their music to the world, they know how to talk to people about it.

Beyond these specific examples, many other teachers talked about the more general ways they approached teaching gifted students in their Music classes. For FL, by Stage 6, most of his students were at such advanced levels of musicianship that he could “teach more complex concepts from the start, and see how much they can understand, and if they don't understand then I will pull back”.

Likewise, JS said she would just “throw everything we've got” at her Stage 6 students, because “you're trying to make sure they're staying connected to the course, because after a while it becomes irrelevant”. BC had some “hugely capable, voracious learners”, and so would go into complex harmonic detail with their topics and repertoire:

So, we start with Medieval music and we get interested in modal theory, and they can identify and understand the difference between a mixolydian mode and an aeolian mode, and they even talk about the usage of the mode, where we don't just sit there writing in hypomixolydian, because they're using the Perfect 4th underneath the final... so we push them.

AT was careful to approach her gifted composition students in a way that helped them develop their own style, but also scaffolded their learning so they had the skills and techniques to match their ambitions:

It's more about asking them questions—usually in the syllabus language because it helps them learn—what seems to be missing, and scaffold the question for how they can improve [the composition]. You just tailor it for each one. They end up with an experience of writing something they can identify with and are proud of and has developed their style and their taste.

CC made sure that her gifted performers were working on repertoire that was challenging, but not overwhelming. “Work closely with their instrumental teacher. Make sure that they are pitching themselves at a really high goal for practical tasks and get them performing as much as possible in front of audiences”. And BK thought it was paramount that her students were developing as “whole musicians”, challenging themselves and exploring different aspects of music beyond their individual instrumental experience:

We'll support the virtuoso, but the virtuoso needs to have a holistic view of what music is and the collaboration and being a collaborative learner, collaborative musician, I think that's really important. All those projects feed in not only to their own HSC, and to that Stage 6 stuff, but also into the health of the school and the health of them as well.

Musically-gifted students summary

It is evident from the way in which the teachers described their approaches to identifying and educating their musically-gifted students that they have the ability to discern high musical capability, and provide a range of opportunities for extension and enrichment, particularly into the senior school years. This could be through differentiating instruction, content, or task requirements in the classroom, or by facilitating involvement in various performing ensembles and opportunities in the co-curricular programs. However, the lack of formal, gifted education terminology used to describe these approaches and procedures indicates that many teachers are catering for these students based on instinct and experience, rather than following evidence-based advice. This could mean that musically-gifted students who lack formal training or performative ability may be less likely to benefit from focused teacher support and encouragement.

The HPGE policy (NSW Government, 2019) makes recommendations about identification strategies, teaching approaches and learning opportunities for gifted and talented students. It also states that all teachers should engage in professional learning to build leadership capacity and enhance implementation of quality teaching for gifted students, and that educational programs and settings for these students should be staffed by teachers who have “additional training and skills in the education of high potential and gifted students” (NSW Government, 2019). Based on the responses from the teachers provided here, it is likely that all music educators would benefit from a greater understanding of gifted education pedagogy, and how they could effectively cater for all students with high musical potential.

Effective teaching

Introduction

As discussed in the literature review, there is no specific teaching strategy or approach that is conducive to high achievement in music or other subjects. Rather, a range of different strategies are used by effective teachers (Ayres et al., 2004; Hattie, 2012; Wiggins & Espeland, 2012) in a positive, supportive and highly functional classroom learning environment (Back et al., 2016; Hattie, 2003; Juchniewicz, 2010; Reese, 2007). It was evident from the interview data that the participants did not have a one-size-fits-all approach to their teaching. The strategies they utilised were dependent on various aspects inherent to the teaching context, including students interests and abilities, content focus, resourcing, and the intended musical and academic outcomes.

This chapter is divided into three sections, based on certain areas of importance in effective and expert teaching: content knowledge, context knowledge, and creativity (Ayres et al., 1999; Berliner, 2004; Hattie, 2003; Lachner et al., 2016; Stigler & Miller, 2018; Turner, 2001). The first section relates to content knowledge and how it is taught, framed by the NSW HSC Music syllabus “learning experiences”: Composing, Performing, Listening and Musicology. Many teachers described their approaches to instruction within one or more of these syllabus domains. This is followed by an exploration of how the teachers utilised authentic learning strategies and techniques as a means of effectively teaching in a senior secondary music context. The section exploring authentic learning is sourced from the article “Authentic learning in senior secondary music pedagogy: An examination of teaching practice in high-achieving school music programmes”, published by the author in the *British Journal of Music Education*. The full article can be found in Appendix A. The teachers’ understanding of their students will also be discussed. Finally, the creative nature of effective music teaching is explored.

Content knowledge

Composition

For the teachers who described examples of how they might teach a composition lesson, there was a common thread of direct instruction, or explicit teaching—moving from declarative knowledge and procedures to application, being teacher-directed but student-centred. Direct instruction is a teaching strategy that has been found to improve student outcomes in a range of contexts, as it provides clarity to students about content, skills, and expectations (Borman, Hewes, Overman, & Brown, 2003; Education Consumers Foundation, 2011; Hattie, 2009; Kirschner, Sweller, & Clark, 2006).

Descriptions of their lessons generally followed a template of preparation, experimentation and application. The preparation would involve learning about key ideas or techniques, followed by some experimentation with these techniques in a specific context, and then application of the techniques in a broader context, like a composition assessment. Despite this strategy being used by many of the teachers, how this manifested varied depending on context, content and student cohort.

YM utilised this strategy particularly in teaching composition in Year 11. He would start with “preparation work”: “Four weeks analysing other people's works, what makes it work, what makes this particular piece more stylistic, all the [concept] criteria”. This analysis would be accompanied by short composition exercises that would stem from the analysis: “it might be how to relate melody to a harmony. I'm introducing a big, big concept, but in very small chunks”. Then they would have some “ammunition” to start their own work, leading to an assessment task at the end of the term. In this way, he gave his students a solid grounding in compositional theory and techniques, ensuring they also analysed a range of works “so they're not starting from ground zero”.

GH and AA described similar compositional teaching and learning processes. GH preferred to start composition work with students by introducing a visual stimulus, and using questioning from there to make connections between what they can see and how they could represent it musically:

I might look at a waterfall and I get them to start working on motifs. And then we start to look through the concepts, so texturally, how many layers can you see in that image? And then, oh yeah, I can see that there's water but there's also these jagged rocks on the side, so I look at it

texturally like that. Then start to look at tone colour, what instruments are coming to you from that visual stimulus?

This would be the starting point for their HSC compositions. AA preferred to run composition lessons with students working on their individual topics, but all composition work would start with research by the students in the area they want to explore. “They might look at the composer or the genre and then they'll look at some other pieces in a similar style, and they'll analyse them and that informs their composition”.

Skill building in preparation for student composition was something that came up with other teachers. AC liked to take a few lessons early on to experiment with different compositional techniques—irregular time signatures, unusual instrumentation, alternate tonalities—so students could understand them in isolation before applying them in their bigger works. He would even spend a whole lesson on modulations, taking a small phrase and having students modulate it to the relative major, or minor, or subdominant key, just to ensure students could understand how it is done.

Other teachers would use specific works for the purpose of exploring the range of compositional techniques they could demonstrate. CO liked to use *Ngana* by Stephen Leek—a vocal piece based on Aboriginal chant lines—early in a program because the compositional techniques are “really easy to get around”. The piece features fragmented vocal segments and it is interesting to explore how they are used texturally. “You can give kids this small two bar fragment and you go, right, retrograde that, or invert that, or... let's play with ornamentation, and see how many different ideas you can get out of a really small amount of music”. KH liked to use *Technologic for String Orchestra* by Matthew Hindson for similar reasons. It has two contrasting movements: an atonal, avant garde first movement and a more techno dance second movement. “The kids enjoy it, as a work it gives a variety of things to talk about and a variety of contrasting ideas”. JJ preferred *String Quartet No. 16*, by Peter Sculthorpe, for the “tonnes” of compositional devices it uses, making it a good intro to compositional development because of the different ways scales and rhythms are used to explore thematic material. “It has perfect techniques for them to actually start building their own piece and working out what they want from the melody of their piece”.

Performance

When speaking about performance specifically, as opposed to it being part of integrative classroom teaching practice, the key idea that emerged from the participant interviews was the importance of performance assessment repertoire and how that was developed with the students. Teachers approached this core aspect of the Music 1 and Music 2 courses through class performance workshops, frequent discussion of performance programs with individual students, and connecting with individual instrumental teachers.

Class performance workshops were a fundamental part of many teachers' classroom schedules, timetabled anywhere from twice a term to every fortnight. Expectations for these workshops varied, but the main outcomes were for students to gain experience in solo performance, and for the class to provide critical and analytical feedback. When students were providing feedback on their peers' performance, GH ensured they focused on the performance criteria and to think critically about how to voice their performance evaluations. "We look at the marking guidelines but we also look at the strengths [of the performance], and then we say, what are the weaknesses, what can he or she work on. They're really, really open and receptive to that". AB structured her performance workshops so that more importance was placed on the perspective of the student performing, and how they would evaluate their own performance. "Everything is written in feedback [by the audience], and they're given a performance reflection sheet. They video themselves playing, and they fill in a rubric of performance reflection and they have to hand that to me when they've completed it". HF always used her double periods as performance workshops, with the perspective that the class was viewing and performing works in progress. "They're expected to come and present, perform and receive critical feedback on that from myself and from their peers. That then is meant to be implemented before we have the next performance workshops". These comments show how these teachers used metacognitive strategies to encourage their students to reflect on performances, develop critical listening skills, and to focus on continuous improvement.

PT and LB held performance workshops at their schools once a fortnight. PT's students, particularly in Music 2, were "readily available to give constructive feedback", and enjoyed the collegial and

productive nature of the workshops they had dubbed “Roast Sessions”. “We can say whatever we like in this session, and be comfortable about saying whatever we like, positive or constructive, and there is no judgement attached to the comments that have been made”. LB used his double periods as concert practice sessions, where students could perform part or whole pieces for staff and student feedback. He found it helped some of the more tentative students make decisions about repertoire, and his more accomplished performers influenced and inspired the other students to keep working:

Some of the kids in the class are fantastic performers, like really polished and ready to go. So, the peer influence is really important in the class at that level too, when they're watching their peers perform and they're seeing, it's term 1 and they're already performing at a particularly high level.

Aside from opportunities for students to perform parts of their program, discussion of the program itself, with the student and their instrumental teacher, was also an important aspect of ensuring success. EF and AT talked about the importance of a relationship with the instrumental teachers. EF called it “the triangle: the student, the class teacher and the tutor”, and attributed success in performance to this relationship and comprehensive discussions about repertoire. AT said it was important for students to have good instrumental teachers to help them realise their potential, but also for them to understand what is required in the HSC context. “I will always make sure the teachers know the criteria by which the student's judged and I'll help the students understand the difference between being an amazing musician and getting high marks in the HSC. They're different”. Having multiple musical experts working with the same student is a good way of identifying areas of giftedness and potential for high capability (Callahan, 2017). Classroom teachers developing solid relationships with peripatetic tutors means that students are benefiting from different perspectives on their performance ability, and teachers gain information about their students in different contexts.

When discussing a performance program with students, choice of repertoire was the key consideration. FL said that a range of contrasting pieces made for a good performance program. “I think we're looking for a range of pieces that demonstrate technical ability, stylistic understanding, personal expression, ensemble involvement, which means a variety of styles”. In their discussions

with students, SS, EF and HF would emphasise how appropriate the repertoire was for their ability. EF said she would “always let them choose what they want to do, but we've got to find music that you can relate to and you can share with us”. Sometimes inappropriate repertoire choices would cause “a few falls” in Year 11, potentially leading to EF encouraging the student to develop a viva as an elective option.

SS would listen to students in performance workshops and ensure they were making the right choices for their level of ability. “We're setting the students up for success rather than them going in with something that's technically too difficult, that they're going to have either intonation issues or technical difficulties with”. HF would spend hours in consultation with her students, evaluating repertoire choices and advising them on how to make their repertoire “show off their capabilities”:

If you don't rework this piece into your own version and make a personal interpretation of the work, or if you don't pick another piece, you are going to limit your potential to achieve a high result. I will not pick it for them, it's done in consultation with them, but I will let them know, that this is what you need in a piece.

The overall aim of the strategies described by the teachers—including performance workshops incorporating solo performance experience and peer and teacher feedback, and discussing and curating performance programs with the student and their tutor—focused on developing the students’ ability to monitor and manage their own development as a performer. These strategies provide opportunities for students to develop the psychosocial skills of self-management and self-regulation, while also allowing students to develop collegial relationships with peers and adults and resilience in the face of challenges (Burrus & Brennerman, 2016; Olszewski-Kubilius, Subotnik, Davis, & Worrell, 2019; Olszewski-Kubilius et al., 2015) Teachers curated the environment by allocating time to individual performance, ensuring students adhered to marking criteria, and advised students based on their knowledge of their abilities and the examination expectations, but their ultimate goal is for their students to develop autonomy in their learning in this area (Cheng, Wong, & Lam, 2020) and to create performances that are personal and technically proficient.

Listening, Musicology and The Concepts

Although the concepts of music are intended to be taught through all the learning experiences, when teachers discussed how they taught listening it naturally became a discussion about teaching musicology and conceptual terminology. This is likely due to the way the HSC external examinations are structured. In both Music 1 and Music 2, all students must sit an aural exam that requires them to demonstrate their knowledge of the concepts of music by listening to previously unheard excerpts and answering questions. Having this specific kind of assessment, worth 30% of each student's final HSC mark, is something teachers need to consider in the way they structure their teaching, in order to best prepare their students with both musical knowledge and exam fitness. Ayres et al. (2004) refer to this as “the rules of the game” of the HSC (p.155), a strategy utilised by effective teachers of HSC students.

For some teachers, this meant emphasising the importance of conceptual knowledge and terminology long before students entered music in Year 11. LC found working at a K–12 school beneficial in this regard, as it meant it was possible to map the curriculum across the 13 years so there was a “sequential and continual build up and revisiting of concepts and skills at a higher level of complexity, year after year after year”. This would lead to a “constant exposure” to musical language, so that by the senior years “it becomes so natural that you can't help but listen to something you've never heard before and have the capacity to explain and expand on what is going on in terms of musical concepts”. ILM also utilised a spiral-type curriculum— “coming back and revisiting concepts in deeper ways” —by creating a series of 20 booklets for his students to work through from Years 7–12. And HF believed it was “too late to start teaching them the concepts of music in Year 12”. She would start teaching conceptual knowledge and literacy skills right from the beginning of Year 7, so by the time they reach the HSC exam they would “know those concepts inside out and upside down”.

The concepts of music are part of the syllabus outcomes for Music from Kindergarten, however in Year 7 the syllabus outcomes move from students “demonstrating a *knowledge* of musical concepts” in performance (Board of Studies Teaching and Educational Standards, 2006, p. 25) to “demonstrating an *understanding* of musical concepts” across all learning experiences (Board of

Studies Teaching and Educational Standards, 2003, p. 12—13). These expectations for understanding become more complex in the higher Stages. By explicitly teaching conceptual terminology from Year 7, or younger, teachers are not only meeting syllabus outcomes but setting future Stage 6 Music students up with a sound foundation of music literacy that will help them discuss, analyse and critically evaluate music in their senior secondary years.

When teaching aural and musicology in the senior years, teachers described a range of different approaches, from how they broadly designed their programs and lessons, through to specific strategies they had used with their classes. For all teachers, using a range of repertoire, both relevant and adjacent to the topic, was a key component of their aural pedagogy. HF, OT and AC said they had an array of works they would utilise specifically for teaching certain concepts and musical features. HF said, “I have a bank of pieces that I use in my teaching. I pick each piece because it is a particularly good one to model or discuss each of the concepts, or unity and contrast”. OT said she would “try and pull particular works that I know are good examples, just to focus on one particular concept, just to refresh, just to make sure they all understand and there's no gaps”. AC would examine his students’ listening logs and augment their predominantly popular music diet with his own hand-picked pieces “in the hope that they'll grab a hold of those ideas and try and incorporate some of that in their own [composition] writing”. For specific repertoire, SS recommended *Kungalla* by Stephen Leek particularly for Music 2 students: “that's a fantastic work that covers all six of the concepts, and the students seem to be able to write their Question 4 essay on it [in the HSC Music 2 aural exam], and put lots of really valid points in it, and it's not too long”. GS used *Mountain Chant* by Ross Edwards year after year, because the students “found it easy to remember and to see the use of musical concepts and to understand it”.

Several teachers spoke about how they broadly approached teaching the concepts, with some specifically emphasising starting with individual concepts and their key ideas, then contextualising it with other concepts. This is how FS would broadly approach the Preliminary and HSC courses: “my teaching in Year 11 is very concept specific because that's the preliminary course, they're expected to work concept by concept. In Year 12, it's much more about putting all the things together”. As

mentioned earlier, HF and OT would start a unit by choosing pieces that were particularly good examples of specific concepts and develop ways to analyse and utilise key terminology. HF said, “We do lots of modelling of literacy, we do lots of verbal discussion around the use of the concepts. We have word banks”. After examining works from multiple perspectives, OT would eventually move into interest and contrast “within any given work, so that they're getting that wider listening, which they can then go and explore”.

HW liked starting with the absolute basics of a concept and exploring it in different ways—through graphic notation, responding to aural stimuli, structured analysis, and then moving to the next concept. Here, HW talks about how he might start with Duration and then gradually move into a broader context:

I just like the logical sequence of saying, right, we're going to go right back to the beginning and talk about beat, and we're going to talk about the speed of the beat, then we're going to talk about divisions of the beat, then we're going to talk about subdivisions of the beat, then we're going to talk about rhythm patterns and all the little things. They get this massive unfolding of terms, but it's... you're constantly revisiting what's gone before and then, okay, we've done everything we need to do on duration, now we need to talk about pitch, but at the same time, when you get to melody you talk about the rhythm of the melody and all those... so, that's my way with Music 1.

Some teachers described specific strategies they would use with their students when teaching aural and the concepts. GM had designed an assessment task that involved each student teaching their own aural lesson on a particular work they had studied for their elective topic. The lesson they taught needed to have different activities and would involve a lot of preparation:

They might give a melodic dictation to the class that's out of their work. Some typical analysis type questions that they would... in the style of a real aural paper, for the experience. And they might have a listening example and then those students can have a worksheet that they're working through as well, so that's all part of that process.

AB would have a “special” aural lesson once a fortnight just for developing aural skills, not necessarily with content connected to the topic. “I do... melodic dictation, sight singing, doing lots of

movements, Dalcroze, even with Year 11s and 12s. Because that is their big weak area, aural, all the time”. And both JJ and CO specified using colour as part of the listening analysis process with the class. JJ framed it as a competition: “each of you gets a different colour pen, we're going to do our analysis on the board, and you have to see if you have the most in your colour”. CO was teaching her students to use colour as an organisational tool in their analysis. “What are the pitch aspects, what are the texture aspects, colour code it, what are the interesting things, talk about particular features. And now that you have yours, I'm going to scan mine as a reference point for you”.

Overall, the way teachers described their aural, musicology and conceptual teaching strategies showed a comprehensive knowledge of the musicological content, a range of strategies to help effectively communicate key ideas and terms, and an understanding of the reality of the musical and academic context of their learning. AT summarised this by emphasising the importance of the explicit teaching of musicology and listening skills in the senior years, “I think we need to keep teaching explicitly the skills required for musicology and listening skills and not depend on the literacy they learn in other subjects to be able to carry through by some random way”. As shown in this section, this is a sentiment that would be supported by many of the other interviewed teachers.

With regard to the content knowledge required for effective teaching, the participants showed all of the hallmarks of being experts in their domain. They had a deep knowledge of conceptual musical information, and could articulate how they would scaffold student learning, gradually building understanding of concepts and terminology, as well as knowing what musical works were appropriate for study in a given topic area. They were also aware of the demands of the HSC examinations, and how they needed to balance individual student development with necessary syllabus outcomes. They did this by utilising teaching strategies, including direct instruction, explicit teaching, modelling, discussion, and contextualisation, in order to facilitate student self-regulation, autonomy, and self-expression. In this way, these teachers are demonstrating how the literature about expert and effective teaching (Ayres et al., 2004; Centre for Education Statistics and Evaluation, 2013; Hattie, 2012; Lachner et al., 2016; Rowe et al., 2012; Stigler & Miller, 2018) can manifest in a music education context.

Context knowledge

Teacher-student relationships

One thing was very clear about the teachers that were interviewed: they absolutely knew their students. Not just on a personal level, in that they could recall anecdotes pertaining to specific students, but also on a cohort level (the kinds of students they got at their school, or in certain year groups) as well as at a domain-specific level (the “music students”). This reflected a wealth of experience in teaching at their particular school, but also an interest in and passion for the students in their care. This positive teacher-student relationship can be formed through interaction in and outside of the classroom, enabling teachers to see students as more well-rounded people and enable mutual respect in the learning environment (Ayres et al., 1999). Having contextualised knowledge of the students they work with ensures teachers can enact effective teaching and learning processes (Forde & McMahon, 2019) and continued positive behavioural engagement (Engels et al., 2016).

A commonality across all the interviews was that the teachers enjoyed peppering their discussion with stories about the students they had taught throughout the years. With the overall interview focus on high achievement, these students were the ones who readily came to mind for most teachers.

However, there were also stories about students who they had made connections with, students who defined who they were as teachers and why they loved to teach.

There were many stories about the musically passionate students all teachers hope to encounter in their careers. Some were like the student described by NP and BK as “needing a time turner” because of all of their musical commitments. “He’s in the concert band, and the orchestra, and that string orchestra, and his core choir, and extension choir... really full on”. Others were more memorable due to the frustration they caused, such as BM’s student, a highly capable performer doing Music Extension. She came to BM in September of Year 12, saying she wanted to get into the Sydney Conservatorium of Music... but as a composer, not a performer. “So then, whilst everyone is doing their StuVac before their actual written HSC exams, she’s trying to get a composition portfolio together”. She went on to eventually compose for the Tasmanian Symphony Orchestra.

Not all of the teachers' highest achieving students went on to study music, but for most that was absolutely fine. A previous student of TS had come first in the state for Music but was well rounded academically and didn't want to pursue music. TS said, "That's fine, you don't have to, there's no sense of pressure that you have to, but he easily could have". BB described a percussionist who had loved playing "outrageous metrical compositions like *Omphalo Centric Lecture* by Nigel Westlake"—music based on mathematical ratios. Now graduated from high school, he was still playing music, but studying pure maths at university. "His brain just went BING that's where I'm going now, which is totally understandable". GM had a student who went from never playing a musical instrument prior to Year 7, to achieving 100 out of 100 for Music 1. He had since gone on to study Economics, but GM was confident he would "suddenly realise that's actually really silly and go back and play his guitar". These student anecdotes could be somewhat explained by the research into the connection between music participation and achievement in mathematics or academia more generally (dos Santos-Luiz, Mónico, Almeida, & Coimbra, 2016; Gouzouasis, Guhn, & Kishor, 2007; Guhn, Emerson, & Gouzouasis, 2020; Vaughn, 2000), however it is difficult to ascertain whether this is actually due to direct effects from music education, or from other aspects of learning, including quality instruction, student motivation and engagement, or cognitive abilities (Holochwost et al., 2017; Sala & Gobet, 2017).

Aside from the high achievers, teachers also had stories about those students who they felt they had made real connections with through music and musical interests. EJ spoke about a student doing the HSC Music Life Skills course: a modified version of the Stage 6 Music course designed to provide options for students with learning disabilities. She recalled that one of his greatest moments was him "standing up in our theatre and singing *Ring of Fire* to an audience of 250 [people], with a band behind him. Brings tears to my eyes". TS had a Year 7 student with absolutely no musical experience, "he's never done music, he can't name an instrument. And you can tell". But this didn't stop her from encouraging him, making musical learning fun, and focusing more on his effort than his marks. "I don't care what mark he gets... he is trying his little heart out, he's doing everything he possibly can and I care more about the fact that he's persevering and that he enjoys it". And CO described a student who she first met in Year 7—someone who "had a really tough time adjusting to school, was

really isolated... who self-identified as ‘not a musician’”. After two terms of hating her classes, they did an electronic remix task, and it turned him around. “And now he’s taking elective music and every recess he’s like Miss, I’ve got a new song for my album, will you listen to my album?”

Providing the best possible musical education for each student was a core element to how these teachers approached their pedagogy. This was a reflection of their flexibility as teachers, in that they were able to differentiate effectively for students of all abilities (Berliner, 2001; Forde & McMahon, 2019; Harrison, 2004) This was expressed in many ways by different teachers. HF said, “We look at each individual in front of us at that moment... it’s about, what are we doing for this child?” PF called it “following their lead”: “Really listen to where the students’ strengths are and where their voice is and where they want to go”. CO credited good mentorship to her ability to allow students time to “learn at their pace and engage with them at their level”. LB enjoyed his positive student-teacher relationships, where he was constantly talking to them, making sure they were on track, and adapting to the needs of individual students. And TTE had found that flexibility was the answer:

[I want] to adapt to whatever group of students I’ve got in the room at any time, because I’ve just realised I’ve had much more success when I’ve found out as much as I can about those students and what they want to [achieve].

These stories showed that the participants were teachers with a willingness to meet all their students at their level, in an effort to engage as many people as possible with the subject they were passionate about. They expressed just as much joy and affection for the wholly committed music students, as for the ones who might struggle and lack musical skills and knowledge. Although positive teacher-student relationships are not necessarily the sole component of high achievement, it can encourage a climate of success and lifelong learning (Cooper et al., 2005) and curate a learning environment characterised by informal order and purpose (Ayres et al., 2004).

Authentic learning

Authentic learning approaches are designed to immerse students in contexts that promote real-life applications of knowledge and provide meaningful learning experiences beyond the abstract instruction of the classroom. It can be linked with the theory of experiential learning (Kolb, 2015) and problem based learning (Radinsky et al., 2001; Roach et al., 2018). Key components of authentic learning practice, including the importance of professional expertise, co-curricular programs, performance opportunities, and quality pedagogy and resources became apparent during the selective coding process, which led to a critical examination of literature concerning authentic learning strategies. Though “authentic learning” was not a term used by the teachers, the way in which participants described their senior secondary classroom teaching and learning, and their curation of the broader school musical environment, all featured key elements of authentic pedagogy. The following section is sourced from the article by White (2020), and the full article can be found in Appendix A.

Utilisation of authentic procedures, contexts and resources

The way in which the music teachers in this study approached their senior secondary teaching varied, but there was a consistent theme of utilising procedures, resources and contexts to make music learning in the classroom as authentic and realistic as possible. As one teacher (PT) said, “I think [it’s about] making potential limitless and making them realise that there’s way more than the classroom. Everything is beyond the classroom at Year 12 level”. Teachers spoke about encouraging students to understand that performing, composing and listening to music are components of musical learning that inform each other, and that even if you are engaged as a professional in one specific area, all aspects of the musical experience are important and valuable.

For some teachers, this meant approaching music from a holistic perspective. MS said, “It can't just be a bunch of content, it's got to be connected to real experiences”. KW agreed with this perspective, saying that she wanted her students “to become real and holistic musicians, understanding the music from many different angles, including theory, including history, the context of the piece, and also the performance, supported by all of these aspects”. The idea of students becoming “holistic musicians” was also important to BB, who believed having a broad education reflective of historical, scientific and artistic contexts enhances the musicianship students could demonstrate in their performances. BB reflected,

Because otherwise, if they're performing a piece, what are they expressing? Do they have an opinion? If the composer expected something to come out of this, and [the student has] no idea of the politics of the time and the oppression that that person suffered or whatever, how are they going to give any voice to that expression?

CO described how she would talk to her students about how they were “the next step”, and that it was important that her senior students start to “integrate content and composition, and then think about themselves as an artist and a musician”. AT described how this holistic teaching could work in a classroom context to create a more compelling and meaningful learning experience:

If they're going to be studying canons I would like them to play or sing them and then compose one. A double period is long enough to do some singing of a canon, some score reading of simple canons and to discuss theoretically how they work, and to compose one. So, that's a nice lesson plan because, for a start, you are practicing sight singing and in order to sight sing you have to analyse properly, so there's some musicology. And then in order to musically understand you have to imagine what the chords might be because that'll help you with composing later and it'll help you with sight singing because of realising the cadence points.

Other teachers spoke more specifically about how they try to utilise authentic procedures and contexts when it came to developing the performance abilities of their students. Often, this involved utilising resources outside of the classroom – anything from professional theatres, to the elite performing

ensembles within the school, in an effort to immerse students into the real world of music making and performance. High-performing students at HW's school had the opportunity to participate in their concerto competition, the winner of which "then goes on to play a concerto with the symphony orchestra at our big concert at the performing arts centre in the city". CC believed it was important for her music students to be performing as much as possible in front of real audiences, and their daily whole school morning prayer offered that opportunity. "Students who are ready with repertoire can be put in that performance environment, however often they want". At GM's school, despite the performing arts being an important part of the school culture, they didn't have the physical space for a requisite venue on site, so their students would perform in local theatres:

The performing arts here are such a part of the school that the students actually can have that sense that their lives are not just about what's in the classroom. They work in real life, real world environments, engaging with professionals that aren't part of the school, so there's a whole other level of co-operation and skills they're learning.

HS was the head of the co-curricular music program at his school. He spoke at length about how his focus, particularly for the higher level, more elite ensembles, was to treat them as professionals. This included setting high expectations for rehearsals – "I expect them to know their music and sight read perfectly, well, pretty much perfectly. I give them gig instructions and call times, and they're expected to just jump on board the train and work as if they're in the real scene". As a result, he was also able to provide opportunities for students in these ensembles to play at professional gigs and events:

Often, we'll send a jazz ensemble or a string quartet or something like that to do a professional function gig, or a large event gig. All sort of those sort of things you would find in the real world of music making, we try to send out our elite ensembles. The elite ensembles really are treated as pros and expected to play really well. We do a recording every couple of years, so they experience what it's like to have to put down a track under pressure in a studio situation.

With regard to authentic resources, several teachers mentioned using professional-level music technology and software in the classroom, particularly for their senior secondary students. This could include resources like ProTools, Sibelius, recording studios and music computer labs. PF saw the use

of modern music technology in the classroom as a way to both make learning more authentic and engaging, but also as a means to extend their compositional and aural capabilities. “Through using technology, they can hear something more complex. They might build around a basic ensemble, but then start putting in string layers and wind layers and then they can convert that to another program and have success”. Part of this utilisation of authentic music technology resources was to enable students to engage with professional software, but as BA says, “Keeping resources up to scratch, keeping up to date with technology, and making sure all our school instruments aren’t dilapidated... Having good quality stuff sends [the message that] 'we're serious' to the students as well”.

Other teachers also spoke about the way they curated their resources for use in the classroom, homework, or for student general interest. While various textbooks were mentioned by teachers, generally teachers did not follow a textbook as a programme. They preferred to select specific high-quality resources, from a range of sources, that were appropriate and relevant to the cohort, or topic of study. For example, CO described her resources for a unit on *Compassions* by Nigel Westlake and Lior, which included,

... the Australian Music Centre [resource] kit, but also there's a TED talk on it online. There's an ABC documentary, which does all of the behind-the-scenes rehearsal and filming of the first concert, [and] they just did an arrangement of it for the Melbourne Symphony Orchestra, for piano reduction.

For every piece her students studied, GS would have “the historical background, a Youtube clip, the score and a little quiz for the students to answer which is usually based on the musical concepts as they’re used in that piece”. These were not teachers who taught the same thing, year in and year out. As HW said, “I think, if we can forget about these textbooks, we've got enough knowledge on our own to really come up with something really engaging for the kids”.

Inquiry, metacognitive and process-driven learning

Of all the components of authentic learning, this aspect seemed the least evident in the responses of the teachers interviewed. However, this may be due to the nature of the original questions asked, as

teachers were asked to broadly describe their approaches, rather than specifically articulate lesson plan and activity structures. The nature of inquiry learning, in particular, requires students to follow procedures akin to the scientific method, which itself is not intuitive to music pedagogy. Despite this, various teachers did comment on the way they used questioning to guide student learning, and the strategies and resources they used to encourage reflection on content and processes.

The use of process diaries (logbooks detailing the progress made in a composition) and other means of gradually recording and reflecting on individual progress and learning was mentioned as a key teaching strategy by several teachers. The teachers at School A, in particular, talked about performance journals, composition portfolios and listening logs as a means for students to record their progress and process. These could then be used to reflect on their learning and the way in which they developed throughout the music courses. The listening logs were actually part of the students' composition portfolios - students would keep a log of the different music they listened to throughout the composition process. AC said,

[The logs] make for some interesting reading sometimes, because it's... it's music that doesn't relate to anything that we're doing in class, it's popular music and I think, well, if that's all you're getting then we need to augment that a little bit in class and listen to some really good pieces that I hand pick in the hope that they'll grab a hold of those ideas and try and incorporate some of that in their own writing.

In this way, the listening logs helped to shape the classroom content learning, as the teacher was able to supplement and broaden students' listening experiences.

HW, also at School A, went into detail about the 'prac journal' the students kept. This was a means for being accountable for their progress during their practical lessons where they would focus on individual performance work, and practice sessions outside of school. They were video journals, uploaded to the school internal learning management system, that would show their progress on a particular piece. He acknowledged that recording yourself in this way is something that now, thanks to platforms like Youtube, Instagram and Facebook Live, is a very normal way for students to express themselves and explore ideas:

There's more of that electronic journal entry, keeping records of themselves playing and looking back on them, reflecting on what they've done, thinking about their learning, being accountable for their learning... It helps them look back and go, well that's what I did and this is what I'm heading towards.

Teachers also spoke about the kinds of questions they use to drive their learning, both generally and specific to certain circumstances, as well as the importance of skill development. MS's focus was on the broader questions to ask, in helping a student find their individual purpose,

I'm big on goals. Where do you want to take this? What's your purpose? Why... big on the why, all the time, not just what you do and how you do, why are you doing it? Because if you understand the why, that's everything.

AT instead described how she would use questions to both develop a student's conceptual knowledge, and help guide them in their individual composition development,

It's more about asking them questions - usually in the syllabus language because it helps them learn - but asking them questions that relate... what seems to be missing, what effect of the piece seems to be missing and scaffold the question [to be about] how they can improve it.

LC's questioning approach was centred on developing each student's intrinsic motivation and capability, through exploring foundational and complex ideas about music and allowing students to explore and develop procedural skills and knowledge. In this way, students could develop the capacity to examine what is valuable and relevant for their own contemporary learning and practice, and construct their own meaning and understanding:

There is some value in knowing when Vivaldi was born and when he died. There's more value in getting inside a composer's process. How did they create their music? How did they communicate their ideas? How did they play with instruments and combinations of sounds? How can I then take all of my understanding that I've gleaned from getting inside music, and apply that to my own creative output? I certainly gravitate closer to the idea of saying, let's just create an environment where there's rich conversation going on about musical composition, performance, all of these things, and that the kids are able to make their own meaning from that.

Collaborative learning, supported by professional expertise

Of all the key tenets of authentic learning, this aspect was the most apparent, and has been explored further in other publications (White, 2019). Teachers spoke about utilising collaborative learning approaches with their students at all secondary school levels, but this approach was most evident in the co-curricular programmes. The use of professionals, inside and outside of school, was also a key part of their teaching, specifically with senior secondary students.

The importance of ensemble playing and student participation in school co-curricular programmes was emphasised by several of the participants. Most schools had extensive co-curricular programmes, although approaches varied from school to school. NP saw the benefit for HSC-level students, in particular, to develop ensemble skills and individual performance skills. “If we can keep students involved in the co-curricular program as much as possible, it always supports their ability to deliver a strong HSC program or performance. Just keep their playing relevant”. To TS, the co-curricular programme and the classroom programme were both important to student musical development, particularly in performance. “The skills you learn [in the co-curricular program] are going to help you. Our directors of those ensembles try and connect what happens in the classroom to what’s happening in co-curricular, but performing... look how much fun it is!” EE agreed with this perspective: “If they’re doing music outside the classroom, then they’re more likely to be succeeding in the classroom as well. The regular performance and just regular playing has also helped”.

ILM encouraged collaborative learning in both classroom and the co-curricular programme, and described how the junior school instrumental programme fed into the secondary school chamber ensembles programme. “You might have a mixed string group and wind quintet, or a brass ensemble, or a rock band, right? They’re learning about the concepts of music, and they present a performance once per semester”. One of the main purposes of this programme was to work towards student autonomy or, as ILM put it, “lengthen the leash”,

We can eventually say, okay, you rehearse this for the next 15 minutes, and you make the decision about who's primary, who's secondary, what is the right tempo, how do you modulate your dynamics to support the structure. Start making interpretive decisions, and

listen to each other and talk it through and thrash it out! In other words, be a chamber ensemble, and that's what they do, astonishingly well.

Some teachers described the different ways they would utilise professional expertise for their senior classes, to either supplement their classroom teaching, or provide students with external experiences. GG described a whole school incursion he had organised with Taiko, an Australian taiko drumming group, and how important experiences like this were for his students,

They'll do a 50 minute concert, demonstration, it's interactive. And then there's 1200 students, Years 7 - 12 sitting there, involved in it. These are the formative things that if you can't offer this at the school level, the students may never get.

Teachers at three different schools said they had a composer-in-residence at their school, a specialist whose job was to create works as commissioned by the school, but to also be an expert teacher of composition for the senior classes. These composers could work one-on-one with individual, gifted HSC level composers, or teach composition classes like at AB's school, "[Our composer-in-residence] comes in once a fortnight, mainly helping the students with technology and developing more ongoing skills in composition". And other teachers, like LB, would use professional musicians, on and off staff, to supplement student's HSC performances. "If they need strings, we can get string players, if they need a rhythm section, one of my colleagues plays bass, and we get our percussion teacher. They've got professional people that will assist them through their whole HSC process".

Student-centred and student-directed learning

For all of the teachers who participated in this study, the students were at the heart of their teaching. Teachers spoke about knowing students on several levels – individually, as a class, as a year group. This knowledge of students came from an average of 22 years teaching across all participants, and manifested as a willingness to constantly consider student needs, interests and abilities in all aspects of their teaching. To HF, this meant, "Forming the individual person and holistic belief in what they can do as a person". JH put this as, "We stand them at the door, we just open the door. They are the ones that step through it, in their own way". BC's philosophy also centred on the individual student –

“Wherever you are at the beginning, to as far as you want to go”. For LC, the ultimate goal by the end of Year 12 was “to create people that are able to be practitioners of a discipline as opposed to students of a discipline”.

Some teachers spoke about how student interest and ability shaped the way they designed their programmes in Year 11 and 12. The topics for study in the HSC Music courses can range from Baroque to Rock Music. Several teachers found it most logical to consider student needs and musical capabilities when it came to programme design. EF said that “every cohort is different”, and so she would give her Year 12 students some leeway regarding their topics for individual research. “There’s a lot of independent ownership”. MS would have an over-arching structure to his curriculum design, but then would consider the characteristics of a cohort regarding which topics he would choose for study, making it “more bespoke or differentiated for their needs”. GS would try to use her students as the source of music for study in class, and would often ask them, “Do your family listen to any different music at home? Are there some things that you could suggest we can listen to that are a good example of different instruments?” And LC saw the elective topics in Year 12 as an opportunity for students to pursue their own interests and areas of expertise, although it did make it more complicated for him as a teacher:

Each kid is doing their own thing, which means that you're sort of master of puppets, navigating a whole lot of different things going on in the classroom at the same time. It's just creating space for them to explore the area that's of more interest and relevance to them.

Other teachers described how they would encourage students within and beyond the classroom to help them reach their potential and develop autonomy as a learner and musician. FS saw this as a natural part of the senior secondary music learning process and experience, especially in their development as a performer. “Students are becoming more comfortable performing, enabling students to be more self-directed and autonomous in the choices they make about the music they play and the way they rehearse. We try to become a little less hands-on as they get older and more experienced”. This acknowledgement of student autonomy influenced the way in which BA designed his assessments. Before, he would set a task that was inflexible and absolute, but now,

I go, here's 10 different types of compositions that you can do that have the same skill set.

You can do it on Garageband, you can do it here, you have to notate it, can you please do it as a theme, or a soundscape, I want you to only use your own recording samples. As long as they've found their own track and their own desire and want to do it, that's my job done.

Development of self-regulation and self-determination skills was important to PF in particular, and he was constantly asking himself “how can I give them the space for them to be, or to do what they want to do?” This didn't mean letting the students run roughshod but allowing them to guide him as a teacher. “Trying to follow their lead. Really listen to where the students' strengths are and where their voice is and where they want to go, as best we can.”

Authentic learning is a student-centred mode of classroom instruction and design that should mirror professional practice, and utilise authentic contexts, procedures, resources and expertise. As is evidenced from the responses of teachers involved in this study, authentic learning approaches are a valuable component of pedagogy for students in senior secondary music, where students have the requisite skills, knowledge and experience to explore musical ideas collaboratively, autonomously and within the realm of expertise. Given the initial grounded theory study was not focused on authentic learning pedagogy from the outset, the results from this study indicate there is a relationship between high-achieving senior secondary music programmes and authentic learning approaches, but not necessarily a direct correlation. These results provide a catalyst for further, focused investigation in this area, and to examine if the seemingly intuitive implementation of authentic learning in senior secondary school music pedagogy can be applied to education more broadly.

Flexibility, creativity and innovation

Being flexible as a teacher is a very important skill. Teachers are expected to devise lessons, sequence content, have an understanding of learning goals for each lesson, know where certain activities and knowledge acquisition are leading to, all the while supporting student learning (Stigler & Miller, 2018). Many of the participants described various ways in which they have embraced the ever-

changing nature of their teaching, and how they themselves look at ways to change their programs and adapt to new technology, new curriculum expectations and new student cohorts.

Some teachers prided themselves on the flexible approach they had to teaching overall. AC said that in his 13 years at his school he had “basically had a crack at everything”, including getting his bus driver’s license for music excursions. “Anything else that can be done I often put my hand up to do. Even outdoor ed camps and things like that”. BA said that his way of teaching anything changed every time he got a new cohort of students:

Every time I get a new lot of kids I go, what have I got, who am I working with, let’s adjust this, let’s spend this much time on this, this much time on that, we don’t need to worry about this, we’ll need extra weeks to practice this.

KW was trained in the Kodály method, and still utilised much of this method in her teaching, but also endeavoured to be flexible in her thinking. “In trying to adapt to the situation, that’s made me a little bit more traditional and also extremely flexible, because I have to have an adaptation ready to go or have to adjust all the time”. JS enjoyed having pre-service teachers at her school, because it meant she could keep up with new and different pedagogies, rather than adhering to the same old strategies. “They’re coming straight out of university and bringing you the latest thing, and you can embrace it and try new things”.

LB’s approach to teaching had changed in the time he had been at his school. He said that he used to be quite “regimented” and wanted to be in control of everything. “I had that approach, that I am in charge, you will do as I say, and if you’re really lucky I might listen to you if I’ve got time to do that”. However, over time, LB was finding it difficult to deal with on a personal level. “I was finding my stress levels were climbing, particularly around Year 11 and 12 assessment time, and I just thought, maybe my stress levels would be better if I just backed off, just a little bit”. It took some time to adjust, but now LB works much more collaboratively with students—encouraging discussion, making room for student voice and opinion, accepting relevant musical tangents in lessons. By reflecting on his practice he has worked to make his classrooms safe, optimal learning environments (Hattie, 2003; Whitton, 2015). Before, he felt he had an absolute regime he needed to adhere to, but now he can go

into a lesson and make any necessary adjustments for the students he is working with and is feeling much calmer for it. “I just feel that if I’m relaxed, then the kids are going to be relaxed, they’ll want to be here and they’ll want to listen to what I’m teaching them”.

Other teachers talked about their ability to go into a lesson and trust their instincts regarding what and how they should teach. AA enjoyed the fact that she could frequently “experiment” with her students and try out new ideas. “I pick guinea pigs frequently for me. I just try different things and see how it goes, sometimes it works, sometimes it doesn’t”. TS will have a program of learning that she follows but will be making constant modifications depending on the circumstances in each lesson. “I tend to change a lot, depending on where their gaps are, or how I’m feeling, how they’re feeling. The other day, I went in and I could just feel beforehand, we’re all tired, and so I [did] different activities”. JH loved it when his lessons took “right hand turns”, due to any manner of unforeseen circumstances, and how it challenged him to make any situation work:

That happens... somewhat by default sometimes. You can’t print something, something’s gone wrong with the photocopier, we’ve gone offline or something like that. I’ll walk into a class with a whiteboard marker, that’s it. And I love that notion that you can trust yourself, that you can plan a lesson on the go, not all the time, but when things go pear shaped as they do in high schools all the time, and you go, shit, I’ve got to take these kids now... okay... right... and you know what to do.

Being flexible and open to new ideas as a teacher is related to having a willingness to experiment. Many teachers described the different ways they had developed new ideas, often leading to significant changes in a classroom or co-curricular program, and mostly as a result of evaluating the needs and abilities of their music students and devising new ways to extend and engage them. Many of these strategies involved developing meaningful and authentic learning experiences, encouraging student autonomy, and promoting a climate that supports flexible thinking and original ideas, which are all markers of a creative learning environment (Lassig, 2021).

Having a thriving co-curricular music program can lead to opportunities for different kinds of ensembles and musical groups beyond the orchestras and concert bands. At School P, the teachers

found they were serving students on orchestral instruments well, but the large number of pianists weren't able to effectively join ensembles, particularly if they were still developing their skills. So, MD started a synthesizer ensemble: 12 pianists playing brass band arrangements and video game music. "Because they use GarageBand as their module, they just choose whatever instrument matches the part that they're going to play, whether that be a brass instrument or drums, and they work collectively on their music". This shows an ability to understand student needs and meet them through innovative applications of existing resources: taking concert band material and reworking it with synthesisers. It provides an opportunity for collaborative play amongst otherwise disparate musicians, and a chance for teacher and students to creatively explore different ways to arrange and play music different to its original form.

Similarly, FS at School G was finding students on orchestral instruments were well catered for, but "there was a cohort of kids that weren't particularly musically literate, so there were singers, drummers, guitarists, keyboard players, kids who had an interest in contemporary, pop rock music, which our program hadn't catered for". This led to the development of a rock band program, which was now "at capacity" with six bands, with the option of working in a rock band now part of the junior secondary music program. At CO's school, at the request of a student, they started a "composition club, a space for kids who were composing and doing their own projects to meet". This connected with a composition competition, where students could submit compositions, and the 10 best pieces were workshopped with the school's ensembles, conductors and instrumental experts. CO saw this club as something with a lot of potential, as "it's quite thrilling for those kids to see their work come off the page". Being flexible as a teacher means being responsive and adaptable to student needs as they arise (Berliner, 2001) and the ability to opportunistically interpret and solve problems is a sign of an expert teacher, as distinct from an experienced teacher (Hattie, 2003).

Two other teachers—TS and JJ—described specific instances of experimental program changes that had been made at their schools, with the potential for positive lasting effects. TS had been finding that the Year 7 music program was not of an ideal design: students were having to do "difficult concepts without having done the basics"; the learning wasn't "in the right chronological order"; and she was

feeling her teaching was only about “quick, next assessment, quick, we’ve got to get them to the next assessment”. She and her colleagues redid the program, retaining the academic rigour but trying to “get them out of the classroom a lot more, and bring back the fun of what they’re learning”. In this way, they were using their teaching and domain expertise to look at the program with fresh eyes and engender a more creative learning context (Forster, 2012). TS listed a number of different activities, including using harmonic whirlyies, making vegetable instruments, jumping up and down stairs adorned with the pentatonic scale, and playing keyboard and guitar. She also created a Project-Based Learning (PBL) unit where students would have to create a video about a social justice issue and compose a soundtrack for it. Even though some of the video submissions were a little controversial, TS received a lot of positive feedback from parents and students who came in to see a screening of the final products. The engagement with the parents was of most importance, and TS said,

If the parents are engaged and are talking about what their child is doing in music, even if that’s negative, they are at least talking about it which is something they weren’t doing before and they weren’t even aware of what was going on in the classroom. If they’re talking to their children and they are having that conversation, at least they’re engaged and know what they’re doing.

At the senior secondary end of high school, JJ saw the need for a change in the way they sourced their resources for the topic of Music of the Last 25 Years and utilised a local composer to create works for two of her senior students to perform for their HSC. In doing so, the composer also workshopped the pieces with the class, and described how she wrote it, using musical concept language, all of which was recorded for use with future classes. “So, we’re actually creating our own resources for the future and we have, at least for a year, exclusive rights to those works. So that is enormous”.

Effective teaching summary

As evidenced from the interview data, the approaches to teaching described by the study participants align well with what some of the literature tells us about effective, or expert, teaching. Firstly, there is no one way to be an expert teacher. Expertise in teaching depends heavily on context, due to the large

number of variables that influence the learning environment and the learners within it (Stigler & Miller, 2018). Experience in the field is not necessarily a predictor of expertise—it comes with knowledge about the domain, pedagogy, their students and their teaching context (Forde & McMahon, 2019) and manifests in the way a teacher can adapt their range of teaching approaches to each circumstance, whilst maintaining a positive and reciprocal classroom environment (Hattie, 2003).

The teachers from these high achieving schools showed, through numerous examples, how their expertise informed their approaches to teaching. They developed positive relationships with students and sought their feedback and input on their individual and class programs. They had a comprehensive knowledge of both the musical domain and “the game” of the HSC, incorporating a range of appropriate repertoire, resources, and teaching techniques to build student skills and knowledge. They used authentic learning strategies to add complexity and challenge to content, and to help students connect their learning with its eventual application in the real world. And they were able to be flexible and adaptable to the cohort in front of them.

Co-curricular music programs

Every school involved in this study had a co-curricular performance program of some description. In the context of this research, any description of musical learning not directly related specifically to classroom and syllabus work was deemed “co-curricular”. At some schools, this included their compulsory instrumental or band programs, where students anywhere from Kindergarten through to Year 8 participated in a band program as part of their scheduled music learning. This was most common for the primary parts of K–12 schools, but in some cases this program either continued through to Year 8 (School G) or was part of their program from Year 7 (School B, School S).

Most school co-curricular programs were quite extensive, involving concert bands, jazz bands, orchestras, choirs, rock bands, chamber groups and offshoots of all of these—junior and senior concert bands, mass choirs and madrigal groups. LC’s co-curricular program had “about 30 ensembles that run throughout the week, ranging from ensembles that are for our youngest students, right through to extension level instrumental and choral ensembles in the high school”. The program at NP’s school was supported by seasons of “showcase performances that focus on co-curricular program outputs, so the concert bands will perform, the orchestras, all of the drama and dance companies. Every six months we are doing effectively a production season with every performing art involved”. The program at AC’s school was “bursting at the seams”, and included a range of ensembles, plus interstate tours, concerto competitions, and performances in professional halls.

At most schools, the classroom teachers had at least some involvement in the co-curricular programs. In some cases these were just managerial roles. At School A, Head of Music HW said there was a teaching staff member who oversaw each of their three key programs, “There’s a director of bands, director of choral programs and director of strings”. They were responsible for managing the bands, choirs and orchestras within their programs, as well as allocating conductors, auditioning students and placing students within the ensembles each year. “They’ve worked out repertoire, they’ve worked out their roles, they’ve worked out who’s going to conduct the ensembles and it’s all managed by them, in consultation with me”.

In other cases, classroom teachers were the conductors of some or all of the ensembles. At School U, HF was the only teacher involved with any co-curricular ensembles: “I’ve always led the concert band, the ANZAC marching band, directed the bands for the musicals etcetera, and we have choirs and other things”. At School T, RS said, “The majority of our large ensembles are taken by teachers who have a passion in those areas. We have a couple of singing teachers, and a teacher whose main instrument is piano that love working with the choirs”. JS preferred running the co-curricular program “in-house”: “It means we’ve got three music teachers on site who can take the ensembles and be there. It’s nice to have a team”.

However, at about half of the schools the co-curricular ensembles program was staffed with people specifically hired to conduct and lead ensembles. At School E in particular there was a clear distinction between the classroom teachers, peripatetic tutors and ensemble conductors. Staff members within the music department were hired specifically for their expertise in these different areas, to ensure excellence in teaching and learning across all musical areas. AS said,

You always need to have the highest standard of tutors. That’s the most important thing. You asked previously, would we use [a classroom teacher], no, their load is full. But another reason is, we want specialists. Classroom teachers aren’t always top specialists in their instrument. They’re trained a different way. Over time, we have built up this staff, that we don’t just have a couple of cornerstones but really everyone is offering a superb job for the students, it’s a great learning experience. And above and beyond is normal for us.

School D was a Sydney government school with an extensive co-curricular music program, involving around 320 students—a third of the school’s population. It was run by a staff member, HS, hired specifically to oversee the program: no classroom teaching, just management and administration of their co-curricular music program. He described his position and the program:

My job is to run the very extensive co-curricular band program, so that’s sixteen ensembles including orchestras and percussion ensembles and bands and choirs. I oversee all of those, and then I conduct... in a normal year I conduct four of those bands... I try and have a program that’s so diverse that it does cater for all levels of ability and interest.

He described the program as “properly co-curricular, so that it’s integrated in with what happens in the classroom, to an extent. Everything we do supports what’s going on the classroom and vice versa, we try to make it a holistic thing”. The program involved peripatetic tutors, hired by him but paid directly by parents, and a suite of conductors and deputy conductors, hired via a formal interview process. HS’s role involved everything from managing student attendance at peripatetic lessons— “I’ve built a system where we have proper data input for the timetable for every tutor. Staff can email me and go, hey, this kid isn’t in my class, where are they, and I can tell them in two seconds” —to managing fees and budgets, and communicating concert and performance dates to parents. HS saw the co-curricular program as a fundamental part of the students’ musical education. “I think kids should see the co-curricular program as I think we see it, as connected to the curriculum. I’m actually trying to support the kids’ educational and personal development”.

Student benefits

Research in the area of co-curricular programs, in music and other academic areas, indicates that student participation can have positive effects on a range of outcomes, including academic performance (Bradley & Conway, 2016; Cabane, Hille, & Lechner, 2016; Darling et al., 2005; Farb & Matjasko, 2012), socialisation (Conkling, 2018; Eccles & Barber, 1999), adolescent self-concept (Gilman et al., 2004), and engagement with the arts in adulthood (Foster & Jenkins, 2017). In their interviews for this study, teachers made several comments about the benefits to students for participating in co-curricular programs at their schools.

One of the key messages that came through was how participating in the programs contributed to pro-social behaviour development in students, something which can be linked to positive educational trajectories and influence adolescent identity (Eccles & Barber, 1999). A sense of community was fostered in co-curricular participation, in that students were able to utilise and share their talent with others and make connections with peers and like-minded students across the school. FC said, “I believe a lot of kids that are fringe and isolated can feel a sense of belonging and accomplishment in those ensembles”. CO called this “a cross-pollination of communities, Year 7s having relationships

with Year 12s and that mentoring thing... it's just very organic when you happen to play in the same ensemble". DW saw this as a way to facilitate peer-to-peer learning and connections:

We had the marching bands out the front this morning and all the junior students came up and watched it, and we get the older students to come and talk to the younger students, you know, so there's that interaction [where] the students always listen to their peers, rather than listen to us.

At BC's school, participation in the co-curricular program was not mandatory, but was instead seen as an important part of being a student at the school. "They end up doing it right up to Year 12, because it's seen as a service to the community, the school and the community. We contribute our gifts to enrich our lives together". This philosophy was also inherent at HF's school—musical talent was a gift that could, and should, be shared with the school community:

We have a lot of liturgies and masses so our students' gifts are constantly shared in our school community, and again, that builds confidence in our performers. It's part of our school culture of celebrating who we are as a Catholic school.

Participating in co-curricular ensembles also provided opportunities for students to develop intrapersonal skills. HW saw that participation in co-curricular programs meant students became aware of scheduling and personal responsibilities. "They're understanding how to manage their time, they're understanding how to be resilient, they're understanding about commitment, obligations and accountability, all that sort of stuff". LB saw the importance of developing social skills and "leadership skills as well... being in a musical ensemble helps to the develop a child's leadership skills and communication skills, that's so important". AA described the ways in which her students, particularly the highly capable ones, could utilise their role as leaders in co-curricular ensembles:

In a leadership role they'll mark the roll and make sure the folders are ready to go for the rehearsal and alert the conductor to anything that's missing or that's a problem. And they lead by example by being there on time and tapping kids on the shoulder if they didn't make it that day. If I was away, a leader will step in as a conductor for a rehearsal, or if they could they would accompany. Last year we had a student who played music for chapel, because he could

and he wanted to, so he just liaised with our Chaplin each week about what that was going to be. So, there's lots of roles for them to play.

Other teachers commented on the kinds of skills that are being developed by participating in the co-curricular program. NP saw the benefit for HSC level students to develop ensemble skills and individual performance skills:

If we can keep students involved in the co-curricular program as much as possible, it always supports their ability to deliver a strong HSC program or performance. Just keeps their playing relevant... thinking about music outside of just their six pieces [for their Music 2 and Music Extension performance assessment].

To TS, the co-curricular program and the classroom program were both important in student musical development, particularly in performance:

The skills you learn [in the co-curricular program] are going to help you. It means you're playing your instrument more, you really should be doing it. If they suddenly said, you don't have a co-curricular program, I think we'd lose a lot of elective students, because our directors of those ensembles try and connect what happens in the classroom to what's happening in co-curricular, but performing is the... look how much fun it is!

EE agreed with this perspective: "If they're doing music outside the classroom, then they're more likely to be succeeding in the classroom as well. The regular performance and just regular playing has helped". What teachers are describing here is an example of learning transfer—not in a way that explicitly leads to high achievement, but at the very least applying and generalising musical knowledge in a variety of contexts (Butler, Black-Maier, Raley, & Marsh, 2017). Having co-curricular programs that offered a wide variety of ensembles meant that music students at the school had more opportunities beyond the classroom to practice and extend their own performance abilities, on primary, secondary and even tertiary instruments, in solo and group situations, and explore creative and professional capabilities. By engaging in a range of musical skill building experiences, students are able to engage in critical thinking, musical problem solving and systematic reflection (Forrester,

2018) as well build their non-cognitive skills and positive attitudes towards school (Bradley & Conway, 2016).

Aside from the range of opportunities for performances with different groups at each school, many teachers spoke about the different possibilities for individual performance available for students, beyond HSC performance practice. School A and School P both ran concerto competitions, where students who were accomplished on their instrument were able to perform a movement from a concerto with the school's symphony orchestra. ILM, at School G, described the solo performance program which ran alongside the chamber music program in the secondary school. "We have a full-time accompanist and he takes every kid out, from Year 7 through to elective, to accompany or work with them on their solo performance piece, and once per semester they will present their solo performance piece". This solo performance program was a way for ILM to allow students to "do things above and beyond what they should be doing" in an environment where students are "happy and thriving".

At School E, there were many opportunities for students to perform solo, or in groups, due to the school's daily prayer ritual in the morning. According to AS, this meant all students were engaging in choral singing experiences daily: "When we have the services, the whole school will sing the hymn. The senoir choir will be on one side, they'll provide descants, but the whole school community sings". CC, also at School E, said that these were also opportunities for solo students to perform for the whole school: "[s]tudents who are ready with repertoire can be put in that performance environment, however often they want to". School E also had a major ceremony at the end of the year which could also be an opportunity for students to perform—in this case described by BC, perform a piece composed by a student specifically for the occasion:

A student in Year 10 just kept exceeding our expectations in terms of composition, so we gave her a brief to write something for [our end of year mass], and the brief was it was going to be for strings, piano (her instrument), and vocal solo. We identified that student and then we had the time and the energy to sit with her, and in that timely manner, have her eventually

at the piano, playing her composition with a beautiful soprano soloist and string accompaniment.

At the individual student level, there are many benefits to participating in a school's co-curricular music program. Students can build relationships with like-minded peers, benefit from regular performance opportunities beyond their solo practice, and develop musical, interpersonal, and non-cognitive skills. It can also help students maintain a positive connection to their school, and positive attitude towards their education.

School benefits

The key message that came through from teachers about how their co-curricular programs benefited the schools was very much in relation to how the school and its students were perceived in the community. Having a high quality, well-resourced and well-attended co-curricular program is a great way to show off the talents and abilities of the students at the school, as well as demonstrating the kinds of opportunities available. According to research, co-curricular programs can foster positive community engagement, and lead to more positive attitudes towards schools for participating students (Bray, 2009; Foster & Jenkins, 2017; Gilman, 2001; Gilman et al., 2004).

Some teachers, like FC, spoke about how logical it is for schools to market with their music programs. "I mean, obviously Music's always something good to put on your publicity... we've been on a US tour and we're putting on a musical, they're all really great things to put in your advertising". BA saw occasions like open nights as a means of inspiring future parents and students with what they could do once they attended the school. "If they hear a good ensemble at an open night, they go wow, they've got it together. I want my kid to be able to do that". JJ saw the co-curricular program at School J as a fundamental component of what drew students to the school in the first place.

The band program... it's probably been running for almost 20 years, and that program draws people in. We go on incredible tours, they know that we have incredibly high performing ensembles. Part of the culture of the school is the fact that all these extra-curricular things mean that you will be more balanced in your focus.

Other teachers saw every public performance as an opportunity to connect with their community and showcase the school's musical accomplishments. As RS said, "I'm a big believer that the co-curricular music activities will create a community atmosphere, but the community needs to see it and appreciate it". CO said the strength of their ensemble program was a clear way of demonstrating to the broader community how well the school overall is doing. "They're very much the front face of the school, they are at school opening evenings and community building things. We went on tour and that was a huge part of how we promoted our school overseas". LB also spoke about how their public performances drew future students in with their elite performing ensembles:

The big band is a really, really good ensemble. They regularly go to jazz festivals and go out into the community and do fundraising events, and they're the featured band. We played at the Navy Ball last year, and that was huge. So, they've got a really good reputation in the community, and we have had a lot of students come to this school because of the music program. Kids start coming up through the programs, they want to be in the orchestra, they want to be in the senior jazz band, they want to sing in the chamber choir, because they're good. And they want to be making music at that level.

Co-curricular music programs summary

A co-curricular music program in a school provides students with much more than an extra band rehearsal or choir eisteddfod to attend. It can lead to positive effects on student mental health and school engagement (Gilman et al., 2004; Laiho, 2004), non-cognitive skills and self-efficacy (Bradley & Conway, 2016), and academic performance and ambition (Cabane et al., 2016). As evidenced by the comments from teachers, the co-curricular programs in these high-achieving schools provided students with performance opportunities beyond their HSC pieces, the development of social skills and general capabilities through interaction with a range of peers and opportunities for leadership, practical connections to theoretical concepts, and a means to celebrate and showcase student talent and ability. The co-curricular programs at these schools were means of developing school and external community engagement, providing genuine and meaningful circumstances for students to not

only utilise their musical abilities but also build confidence and skills, as individuals and in ensembles.

Parental support

Although this study primarily focused on the role of the teacher in high achievement of senior secondary students, the importance of other influences on achievement and senior secondary music was explored during the interviews. One of the interview questions specifically concerned the way that music was perceived and valued by the broader community at the school: students, teachers and parents. This question yielded an interesting range of responses regarding the way in which parental involvement and perception of their child's music education could be both beneficial and detrimental to the school's music program and student participation.

Teachers at most of the schools spoke positively about the ways in which parents valued and supported music at their school. For some teachers, this support was evident through their attendance and participation in co-curricular programs. LC credited the "really active music department" to the commitment of the students and parents "that are willing to get their kids here at 7.10am for rehearsals and pick them up at 5pm from other rehearsals, drop them off on weekends". At JH's school, a third of the student population were involved in the music program, which to him equated to big family turnouts for performances—up to 800 people—as well as significant monetary support for music tours. "We just did an overseas tour, and parents paid \$6500, in addition to their fees and all that sort of stuff. Music is highly valued at this school, it always has been". A third of AA's secondary school cohort (80–100 students) participated in the open senior choir, something which she also attributed to parental support. "It's not something that costs extra, it runs after school, and the school is very proud of it and it's a public choir".

KH credited her school's parent group for encouraging the school to start running a Music 2 class. "In about 2009 there was enough interest and a dedicated parent group that pushed for it to happen, and so... I think Music 2 prior to that hadn't really been on the radar of the senior executive". Former principal DD saw the importance of working closely with parent groups, understanding that, ultimately, they want to help the school provide the best opportunities for their children:

I worked very closely with the parent group and helped them shape what music would look like. Guiding them as well, because sometimes they had unreasonable expectations. They

want to help, they want to be supportive. They like working with the school, and as a leader that's my role, to find ways of getting them to do that.

The instrumental music program at EE's school was officially run by the school's P and C committee, in conjunction with him as the teacher liaison. "They're the ones that officially hire the conductors, they're the ones that take the fees from the parents of the students involved, but that's really all... they fundraise and do things like that, but they basically work alongside me". EE found this to be a positive way to manage the program, with the parents managing logistics, and EE managing the creative, musical side:

It's their [the parents'] program, but they're there to help me. It works really well, because the parents, they're not trying to actually decide on music, they're just there as a support group. So, for example, if we're running a concert off site, the parents are the ones who get all the gear there. They get all the cars together. If we're running a workshop, they're the ones who provide the food for the kids at lunchtime and that sort of thing. It's a great group, but they don't try and run the program, they just support it.

These descriptions of parents actively offering financial, practical and moral support for their student's school musical experiences correlates with the importance of parental support described in the literature. Pascoe et al. (2005) found that schools with meaningful connections between school, parent, and student musical practices may result in a more effective music education. The study undertaken by Upitis et al. (2017) on parents of children taking instrumental music lessons, showed that parents had a high respect and value of the teachers, and that they valued the way music study could lead to self-discipline, well-roundedness and enjoyment of music as an adult. Dai and Schader (2001) stated that a supportive home environment is an important element of talent development, and parents are influential in terms of the activities their children choose to do, particularly when they are young. And Ho's (2009) case study of 19 families in Hong Kong indicated that parents affect their children's attitudes towards further musical study, and that "music educators should consider how they can help parents and the community understand how music education contributes to broad educational goals" (p.90).

However, along with these descriptions from teachers about the ways in which parents supported the school music programs, some teachers commented about the negative influence some parents had on their children – specifically with regard to Stage 6 Music participation. These comments were often connected with students that were perceived by the teachers as the top of their classes, the “guaranteed Band 6s”, whose parents would not allow them to continue classroom Music study in Year 11 or Year 12.

DD said that she had students who just wouldn’t choose Music in Stage 6 because of the ATAR, and because their parents wouldn’t let them:

[The parents would say] you’re going to be a doctor or a lawyer or whatever, what do you need music for? You play the piano at home, that’s enough. They were so good at it, it’s a shame, and they loved it. It’s a shame that you couldn’t persuade the parents to let them do it.

BA also described students whose parents “wouldn’t let them” do Music in Stage 6, with the primary concern being marks and scaling:

I’ve had a lot of parents call me, saying, oh, my daughter really wants to do your subject, but we’re just wondering, is it a good idea, you know... what kind of marks does she have to... there’s bias from the parents going, you’re not going to do music at uni, that’s not going to... make it.

TS bluntly said, “parents will be about marks”. She described a situation where the academic scholar (a student attending the school on an academic scholarship) in a particular cohort had beaten the music scholar every year, 7–10, but when it came to Stage 6, being top of Music was not going to be good enough:

The academic scholar was doing music [in Year 11]. Spoke with the mum, mum did not want him to do music, because it wasn’t going to get him the top thing that he needed. And I thought, wow, that was really sad. Anyway, over the holidays, [he ended up dropping the subject and] no, didn’t do music.

Some teachers had experiences where parent’s perception of Stage 6 Music scaling badly actually came from the school itself. At PT’s school, subject choices for Stage 6 were discussed with both

students and parents, and there was a time when executive members of the school involved in these discussions would actively discourage students from taking Creative Arts subjects at that level. “We used to have people that discouraged [students from doing] music and drama, because it wouldn’t get them the results, and that was openly discussed with students and parents”. At School A, GS had overheard a teacher from another subject area speak to parents at a parent-teacher evening about the amount of time their student was spending on music, asking, “Is that something he could cut down on?” PF described a Year 11 subject selection evening for Year 10 students and parents where a member of their executive used Music to demonstrate the possible effects of scaling in the ATAR. PF found this immensely frustrating and disappointing, especially because the HSC results for Music at their school yielded marks that were not in line with how it was depicted:

We had one year where, at an information evening, the head of curriculum at the time was talking about scaling, and they put an example up of music. If you got a music score of 65, where does it scale, and it ended up scaling really, really low. So, the overwhelming impact on the parents who were there was, okay, music doesn’t do well, which of course, is not true for our department at all, so it was a real misrepresentation.

While there is not any research specific to parental influence on HSC Music subject selection, there is some literature that could explain parental perception of the importance of music in later adolescence, and how that can influence adolescent school and career decision making. McPherson (2009) said that parents can view music as a less important school subject, and that parents can hold expectations for their child’s future pursuits that may differ from what the child is currently interested in. This can go so far as to affect the types of co-curricular activities parents may allow their children to participate in, in an effort to surround them with “desirable peers [who] share [their] children’s interests as well as the family’s cultural values” (Conkling, 2018, p. 35). Dai and Schader (2001) made an interesting point about the perception of music as a future endeavour:

Except for very few elite performers, professional musicians earn much less than professionals in other domains such as sports and medicine, although requiring similar training and preparation to perform at high levels of professional standards. Thus, for a vast majority of people, music is not even considered a viable career option (p. 23).

Tangible, realistic benefits to subject study, like a viable career with a sustainable income, can also influence the amount of time and perceived value of a subject within an already crowded curriculum, which can then influence parental perception of the importance of that subject. “Governments and the community at large, influenced and informed by competency and outcomes-based approaches to curriculum development, tend to respond more favourably to extrinsic arguments for music education rather than those that espouse the intrinsic merit” (Temmerman, 2005, p. 114). According to Ng and Hartwig (2011), factors such as music having low curriculum status and its perceived unimportance, can influence parental discouragement of student participation in classroom music, and recommends teachers discuss with parents the benefits of music learning on overall academic achievement. “Students’ continual participation in music learning involves support from parents and peers and is embedded in complicated social beliefs and values related to music learning held among these stakeholders” (Ng & Hartwig, p.136).

From the comments made by the teachers in this study, it is not possible to come to a conclusion about the tangible impact of parental support and influence on students in senior secondary music, beyond the notion that parental support is an important part of a student’s senior secondary experience. However, the examples provided by teachers, and the associated literature evidence, indicates that parents can have a significant impact on student participation in school music during adolescence, and this could be an interesting area for future research.

Scaling and the pursuit of a high ATAR

Introduction and context

In Australia, at the end of a student's high school career, they can be eligible to receive an ATAR.

This is “a numerical measure of a student's overall academic achievement” in the requisite Australian state or territory examination and assessment process that the student completed in their senior secondary studies (Universities Admissions Centre, 2017, p. 3). In NSW, this is the HSC. The ATAR is not a mark, it is a rank which represents “the position of a student in the appropriate age cohort, based on their overall academic achievement in the HSC” (Universities Admissions Centre, 2017, p. 3). It is calculated from a student's best 10 units completed for their HSC.

The ATAR is used solely for the purpose of entry into tertiary education. Universities across Australia provide information to prospective students about “ATAR cut offs”: the lowest ATAR a student must have achieved in order to gain entry into a particular degree program. This can be anywhere from an ATAR of 50 all the way up to 99.9, depending on the university and the degree. Degrees with higher ATAR cut offs tend to be in the areas of Business, Medical Science, and Law.

A student's ATAR is determined by a complicated process involving their raw HSC examination marks, their school assessment marks, and their internal ranking in each course at their school. A linear transformation is applied to all raw HSC marks in each course to determine a common value for the top mark, and then all subsequent marks are standardised. From here, scaled means and standard deviations are determined, and the scaling algorithm is implemented⁹. This process is undertaken as a means of providing fair comparisons of achievement across different courses, as students “should be neither advantaged nor disadvantaged by choosing one pattern of study over another”, although “courses that are taken by many students with high levels of achievement in all their courses (as is usually the case for courses such as Mathematics Extension 2 and Physics) award a higher proportion of high scaled scores” (Universities Admissions Centre, 2020).

The complexity of the explanations for the scaling process can mean it is difficult for teachers and

⁹ A more detailed description of how ATARs are calculated, including the scaling process, is provided in each year's Scaling Report. In the 2016 Scaling Report, it can be found from pages 7 – 10.

students who lack higher level mathematical knowledge to understand its nuances (Baker, 2018), yet still have to work within a system where the ATAR and subject scaling is a major component related to subject selection and student enrolment. This is where the majority of the teachers interviewed for this study found themselves: having perceptions and opinions about an important educational process without necessarily having a clear understanding of it.

Music 1 and Music 2 scaling

The perception of HSC Music scaling badly, particularly in Music 1, was articulated by almost all of the study participants, even by those teachers who didn't really understand the process. GS said that whenever she was asked about how Music scales in the HSC, she would "generally brush it off, because I don't really want to get into ... I don't know enough". The staff at PT's school were told not to discuss scaling, "and we don't, and I choose not to because I don't know enough about it, so don't talk about what you don't know about". YM "didn't understand it very well" as he heard from some sources that Music got pulled up, and from other sources that it got pulled down. KH said that her Music 2 classes never discussed scaling with her, and perhaps that was for the best. "I have no idea how it scales. Maybe if I was more proactive I would go and look for that myself, but on the other hand maybe I don't want to know!"

For most other teachers, there was a resigned acceptance that Music, historically, has not scaled well, although the extent of the negative effect of scaling depended on the mark and the course. LC said, "I think it's common knowledge that Music 1 academically doesn't always perform as well for students as Music 2, and I think that's actually supported by readily available data from UAC". This was put more explicitly by CC:

If you don't get a Band 6 in Music 1 it's the worst scaling of all the subjects. So, as soon as you don't get that Band 6 you just plummet. And Music 2... the candidature is so high that unless you're pretty much Con [Sydney Conservatorium of Music] material, it's really hard to score those high marks... unless they score really well, it doesn't do their ATAR many favours.

These sentiments were echoed by other teachers: that Music is a “negative drag on the ATAR” (FS), that Music 1 is “just going to lower your ATAR” (SS), that music is “not rated very highly among the ATAR” (RS), and that students were aiming to get above certain marks in order to not “get caned with scaling” (PT).

There were some teachers who had more favourable perceptions of the scaling of HSC Music. IM saw the idea of Music being scaled down as “absolute nonsense” and “terrible misinformation”. “They say Music 1 is scaled down. At the higher levels of achievement in the course, it is absolutely not. They just don’t understand that at all”. SS said that there may be a perception from the executive at the school that Music 1 will lower your ATAR, but that didn’t ring true for some of the students she had had:

Just two years ago we had a student get top of the state with Music 1, and he got a very high ATAR, so it certainly didn’t affect his mark. Other students from that same class, one of the girls got on the Honours roll. I think that we keep proving to them that if they do well in it, all will be well.

When ILM at School G was asked, “Is [HSC Music] seen as, you can get good results and it scales well or...”, he simply said, “Yep, it’s seen as that”. However, another teacher at School G, FS, said, “There’s no doubt about it, music is perceived in a negative scaling situation, even Music 2. Music 1 even more pronounced”.

The reality of scaling is difficult to articulate, because technically it can change year to year—it is dependent on the overall cohort that completed examinations in the year the marks for each subject are determined. While each ATAR calculation happens ‘fresh’ each year, there are certainly subjects which have consistently scaled well throughout the years, and others which have not, and there are many ATAR calculators online that students can use to estimate their ATAR based on previous year’s outcomes. Each Scaling Report from 2007 – 2019 (Universities Admissions Centre, 2008 – 2020) contains this statement in the *Frequently Asked Questions* section:

Which course should I study?

Do not choose courses on the basis of what you believe is the likely effect of scaling. Choice of which courses to study should be determined only by your interests, your demonstrated abilities and the value of courses for your future career plans. The scaling process is designed to allow students to choose according to these principles and not, as far as university selection is concerned, be disadvantaged by their choice. It treats all students on their merits (NSW Vice-Chancellors' Committee - Technical Committee on Scaling, 2017, p. 26).

However, many teachers described the students they had lost—in some cases their high achieving, “guaranteed Band 6” students—because of the potential effect their Music mark could have on their ATAR, or the likely effect of scaling. GG saw this drop off in Stage 6 as “fairly natural. The drop off is a consequence of perception about ATAR, or scaling”. Some teachers specifically lost students to more “academic” subjects, like science and maths. MD said, “We had a few leave Music 1 last year on that basis. Very capable kids that chose Physics or whatever, because of the concern that Music 1 doesn’t give you a high enough ATAR”. And GH said, “We had one student a couple of years ago who was coming first [in Music] but was getting five extra marks in his sciences and he decided to pull back on [Music] so that he could get his 99.99 ATAR”.

BM described a particularly memorable experience of the loss of one her best students,

I remember one time I had Year 11 Music and the best kid was going off to the curriculum co-ordinator because her mum said she had to drop music because she had too many units and she had to become a doctor. She came back and said, yeah, I am dropping, and the comment was, “Oh you should see how badly Music 1 scales, guys.”

And for FL, the loss of many of his best students was due to the results-driven nature of his school, Because music and the arts are seen as not to scale as well as the maths and sciences, most of the students won’t take it. Unfortunately, I have to say, I’ve lost a lot of very good musicians to science and maths, because they’ve decided to drop the subject, which has been pretty devastating at times.

CO struggled with the reality of the impact that perceived scaling of a subject can have on enrolment:

We lose a lot of kids. They go, I’m a really good musician, but I’m also a really good

biologist, and chemist, and physicist, and mathematician, and those things will scale better. I think that's a really hard stigma to fight because those subjects do scale really, really well in the HSC, and if they're good across a number of subjects and they have aspirations to do really well on their ATAR, then things like Music and creative arts drop quickly.

RS also understood that students see their subject selection from a different point of view to the teachers who know they will thrive in the Music courses:

I know that our HSC results are excellent, but people do walk into this area and go, well why would I want to put in all that effort, when I'm doing Physics, Chemistry, Extension Maths 2 and Advanced English... why would I want to do Music when it's not even going to rank?

How *does* Music scale?

As previously mentioned, UAC recommends that students choose subjects they are interested in, rather than subjects they think might give them a good ATAR. However, if a student is aiming for entrance into a particular university degree with a high ATAR cut-off, it is reasonable, and even somewhat responsible, for that student to consider both what they may be good at and what has *historically* scaled well, in order to maximise their chance of choosing subjects they are both interested in and will contribute positively to the ATAR they are hoping to achieve.

Students now have access to online ATAR calculators on a range of websites¹⁰, where they can put their predicted marks in for their subjects in order to determine where their ATAR will most likely lie, and to see how those marks have scaled in previous years. Some of these scaling outcomes have been presented in Appendix B. In examining the scaled marks of the HSC Music subjects, as well as other subjects including Society and Culture, Physics, Advanced English, and Drama, a few points become clear.

¹⁰ Examples of these websites include: <https://www.talent-100.com.au/atar-calculator/#welcome>; <https://www.matrix.edu.au/atar-calculator/>; <https://www.hscninja.com/atar-calculator>; <https://chalkwall.com.au/atar-calculator/>; [https://hsc.atarcalc.com/#{ }](https://hsc.atarcalc.com/#{})

Table 28: Scaled marks for a range of subjects in 2014

	60/30	65/32.5	70/35	75/37.5	80/40	85/42.5	90/45	95/47.5	100/50
Automotive	4.92	8.47	13.65	19.94	26.04	30.97	33.77	34	34
Drama	13.17	14.26	15.36	19.45	25.27	31.43	37.77	44.22	49.1
Adv. English	21.16	22.92	24.68	26.45	30.87	36.24	41.25	45.99	50
French Cont.	23.29	25.23	27.17	29.11	32.48	35.97	40.11	44.73	50
Geography	15.18	16.45	19.77	23.6	28.39	33.96	40.24	47.23	50
History Ext.	25.8	27.52	30.1	31.86	34.58	36.4	40.17	43.86	49.2
Mathematics	20.47	22.17	23.88	26.85	31.73	36.25	40.14	44.44	50
Music 1	10.16	11.01	11.85	12.7	18.56	25.47	32.56	40.03	47.2
Music 2	20.49	22.2	23.9	25.61	27.32	31.9	38.55	44.83	50
Music Ext.	19.5	20.8	22.75	24.05	26	27.3	30.67	34.8	50
Physics	21.4	23.19	27.33	32.9	36.61	39.7	42.89	46.91	50
Soc. and Cult.	13.27	14.37	15.48	20.04	25.4	31.07	36.97	43.09	48

Note. The mark out of 100 (2 units) becomes two marks out of 50 (1 unit each). The scaled marks in each column are based on the column header marks out of 50 (50/50, 47.5/50, 45/50 and so forth). The green and yellow highlights show the two highest performing subjects at each mark, and the red and blue highlights show the two lowest.

Of the three Music subjects¹¹, Music 1 is the most negatively affected by the scaling process, at almost every point in the marking scale, in any year from 2009–2016. Music 1 is also one of the worst scaling subjects overall. In Music Extension, there is a significant scaling difference between students who receive a mark of 50/50, and students who receive a mark of 45/50, despite both of these marks being an E4. This difference has been anywhere between 10 and 20 scaled marks. For example, as shown in Table 28, in 2014 a Music Extension student receiving a mark of 45/50 (90%) would have had their mark scaled down to 30.67/50 (61%). Music 2 is consistently the best performing Music subject, although it too can have significant scaling drops around the Band 5 range.

¹¹ For a description of Music 1, Music 2, Music Extension and how Bands are determined, please see the Glossary of Terms.

Looking at each of the subject's scaled marks across the time period (see Appendix B), it is clear that despite there being changes to the scaled marks each year, these changes are mostly very small—in many cases around 1 mark or less. Therefore, it is absolutely reasonable for a student to look at the historical scaling of their predicted marks in each subject and use this information to decide which subjects they should pursue for their HSC.

Scaling in context

Despite this being the case for the scaling of the individual Music subjects, when put into context with other subjects studied for the HSC in order to generate a student's ATAR, the effect of scaling can become much less pronounced, although still evident¹².

Let's say there are 10 students completing their HSCs in 2009, 2012, 2016, and 2018. Each of these students did four of the same subjects in these years – Advanced English, Mathematics, Biology and Ancient History. They then also completed one different subject, indicated in the first column of Table 29. The following table shows the estimated ATARs for each student in the selected years, with the student achieving marks of 95, 90, 85, and 80 in every subject. The green and yellow highlights show the two highest performing ATARs each year, and the red and blue highlights show the two lowest.

¹² The historical ATAR estimations in this section were generated from

<https://www.hscninja.com/atar-calculator>

Table 29: ATAR calculations based on historical marks

	2009 ATAR	2012 ATAR	2016 ATAR	2018 ATAR
Marks = 95				
1: Music 1	99.00	99.35	98.90	98.95
2: Music 2 and Ext	99.40	99.55	99.40	99.35
3: Physics	99.55	99.75	99.50	99.60
4: Drama	99.30	99.60	99.35	99.35
5: Food Technology	99.15	99.45	99.10	99.20
6: French Continuers	99.40	99.60	99.45	99.60
7: Agriculture	99.20	99.60	99.30	99.20
8: PDHPE¹³	99.20	99.60	99.25	99.50
9: Geography	99.55	99.70	99.50	99.65
10: SOR 2¹⁴	99.45	99.60	99.55	99.60
Marks = 90				
1: Music 1	93.90	95.10	92.50	92.25
2: Music 2 and Ext	95.20	95.75	94.45	93.90
3: Physics	95.85	97.05	95.70	95.40
4: Drama	95.05	95.95	94.45	93.95
5: Food Technology	94.75	95.65	94.20	93.55
6: French Continuers	95.55	96.45	94.90	94.90
7: Agriculture	94.85	96.25	94.25	93.65
8: PDHPE	95.15	96.10	94.25	94.50
9: Geography	95.35	96.35	95.15	94.80
10: SOR 2	95.05	96.40	94.70	95.00

¹³ PDHPE stands for Personal Development, Health, and Physical Education.

¹⁴ SOR 2 stands for Studies of Religion 2 Unit. There is also a Studies of Religion 1 Unit course.

	2009 ATAR	2012 ATAR	2016 ATAR	2018 ATAR
Marks = 85				
1: Music 1	85.25	86.85	81.30	82.05
2: Music 2 and Ext	87.40	88.15	84.20	84.25
3: Physics	89.15	91.20	87.35	88.35
4: Drama	87.45	88.50	84.40	85.25
5: Food Technology	87.15	88.20	84.70	84.60
6: French Continuers	88.95	90.10	85.80	87.10
7: Agriculture	87.35	89.45	84.40	84.90
8: PDHPE	88.15	89.10	84.65	86.20
9: Geography	87.75	89.50	85.90	86.00
10: SOR 2	87.30	89.90	85.00	87.10
Marks = 80				
1: Music 1	74.55	76.30	70.55	71.55
2: Music 2 and Ext	77.95	79.30	75.55	75.35
3: Physics	80.05	82.80	78.65	79.35
4: Drama	77.30	78.65	74.25	75.05
5: Food Technology	77.30	78.50	75.35	74.50
6: French Continuers	80.40	81.35	77.05	77.85
7: Agriculture	77.80	80.25	74.75	74.90
8: PDHPE	78.80	79.80	75.30	76.50
9: Geography	78.10	80.20	76.40	76.00
10: SOR 2	77.60	80.90	75.60	77.40

If you are an extremely high achieving student across all your subjects, which is likely according to Urban (2019), then the choice of Music 1 or Music 2 won't have a significant effect on your eventual ATAR. But moving down to an average mark of 90, the discrepancies begin to show, particularly with

Music 1. One or two ATAR points may not seem significant, but for students aiming for university courses that require high ATAR cut offs, including Law, Medicine, Science, Architecture and Commerce, it can mean missing out on a place in the degree you've been working towards for the last two years. As is also evident from this data, the choice of Music 1 as the variable consistently leads to the lowest ATAR at all levels of achievement.

What if you're an average student, but Music is your best subject by far? In Table 30, the four common subjects have been set to a mark of 85. The marks for the additional subjects for each student were then set to 95. This table shows that subjects in which students are strong performers have the power to "pull an ATAR up", but the difference in points is much more pronounced with the music courses, with Music 2/Music Extension producing the highest average difference. For the ATAR calculations listed in columns 2–5 of Table 30, marks for the four core subjects were set to 85, and marks for the additional subjects were set to 95. The average difference for each subject was calculated by determining the difference between ATARs in this table and the Marks = 85 section of Table 29, then finding the average of those differences for each subject.

Table 30: *ATAR calculations that include one "strong" subject*

	2009 ATAR	2012 ATAR	2016 ATAR	2018 ATAR	Average difference
1: Music 1	90.15	92	87.5	88.50	+5.67
2: Music 2 and Ext	92.9	93.6	91.6	90.50	+6.15
3: Physics	92.15	93.55	90.2	90.55	+2.60
4: Drama	91.25	93	90.05	90.10	+4.70
5: Food Technology	90.65	92.35	88.15	89.30	+3.95
6: French Continuers	91.55	93	90.3	90.40	+3.32
7: Agriculture	90.85	93.05	88.75	89.30	+3.90
8: PDHPE	90.85	92.85	88.65	90.60	+3.61

	2009 ATAR	2012 ATAR	2016 ATAR	2018 ATAR	Average difference
9: Geography	92.2	93.3	90.6	90.65	+4.40
10: SOR 2	91.85	92.95	90.7	90.45	+4.16

In studying these limited examples, it shows that the narrative around scaling in HSC subjects needs to move beyond the consideration of subjects in isolation, and instead to how those subjects contribute to a student's overall performance in conjunction with their other subjects. When looking at how the Music subjects scale in comparison to others, it puts Music in a very unfavourable light, particularly Music 1. However, when examined together with other subjects, and with a range of mark outcomes, the effect of scaling on the ATAR becomes much more muted, with room for nuance in the way the scaling of HSC Music courses can be discussed.

How do teachers combat the impact of the perception of scaling on Music courses?

Different teachers described the different ways they handled the perception of how HSC Music would scale. Some teachers saw the difference in scaling between Music 1 and Music 2 as a means to advocate for only running Music 2 at their school. Of the 23 schools involved in the study, four of the schools had only ever run Music 2 and Extension during the years 2007–2016. BC saw encouraging students to do Music 2 as “fighting the good fight... insisting that students should be ambitious, even if they are competing with the very, very best”. NK’s reasons for only running Music 2 at her school included the way they taught the Stage 4 and 5 courses in the lead up to Stage 6: “We train people up for content that’s more Music 2 related. If you’re really passionate and want to be a death metal singer, there’s opportunities elsewhere”. She also talked about how she marketed the Music courses to appeal to the way students approached their learning overall, their academic needs, and the “good name” attached to the subject thanks to their good results:

You are in charge of 50% of your content, and by the time you sit down for an exam you’ve done 65% of the course. So, it appeals to people that can multi-task and are motivated to

complete work and leave it, and then focus on something else. And it isn't a case of, I am doing music to be a musician. Most of our students don't. But they need the good ATAR. There were some teachers that accepted the negative scaling perception, and even felt it was their duty to advise their best students to avoid HSC Music if they wanted a high ATAR. LB thought honesty was the best policy with his students, and would say to them, "Music may affect your ATAR so you might want to reconsider what course you're doing. There's nothing hidden in terms of the way we are open about the direction of each person in the course, where they're heading". FS found the topic of ATAR and scaling extremely frustrating and described a conversation he had with a student about "getting real" about her senior year. "Okay, your mum's a neurosurgeon, your dad's a neurosurgeon, your grandfather's a neurosurgeon, and you're going to be a neurosurgeon? Then don't be in Music 1. And that's my advice to you, my top music student". BC had also become somewhat disillusioned with the process after his top Music student last year, an All Rounder, missed out on the ATAR she wanted by half a point, and her Music marks were her worst contributing components:

I've got quite mixed feelings about that at the moment. In fact, I will be advising students... if you want to be a musician, well and good, we can help you. If you want to be something that requires that extremely high ATAR, then you should probably think twice about Music as an ATAR contributor. You might be better served by other subjects.

Other teachers aligned with what the UAC Scaling Reports say about pursuing subjects that students are interested in, which they will therefore then do well in. As a deputy principal, LC was actually involved in the process of subject selection with students and experienced in providing advice on where they should go:

We have direct conversations with students about their interests, what it is they're hoping to do after school. They're given advice that if you are able to perform extremely well in a course, whatever course that is, that will support a student in terms of their overall, positive, strong result.

HF was also a deputy principal, and maintained a similar line of advice:

We don't actually talk about that, the ATAR or post-school opportunities. We don't ever talk to kids about how music will be scaled, we never... we say to them, pick the subjects you're

good at and that you love and that you will strive to do well in. You do not need to maintain a traditional pattern of study to do well. You do what you're good at, and you do your best. Finally, some teachers had accelerated students into Stage 6 Music. This was usually used as a means to accommodate their gifted students who weren't being effectively challenged by the Stage 5 content. At School S, it was a means of ensuring there would be a Music 2 class for students in a cohort of an exceptionally high performance standard. KH said,

Most years we have had one or two students accelerated into the Music 2 program. They're all AMus or LMus players when they're in Year 10. And they always do exceptionally well, they have always been first or second in the class, all the way through.

For FL, acceleration helped to “stabilise their numbers” of students in Music 2, and he saw it as the reason Stage 6 Music had remained viable at his school. He would run the Stage 5 Music course as a “compacted” course (where two years' worth of course content is completed in the space of one year), and then allow students in Year 10 to begin the Preliminary Music 2 course:

Basically, it just means that they finish their music early so they can concentrate on their maths and science in Year 12. It's the notion of “marks in the bank”. Because we start the course in Year 10 the students tend to just keep going through to Year 11 and the HSC, and out of the seven *Encore* nominations that we got last year, six were from the accelerated cohort, which is really interesting.

From 2007, there have been at least four schools in NSW, all academically selective schools, who have consistently allowed a cohort of students to complete their HSC Music studies early—most often doing Music 2 in Year 11, and Music Extension in Year 12. Several other schools have also provided opportunities for one or two students in a year to complete their HSC Music study early—again, usually in the Music 2 course. In the years 2007–2016, 63 of the top 10% of schools provided accelerated HSC subject options for their students. Most of these were for subjects to be completed in Year 11, but some schools also offered courses for students to complete in Year 10. By far, the most common subject for acceleration was Mathematics, but schools in the top 10% also offered these accelerated subjects:

Year 10: Business Studies, Geography, Information Processes and Technology, Music 2, Software Design and Development, Studies of Religion 2, French Continuers

Year 11: Aboriginal Studies, Agriculture, Biology, Business Studies, Chemistry, Design and Technology, Drama, Earth and Environmental Science, Economics, Engineering Studies, Geography, Information Processes and Technology, Legal Studies, Modern History, Music 2, Personal Development/Health/Physical Education, Physics, Society and Culture, Software Design and Development, Studies of Religion 2, French Continuers, German Continuers, Italian Continuers, Japanese Continuers, Modern Hebrew Continuers

Just under 20% of schools in NSW consistently offer accelerated courses in the HSC for their students. There is also evidence that many schools allow individual students to accelerate in specific subjects, including a range of languages and Information Technology-related subjects. Given this prevalence of acceleration, particularly in the HSC, teachers and schools should consider this to be a reasonable and achievable strategy to accommodate their musically-gifted students.¹⁵

Scaling and the ATAR summary

Despite the Scaling Reports stating that certain courses are not always scaled down, there is a persistent perception, supported by a careful examination of how courses have scaled historically, that the HSC Music courses do not scale well, particularly Music 1. As a result, according to the teachers interviewed for this study, Music is losing some of its best and brightest students each year to more reliably scaled subjects in the maths and science domains. While the perception of individual subject scaling can be supported by the available data, it should not be the end of the narrative for discussions about possible ATAR outcomes for subject selections including Music. More refined examination of the scaling data in context shows that, particularly for high achieving students in music and other domains, the effect on the ATAR of Music scaling is far less pronounced than the data may indicate.

¹⁵ The statistics and information to support the statements in this paragraph are sourced from information provided by some of the teachers in the interview data as well as analysis of the NSW All Rounders lists (2007 – 2018) in conjunction with the relevant NSW Distinguished Achievers lists. This information is publicly available and can be viewed at <https://www.boardofstudies.nsw.edu.au/>.

While the scaling process and ATAR calculation is difficult to comprehend, and impossible to reliably predict, it is in the best interests of music teachers to examine both contemporary and historical data in detail, to provide students with a more complete picture of what the scaling numbers can mean. Using the data to show students how Music can positively affect ATAR performance could help to retain some students with doubts about Music's effect on their ATAR. Teachers should also consider encouraging more students to do Music 2 or allowing their highest achievers to accelerate into the Stage 6 Music courses from Year 10, in order to retain a healthy HSC Music cohort and encourage students to consider Music as a viable academic choice for their HSC.

Chapter 6. Conclusions and Limitations

From the outset, this study intended to examine the factors that contribute to consistent high achievement by students in senior secondary school music programs. This included how the areas of effective teaching, program design, and school culture contribute to consistent high achievement in HSC Music. The focus on consistency of achievement across a 10-year period allowed the research to centre on the teacher and the educational environment in which achievement occurred. While it could be possible that a school may have exceptionally talented and capable students in any given year, it was less likely that sustained success from multiple cohorts could merely be attributed to high student ability in each cohort, especially given there are no schools in NSW that accept students based on high musical ability alone. Instead, it was more likely that consistent achievement was a result of effective teaching practice and supportive school cultures. This perspective is supported by other literature and research explored in this dissertation, including Hattie's (2003, 2012) meta-analyses of the impact of effective teaching, Gruenert and Whitaker's (2014) examination of school cultures, and the comprehensive report on successful teaching in the HSC by Ayres et al. (1999).

This study sought to fill a gap in the literature connecting music education and high achievement. As established in the literature review, while there is research that looks at how music participation and engagement can affect other aspects of academic achievement, including performance on standardised testing of language, mathematics, and science, there is little research that looks at high achievement from the music perspective, and how musical high achievers perform academically. The quantitative analysis conducted for this study shows that there is objectively measured data available about the achievement of music students in high school, and that this can be a valid source of information about where high achievement is occurring. From this we can infer how it is consistently maintained. There is a distinct need for more research in this area, examining how high achievement is measured and how teaching and school environments contribute to achievement levels in different circumstances.

The results of the qualitative and quantitative data analysis revealed a number of factors that contribute to the high musical achievement of senior secondary students. These are summarised in Figure 6. In all the key areas of discussion, while there were several other points of interest, the

importance of effective teachers was a common and consistent factor. The teachers in this study manifested many of the characteristics explored in the literature in so much as these teachers were experts in their subject area: they knew how to design interesting and challenging units of work, how to teach intuitively, and what content would suit their students. They understood their educational community: their attitudes towards music, how to best utilise resources, and how to use music to build cultural capital. Most importantly, they knew their students, individually and as cohorts: how to communicate with them and how to best support their needs. The high achievement at these NSW schools was driven by teachers with expertise, passion, and creativity.

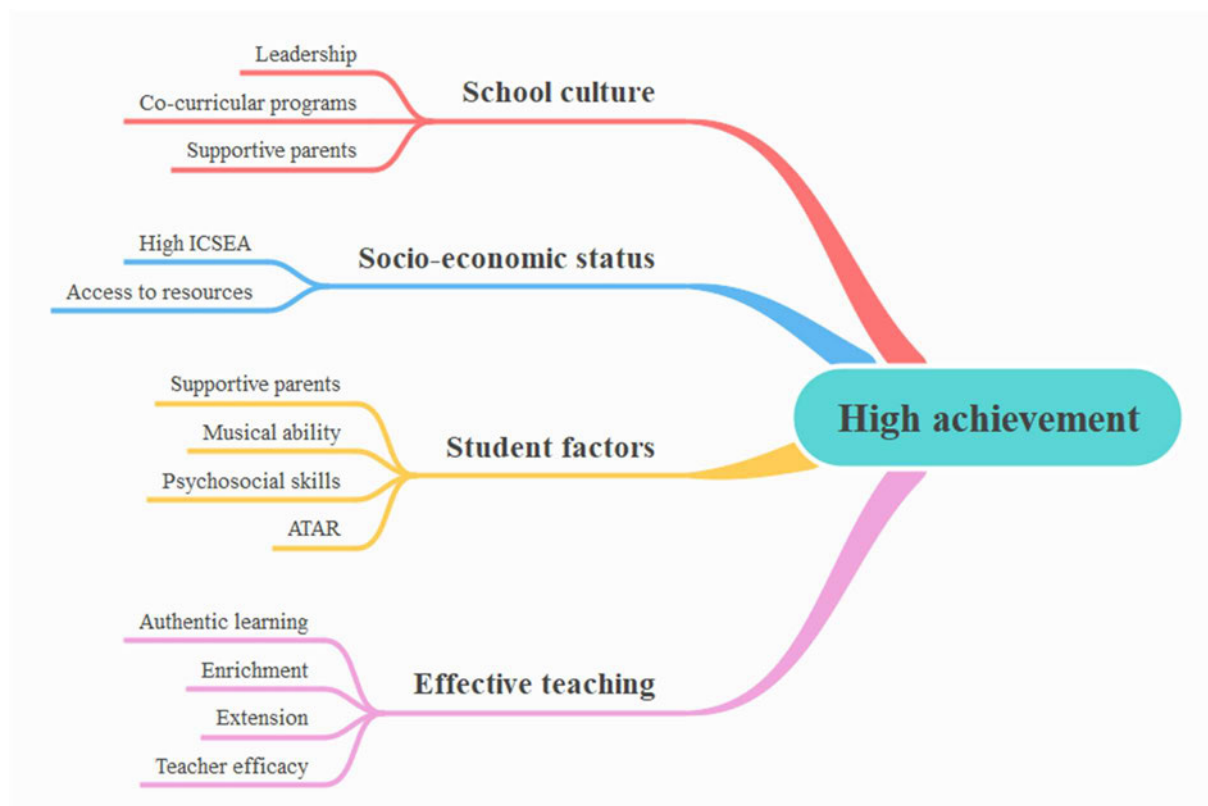


Figure 6: The different factors that influence the high musical achievement of senior secondary students.

At all of the schools, teachers worked to make music a core part of the school community. It became a part of the school’s storytelling (Van Der Westhuizen et al., 2005) through assemblies, concerts, school celebrations, religious ceremonies, and everyday meetings. The importance of supportive leadership was clear from interviews with teachers who felt it was present and those who felt it was

lacking. This study showed that supportive leadership wasn't necessarily a direct influence on high student achievement, but it did affect how the teachers psychologically perceived their working environment and how their contribution to the school was valued. This connects with the literature on school culture that states that leadership can indirectly impact student achievement through its relationships with teaching staff (Waters et al., 2003) but collective teacher efficacy can be affected by the achievement of their students (Goddard et al., 2000). It is possible that the consistent high achievement from students had a more positive and influential effect on the teacher's efficacy beliefs than the negative impact of the unsupportive leadership. Further research in this area may be beneficial, in order to examine whether collective efficacy can negate the effects of unsupportive leadership, particularly in the music education context.

A school with a strong co-curricular program reaps rewards for student engagement and achievement, as well as for the school's culture and community perception. It aligns with research showing that domain-specific programs that provide opportunities for students to practice and their potential to prosper are important for talent development (Subotnik et al., 2011). The prevalence of ensemble and performing opportunities at all of the participating schools shows that senior students can benefit from being able to apply their learning and skills outside of the classroom. This also supports the authentic learning approaches utilised by the teacher at the senior secondary level (White, 2020). Through solo and ensemble work, masterclasses, composition workshops, and internal and external performance opportunities, a thriving co-curricular program ensures students are making cognitive and physical connections between school and professional musical practice.

The effective provision of enrichment and extension for musically-gifted students was also an important aspect of the teaching programs. Teachers were able to describe, both broadly and specifically, how they could adjust teaching techniques, assessments, lessons and entire programs to more effectively cater for the learning needs or talent development of their gifted students. This differentiation of instruction is a valuable means of extending gifted students, ensuring they remain engaged and supported in their secondary education. This study showed that students who were demonstrably musically gifted or highly capable in these music programs would have benefited from

the passion, knowledge, and expertise of the participating teachers. However, the lack of formal identification processes and understanding of raw musical giftedness was a concern. Teachers may need support to broaden their skills in identifying and developing gifted students who lack demonstrable talent but would also benefit from enrichment. Gifted music education provision and skill development is an area that would benefit from further research and professional development for teachers at pre- and in-service levels.

Beyond the school programs, the validation analyses and descriptive statistics revealed several broader issues connected to the likelihood of high musical achievement within a senior school environment. The first is the importance of equity. As established in the Results chapter, the ICSEA of a school is a predictor of just over 50% of high student achievement in HSC Music. This means that students who come from educated and financially stable families, and attend a school in an economically advantaged area, have a significant advantage over students in disadvantaged areas and school communities. However, a high ICSEA is not necessarily an absolute guarantee as there were many high ICSEA schools who did not make the top 10%. The top 10% of schools provided their students with a wealth of resources, co-curricular programs and activities, something which both this study and the research literature has established are major contributors to musical achievement and a positive school culture (Eerola & Eerola, 2014; Foster & Jenkins, 2017; Guhn et al., 2020). However, these programs take time and considerable financial outlay from schools and families for instruments, conductors, sheet music and individual lessons, among other costs. As such, this study contributes to the growing area of research (Berkowitz et al., 2016; Bonnor, 2019; Department of Education and Training, 2018; Lamb et al., 2015a, 2015b; Miksza, 2007; Olszewski-Kubilius & Clarenbach, 2012; Pascoe et al., 2005) calling for better equity in funding to support schools in their provision of quality music education and musical opportunities.

The continuing issue of the social and political perception of the value of arts education was manifested in the teachers' discussion of parental involvement and attitudes, and the impact of the ATAR. Despite the ongoing research exploring how music changes the brain, its benefits in childhood, connections with academic achievement, and constant advocacy from Australian and

international bodies, there is still a mixed, confused, or even negative perception of the inherent value of music. The fact that there are parents across NSW denying their musically capable children the opportunity to study music in the senior years is a significant concern and an indication that the industry's advocacy and research efforts are not effectively cutting through. At the very least, this study indicates that the narrative around the ATAR and music needs to change, and senior secondary music teachers need to take the time to understand the nuances involved. We also need to adjust how we advocate for and communicate the benefits of effective music education. The way in which the containment measures for the coronavirus have affected this industry in 2020 has laid bare the apathetic disdain our political leaders and the broader public have for music and the arts (Anatolitis, 2020; Baker, 2020). This study shows the impact that effective music teaching can have on student achievement and talent development, which can help them in their personal, creative and future career endeavours. Research like this makes a small contribution to changing perceptions, but also shows how far we need to go to advocate for what students need to gain equity in the provision of quality music education.

Limitations and future directions

This study has some limitations. First and foremost is using the Band 6 in HSC Music as the benchmark for high achievement. By doing so, research focused on the schools and teachers who curated environments that consistently facilitated this level of achievement for their students. However, there are thousands of students across NSW every year that make significant leaps in their achievement levels in Year 11 and 12 due to the exceptional work of their teachers, but these achievements may not result in a Band 6 in their HSC. These students and teachers are missed in this research due to the study design and reliance on results that cannot objectively show how student musical achievement grows during the senior secondary years. The quantitative data collected for this study showed that although ICSEA and geographic location may impact consistency of achievement, it does not necessarily affect engagement or enrolment. It would be worth following up with research that explores the "hidden" achievers in NSW: schools and teachers that are working against

disadvantage to encourage their students to reach beyond their potential, even if it doesn't always culminate in a Band 6.

The quantitative component of this study was also somewhat limited by the nature of the data released by NESA. While the provided data certainly yielded a wealth of information about Band achievement, cohort marks and enrolment, certain details that were not provided to ensure confidentiality for students and schools would have yielded more nuance and depth to the analysis. Having all schools formally identified would have allowed for a more complete analysis of ICSEA and enrolment patterns, as well as saved time with self-identifying schools. Individual student marks, rather than just Bands, would have also allowed for more nuance in examining the high achievement data and possibly identifying schools that may be consistent in high Band 5 achievement (88 or 89 out of 100).

Another possible limitation is the ability for the results of this research to be extrapolated to senior secondary music education contexts beyond NSW. This study has attempted to mitigate this limitation by focusing on the senior secondary school nature of the research, rather than on aspects particular to the Australian, or NSW, educational context. However, it is inescapable that certain parts of the results and discussion, particularly in relation to certain teaching techniques, curriculum design, and the ATAR, do rely on a knowledge of and commitment to the HSC course and syllabus structure. The sections relating to co-curricular programs, authentic learning, school culture, and gifted education are much more likely to be applicable in a broader range of senior secondary contexts. This limitation could be mitigated in future studies with a research design that utilises secondary school completion results and teacher interviews from a range of contexts and countries.

This study shows that quantitative data can be used to inform and enrich the qualitative examination of education phenomena. It would be valuable to explore this data on a larger scale to answer broader questions. How does high achievement in HSC Music compare with high achievement in other subjects? How do similar measures of SES or educational advantage account for high achievement in other states or countries? What are the enrolment patterns in secondary Music in other regions and how can we retain more students through to the end of secondary school? Research in these areas

could lead to a more comprehensive understanding of the part music plays in school culture and the student experience, and how it can evolve to become a true cornerstone of contemporary education.

Final words

Music is an invaluable component of the holistic educational experience of every child. It provides students with opportunities to augment their skills in creativity, critical thinking, negotiation and appreciation as they develop as musical beings. This study showed that NSW has many schools where expert and effective teachers, in conjunction with supportive learning environments and good resourcing, are able to consistently extract excellent results from their senior secondary students in HSC Music. This research indicates that high achievement and talent development does not happen solely by chance or by the student alone: it happens through expert teachers using effective teaching strategies in supportive programs and schools. Music teachers play a vital role in providing quality educational experiences, enabling positive school cultures, and nurturing young people to become creative and capable members of our community.

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Appendix A

The following is the full article written by the author which was published in the *British Journal of Music Education* prior to the submission of this dissertation. The literature review and results and discussion section of this article has been included in the body of the thesis.

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ARTICLE

Authentic learning in senior secondary music pedagogy: an examination of teaching practice in high-achieving school music programmes

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Abstract

Authentic learning approaches are designed to immerse students in contexts that promote real-life applications of knowledge, and provide meaningful learning experiences beyond the abstract instruction of the classroom. In a grounded theory study of music teaching practice in high-achieving schools, 50 teachers from 23 schools across New South Wales (NSW), Australia, were asked to describe how they taught their senior secondary students and the musical environment they curated within their school. Through examination of the interview data, authentic learning exposed itself as uniquely situated in classroom music teaching of high-achieving music programmes for senior secondary students in NSW. This is shown through the use of thorough inquiry-based and student-centred learning tasks like video journals, the use of professional resources and expertise and collaborative learning in authentic contexts, in and outside of the classroom.

Keywords: authentic learning; senior secondary; collaborative; grounded theory; student centred

Introduction

Authentic learning is a pedagogy that has its roots in situated cognition (Wilson & Myers, 2000; Wilson & Clark, 2009) and situated learning (Clancey, 1995). In its early iterations, situated cognition was developed as a

means of exploring ‘cognitive extensions’ (Wilson & Clark, 2009) – essentially, what the brain is doing during the learning process. This, therefore, become less about pedagogy and more about neuroscience. Situated learning is also inherently theoretical, but is more logically connected with contemporary conceptions of authentic learning. According to Clancey (1995), situated learning proposes that knowledge is constantly being constructed all day, every day and how we understand and behave in situations is controlled by our perceived roles within a community. It is a reaction against the perception of learners as information processors and instead facilitates learning to be inclusive, contextual and communal. Teachers should focus on cultivating learning processes, and design tasks and activities that enable skill and knowledge transfer (Choi & Hannafin, 1995).

This notion that students should apply transferable knowledge and skills to learning in authentic ‘real world’ contexts is what forms the fundamental premise of authentic learning. This article aims to explore the ways in which authentic learning is described in the literature, how it could be applied to a music education context and provide descriptions of how music teachers in high-achieving school music programmes in Australia are using authentic learning strategies and techniques as important elements of their pedagogy.

Definitions of authentic learning

Authentic learning has been explored and defined in relation to various contexts, tertiary education (Roach, Tilley, & Mitchell, 2018), library science (Callison & Lamb, 2004), anatomy science (Pawlina & Drake, 2016), mathematics (Herrington & Oliver, 2000; Herrington, Reeves, & Oliver, 2014) and constructivism (Wiggins, 2007). It can be linked with the theory of experiential learning (Kolb, 2015) and problem-based learning (Radinsky et al., 2001; Roach et al., 2018). The following is a brief review of the relevant literature, framed by the key characteristics as outlined in Rule (2006).

Learning should take place in an authentic context and utilise authentic procedures and resources

The authentic context is the basis of authentic learning. However, this does not necessarily mean that authentic learning can only occur in a literally authentic environment like a professional science lab, or a working music studio, or a government cabinet meeting. It means that teachers should utilise procedures and examine issues that closely align with those inherent in professional practice and make use of real-world relevant resources, knowledge and procedures (Rule, 2006; O’Connor, Jeanes, & Alfrey, 2016).

Effective implementation of authentic procedures within a classroom should improve engagement and enable knowledge and skill transfer and application (Choi & Hannafin, 1995). This can be achieved by offering students opportunities to explore multiple perspectives and roles (Herrington & Oliver, 2000) and make informed decisions that have a real impact (Callison & Lamb, 2004). Ideally, students should also have opportunities to explore and utilise real-world tools, a technique termed ‘occupational realism’ (Pawlina & Drake, 2016) as a means of making learning relevant and useful.

The application of this in a music classroom would involve consideration of the type of music learning taking place. Different musical genres (rock, orchestral, electronic, choral) would elicit different resource and process requirements, and the concept of authentically reproducing traditional and cultural music can be fraught with difficulty (Folkestad, 2005). Classroom musical learning should connect with how the learners experience music (Wiggins & Espeland, 2012), and facilitate collaborative working towards realistic and culturally relevant goals (Evelein, 2006).

Learning should focus on inquiry and metacognition, and the process of learning, rather than the product

A key purpose of authentic learning is to design and sequence activities in ways that enable students to explore ideas, define and solve problems and utilise and apply knowledge and skills from a variety of subject areas (Herrington & Oliver, 2000; Pawlina & Drake, 2016). In professional contexts, people use multiple sets of skills and knowledge to solve problems and work creatively. Authentic learning tasks should be designed to enable this multidisciplinary application.

Inquiry-based learning strategies are strongly connected to the scientific method, in that students are encouraged to investigate ideas and processes, with expert guidance (Lazonder & Harmsen, 2016). According to Bianchi and Bell (2008), as students become accustomed to inquiry learning processes, they gradually become more involved in the facilitation of these processes, until they are actively devising and guiding their own research. The latter stages of inquiry learning are therefore much more suitable for more experienced and knowledgeable students (Barron & Darling-Hammond, 2008). More experienced students would be more familiar with the activities, materials, context and research skills required (Colburn, 2000), as well as being able to devise ‘driving questions’ and evaluate the relevance of the questions to the overall research (Barron & Darling-Hammond, 2008). Through inquiry-based learning, students also develop skills such as informed judgement, patience, commitment, pattern recognition and flexibility (Lombardi, 2007).

In the secondary school music classroom, inquiry-based learning involves using musical processes to solve musical problems (Wiggins, 2007) for a range of musical ability levels (Evelein, 2006). It means designing tasks that utilise student musical abilities in creative ways, enabling high-level application of complex compositional and performance techniques in contemporary music processes. While music educators would not necessarily use the scientific method as a means of teaching and learning about music, students would certainly be capable of learning how to experiment with music through compositional processes, explore ideas about how sound changes, how sounds are made and why music is effective in various contexts.

Learning should be social and collaborative, and incorporate the knowledge and skills of students and professionals.

Collaborative learning can be broadly defined as a situation where learners collaborate with ‘interactivity, synchronicity and negotiability’ (Dillenbourg, 1999, p. 8). According to Rule (2006), using groups of learners to solve a problem provides them with experience in how to work with a broad community of knowledge, experience, culture and expertise, particularly if student groups are able to call on professionals in the area to assist. Working collaboratively allows for multiple roles and perspectives from those within the group (Herrington & Oliver, 2000; Herrington et al., 2014), and by engaging with professionals in the field, students are able to better understand the learning process (Campbell, Faulkner, & Pridham, 2010).

In the music education context, much collaborative learning could be considered ‘legitimate peripheral participation’ (Lave & Wenger, 1991; Herrington & Oliver, 2000) where learners are able to observe a community of practice as a means of gaining an understanding of the professional community and its particular terminology and culture, before moving in to participate fully. This is effectively what is taking place when students participate in the school co-curricular ensemble programmes, or engage in informal classroom pedagogies such as the model utilised by Green (2008), and the Musical Futures structure (Jeanneret, McLennan, & Stevens-Ballenger, 2011). Students are able to experience how to make music in legitimate, collaborative ways that are also appropriate for their knowledge and skill levels. Particularly in the co-curricular context, students are also learning from the more experienced players in the ensemble, and from the expert conductor leading the ensemble. In this way, students can collaboratively and interactively learn in an authentic musical context.

Learning should be student centred

Student-centred learning occurs when students are empowered and motivated to make their own choices and decisions about their learning pathways (Rule, 2006). Student-centred approaches to learning are already inherent in the first three outlined components of authentic learning. Focusing on student-centred learning means defining the role the teacher plays in the authentic classroom. The importance of consultation with professionals indicates that having a music teacher who is also a working musician would mean students benefit from the combined expertise of the music professional and educator (White, 2019). The language used to define the teacher’s role in the literature is often akin to facilitation and design of learning and assessment – as an enabler of meaningful, real-world experiences or as a mentor and model for students (Callison & Lamb, 2004; Abrahamson et al., 2006; Quigley, 2014; Pearce, 2016). Teachers taking on the role of a facilitator can lead

students to self-reflect and peer evaluate, and aim for mature levels of independence and resilience (Hansen & Imse, 2016).

Method

A grounded theory, mixed-methods study was implemented to investigate consistently high-achieving senior secondary school music programmes in New South Wales (NSW), Australia. The purpose of a grounded theory study is to ‘develop a conceptual theory that explains participants’ behaviour’ (Breckenridge, 2014) by continuously analysing data throughout the collection process, and examining patterns of interaction and influence between ‘actors’ in a given context (Strauss & Corbin, 1994). This was achieved by identifying schools in NSW with consistent high achievement in Higher School Certificate (HSC) Music courses over a period of 10 years through quantitative analysis of data provided by the New South Wales Education Standards Authority (NESA). Semi-structured interviews were then conducted with teachers at these schools examining their teaching approaches, perceptions and attitudes.

Participants

Participants recruited for this study were teachers at schools that had been identified as consistent high achievers in the HSC Music courses – Music 1, Music 2 and Music Extension. Through an analysis of HSC Music results data, schools with consistently high percentages of student results equating to 90/100 or higher throughout the period of 2007–2016 were considered to demonstrate consistent high achievement.

Teachers at schools within the top 10% of all schools offering HSC Music during this period were contacted via email throughout 2018, with those agreeing to participate then going through to interview. Fifty teachers from 23 different schools across NSW were asked about their teaching strategies, how they worked with musically-gifted students, their personal attitudes towards music teaching and how music was perceived and valued at their schools. Table 1 provides a summary of information about the participants – their pseudonym, gender, school pseudonym, NSW region, school type and school cohort type, each participant’s number of years teaching at the school and their total years teaching overall.

Interviews

The initial interview questions were determined by a broad review of the extant research regarding high achievement (Cooper et al., 2005; Homel & Ryan, 2014; Karadağ et al., 2017; Wai & Rindermann, 2017), musical giftedness (Haroutounian, 2008; Lancaster, 2003; McPherson & Williamon, 2015; Subotnik, 2004) and teacher efficacy (Bandura, 1997; Caprara et al., 2006; Goddard, Hoy, & Hoy, 2000; Wagoner, 2015), as well as knowledge of teaching in the NSW HSC context, giving the interviews a clear focus without overly contaminating the nature of the responses (Thornberg, 2012). More nuanced components of these programmes began to emerge through coding and analysis of the transcribed interview data (Creswell, 2009).

The importance of professional expertise, co-curricular programmes, performance opportunities and quality pedagogy and resources became apparent during the selective coding process, which led to a critical examination of literature concerning authentic learning strategies. Though ‘authentic learning’ was not a term used by the teachers, the way in which participants described their senior secondary classroom teaching and learning, and their curation of the broader school musical environment, all featured key elements of authentic pedagogy (White, 2019).

Results and discussion

Examination and coding of the interview data through an axial coding process (Creswell, 2009), then positioning the data within the four components of authentic learning as outlined in Rule (2006), made it evident that many teachers in these high-achieving schools were utilising teaching strategies that aligned with authentic learning approaches.

Table 1. Table of Participants

Participant/Gender	School	Region	Type	Cohort	Years at school	Years teaching total
MS/M	A	Sydney	Independent	Coed	20	33
AC/M	A	Sydney	Independent	Coed	13	13
GS/F	A	Sydney	Independent	Coed	17	30
HW/M	A	Sydney	Independent	Coed	19	25
BB/M	B	Sydney	Government	Coed	10	30
TB/M	B	Sydney	Government	Coed	1	1
KW/F	B	Sydney	Government	Coed	4	22
LC/M	C	Sydney	Independent	Coed	12	17
AT/F	C	Sydney	Independent	Coed	5	27
CO/F	D	Sydney	Selective	Coed	3	4
JH/M	D	Sydney	Selective	Coed	17	35
HS/M	D	Sydney	Selective	Coed	6	16
CC/F	E	Country	Independent	Girls	0.25	5
BC/M	E	Country	Independent	Girls	17	30
AS/F	E	Country	Independent	Girls	12	14
FL/M	F	Sydney	Selective	Coed	12	15
ILM/M	G	Sydney	Independent	Girls	25	28
FS/M	G	Sydney	Independent	Girls	18	25
DW/F	G	Sydney	Independent	Girls	22	30
GG/M	H	Sydney	Independent	Boys	14	30
BJ/M	H	Sydney	Independent	Boys	12	22
EF/F	I	Sydney	Catholic	Girls	6	28
BM/F	I	Sydney	Catholic	Girls	10	31
NK/F	J	Sydney	Selective	Coed	10	13
JJ/F	J	Sydney	Selective	Coed	4	4
DD/F	J	Sydney	Selective	Coed	6	39
GH/F	K	Country	Selective	Coed	18	25
IM/F	K	Country	Selective	Coed	6.5	37
AB/F	L	Sydney	Independent	Girls	7	23
SS/F	M	Country	Independent	Coed	8	12
LB/F	M	Country	Independent	Coed	17	30
BK/F	N	Sydney	Government	Coed	27	30
NP/F	N	Sydney	Government	Coed	3	18
JS/F	O	Sydney	Selective	Boys	30	30
TTE/M	O	Sydney	Selective	Boys	7	7
OT/F	P	Sydney	Independent	Coed	1.5	

(Continued)

Table 1. (Continued)

Participant/Gender	School	Region	Type	Cohort	Years at school	Years teaching total
MD/M	P	Sydney	Independent	Coed	4	5
GM/M	P	Sydney	Independent	Coed	7	23
AA/F	Q	Country	Independent	Coed	14	27
TS/F	W	Sydney	Independent	Boys	10	20
PT/F	W	Sydney	Independent	Boys	8	25
KH/F	S	Country	Selective	Coed	12	18
BA/M	S	Country	Selective	Coed	2	4.5
RS/M	T	Sydney	Independent	Boys	0.5	25
EJ/F	V	Country	Catholic	Coed	14	47
YM/M	V	Country	Catholic	Coed	25	30
PF/M	V	Country	Catholic	Coed	16	22
FC/F	R	Country	Government	Girls	11	18
EE/M	R	Country	Government	Girls	9	17
HF/F	U	Country	Catholic	Coed	15	26

Utilisation of authentic procedures, contexts and resources

The way in which the music teachers in this study approached their senior secondary teaching varied, but there was a consistent theme of utilising procedures, resources and contexts to make music learning in the classroom as authentic and realistic as possible. As one teacher (PT) said, 'I think [it's about] making potential limitless, and making them realise that there's way more than the classroom. Everything is beyond the classroom at Year 12 level'. Teachers spoke about encouraging students to understand that performing, composing and listening to music are components of musical learning that inform each other, and that even if you are engaged as a professional in one specific area, all aspects of the musical experience are important and valuable.

For some teachers, this meant approaching music from a holistic perspective. MS said, 'It can't just be a bunch of content, it's got to be connected to real experiences'. KW agreed with this perspective, saying that she wanted her students 'to become real and holistic musicians, understanding the music from many different angles, including theory, including history, the context of the piece, and also the performance, supported by all of these aspects'. The idea of students becoming 'holistic musicians' was also important to BB, who believed having a broad education reflective of historical, scientific and artistic contexts enhances the musicianship students could demonstrate in their performances. BB reflected,

Because otherwise, if they're performing a piece, what are they expressing? Do they have an opinion? If the composer expected something to come out of this, and [the student has] no idea of the politics of the time and the oppression that that person suffered or whatever, how are they going to give any voice to that expression?

CO described how she would talk to her students about how they were 'the next step', and that it was important that her senior students start to 'integrate content and composition, and then think about themselves as an artist and as a musician'. AT described how holistic teaching could work in a classroom context to create a more compelling and meaningful learning experience:

If they're going to be studying canons I would like them to play or sing them and then compose one. A double period is long enough to do some singing of a canon, some score reading of simple canons and to discuss theoretically how they work, and to compose one. So, that's a nice lesson plan because, for a start, you are practicing sight singing and in order to sight sing you have to analyse properly, so there's some musicology. And then in order to musically understand you have to imagine what the chords might be because that'll help you with composing later and it'll help you with sight singing because of realising the cadence points.

Other teachers spoke more specifically about how they try to utilise authentic procedures and contexts when it came to developing the performance abilities of their students. Often, this involved utilising resources outside of the classroom – anything from professional theatres, to the elite performing ensembles within the school, in an effort to immerse students into the real world of music making and performance. High-performing students at HW’s school had the opportunity to participate in their concerto competition, the winner of which ‘then goes on to play a concerto with the symphony orchestra at our big concert at the performing arts centre in the city’. CC believed it was important for her music students to be performing as much as possible in front of real audiences, and their daily whole school morning prayer offered that opportunity. ‘Students who are ready with repertoire can be put in that performance environment, however often they want’. At GM’s school, they didn’t have the physical space for a requisite venue on-site, so their students would perform in local theatres:

The performing arts here are such a part of the school that the students actually can have that sense that their lives are not just about what’s in the classroom. They work in real life, real world environments, engaging with professionals that aren’t part of the school, so there’s a whole other level of co-operation and skills they’re learning.

HS was the head of the co-curricular music programme at his school. He spoke at length about how his focus, particularly for the higher level, more elite ensembles, was to treat them as professionals. This included setting high expectations for rehearsals – ‘I expect them to know their music and sight read pretty much perfectly. I give them gig instructions and call times, and they’re expected to just jump on board the train and work as if they’re in the real scene’. As a result, he was also able to provide opportunities for students in these ensembles to play at professional gigs and events:

Often, we’ll send a jazz ensemble or a string quartet or something like that to do a professional function gig, or a large event gig. All sort of those sort of things you would find in the real world of music making, we try to send out our elite ensembles. The elite ensembles really are treated as pros and expected to play really well. We do a recording every couple of years, so they experience what it’s like to have to put down a track under pressure in a studio situation.

With regard to authentic resources, several teachers mentioned using professional-level music technology and software in the classroom, particularly for their senior secondary students. This could include resources like ProTools, Sibelius, recording studios and music computer labs. PF saw the use of modern music technology in the classroom as a way to both make learning more authentic and engaging, but also as a means to extend their compositional and aural capabilities. ‘Through using technology, they can hear something more complex. They might build around a basic ensemble, but then start putting in string layers and wind layers, and then they can convert that to another program and have success’. Part of this utilisation of authentic music technology resources was to enable students to engage with professional software, but as BA says, ‘Keeping resources up to scratch, keeping up to date with technology, and making sure all our school instruments aren’t dilapidated... Having good quality stuff sends [the message that] ‘we’re serious’ to the students as well’.

Other teachers also spoke about the way they curated their resources for use in the classroom, homework or for student general interest. While various textbooks were mentioned by teachers, generally teachers did not follow a textbook as a programme. They preferred to select specific high-quality resources, from a range of sources, that were appropriate and relevant to the cohort, or topic of study. For example, CO described her resources for a unit on *Compassions* by Nigel Westlake and Lior, which included,

... the Australian Music Centre [resource] kit, but also there’s a TED talk on it online. There’s an ABC documentary, which does all of the behind-the-scenes rehearsal and filming of the first concert, [and] they just did an arrangement of it for the Melbourne Symphony Orchestra, for piano reduction.

For every piece her students studied, GS would have ‘the historical background, a Youtube clip, the score and a little quiz for the students to answer which is usually based on the musical concepts as they’re used in that piece’. These were not teachers who taught the same thing, year in and year out. As HW said, ‘I think, if we can forget about these textbooks, we’ve got enough knowledge on our own to really come up with something really engaging for the kids’.

Inquiry, metacognitive and process-driven learning

Of all the components of authentic learning, this aspect seemed the least evident in the responses of the teacher's interview. However, this may be due to the nature of the original questions asked, as teachers were asked to broadly describe their approaches, rather than specifically articulate lesson plan and activity structures. The nature of inquiry learning, in particular, requires students to follow procedures akin to the scientific method, which itself is not intuitive to music pedagogy. Despite this, various teachers did comment on the way they used questioning to guide student learning, and the strategies and resources they used to encourage reflection on content and processes.

The use of process diaries (logbooks detailing the progress made in a composition) and other means of gradually recording and reflecting on individual progress and learning was mentioned as a key teaching strategy by several teachers. The teachers at School A, in particular, talked about performance journals, composition portfolios and listening logs as a means for students to record their progress and process. These could then be used to reflect on their learning and the way in which they developed throughout the music courses. The listening logs were actually part of the students' composition portfolios – students would keep a log of the different music they listened to throughout the composition process. AC said,

[The logs] make for some interesting reading sometimes, because it's :: it's music that doesn't relate to anything that we're doing in class, it's popular music and I think, well, if that's all you're getting then we need to augment that a little bit in class and listen to some really good pieces that I hand pick in the hope that they'll grab a hold of those ideas and try and incorporate some of that in their own writing.

In this way, the listening logs helped to shape the classroom content learning, as the teacher was able to supplement and broaden students' listening experiences.

HW, also at School A, went into detail about the 'prac journal' the students kept. This was a means for being accountable for their progress during their practical lessons where they would focus on individual performance work, and practice sessions outside of school. They were video journals, uploaded to the school's internal learning management system, that would show their progress on a particular piece. He acknowledged that recording yourself in this way is something that now, thanks to platforms like Youtube, Instagram and Facebook Live, is a very normal way for students to express themselves and explore ideas:

There's more of that electronic journal entry, keeping records of themselves playing and looking back on them, reflecting on what they've done, thinking about their learning, being accountable for their learning... It helps them look back and go, well that's what I did and this is what I'm heading towards.

Teachers also spoke about the kinds of questions they use to drive their learning, both generally and specific to certain circumstances, as well as the importance of skill development. MS's focus was on the broader questions to ask, in helping a student find their individual purpose,

I'm big on goals. Where do you want to take this? What's your purpose? Why... big on the why, all the time, not just what you do and how you do, why are you doing it? Because if you understand the why, that's everything.

AT instead described how she would use questions to both develop a student's conceptual knowledge, and help guide them in their individual composition development,

It's more about asking them questions – usually in the syllabus language because it helps them learn – but asking them questions that relate... what seems to be missing, what effect of the piece seems to be missing and scaffold the question [to be about] how they can improve it.

LC's questioning approach was centred on developing each student's intrinsic motivation and capability, through exploring foundational and complex ideas about music and allowing students to explore and develop procedural skills and knowledge. In this way, students could develop the capacity to examine what is valuable and relevant for their own contemporary learning and practice, and construct their own meaning and understanding:

There is some value in knowing when Vivaldi was born and when he died. There's more value in getting inside a composer's process. How did they create their music? How did they communicate their ideas?

How did they play with instruments and combinations of sounds? How can I then take all of my understanding that I've gleaned from getting inside music, and apply that to my own creative output? I certainly gravitate closer to the idea of saying, let's just create an environment where there's rich conversation going on about musical composition, performance, all of these things, and that the kids are able to make their own meaning from that.

Collaborative learning, supported by professional expertise

Of all the key tenets of authentic learning, this aspect was the most apparent, and has been explored further in other publications (White, 2019). Teachers spoke about utilising collaborative learning approaches with their students at all secondary school levels, but this approach was most evident in the co-curricular programmes. The use of professionals, inside and outside of school, was also a key part of their teaching, specifically with senior secondary students.

The importance of ensemble playing and student participation in school co-curricular programmes was emphasised by several of the participants. Most schools had extensive co-curricular music programmes, although approaches varied from school to school. NP saw the benefit for HSC-level students, 'If we can keep students involved in the co-curricular program as much as possible, it always supports their ability to deliver a strong HSC program or performance. Just keeps their playing relevant'. To TS, the co-curricular programme and the classroom programme were both important to student musical development, particularly in performance. 'The skills you learn [in the co-curricular program] are going to help you. Our directors of those ensembles try and connect what happens in the classroom to what's happening in co-curricular, but performing ... look how much fun it is!' EE agreed with this perspective: 'If they're doing music outside the classroom, then they're more likely to be succeeding in the classroom as well. The regular performance and just regular playing has also helped'.

ILM encouraged collaborative learning in both classroom and the co-curricular programme, and described how the junior school instrumental programme fed into the secondary school chamber ensembles programme. 'You might have a mixed string group and wind quintet, or a brass ensemble, or a rock band, right? They're learning about the concepts of music, and they present a performance once per semester'. One of the main purposes of this programme was to work towards student autonomy or, as ILM put it, 'lengthen the leash',

We can eventually say, okay, you rehearse this for the next 15 minutes, and you make the decision about who's primary, who's secondary, what is the right tempo, how do you modulate your dynamics to support the structure. Start making interpretive decisions, and listen to each other and talk it through and thrash it out! In other words, be a chamber ensemble, and that's what they do, astonishingly well.

Some teachers described the different ways they would utilise professional expertise for their senior classes, to either supplement their classroom teaching, or provide students with external experiences. GG described a whole school incursion he had organised with Taikoz, an Australian taiko drumming group, and how important experiences like this were for his students,

They'll do a 50 minute concert, demonstration, it's interactive. And then there's 1200 students, Years 7–12 sitting there, involved in it. These are the formative things that if you can't offer this at the school level, the students may never get.

Teachers at three different schools said they had a composer-in-residence at their school, a specialist whose job was to create works as commissioned by the school, but to also be an expert teacher of composition for the senior classes. These composers could work one on one with individual, gifted HSC-level composers, or teach composition classes like at AB's school, '[Our composer-in-residence] comes in once a fortnight, mainly helping the students with technology and developing more ongoing skills in composition'. And other teachers, like LB, would use professional musicians, on and off staff, to supplement student's HSC performances. 'If they need strings, we can get string players, if they need a rhythm section, one of my colleagues plays bass, and we get our percussion teacher. They've got professional people that will assist them through their whole HSC process'.

Student-centred and student-directed learning

For all of the teachers who participated in this study, the students were at the heart of their teaching. Teachers spoke about knowing students on several levels – individually, as a class, as a year group. This knowledge of students came from an average of 22 years teaching across all participants, and manifested as a willingness to constantly consider student needs, interests and abilities in all aspects of their teaching. To HF, this meant, ‘Forming the individual person and holistic belief in what they can do as a person’. JH put this as, ‘We stand them at the door, we just open the door. They are the ones that step through it, in their own way’. BC’s philosophy also centred on the individual student – ‘Wherever you are at the beginning, to as far as you want to go’. For LC, the ultimate goal by the end of Year 12 was ‘to create people that are able to be practitioners of a discipline as opposed to students of a discipline’.

Some teachers spoke about how student interest and ability shaped the way they designed their programmes in Years 11 and 12. The topics for study in the HSC Music courses can range from Baroque to Rock Music. Several teachers found it most logical to consider student needs and musical capabilities when it came to programme design. EF said that ‘every cohort is different’, and so she would give her Year 12 students some leeway regarding their topics for individual research. ‘There’s a lot of independent ownership’. MS would have an overarching structure to his curriculum design, but then would consider the characteristics of a cohort regarding which topics he would choose for study, making it ‘more bespoke or differentiated for their needs’. GS would try to use her students as the source of music for study in class, and would often ask them, ‘Do your family listen to any different music at home? Are there some things that you could suggest we can listen to that are a good example of different instruments?’ And LC saw the elective topics in Year 12 as an opportunity for students to pursue their own interests and areas of expertise, although it did make it more complicated for him as a teacher:

Each kid is doing their own thing, which means that you’re sort of master of puppets, navigating a whole lot of different things going on in the classroom at the same time. It’s just creating space for them to explore the area that’s of more interest and relevance to them.

Other teachers described how they would encourage students within and beyond the classroom to help them reach their potential and develop autonomy as a learner and musician. FS saw this as a natural part of the senior secondary music learning process and experience, especially in their development as a performer: ‘Students are becoming more comfortable performing, more self-directed and autonomous in the choices they make about the music they play and the way they rehearse. We try to become a little less hands-on as they get older and more experienced’. This acknowledgement of student autonomy influenced the way in which BA designed his assessments. Before, he would set a task that was inflexible and absolute, but now,

I go, here’s 10 different types of compositions that you can do that have the same skill set. You can do it on Garageband, you can do it here, you have to notate it, can you please do it as a theme, or a soundscape, I want you to only use your own recording samples. As long as they’ve found their own track and their own desire and want to do it, that’s my job done.

Development of self-regulation and self-determination skills was important to PF in particular, and he was constantly asking himself, ‘How can I give them the space for them to be, or to do what they want to do?’ This didn’t mean letting the students run roughshod, but allowing them to guide him as a teacher, ‘Trying to follow their lead. Really listen to where the students’ strengths are and where their voice is and where they want to go, as best we can’.

Conclusion

Authentic learning is a student-centred mode of classroom instruction and design that should mirror professional practice, and utilise authentic contexts, procedures, resources and expertise. As is evidenced from the responses of teachers involved in this study, authentic learning approaches are a valuable component of pedagogy for students in senior secondary music, where students have the requisite skills, knowledge and experience to explore musical ideas collaboratively, autonomously and within the realm of expertise. Given the initial

grounded theory study was not focused on authentic learning pedagogy from the outset, the results from this study indicate there is a relationship between high-achieving senior secondary music programmes and authentic learning approaches, but not necessarily a direct correlation. These results provide a catalyst for further, focused investigation in this area, and to examine if the seemingly intuitive implementation of authentic learning in senior secondary school music pedagogy can be applied to education more broadly.

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Appendix B

Historical scaled marks for HSC courses, 2009 – 2016

The information contained in this appendix is an extension of what is referenced in *Chapter 5: Discussion - Scaling and the ATAR*. Table 31 provides an expansion of data about the way in which the HSC Music courses have scaled during the time of the study, shown by year and by subject. Table 32 shows how the HSC Music courses scaled in comparison to other HSC subjects from a range of areas. These include:

- Physics, a subject which is anecdotally lauded as the highest scaling subject
- Drama in order to compare against another Creative Arts subject
- Automotive, which is a Vocational Education and Training (VET) course with the option of an HSC exam
- French Continuers as an example of a language with consistent enrolment year to year
- History Extension in order to compare against another 1 unit course

The scaled marks for Tables 31 and 32 were generated by the ATAR calculator at <https://www.hscninja.com/atar-calculator>. The website states, “By incorporating all historical ATAR scaling data from 2009 to 2019, we can estimate of [sic] your ATAR based on your HSC marks with a confidence range based on past results” (HSCninja, 2020). The marks produced by this calculator correlate with the scaled marks listed in Table A3 of the Scaling Reports for each corresponding year.

Each column shows the mark that each unit of the course scaled to out of 50, depending on the raw mark achieved by the student. For example, in 2009, if a Music 1 student received a total mark of 85/100 (a Band 5), that mark would be scaled to two units worth 27.6/50 each, or 55.2/100.

Table 31: *Music 1, Music 2 and Music Extension by year*

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2009											
Music 1	47	41.14	34.34	27.6	20.55	14.8	13.81	12.83	11.84	10.85	9.87
Music 2	50	45.15	39.19	32.88	27.56	25.83	24.11	22.39	20.67	18.94	17.22
Music Extension	50	40.06	35.13	31.18	28.9	26.73	25.29	23.12	21.68	19.51	18.06
2010											
Music 1	47	41.55	34.13	27.12	19.9	14.9	13.91	12.91	11.92	10.93	9.93
Music 2	50	44.42	38.53	32.43	27.61	25.88	24.16	22.43	20.71	18.98	17.26
Music Extension	50	38.74	34.19	29.5	28.09	25.99	24.58	22.47	21.07	18.96	17.56
2011											
Music 1	47	42.09	34.79	26.75	20.07	13.9	12.97	12.05	11.12	10.19	9.27
Music 2	50	45.12	38.14	31.46	27.12	25.43	23.73	22.04	20.34	18.65	16.95
Music Extension	50	38.55	33.9	28.9	27.52	25.46	24.08	22.02	20.64	18.58	17.2
2012											
Music 1	47.5	42.4	35.28	28.14	20.52	14.1	13.16	12.22	11.28	10.34	9.4
Music 2	50	44.78	37.9	31.42	27.61	25.88	24.16	22.43	20.71	18.98	17.26
Music Extension	50	38.01	32.8	28.13	26.79	24.78	23.44	21.43	20.09	18.08	16.74
2013											

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2014											
Music 1	47.1	41.87	34.34	26	19	13.5	12.6	11.7	10.8	9.9	9
Music 2	50	44.1	38.02	31.4	27.28	25.57	23.87	22.16	20.46	18.75	17.05
Music Extension	50	35.3	31.17	27.78	26.45	24.47	23.15	21.16	19.84	17.86	16.53
2015											
Music 1	47.2	40.03	32.56	25.47	18.56	12.7	11.85	11.01	10.16	9.31	8.47
Music 2	50	44.83	38.55	31.9	27.32	25.61	23.9	22.2	20.49	18.78	17.07
Music Extension	50	34.8	30.67	27.3	26	24.05	22.75	20.8	19.5	17.55	16.25
2016											
Music 1	46.6	40.12	32.28	24.91	18.2	12.63	11.79	10.95	10.11	9.26	8.42
Music 2	50	45.21	38.4	30.5	27.62	25.89	24.17	22.44	20.71	18.99	17.26
Music Extension	50	40.34	36.3	31.65	29.37	27.16	25.7	23.49	22.02	19.82	18.35
2016											
Music 1	47.1	40.46	32.2	24.53	17.17	12.43	11.61	10.78	9.95	9.12	8.29
Music 2	50	45.04	38.76	30.8	27.81	26.07	24.33	22.6	20.86	19.12	17.38
Music Extension	50	40.34	35.59	31.8	29.76	27.52	26.04	23.8	22.32	20.09	18.6

Table 32: *Individual subjects 2009 - 2016*

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
Music 1											
2016	47.1	40.46	32.2	24.53	17.17	12.43	11.61	10.78	9.95	9.12	8.29
2015	46.6	40.12	32.28	24.91	18.2	12.63	11.79	10.95	10.11	9.26	8.42
2014	47.2	40.03	32.56	25.47	18.56	12.7	11.85	11.01	10.16	9.31	8.47
2013	47.1	41.87	34.34	26	19	13.5	12.6	11.7	10.8	9.9	9
2012	47.5	42.4	35.28	28.14	20.52	14.1	13.16	12.22	11.28	10.34	9.4
2011	47	42.09	34.79	26.75	20.07	13.9	12.97	12.05	11.12	10.19	9.27
2010	47	41.55	34.13	27.12	19.9	14.9	13.91	12.91	11.92	10.93	9.93
2009	47	41.14	34.34	27.6	20.55	14.8	13.81	12.83	11.84	10.85	9.87
Music 2											
2016	50	45.04	38.76	30.8	27.81	26.07	24.33	22.6	20.86	19.12	17.38
2015	50	45.21	38.4	30.5	27.62	25.89	24.17	22.44	20.71	18.99	17.26
2014	50	44.83	38.55	31.9	27.32	25.61	23.9	22.2	20.49	18.78	17.07
2013	50	44.1	38.02	31.4	27.28	25.57	23.87	22.16	20.46	18.75	17.05
2012	50	44.78	37.9	31.42	27.61	25.88	24.16	22.43	20.71	18.98	17.26
2011	50	45.12	38.14	31.46	27.12	25.43	23.73	22.04	20.34	18.65	16.95
2010	50	44.42	38.53	32.43	27.61	25.88	24.16	22.43	20.71	18.98	17.26

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2009	50	45.15	39.19	32.88	27.56	25.83	24.11	22.39	20.67	18.94	17.22
Music Extension											
2016	50	40.34	35.59	31.8	29.76	27.52	26.04	23.8	22.32	20.09	18.6
2015	50	40.34	36.3	31.65	29.37	27.16	25.7	23.49	22.02	19.82	18.35
2014	50	34.8	30.67	27.3	26	24.05	22.75	20.8	19.5	17.55	16.25
2013	50	35.3	31.17	27.78	26.45	24.47	23.15	21.16	19.84	17.86	16.53
2012	50	38.01	32.8	28.13	26.79	24.78	23.44	21.43	20.09	18.08	16.74
2011	50	38.55	33.9	28.9	27.52	25.46	24.08	22.02	20.64	18.58	17.2
2010	50	38.74	34.19	29.5	28.09	25.99	24.58	22.47	21.07	18.96	17.56
2009	50	40.06	35.13	31.18	28.9	26.73	25.29	23.12	21.68	19.51	18.06

Table 33: Scaled marks of selected subjects for comparison

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2009											
Automotive	35.5	35.5	33.71	27.2	20.93	14.9	9.03	6.01	5.55	5.09	4.63
Drama	49.8	44.22	38.75	32.96	26.82	20.39	16.53	15.35	14.17	12.99	11.81

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
English Advanced	50	46.79	42.24	37.43	32.33	26.77	24.31	22.57	20.84	19.1	17.36
French Continuers	50	45.21	40.76	36.75	33.98	29.85	27.04	25.11	23.18	21.25	19.32
Geography	50	47.16	39.91	33.77	28.58	25.1	18.91	17.37	16.03	14.69	13.36
History Extension	48.3	42.07	39.16	36.02	34.42	31.9	30.37	27.86	26.12	23.51	21.76
Maths	50	45.24	40.51	36.27	32.48	29.8	25.8	23.13	21.35	19.22	17.79
Music 1	47	41.14	34.34	27.6	20.55	14.8	13.81	12.83	11.84	10.85	9.87
Music 2	50	45.15	39.19	32.88	27.56	25.83	24.11	22.39	20.67	18.94	17.22
Music Extension	50	40.06	35.13	31.18	28.9	26.73	25.29	23.12	21.68	19.51	18.06
Physics	50	47.07	41.88	37.26	33.15	30.2	26.2	23.09	21.31	19.54	17.76
Society and Culture	48.7	43.97	38.56	33.21	27.89	22.02	17.58	15.1	13.94	12.78	11.62
2010											
Automotive	34.6	34.6	34.6	31.45	23.52	16.41	9.56	6.11	5.64	5.17	4.7
Drama	49.3	44.84	39.53	33.9	27.94	21.9	16.46	15.29	14.11	12.94	11.76
English Advanced	50	46.54	41.86	36.92	31.9	26.74	24.96	23.18	21.39	19.61	17.83
French Continuers	50	45.72	41.99	38.05	34.3	29.3	27.35	25.39	23.44	21.49	19.53
Geography	50	46.45	40.59	34.9	29.39	23.98	18.91	16.86	15.57	14.27	12.97
History Extension	49.3	42.47	39.65	36.91	35.59	33.04	31.28	28.61	26.82	24.14	22.35
Maths	50	44.87	40.03	35.71	31.86	28.74	24.8	23.03	21.26	19.13	17.71

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2011											
Music 1	47	41.55	34.13	27.12	19.9	14.9	13.91	12.91	11.92	10.93	9.93
Music 2	50	44.42	38.53	32.43	27.61	25.88	24.16	22.43	20.71	18.98	17.26
Music Extension	50	38.74	34.19	29.5	28.09	25.99	24.58	22.47	21.07	18.96	17.56
Physics	50	46.39	42.83	39.06	35.06	31	26.5	23.61	21.79	19.98	18.16
Society and Culture	48.7	44.04	39.71	35.13	30.28	25.1	19.6	15.56	14.36	13.17	11.97
Automotive	34.2	34.2	33.13	28.57	21.9	14.72	9.41	5.61	5.18	4.75	4.32
Drama	49.3	45.4	38.61	32.09	25.83	20.05	15.75	14.63	13.5	12.38	11.25
English Advanced	50	46.68	41.94	36.94	31.43	26.1	24.36	22.62	20.88	19.14	17.4
French Continuers	50	45.33	40.88	36.68	33	29.21	27.26	25.32	23.37	21.42	19.47
Geography	50	46.36	40.6	35.06	29.74	24.71	19.78	17.01	15.71	14.4	13.09
History Extension	48.9	41.24	38.18	35.6	35.6	32.5	31.1	28.61	26.82	24.14	22.35
Maths	50	45.19	40.71	36.37	32.17	28.14	24.55	22.8	21.04	18.94	17.54
Music 1	47	42.09	34.79	26.75	20.07	13.9	12.97	12.05	11.12	10.19	9.27
Music 2	50	45.12	38.14	31.46	27.12	25.43	23.73	22.04	20.34	18.65	16.95
Music Extension	50	38.55	33.9	28.9	27.52	25.46	24.08	22.02	20.64	18.58	17.2
Physics	50	47.31	43.56	39.6	35.4	30.85	26.1	23.13	21.35	19.57	17.79
Society and Culture	48.7	45.59	40.07	34.65	29.33	24.12	18.98	15.72	14.51	13.3	12.09

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2012											
Automotive	35.3	35.3	33.32	28.04	20.95	13.66	8.47	5.02	4.64	4.25	3.86
Drama	49.5	45.56	38.85	32.36	26.08	20.15	15.94	14.81	13.67	12.53	11.39
English Advanced	50	46.35	41.95	37.29	32.35	27.08	24.59	22.84	21.08	19.32	17.57
French Continuers	50	45.6	40.98	36.59	32.55	28.82	26.89	24.97	23.05	21.13	19.21
Geography	50	46.51	40.51	34.92	29.74	25.15	20.9	17.23	15.91	14.58	13.26
History Extension	50	45.29	41.77	38.17	36.48	34.02	32.26	29.58	27.73	24.95	23.11
Maths	50	44.94	40.51	36.12	31.76	27.51	24.01	22.3	20.58	18.53	17.15
Music 1	47.5	42.4	35.28	28.14	20.52	14.1	13.16	12.22	11.28	10.34	9.4
Music 2	50	44.78	37.9	31.42	27.61	25.88	24.16	22.43	20.71	18.98	17.26
Music Extension	50	38.01	32.8	28.13	26.79	24.78	23.44	21.43	20.09	18.08	16.74
Physics	50	47.41	43.83	40.04	36.02	31.75	27.15	23.57	21.76	19.95	18.13
Society and Culture	49	43.03	37.23	31.58	26.06	20.56	15.5	14.39	13.29	12.18	11.07
2013											
Automotive	35.6	35.6	34.17	30.57	26.11	20.79	14.61	7.7	6	5.5	5
Drama	49.7	44.55	38.26	32.08	26.02	20.25	15.85	14.72	13.58	12.45	11.32
English Advanced	50	46.74	41.93	37.15	32.39	27.55	25.07	23.28	21.49	19.7	17.91
French Continuers	50	45.18	40.48	36.28	32	28.54	26.64	24.73	22.83	20.93	19.03

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
Geography	50	46.46	40.39	34.77	29.62	24.82	20.91	17	15.69	14.38	13.08
History Extension	49	43.51	40.51	37.05	35.22	32.98	31.26	28.61	26.82	24.14	22.35
Maths	50	44.43	40.07	36.53	33.3	29.63	25.8	23.96	22.11	19.9	18.43
Music 1	47.1	41.87	34.34	26	19	13.5	12.6	11.7	10.8	9.9	9
Music 2	50	44.1	38.02	31.4	27.28	25.57	23.87	22.16	20.46	18.75	17.05
Music Extension	50	35.3	31.17	27.78	26.45	24.47	23.15	21.16	19.84	17.86	16.53
Physics	50	46.93	43.44	39.74	35.82	31.65	27.04	23.05	21.27	19.5	17.73
Society and Culture	49	43.18	36.37	30.07	24.28	19.1	14.99	13.92	12.85	11.77	10.7
2014											
Automotive	34	34	33.77	30.97	26.04	19.94	13.65	8.47	4.92	4.51	4.1
Drama	49.1	44.22	37.77	31.43	25.27	19.45	15.36	14.26	13.17	12.07	10.97
English Advanced	50	45.99	41.25	36.24	30.87	26.45	24.68	22.92	21.16	19.39	17.63
French Continuers	50	44.73	40.11	35.97	32.48	29.11	27.17	25.23	23.29	21.35	19.41
Geography	50	47.23	40.24	33.96	28.39	23.6	19.77	16.45	15.18	13.92	12.65
History Extension	49.2	43.86	40.17	36.4	34.58	31.86	30.1	27.52	25.8	23.22	21.5
Maths	50	44.44	40.14	36.25	31.73	26.85	23.88	22.17	20.47	18.42	17.05
Music 1	47.2	40.03	32.56	25.47	18.56	12.7	11.85	11.01	10.16	9.31	8.47
Music 2	50	44.83	38.55	31.9	27.32	25.61	23.9	22.2	20.49	18.78	17.07

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
2015											
Music Extension	50	34.8	30.67	27.3	26	24.05	22.75	20.8	19.5	17.55	16.25
Physics	50	46.91	42.89	39.7	36.61	32.9	27.33	23.19	21.4	19.62	17.84
Society and Culture	48	43.09	36.97	31.07	25.4	20.04	15.48	14.37	13.27	12.16	11.06
Automotive	35	35	34.67	31.17	25.82	19.56	13.33	8.57	5.02	4.6	4.18
Drama	49.4	43.82	37.84	31.8	25.69	19.6	15.26	14.17	13.08	11.99	10.9
English Advanced	50	46.34	41.64	36.68	31.64	26.64	24.87	23.09	21.32	19.54	17.76
French Continuers	50	45.64	41.05	37.08	32.95	29.21	27.26	25.32	23.37	21.42	19.47
Geography	50	46.39	40.47	34.9	29.66	24.53	20.35	16.74	15.45	14.17	12.88
History Extension	49.3	43.51	40.49	36.7	34.58	31.98	30.3	27.7	25.97	23.37	21.64
Maths	50	44.53	40.3	36.6	32.7	27.59	24.45	22.71	20.96	18.86	17.47
Music 1	46.6	40.12	32.28	24.91	18.2	12.63	11.79	10.95	10.11	9.26	8.42
Music 2	50	45.21	38.4	30.5	27.62	25.89	24.17	22.44	20.71	18.99	17.26
Music Extension	50	40.34	36.3	31.65	29.37	27.16	25.7	23.49	22.02	19.82	18.35
Physics	50	47.24	43.64	40.43	37.06	32.95	27.01	22.8	21.04	19.29	17.54
Society and Culture	49	44.33	38.02	31.72	25.42	19	15.26	14.17	13.08	11.99	10.9
2016											
Automotive	35.7	35.17	34.05	29.89	23.85	17.05	9.86	6.14	5.06	4.64	4.22

	100/50	95/47.5	90/45	85/42.5	80/40	75/37.5	70/35	65/32.5	60/30	55/27.5	50/25
Drama	49.6	44.72	38.75	32.44	25.75	18.8	14.58	13.54	12.5	11.46	10.42
English Advanced	50	45.62	40.91	35.93	30.53	25.86	24.13	22.41	20.68	18.96	17.24
French Continuers	50	45.4	40.45	36.03	32.4	28.72	26.9	24.89	22.97	21.06	19.14
Geography	50	46.36	41.48	36.32	30.86	24.53	19.37	16.54	15.26	13.99	12.72
History Extension	49.8	43.97	40.98	36.86	34.35	31.2	29.26	26.76	25.08	22.58	20.9
Maths	50	44.27	39.62	35.45	32.12	28.71	25.3	23.49	21.69	19.52	18.07
Music 1	47.1	40.46	32.2	24.53	17.17	12.43	11.61	10.78	9.95	9.12	8.29
Music 2	50	45.04	38.76	30.8	27.81	26.07	24.33	22.6	20.86	19.12	17.38
Music Extension	50	40.34	35.59	31.8	29.76	27.52	26.04	23.8	22.32	20.09	18.6
Physics	50	46.92	43.58	40.04	36.29	32.3	27.85	23.44	21.64	19.83	18.03
Society and Culture	48.8	43.01	37.65	31.98	25.98	19.5	15.28	14.19	13.1	12.01	10.92

Appendix C



Sydney Conservatorium of Music

ABN 15 211 513 464

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Associate Professor, Music Education

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Quality Music Teaching in New South Wales

Dear Principal,

I am writing to invite you and your music faculty to participate in a study being conducted by Rachel White, from the Sydney Conservatorium of Music. The study is entitled *Quality Music Teaching in New South Wales*, and seeks to investigate high achieving senior secondary music programs in schools across the state. Based on analysis of Band 6 performance data across the last 10 years, your school's music program has been identified as one which has produced consistently excellent results from your students. As such, we would like to interview you and your music teachers to investigate the pedagogical strategies, techniques and resources that are utilised to encourage high student achievement and cultivate a climate of success.

Your participation in the study would involve allowing Rachel White to interview and survey you and your music staff about their pedagogy, professional practice and perceived self-efficacy as teachers. It would not involve any interaction or consultation with students. All identifying information about the staff and school gathered during the process will be kept strictly confidential.

For any further information about the study, please consult the attached Participant Information Statement, or do not hesitate to contact myself or Rachel White if there are any questions. This project has Human Research Ethics Committee Approval (Project number 2017/269), and SERAP approval (2017292, approval letter attached).

I look forward to your response.

Kind regards,

Dr Jennifer Rowley

Chief Investigator

Rachel White

PhD Candidate

Appendix D



Sydney Conservatorium of Music

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Quality Music Teaching in New South Wales

PARTICIPANT INFORMATION STATEMENT

(1) What is this study about?

You are invited to take part in a research study about high achieving Stage 6 Music programs in New South Wales.

You have been invited to participate in this study because your school's music program has been identified to be achieving consistently excellent results in one or more Stage 6 Music courses throughout the last 10 years. This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the study. Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

Participation in this research study is voluntary.

By giving consent to take part in this study you are telling us that you:

- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined below.
- ✓ Agree to the use of your personal information as described.

You will be given a copy of this Participant Information Statement to keep.

(2) Who is running the study?

The study is being carried out by the following researchers:

Rachel White is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney. This will take place under the supervision of Associate Professor Jennifer Rowley, at the Sydney Conservatorium of Music.

(3) What will the study involve for me?

Your participation in this study will involve an interview and the completion of a short survey. The interview questions will revolve around the way in which your music program is structured and implemented, as well as questions regarding your teaching strategies, techniques and resources. A copy of the interview questions has been provided. Your interview will be audio recorded and eventually transcribed.

The survey is a series of short questions about your perception of your efficacy as a teacher. You will be asked to fill in a Likert-type scale for each of the questions, choosing a selection from 'Nothing, or not at all' through to 'Always, or a great deal'.

You will be asked to provide a pseudonym for the study, or one will be provided for you. You or your school's specific, personal details will not be identifiable in any dissemination of the data collected from the interview or survey.

(4) How much of my time will the study take?

It is expected that the interview should take around 45 minutes, although this will ultimately depend on the nature of individual answers. The survey should not take longer than 10 minutes to complete.

(5) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. Your decision whether to participate will not affect your current or future relationship with the researchers or anyone else at the University of Sydney.

If you decide to take part in the study and then change your mind later, you are free to withdraw at any time. You can do this by contacting Dr Jennifer Rowley or Mrs Rachel White, using the contact details at the top of this form.

During Interviews

You are free to stop the interview at any time. Unless you say that you want us to keep them, any recordings will be erased and the information you have provided will not be included in the study results. You may also refuse to answer any questions that you do not wish to answer during the interview.

(6) Are there any risks or costs associated with being in the study?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study.

(7) Are there any benefits associated with being in the study?

The interview and survey questions are designed so as to enable you to reflect positively on your teaching experiences and achievements, so it is hoped that you will benefit from this as an opportunity for reflection. The answers you give may also be of benefit to the broader music education community in New South Wales, and allow others to learn from your consistency and high achievement.

(8) What will happen to information about me that is collected during the study?

By providing your consent, you are agreeing to us collecting personal information about you for the purposes of this research study. This information will include your name, your teaching position, your gender and the school at which you teach. Your information will only be used for the purposes outlined in this Participant Information Statement, unless you consent otherwise.

Your information will be stored securely and your identity/information will only be disclosed with your permission, except as required by law. Study findings may be published in conference proceedings and journal articles, but you will not be identified in these publications except by a pseudonym unrelated to your identity. Your school will only be referred to with generalities (eg. School X is a 7 – 12 government school in Western Sydney).

Data collected for this study will be stored securely, with restricted access, using the University of Sydney Research Data Store for 7 years, after which it will be electronically destroyed.

(9) Can I tell other people about the study?

Yes, you are welcome to tell other people about the study.

(10) What if I would like further information about the study?

When you have read this information, Rachel White will be available to discuss it with you further and answer any questions you may have. If you would like to know more at any stage during the study, please feel free to contact:

Dr Jennifer Rowley: Jennifer.rowley@sydney.edu.au

Mrs Rachel White: rwhi4128@uni.sydney.edu.au

(11) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback by ticking the relevant box on the consent form. This feedback will be in the form of a two page lay summary of the key results of the study. You will receive this feedback after the study is finished.

(12) What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney (Project number 2017/269). As part of this process, we have agreed to carry out the study according to the *National Statement on Ethical Conduct in Human Research (2007)*. This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:

- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

This information sheet is for you to keep

Appendix E



Sydney Conservatorium of Music

ABN 15 211 513 464

Dr Jennifer Rowley

Associate Professor, Music Education

Room 2082
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The University of Sydney
NSW 2006 AUSTRALIA

Telephone: +61 2 9351 1328

Facsimile: +61 2 9351 1287

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Web: <http://www.sydney.edu.au/>

Quality Music Teaching In New South Wales

PARTICIPANT CONSENT FORM

I, [PRINT NAME], agree to take part in this research study.

In giving my consent I state that:

- ✓ I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.
- ✓ I have read the Participant Information Statement and have been able to discuss my involvement in the study with the researchers if I wished to do so.
- ✓ The researchers have answered any questions that I had about the study and I am happy with the answers.
- ✓ I understand that being in this study is completely voluntary and I do not have to take part. My decision whether to be in the study will not affect my relationship with the researchers or anyone else at the University of Sydney now or in the future.
- ✓ I understand that I can withdraw from the study at any time.
- ✓ I understand that I may stop the interview at any time if I do not wish to continue, and that unless I indicate otherwise any recordings will then be erased and the information provided will not be included in the study. I also understand that I may refuse to answer any questions I don't wish to answer.
- ✓ I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to. I understand that information about me will only be told to others with my permission, except as required by law.
- ✓ I understand that the results of this study may be published, but these publications will not contain my name or any identifiable information about me.

I consent to:

- **Audio-recording** YES NO
-
- **Survey completion** YES NO
-

Would you like to receive feedback about the overall results of this study?

YES NO

If you answered **YES**, please indicate your preferred form of feedback and address:

Postal: _____

Email: _____

.....

Signature

.....

PRINT name

.....

Date

Appendix F



Research Integrity & Ethics Administration
Human Research Ethics Committee

Monday, 29 May 2017

Dr Jennifer Rowley

Music Education Unit; Sydney Conservatorium of Music

Email: jennifer.rowley@sydney.edu.au

Dear Jennifer

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved. Approval is granted for a period of four years from **26 May 2017** to **26 May 2021**.

Project title: Quality Music Teaching in New South Wales – How School Music Programs Promote Consistent High Achievement in the Higher School Certificate

Project no.: [2017/269](#)

First Annual Report due: 26 May 2018

Authorised Personnel: Rowley Jennifer; White Rachel;

Documents Approved:

Date Uploaded	Version number	Document Name
19/05/2017	Version 1	Interview Questions
19/05/2017	Version 1	Safety Protocol
19/05/2017	Version 1	Teacher Invitation
07/04/2017	Version 1	RWhite Phase 1 Interview Questions
07/04/2017	Version 1	RWhite Phase 1 Intro Email
07/04/2017	Version 1	RWhite Phase 1 PCF
07/04/2017	Version 1	RWhite Phase 1 PIS
07/04/2017	Version 1	RWhite Phase 1 Survey

Special Condition/s of Approval

- Please keep SERAP approval on file. Please submit a new application for Phase 2 when the project is ready.

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
 - Serious or unexpected adverse events (which should be reported within 72 hours).
 - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely



Dr Helen Mitchell
Chair
Conservatorium Review Committee (Low Risk)

The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on

Ethical Conduct in Human Research (2007) and the NHMRC's Australian Code for the Responsible Conduct of Research (2007).

Appendix G



Miss Rachel White DOC17/1011700 **SERAP 2017292**

Dear Miss White

I refer to your application to conduct a research project in NSW government schools entitled *Quality Music Teaching in New South Wales – How School Music Programs Promote Consistent High Achievement in the Higher School Certificate*. I am pleased to inform you that your application has been approved.

You may contact principals of the nominated schools to seek their participation. **You should include a copy of this letter with the documents you send to principals.**

This approval will remain valid until 28-Sep-2018.

As this research does not involve face-to-face contact with children, no researchers or research assistants have been screened to interact with or observe children.

I draw your attention to the following requirements for all researchers in NSW government schools:

- The privacy of participants is to be protected as per the NSW Privacy and Personal Information Protection Act 1998.
- School principals have the right to withdraw the school from the study at any time. The approval of the principal for the specific method of gathering information must also be sought.
- The privacy of the school and the students is to be protected.
- The participation of teachers and students must be voluntary and must be at the school's convenience.
- Any proposal to publish the outcomes of the study should be discussed with the research approvals officer before publication proceeds.
- All conditions attached to the approval must be complied with.

When your study is completed please email your report to: serap@det.nsw.edu.au You may also be asked to present on the findings of your research.

I wish you every success with your research.

Yours sincerely



Dr Robert Stevens

Manager, Research 28 September 2017
School Policy and Information Management
NSW Department of Education

Level 1, 1 Oxford Street, Darlinghurst NSW 2010 – Locked Bag 53,
Darlinghurst NSW 1300 Telephone: 02 9244 5060 – Email:
serap@det.nsw.edu.au



Appendix H

Table 34 provides information about the participants involved in this study. The participant pseudonyms were generated from names created by the participant or the researcher and are not related to the participant's actual name. For example, if a participant's real name was John Smith, they would be given a different name, such as Antonio Vivaldi, and their pseudonym henceforth would be AV.

Table 34: *Interview participants*

Participant	School	Region	Type	Years at school	Years teaching total
MS	A	Sydney	Independent	20	33
AC	A	Sydney	Independent	13	13
GS	A	Sydney	Independent	17	30
HW	A	Sydney	Independent	19	25
BB	B	Sydney	Government	10	30
TB	B	Sydney	Government	1	1
KW	B	Sydney	Government	4	22
LC	C	Sydney	Independent	12	17
AT	C	Sydney	Independent	5	27
CO	D	Sydney	Selective	3	4
JH	D	Sydney	Selective	17	35
HS	D	Sydney	Selective	6	16
CC	E	Country	Independent	0.25	5
BC	E	Country	Independent	17	30
AS	E	Country	Independent	12	14
FL	F	Sydney	Selective	12	15
ILM	G	Sydney	Independent	25	28
FS	G	Sydney	Independent	18	25
DW	G	Sydney	Independent	22	30
GG	H	Sydney	Independent	14	30
BJ	H	Sydney	Independent	12	22
EF	I	Sydney	Catholic	6	28
BM	I	Sydney	Catholic	10	31
NK	J	Sydney	Selective	10	13
JJ	J	Sydney	Selective	4	4

Participant	School	Region	Type	Years at school	Years teaching total
DD	J	Sydney	Selective	6	39
GH	K	Country	Selective	18	25
IM	K	Country	Selective	6.5	37
AB	L	Sydney	Independent	7	23
SS	M	Country	Independent	8	12
LB	M	Country	Independent	17	30
BK	N	Sydney	Government	27	30
NP	N	Sydney	Government	3	18
JS	O	Sydney	Selective	30	30
TTE	O	Sydney	Selective	7	7
OT	P	Sydney	Independent	1.5	
MD	P	Sydney	Independent	4	5
GM	P	Sydney	Independent	7	23
AA/F	Q	Country	Independent	14	27
TS	W	Sydney	Independent	10	20
PT	W	Sydney	Independent	8	25
KH	S	Country	Selective	12	18
BA	S	Country	Selective	2	4.5
RS	T	Sydney	Independent	0.5	25
EJ	V	Country	Catholic	14	47
YM	V	Country	Catholic	25	30
PF	V	Country	Catholic	16	22
FC	R	Country	Government	11	18
EE	R	Country	Government	9	17
HF	U	Country	Catholic	15	26

Appendix I

The following document was sent to participating teachers prior to the interview. This was also the order of the questions used in the interviews.

The interview will be semi-structured, that is, the interview may follow the sequence of questions as written, however some answers may be related to a number of topics covered. Participants can choose to not answer a particular question.

General questions

- How long have you been teaching at this school?
- What music stages do you commonly teach?
- Do you also lead any extra-curricular ensembles or activities?

Pedagogy and curriculum design

- How do you design your Stage 6 term to term music programs? Are they topic based, concept based, or something else?
- How do you approach your lesson plans? Do you focus on a specific concept or learning experience, or do you integrate concepts and experiences?
- What are the resources that you use to teach Stage 6 music, and how do you use them?
- How do you support and extend the musically-gifted students at your school?

Teaching philosophy

- What personal beliefs do you hold about music education?
- What is the most important thing you want your students to leave this school with?
- How long have you been teaching music? How has your approach to music education changed over this time?

School environment

- How is music perceived and valued at this school?
- How is Stage 6 Music perceived in regards to the ATAR and post-school opportunities?
- What extra-curricular music programs do you have at this school, and how are they managed?
- How is Music supported for students from youngers years through to Stage 6?
- Have you seen a change in the music program at this school over the last 10 years, and if so, what was it?
- What do you think needs to happen in order for this school to continue consistently producing high achievement in HSC Music?

Appendix J

NVivo Codebook

Table 35 is the complete codebook that was generated throughout the analysis of the interview data. Nodes were initially created either from broad topics covered in the questions (eg. Gifted or advanced students), or from topics or words that were noted to be frequently used across multiple interviews (eg. Accompanist). Subnodes were then created to help categorise Nodes with large amounts of information. Several Nodes include the Subnode “Miscellaneous”: this was to help with the flow of analysis, as not all quotes were easily categorised. Quotes in the “Miscellaneous” Subnodes were often recategorized towards the end of the process.

Table 35: Full NVivo codebook

Node	Subnode	Description
N: Accompanist		Accompanists and how they are utilised at the school. This can include references to external musicians that are brought in to accompany students for performances, but will most likely reference piano accompanists.
N: Assessment		References to assessment of learning.
N: ATAR marks or comments		How music is perceived with regards to the ATAR
	ATAR importance	
	Combatting ATAR and scaling	

Node	Subnode	Description
	HSC Marking HSC marks or results Losing kids due to ATAR Miscellaneous Music students doing well Perception of scaling Scaling concerns Teachers unsure of scaling process Time commitment	
N: Authentic learning		Quotes, experiences, teaching strategies that specifically pertain to the principles and ideals of authentic learning.
	Authentic procedures and context Authentic resources Collaborative learning	Students employing processes in the way that professional musicians do, either explicitly or implicitly, or teaching students with authentic procedures and contexts. Resources that can also be utilised in professional settings. I think this could include instrumentation, technology, performance halls, rehearsal rooms? Group work or teaching strategies that encourage students to work together and share in the learning process

Node	Subnode	Description
	Inquiry and metacognition	Teachers using strategies to encourage students to explore ideas, utilise and apply knowledge and skills from a variety of subject areas. Teaching strategies that encourage students to reflect on their process as a means to understand their thinking.
	Professionals in or out of school	Use of professionals, either for an incursion like a performance workshop, or an excursion, like to the SSO Meet the Music. See also <i>Node: Teacher as musician</i> , for teachers talking about themselves as musicians alongside being music teachers.
	Student centred learning	Teaching and learning approaches that focus on ensuring learning is directed and driven by students
	Teachers as professionals	Teachers themselves also being professionals in musical fields - as performers or composers, or conductors
N: Beyond curriculum		Statements made about what the teacher does beyond what is expected, within or outside the classroom, extra curricular, weekends etc
N: Change of school position		Where a teacher mentions a change in role, particularly if it occurs during the period of 2007–2016.
N: Co-curricular programs		Descriptions of ensembles or programs external to the classroom (co/extra curricular). Includes descriptions of peripatetic teaching.
	Attendance and engagement	Numbers of students participating in the co curricular music programs.

Node	Subnode	Description
	Bands	Concert bands, jazz bands, rock bands, and/or small and large instrumental ensembles that are distinct from orchestral or art music (eg. chamber) groups and choirs.
	Choirs	Choral work, choral programs, co/extra-curricular singing, distinct from sight singing in the classroom.
	Co-curricular Staff	Conductors, but not peripatetic teachers or external musicians brought in to supplement programs or performances.
	Elective, classroom and co-curricular	Connections between elective and co/extra curricular music programs.
	External performance	External musicians or groups either coming to the school to perform or workshop, or students going to a performance by professionals.
	Internal performance	Performances that involve internal musicians and musical groups, either at school or at eisteddfods, external concert halls, band tours etc.
	Musicals	School musicals.
	Musicians	External musicians brought in to supplement programs or student performances.
	Orchestra and strings	Orchestral groups, small and large art music ensembles, string programs
	Peripatetic programs	Peripatetic teachers, lessons, connections with private teachers or how they contribute to the school.
	Rehearsals and scheduling	Rehearsals or similar that aren't explicitly connected to a certain ensemble.
N: Course requirements		Statements or descriptions of things that are required by the music courses.

Node	Subnode	Description
N: Critical reflection		Teachers reflecting on how their practices or philosophies have changed.
N: Dissatisfaction		Implied or explicit dissatisfaction with something - a work situation, the state of music education etc.
N: Executive support		How school executive support and/or impact the music programs.
N: Gifted or advanced students		Descriptions or statements about musically advanced or gifted students.
	Acceleration	Students being accelerated due to their musical ability. Could be acceleration into Stage 6, into higher level ensembles, etc.
	Flexible grouping	Grouping of students, particularly in the classroom, into levels appropriate to their abilities. Could include streaming classes.
	Identification strategies	Ways students can be identified as gifted or advanced - through observation in lessons or ensembles, from parents, etc.
	Instruction strategies	Teaching strategies to specifically address and cater for gifted and advanced students, particularly in the classroom. Could include adjustment of pacing, options for challenge (particularly in assessments or group activities), development and encouragement of passions.
	Opportunities	Opportunities for students to perform or demonstrate abilities at a high or elite level - in the classroom, in ensembles, outside school.
N: HSC marking		

Node	Subnode	Description
N: Knowing students		Statements made about students, usually general statements, that reflect a knowledge of a specific group - eg. Year 11, Year 7 boys, elective students. Could be about their intellectual capabilities, emotional states, learning preferences.
	Boys Expertise Girls High ability Individual student needs Miscellaneous Music 1 Music 2 Program influence Rapport School community Senior students Teaching influence	
N: Miscellaneous		For things where I just don't know how to code them, but I think they're meaningful somehow.

Node	Subnode	Description
N: MusExt		Teaching and learning practice and examples relating to Music Extension.
N: Music 1		Strategies, resources, lesson and curriculum structure, or examples related to Music 1 teaching and syllabus.
N: Music 2		Strategies, resources, lesson and curriculum structuring or examples related to Music 2.
N: Parents		Perspectives on parents and their relationships with staff, students, and music programs.
	ATAR, HSC, uni Enjoyment Expectations Feedback Miscellaneous Other teachers Pressure Students Support	
N: Positivity		Any expression of positivity towards school-related things, like the school itself, or students, or the job.

Node	Subnode	Description
N: Post-school		What teachers want for their students after school, or descriptions of what students <i>have</i> gone on to do after school etc.
N: Resources		Descriptions of resources used to aid teaching in Stage 6.
	Pieces of music	Specific pieces of music mentioned during the interviews.
School requirements or culture		Descriptions of activities, strategies, resources etc that are required by the school, or expected as part of the school's culture or environment.
	Department values	Values or practices at the department level, usually specific to music.
	Leadership	How leadership affects or enacts culture and cultural change.
	Parent values	What parents at the school value and how that might manifest.
	Relationships	Developing teacher-student relationships, knowing students, understanding their needs etc at a school level. Potentially to benefit them academically, or musically.
	School values	Comments that are clearly about what the school values, or whole school initiatives, or what the school's 'about'. This may be shared by the teacher but is clearly a school directive, not something the teacher is bringing to the school.
	Student values	What the students value about music. Focus should be on what the students get out of music, as opposed to what the teachers, department or school want the students to get.
	Teacher expectations	What the school expects of teachers, or how teachers feel they are meant to behave, teach or contribute because of the school's culture.

Node	Subnode	Description
<p>N: School timetabling or class choices</p> <p>N: Sight singing, singing generally</p> <p>N: Staff support</p> <p>N: Stage 6</p> <p>N: Student autonomy</p> <p>N: Student loss</p>		<p>How their school structures classes and timetabling - like combining Music 1 and 2, adding/changing class sizes etc.</p> <p>Any mention of sight singing or singing as a pedagogy.</p> <p>Descriptions of staff outside the music department as supportive, or not.</p> <p>For when it's not clear if the interviewee is describing pedagogy related to a particular course or year group.</p> <p>Descriptions of students working individually.</p> <p>Descriptions of losing students from Music and what reasons teachers give.</p>
<p>N: Student stories</p> <p>N: Teacher as ensemble leader</p> <p>N: Teacher as musician</p> <p>N: Teacher beliefs</p>	<p>Co-curricular programs</p> <p>Scaling, high ATAR</p> <p>Time commitment</p>	<p>Stories or descriptions about specific students and their situations, that don't necessarily relate to giftedness.</p> <p>Descriptions of ensemble leadership or management.</p> <p>Any mention or description of the teacher's musical ability and prowess, used in or outside of the classroom.</p> <p>Statements of teacher philosophies or beliefs.</p>

Node	Subnode	Description
	Creativity	Creativity and creative practice in the teacher's philosophy.
	Declarative knowledge	Beliefs about the importance of factual musical knowledge, such as the concepts of music, or traditional notation, history etc.
	Expertise from experience	Beliefs relating to the idea that expertise in teaching comes from experience.
	Explicit teaching	Belief in the importance of teaching music using explicit instruction strategies.
	Holistic education	Belief that music is an important part of a student's holistic education, regardless of the ultimate outcome (becoming a musician or otherwise).
	Integrative practice	Belief that it is important to teach music in as integrated a way as possible - performing, listening and composing together.
	Mastery or growth mindset	Beliefs related to Dweck's theory of growth mindsets and mastery rather than performance.
	Music as a valuable entity	Beliefs about the study of music for the sake of it - that it is valuable regardless of how it connects with or contributes to other subjects or aspects of life.
	Music for everyone	Belief that music education should be available for all students.
	Music preferences	Beliefs about what and how music should be used in the classroom
	Passion	Beliefs stated around a love for teaching music.
	Procedural, active learning	Beliefs about the importance of <i>doing</i> music, actively engaging in it to learn

Node	Subnode	Description
	Student goals and intrinsic motivation	Beliefs around the importance of student-set goals and encouraging an intrinsic motivation to study and develop in music.
	Student-led, inclusive practice	Beliefs about creating learning that is student centred, driven by student interests and experience
	Teacher as positive leader	Beliefs around the teacher's role as being inspirational, or a leader, encourager.
	Teacher growth and change	Beliefs about developing and learning as a teacher, changing elements of practice such as key works studied with a year group each year, etc.
	Theoretical beliefs	Beliefs that follow or conform to a particular theorist or music practitioner, like Orff or Kodaly
N: Teacher flexibility or innovation		Teachers trying ideas, making changes.
N: Teaching experience		Teaching experience, historic or current.
N: Teaching strategies - composition		Teaching strategies specific to composition.
	Assessment	Composition assessment design or implementation.
	Composers	Teaching that focuses on or stems from composers.
	Improvisation	Using improvisation as a teaching strategy, or learning how it's used as a composition technique.

Node	Subnode	Description
	Integration Scores Strategies (Teaching) Techniques (Composition)	Using other learning experiences (performing, listening, musicology) to learn about composition. Descriptions of teaching strategies or approaches Learning about or application of composition techniques (aside from improvisation).
N: Teaching strategies - concepts		Approaches and strategies for teaching the concepts of music.
	Musicology	Is probably related to the concepts, but some teachers may specifically refer to teaching musicology (or history, context etc).
N: Teaching strategies - general		Teaching strategies that could go into multiple areas.
N: Teaching strategies - listening		Teaching strategies for listening or aural.
N: Teaching strategies - performing		Teaching strategies for performance.
	Group performance	References specifically to group performance work or assessment.
	Individual performance	Any reference to students working on individual performance pieces, for the HSC or for other assessment purposes.
	Performance analysis	Using individual performance pieces for conceptual or compositional analysis
	Practical learning	Using performance or performing as a means to learn or understand concepts, musical techniques etc in class
	Scheduling	References to 'prac lessons' or how often prac is incorporated

Node	Subnode	Description
Teaching strategies - score reading Teaching strengths Value of music Workload Year 11 Year 12	Space	References to the use of space in performance/practical lessons
		Descriptions of teaching score reading
		When interviewees mention either their own perceived strengths in an area - what they're particularly good at - or how they utilise the strengths of their teaching staff.
		Examples of students, teachers, parents valuing music and musical activities in the school.
		Statements referring to what the teacher does, what classes they teach and/or have taught in the past.
		Anything specific to practice in Year 12.

Appendix K

Complete enrolment descriptive statistics

Table 36 contains all of the descriptive statistics created from the NESA data. Some parts of this data are referenced at different points in Chapter 4: Results.

The colours in Table 36 were used to provide clarity during the analysis process. There were many tables and spreadsheets of data created, with data spanning 10 years, and schools from four different sectors. Allocating each year and sector with a colour made it easier to read and analyse data quickly, and to ensure the right data was allocated to the right year.

The years at the top of Table 36 are the Year 12 years. This means that the data analysed for the corresponding Year 10 and Year 11 cohorts are not in the same year, but for the years leading up to each Year 12. For example, the 2016 cohort would include Year 10 data from 2014, Year 11 data from 2015, and Year 12 data from 2016. A colour code clarifying what Year group and year date corresponds with each colour can be found at the end of Table 36.

Table 36: *Enrolment descriptive statistics*

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total cohorts										
Year 10	13006	12842	13144	13151	12636	13016	13510	13751	12562	11645
Year 11	6997	7042	7402	7620	7591	7428	7416	7222	7412	7198
Year 12	5394	5404	5767	5849	5835	5735	5742	5615	5635	5484
Mean cohorts										

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Year 10	18.68	18.8	19.07	19.05	18.58	19.34	19.8	20.43	19.12	18.11
Year 11	11.28	11.41	11.88	12.35	12.48	12.25	12.29	12.15	12.56	12.47
Year 12	8.72	8.78	9.27	9.63	9.67	9.47	9.66	9.54	9.68	9.63
Mode cohorts										
Year 10	20	13	19	15	11	17	22	18	13	17
Year 11	10	10	11	10	9	7	9	10	11	7
Year 12	8	8	5	8	7	7	8	6	8	6
Government cohorts										
Year 10	7758	7818	7861	7790	7486	7821	8045	8063	7459	6850
Year 11	4134	4249	4405	4476	4429	4462	4398	4302	4416	4203
Year 12	3064	3080	3305	3282	3257	3290	3220	3157	3180	3063
Mean cohort Year 10	20.7	21.4	20.9	21.1	20.6	21.8	22.1	22.4	21.3	19.8
Mean cohort Year 11	12.7	12.7	13	13.4	13.3	13.5	13.2	13.3	13.5	13.1
Mean cohort Year 12	9.3	9.3	9.8	10	9.8	10	9.9	9.9	9.9	9.7
Selective cohorts										
Year 10	508	504	437	502	463	443	556	560	432	444
Year 11	259	267	251	269	303	269	295	307	275	259
Year 12	200	216	220	202	221	205	222	226	205	201

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Mean cohort Year 10	25.4	24	21.8	23.9	23.1	24.6	27.8	26.6	20.5	21.1
Mean cohort Year 11	12.9	13.3	13.2	14.1	14.4	12.8	15.5	14.6	13.7	12.9
Mean cohort Year 12	10	10.8	11.5	10.6	10.5	9.7	11.6	10.7	10.2	10
Catholic cohorts										
Year 10	2026	1876	2121	2082	1971	2032	2173	2256	2032	1764
Year 11	957	954	1013	1053	1042	1026	1025	993	1075	1125
Year 12	809	782	851	855	890	853	867	831	878	902
Mean cohort Year 10	19.4	18	20.2	19.1	18.4	18.9	19.7	21	19.7	17.6
Mean cohort Year 11	10.2	10.7	11.1	11.5	11.7	11.7	11.5	11.5	12.3	13.2
Mean cohort Year 12	8.6	8.7	9.2	9.6	10.1	9.8	9.7	9.6	10	10.6
Independent cohorts										
Year 10	2714	2644	2725	2777	2716	2720	2736	2872	2639	2587
Year 11	1647	1572	1733	1822	1817	1671	1698	1620	1646	1611
Year 12	1321	1326	1391	1510	1467	1387	1433	1401	1372	1318
Mean cohort Year 10	13.7	13.6	14.4	14.5	14.2	14.3	14.5	15.4	14.4	14.6
Mean cohort Year 11	9	8.9	9.9	10.5	11	9.8	10.3	9.8	10.4	10.5
Mean cohort Year 12	7.3	7.4	7.9	8.7	8.8	8.2	8.7	8.5	8.9	8.7
Retention %										

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Year 10 – 11	53.80	54.84	56.31	57.94	60.07	57.07	54.89	52.52	59.00	61.81
Year 11 – 12	77.09	76.74	77.91	76.76	76.87	77.21	77.43	77.75	76.03	76.19
Year 10 – 12	41.47	42.08	43.88	44.48	46.18	44.06	42.50	40.83	44.86	47.09
Country cohorts										
Year 10	5521	5577	5674	5776	5562	5920	5976	5996	5648	4951
Year 11	2741	2801	2871	2936	2988	3014	3008	2863	2991	2775
Year 12	2036	2098	2184	2173	2214	2211	2239	2155	2194	2091
Country retention %										
Year 10 – 11	49.65	50.22	50.60	50.83	53.72	50.91	50.33	47.75	52.96	56.05
Year 11 – 12	74.28	74.90	76.07	74.01	74.10	73.36	74.43	75.27	73.35	75.35
Sydney cohorts										
Year 10	7445	7230	7427	7341	7039	7080	7508	7727	6908	6663
Year 11	4239	4211	4503	4663	4576	4394	4380	4336	4404	4394
Year 12	3346	3281	3559	3658	3598	3507	3481	3439	3424	3372
Sydney retention %										
Year 10 – 11	56.94	58.24	60.63	63.52	65.01	62.06	58.34	56.11	63.75	65.95
Year 11 – 12	78.93	77.91	79.04	78.45	78.63	79.81	79.47	79.31	77.75	76.74
Music 1 and 2 retention %										

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Music 1 Year 11 – 12	76.40	76.21	77.98	76.40	77.44	77.27	77.18	77.92	75.85	76.33
Music 2 Year 11 – 12	82.13	79.95	77.63	80.34	72.84	77.71	79.13	76.59	77.19	74.45

Colours by Year 12 cohort

Year 12 2016 (Y10 2014, Y11 2015)	
Year 12 2015 (Y10 2013, Y11 2014)	
Year 12 2014 (Y10 2012, Y11 2013)	
Year 12 2013 (Y10 2011, Y11 2012)	
Year 12 2012 (Y10 2010, Y11 2011)	
Year 12 2011 (Y10 2009, Y11 2010)	
Year 12 2010 (Y10 2008, Y11 2009)	
Year 12 2009 (Y10 2007, Y11 2008)	
Year 12 2008 (Y10 2006, Y11 2007)	
Year 12 2007 (Y10 2005, Y11 2006)	