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Voices of Learning

Exploring Music Teacher Knowledge, Skills and Development in Secondary School Singing

By Darren Wicks

A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Sydney Conservatorium of Music
The University of Sydney

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Statement of originality

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

Signed: [Signature]

Date: 15-Nov-2013
Abstract

Singing can be an immensely positive experience for secondary school students and can impact their lives on many levels: musically, intellectually, physically, socially, emotionally and spiritually. More than just an enriching experience, singing is fundamental to music education and to the acquisition of musical skills. Therefore, confidence in using one’s singing voice and in working with student voices is core to the skillset of effective music educators. Without effective teachers, a student’s experience of singing is likely to be less than positive or non-existent. Evidence gathered by the National Review of Music Education (Pascoe et al., 2005) suggests that both the support for and quality of vocal music in Australian schools is presently poor and inconsistent. The Review further suggests that school music teachers may have a fear of singing. International studies demonstrate that Australia is following world trends and that school singing in much of the developed Western world is in a state of crisis.

The aim of this exploratory, mixed-method study, is to investigate factors that enhance or detract from teacher skills and knowledge in working with adolescent voices. In particular, the current skills and knowledge possessed by secondary school music teachers are examined and juxtaposed with those required to work effectively in vocal teaching. Methods of data collection used in this study include: a survey of 238 secondary school music teachers; semi-structured interviews with a panel of twenty experts in adolescent voice pedagogy; and an action research project involving the professional development of a sample of sixteen secondary school music teachers.

The results of this study demonstrate that a gap exists between being qualified to teach music in Australian secondary schools and being competent and confident to work with adolescent voices. Although many teachers have positive opinions about the value and importance of singing, they are likely to be products of a musical education that had little emphasis on singing. Their lack of a background in singing is compounded by the fact that many teachers feel they received little guidance and training during their pre-service teacher education in how to work with voices. Consequently, a disconnect occurs when teachers try to apply what they know and what they believe about singing to their day-to-day, lesson-by-lesson teaching. In this study, professional development in singing is shown to be effective in addressing this gap, when this development is rich in multiple types of learning, including: factual learning; experiential
learning; observational learning and collaborative learning. Professional development is also shown to have a positive impact on music teacher identity and self-efficacy.

This study has implications for the pre-service teacher education and professional development of secondary school music teachers in singing. It reasserts the primary role of singing in effective music education and demonstrates that present inadequacies in school singing require a multi-faceted solution. This solution not only involves pre-service teacher education, but a range of stake-holders, including: government policy-makers, universities, music teacher associations, and individual teachers. All have a role to play in ensuring that Australian students have access to a quality vocal education and that the current cycle of poverty which exists around school singing is broken.
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<th>Description</th>
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<tbody>
<tr>
<td>ANATS</td>
<td>Australian National Association of Teachers of Singing</td>
</tr>
<tr>
<td>AMEB</td>
<td>Australian Music Examinations Board</td>
</tr>
<tr>
<td>aMuse</td>
<td>Association of Music Educators (Victoria)</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>ITT</td>
<td>Initial Teacher Training</td>
</tr>
<tr>
<td>KMEIA</td>
<td>Kodály Music Education Institute of Australia</td>
</tr>
<tr>
<td>LLL</td>
<td>Lifelong Learning</td>
</tr>
<tr>
<td>NATS</td>
<td>National Association of Teachers of Singing (USA)</td>
</tr>
<tr>
<td>NRSME</td>
<td>National Review of School Music Education</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
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<td>PD</td>
<td>Professional Development</td>
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<td>PDS</td>
<td>Professional Development Schools</td>
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<td>United States of America</td>
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<td>VIC</td>
<td>Victoria</td>
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<td>VIT</td>
<td>Victorian Institute of Teaching</td>
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Chapter 1: Introduction

1.1 Introduction to the Research

Singing is a uniquely human behaviour and a defining feature of our humanity (Mithen, 2005; Welch, 2005). The voice is presumed to be the first musical instrument and there is no human culture, no matter how remote or isolated, that does not sing. Singing occurs in many varied forms, but each draws on “a basic capacity of the human voice to produce sustained sounds that have social, cultural and personal significance for the performer and the audience.” (Welch, Howard, Himonidesa, & Brereton, 2005, p. 225). When humans sing, they embody music because the body literally becomes our sound source. According to Miller (2005), “Cultivated singing is the only human function that brings together language, physiology, and acoustics in the service of art” (p. 235). Welch (1994) goes further to define singing as “a complex web of interacting factors embracing perception, cognition, physical development, maturation, society, culture, history and intentionality” (p. 3).

Beyond an important expression of our humanity, singing can be an immensely positive experience for secondary school students, impacting their lives on many levels: musically, intellectually, physically, socially, emotionally and spiritually. For example, Elliot (1993) recognises singing as “an exquisite form of thinking” or “musical knowing” in action (p. 11). Additionally, Davidson (2011) has established that school singing programmes can offer: “effective means of providing social connection, musical, physical and emotional experiences, all of which satisfy the needs of the participants and lead to a positive impact on wellbeing” (p. 84). Classroom singing has been shown to have broader educational benefits in its ability to support and assist learning in other curriculum areas (Himonidesa, Saunders, Papagerpgo, & Welch, 2011; Hughes, 2008; Hughes & Callaghan, 2010). Most importantly, these singing programmes can be offered at little cost and with minimal need for resources.

Historically, singing has been central to musical learning and, although attitudes may have changed over time, it is likely that all Australian students will sing at some point during their education. However, not all students will enjoy the same level of access to quality singing programmes. In fact, Australian schools vary enormously in the way they support singing and this may be dependent upon individual school culture and values; support for singing
from school administrations; and the attitudes and skills of particular staff within the school. In general, more singing occurs in primary schools than in secondary schools, and more singing occurs in independent schools than in government schools. For the average Australian student, positive experiences of singing are more likely to occur during the earlier years of education and students are likely to lose interest in singing as they get older. Only a minority of students continue to sing into the senior secondary years.

That more Australian teachers and students do not embrace signing is surprising, because it is a great time to be teaching singing. More is known about the human voice now than in any point in history. Over the past few decades, a proliferation of research into singing has emerged with research focussing on: voice production or voice science; singing performance; and the teaching of singing. Undoubtedly, the area to receive the most attention has been voice production. Science has made great strides in understanding how the voice works. Technologies such as flexible and rigid endoscopes and high definition digital imaging allow researchers to view the vocal folds in operation with great clarity and detail. Other instruments permit the measure of breath pressure, acoustical properties, resonance, intonation, muscular effort and they can do this almost instantly, allowing the singer to benefit from real-time feedback (Callaghan, 1997, 2000; Titze, 2000; Titze & Abbott, 2012). In addition to technological developments, the knowledge of voice production has been enhanced through interdisciplinary cooperation, combining information from medicine, science, linguistics, speech pathology, sports science and the arts (Titze & Abbott, 2012). The publication of this information in academic journals and text books over the past few decades has given rise to new approaches to voice pedagogy (Collyer, 2010; McCoy, 2004; Phillips & Doneski, 2011; Stark, 1999; Sundberg, 1987; Ware, 1998; Welch, Himonidesa, Howard, & Brereton, 2004; Welch et al., 2005).

In addition to the scientific and academic research discussed, the profile of singing has been raised through popular culture and the media. Various current television programmes, including Australian Idol, X-Factor, Battle of the Choirs and The Voice have attracted record television ratings and have encouraged audiences to get involved in the culture of singing through popular voting, online discussion forums, entering competitions and attending broadcasts. Anecdotal evidence suggests that children are more interested in singing as a result of its profile in the media. However, some educators also feel that the vocal models
provided by segments of popular culture are poor and that the media encourages a passive, rather than active interest in singing.

In addition to the media profile, online resources (such as iTunes, YouTube, Spotify and Napster) and the social media (Facebook, Twitter and MySpace) have ensured that vocal music is more accessible than in any point in history. Furthermore, the World Wide Web provides access to a vast array of information on singing. There are online song collections, home-study singing courses, instructional lessons on YouTube and many studio voice teachers publish their own vocal blogs.

1.2 Statement of Problem

In theory, the developments described previously should hold promise for music educators aiming to build school singing programmes. However, this is not necessarily the case. While singing may have received a boost in profile through the popular media, its status in many Australian schools is low. Additionally, there is a steadily growing belief that Australians are becoming consumers of singing, rather than singers themselves. These thoughts are highlighted by renowned Australian singing teacher, Janice Chapman (2006) who noted:

“More recently in western cultures it [singing] has become an elitist activity – for the talented rather than the community. The tragic loss of school-based singing during the past three decades has served to distance children from this vocal heritage” (p. 1).

Since the Second World War, changes in cultural values, the overcrowding of school curriculum and the desire to allocate greater time to subjects considered essential (language, science and math) have threatened the status of music ousting from the common practice activities that were once considered important (Chapman, 2006; Stevens 2002). Singing in Australian classrooms is one example of these deletions. In fact, even where singing is part of a school culture, its status frequently falls below that of instrumental music. As Harrison (2006b) observed:

“In general, vocal ensembles and vocal training are considered second or third string to instrumental ensembles and training. In certain schools, singing is not even considered to be an instrument to study and is not treated with the same respect as other instruments. The students are expected to learn a ‘serious’ instrument (non-vocal) and keep singing just for the choirs” (p. 6).

Was there ever a ‘golden age’ of school singing in which children were universally deemed to sing at a high standard and where those responsible for the teaching of singing were seen
as highly competent? Historical records from England, Wales and Scotland during the mid-1800s describe deficiencies in teacher vocal ability and the problem of student teachers who enter training programs with “untried voices, untrained ears and ignorant of any musical notation” (Cox, 2005, p. 19). Writing in the early 1900s, Hardy (1906), a lecturer on voice production to the School Board of London noted:

“It is beyond dispute that most teachers are really fond of singing, and delight in teaching its beauties to their children; but owing to the fact that many of them have received little or no instruction in the practical art of teaching it, either as pupil teachers or students in training, they often find themselves at a loss when confronted by some of the many difficulties connected with this important subject” (p. ix).

Much of the contemporary music education literature also appears to suggest that something is amiss with both the teaching and outcomes of vocal programmes in our schools (Adler, 2002; Harrison, 2004a, 2005; Hughes, 2007, 2008; Hughes & Callaghan, 2010). In particular, secondary school music educators often struggle to implement vocal programs and feel that adolescent children are difficult to teach. After an inspection of 90 secondary schools in England between 2008 and 2011, a government report (Ofsted, 2012) noted the scarcity of singing in British secondary schools, suggesting there was an urgent need to improve the quantity, quality and diversity of singing work in secondary schools. In 2005, a government report generated from the National Review of School Music Education (NRSME) suggested that (i) both the support for and quality of vocal music in Australian schools is inconsistent, (ii) that school music teachers often have a fear of singing, and (iii) that vocal music in schools needs to be supported by programmes which can sustain and extend it. The review concludes: “pre-service and in-service teacher education is needed to raise the standards of vocal music in schools” (Pascoe et al., 2005, p. 128).

The writers of the NRSME document are not the first to suggest there is a problem with the standard of school singing and to locate that problem around music teacher competencies and teacher education. After discussing the fact that both classroom teachers and students often experience frustration with school singing experiences, Langness (2000) arrives at almost the same conclusion: “the solution for teachers and their students lies in pre-service and/or in-service voice education” (p. 203). A more scathing assessment of contemporary teacher education is given by Peggie (1998) who writes: “it is nothing short of scandalous that music teacher and primary school teacher training does not give every student [teacher] the vocal wherewithal to sing without embarrassment with and for pupils” (p. 220).
Evidence gathered from both Britain and the USA appears to suggest that Australia is following world trends and that teachers in many of the developed Western World are struggling in the area of school singing. Finney (2000) suggests that a teacher’s good intentions to include singing as a regular classroom activity are rarely realised and that “aspiration outstrips actuality” (p. 204). As a result of perceived vocal difficulties and failures, children may be turned off singing and/or all musical activities (Langness, 2000).

Despite the challenges discussed, examples of excellent singing and vocal education programs can still be found scattered throughout Australian secondary schools. This raises questions such as: What accounts for the success of some programmes over others; and how are some teachers able to succeed in working with adolescent voices when others struggle? Over the course of their careers, these successful teachers are probably informal researchers - they may reflect critically on their approach; they will likely attend conferences and professional development courses. As a result, they consciously adapt and adjust their approach based on observation and experience. However, a considerable amount of the information that has been gleaned by successful teachers of singing is not documented.

Although much is known about the science of singing, there appears to be a lack of literature dealing with singing at a more grass roots level. For example, how does a secondary school teacher translate voice science into day-to-day, lesson-by-lesson instruction? How accessible is current vocal literature to the average secondary school music teacher? Does the current body of voice pedagogy literature sufficiently address teacher needs? Does this literature have the potential to help teachers overcome the difficulties inherent in working with adolescent voices? What methods or approaches to working with adolescent voices are most favoured by high school teachers and why? Even the process by which teachers might enhance their skills or knowledge in working with adolescent voices is not well understood. These questions demonstrate a potential for further study in this field and it is into this void that this research will attempt to speak.

**1.3 Research Aim**

The basis for this research is the fundamental premise that singing is core to the way musical skills are acquired and, consequently core among the pedagogical tools at the disposal of a music educator. This thesis is a mixed-method, exploratory study that investigates the
question: What factors enhance or detract from teacher knowledge, skills and development in working with adolescent voices? This broad aim is the basis for a number of key research questions:

1. How do secondary school music teachers identify with the role of teaching singing to adolescents?
2. What skills and knowledge about singing do Australian secondary school music teachers currently possess?
3. What skills and knowledge do teachers need to be effective in working with adolescent voices in Australian secondary schools?
4. What professional development is needed to help teachers raise the standard of singing in Australian secondary schools?
5. Who should provide this professional development?
6. How (or in what format) should the professional development occur?
7. What content is likely to increase teacher competency and confidence in working with adolescent singing?

1.4 Overview of the Study

In this study, the research aim and its subsidiary questions will be explored through three phases involving different groups of participants. These phases include: (i) A survey of current teacher perspectives, (ii) a synthesis of expert opinion, and (iii) the implementation of a professional development project with secondary music teachers.

Chapter 2 will critically review literature relevant to the research questions outlined above. This chapter provides a context for the thesis by introducing readers to the nature of singing and its value in educational settings. It will demonstrate that singing is a desirable and positive part of a student’s education. The chapter will then examine literature on the teaching of singing, which is known as voice pedagogy. In addition, the review will include literature on teacher development with a special focus on the professional development of secondary school teachers. It will consider the types of professional development that are likely to be valuable to secondary school music teachers who have an interest in singing.

Chapter 3 will introduce the reader to the results of an online survey of 240 Australian Secondary School music teachers and demonstrate the diversity of skills, opinions and needs among this sample. After a careful analysis of the qualitative and quantitative data in this survey, the reader will have a better understanding of the nature of the profession and the
professional development needs of this group of secondary school music teachers. The survey results will also demonstrate that Australian secondary school teachers could benefit from targeted training in some areas of voice pedagogy.

The teaching of singing is strongly practitioner-based and despite the difficulties experienced by numerous secondary school teachers in implementing effective vocal programs in schools, other teachers are experiencing considerable success. There are highly experienced teachers of singing who employ effective methods and who may not be involved in research. By speaking to these teachers, it is possible to capture their voices and gain valuable input to this topic. Accordingly, Chapter 4 will report on interviews with a group of experts and highly experienced teachers and will analyse these opinions. It will focus on (i) how these experts became skilled and confident in working with voices (ii) the skills and knowledge that these experts believe contribute to best practice in the teaching of singing, and (iii) their suggestions for the training and professional development of secondary school music teachers.

Since the professional development of teachers is widely believed to be an answer to the current difficulties inherent in working with adolescent voices, it is necessary for this study to investigate this premise. Chapter 5 will describe an intervention in the form of an action research project. The action research project will be conducted as a series of professional development workshops. The purpose of these workshops will be to: test the knowledge gained from the expert interviews and the review of literature; and to try to make a difference in the knowledge, skills and confidence of a sample of teachers who work with secondary school singers.

In the final chapter, ideas gleaned across the entire study will be drawn together. This chapter will offer: an interpretation of the key findings of this research project; outline the significance of these findings; and make recommendations for the future training of secondary school music teachers. It will also suggest the kinds of information and educational processes that are likely to create teachers who are effective in working with adolescent voices; highlight the limitations of this project; and outline areas for future research.
Chapter 2: Review of Literature

The topic of this thesis is located within the intersection of three diverse, but interconnected themes in the literature, namely: Singing in schools; adolescent vocal development and pedagogy; and teacher development.

![Interconnected themes in the review of literature](image)

In this chapter, a critical review of the literature relating to these interconnected themes is offered in four sections. Section 1 concerns the topic of singing in schools. It provides a context for this study by exploring why singing in schools is important and how school singing has been approached in the past. Section 2 reviews literature from the field of voice pedagogy. This chapter will demonstrate the complexity and the breath of information associated with the teaching of singing. It also explores the types of knowledge and skills that are currently considered appropriate for working with adolescent voices. In Section 3 literature relevant to the pre-service education and professional development of secondary school music teachers is evaluated. Finally, Section 4 explores the intersection of these themes which concerns the education and professional development of secondary school music educators who work with adolescent voices.

Section 1: Singing in Schools

2.1.1 Singing in Australian Schools – Then and Now

The issues around school singing outlined in Chapter 1 and in the National Review of School Music Education (Pascoe et al., 2005) have their origins in the past. Examining historic
educational documents offers insight into the foundational role of singing in the early Australian education system. It also adds to the discussion of the thesis by demonstrating how school singing has developed over time for the better and for the worse.

Historical writings demonstrate that singing has been part of the educational experience of Australian children since the beginning of formal schooling in Colonial times when the idea of music education and the teaching of singing were synonymous (Hughes, 2007; Stevens, 1978). Massed singing was introduced in Australian schools not for its intrinsic value, but for “instilling (through the words of school songs) moral, patriotic and religious values in children. It was also viewed as healthy recreation for children and a means of making schools attractive to both children and parents” (Stevens, 2010).

With their larger populations and wealth generated through gold mining, educational systems developed in New South Wales and Victoria faster than in other colonies; thus this review will focus on these two regions. Victorian Government documents record the presence of school singing from the early 1850s, where it was included predominantly for utilitarian purposes. In 1853, the Denominational School Board of Victoria agreed to the teaching of singing for the purposes of “harmonising and refining the mind” (Blake, 1973, p. 48). It was believed that singing would have “a most favourable influence, not only on the musical, but also on the moral associations of the goldfields” (Blake, 1973, p. 48). In the same year, the Board appointed George Leavis Allan (1827-1897) as the first singing master and his efforts to establish school singing programs might be judged successful, since by September 1859, a total nine singing masters were teaching 9,803 children (Austin, 1963, p. 83). Participation in school singing was encouraged through annual drawing and singing festivals held in Melbourne and Geelong from the late 1850s onwards. One such festival held in Melbourne on Wednesday December 21, 1859 at the Exhibition Building and the program included such songs as ‘The Plough Boy’ (Hullah), ‘See our Oars with Feather’d Spray’ (Stevenson), ‘Canadian Boat Song’ (Thomas Moore), and ‘The Briton’s Fatherland’. Responsibility for the choral training of children for this event was shared by four singing masters (Blake, 1973, p. 48).

The place of singing in the school curriculum assumed greater importance from the late 1800s, where it was included in the ‘required standards of proficiency’ in NSW in 1867 and became a mandated subject in the Victorian ‘course of free instruction’ in 1874 (Stevens,
At this time, specialist itinerant staff handled the teaching of school singing in Victorian and New South Wales. By 1868, the Board of Education had twenty seven singing masters visiting 132 Victorian schools (Austin, 1963). The work of these singing masters was scrutinised by government inspectors and to ensure that only competent teachers of singing were employed, the Board also appointed examiners of Music and Art. Instituted in 1887, the School Teachers Music Certificate was developed in “order that teachers, and especially those in schools under Government inspection, and students in training colleges, might have their qualifications to teach singing by note satisfactorily tested and certified” (Evans & McNaught, 1903, p. ix). Despite these initiatives, school singing still suffered from a lack of expertise, especially in the rural areas. Poor teacher competency was an issue sometimes reported by school inspectors as typified by this 1871 report from a NSW school inspector:

“Singing is taught in a considerable number of the public and denominational schools in this district, but in many the method of teaching is far from satisfactory; in some the children learn to sing by ear, and, with the exception of a few schools, the progress in singing does not merit much commendation. It is to be hoped the Council may be enabled to extend the period for the training of teachers, in order that some arrangements may be made for giving the candidates a complete course of instruction in this very important branch of elementary education” (W. McIntyre, 1871, p. 99).

During this early period, methods used for teaching school singing and the training of school singing teachers emerged from the English choral singing movement of the mid-nineteenth century (Southcott, 2007; Stevens, 1978). Early sources show that these methods included instruction in the following elements: (i) posture, (ii) breathing exercises, (iii) voice production, (iv) ear training, (v) rhythmic perception, (vi) the use of tonic sol-fa, (vii) singing with reference to a tonic sol-fa modulator chart, (viii) sight-reading, (ix) the singing of school songs and (x) music appreciation (Evans & McNaught, 1903; Hardy, 1906; Jousse, 1837; Treharne, 1930). In particular, singing with tonic sol-fa featured prominently in these early approaches and its use as a pedagogical tool dates back to the early eleventh century and the work of Guido D’Arezzo (995-1050), a Benedictine Monk, teacher and choir master. Throughout the 1800s and 1900s, a number of prominent English music educators, including Sarah Glover (1786–1867) and John Curwen (1816–1880), furthered the use of tonic sol-fa (Southcott, 2007; Stevens, 2008).

1 Tonic sol-fa is a pedagogical technique for teaching sight-singing and using syllables to represent tones in the musical scale. The syllables commonly used in the major scale are: do re mi fa so la ti do
In Britain, the growth of Curwen’s Tonic Sol-fa method surpassed that of any other choral singing method during the nineteenth century and became the basis for school singing programmes throughout Australia (Stevens, 2003). The history and significance of the tonic sol-fa method in Australian school singing programmes has been researched extensively by Stevens (1978, 1986, 2003, 2008, 2010) who shows that throughout the late 1800s and 1900s, a variety of music educators were known as advocates for the method. Such instructors included James Churchill Fisher (1826-1891) who published the first Australian Tonic Sol-fa guide, *The Singing Class Manual* in 1855 and was later appointed as Singing Master to the New South Wales Council of Education in 1867. Another prominent figure was Dr Samuel McBurney (1847-1909), a graduate of the Tonic Sol-fa College of London who became Inspector of Music in the Victorian Education Department. McBurney’s contributions to singing in Australian schools included: textbooks, songbooks, choral compositions, journal articles, and a kindergarten music teaching method. He also laid the foundations for music teaching by the tonic sol-fa method in Victorian schools for years to come (Stevens, 1986).

The twentieth century heralded changes to the face of school singing in Australia. Methods used for bringing singing to the masses in the later part of the previous century might be judged as highly successful and public schools in both Sydney and Melbourne are described as very musical places with thriving singing communities (Chaseling, 2004; Stevens, 1978). School children at the time had the ability to “sing moderately difficult vocal material with an expanded range, which could involve changes of tempo, dynamics and metre. They were experienced in three and four-part singing and could respond musically to the cues of a conductor. In addition, they could sing at sight” (Chaseling, 2004, p. 25). When the Constitution of Australia was enacted in January 1901, the colonies collectively became states of the Commonwealth of Australia. To celebrate the occasion, a chorus of 10,000 school children from New South Wales sang at the inauguration ceremony in Sydney (Chaseling, 2004; Stevens, 1978). Massed choirs of school children were apparently regular occurrences in Sydney around the time of Australia’s Federation and Chaseling (2004) suggests records of these choirs are important and demonstrate: “what musical heights can be achieved when children are exposed to a systematic music education program in schools” (p. 25).
Secondary education developed in all states during the 1910s and 1920s. As a consequence, specialist music teachers were appointed to high schools by the 1930s and Directors of Music were also appointed to the larger independent schools. Technological advances during this period were responsible for an expansion of musical experiences and reformulating school music curriculum (Stevens, 2002). In particular, these advances resulted in the availability of progressively more sophisticated mechanical and electronic sound reproduction methods and a gradual shift in focus away from school singing towards instrumental music. Inexpensive classroom instruments, such as the recorder, tuned and non-tuned percussion became available and their implementation helped change the focus of school music ensuring that vocal work was understated in favour of these new instruments (Carroll, 1988). In addition, the availability of recorded music lead to an increasing emphasis, both on listening and music appreciation, and was responsible for reducing the emphasis on school singing further (Hughes, 2007; Stevens, 1978, 2002, 2010).

From the 1920s onwards, a decline in the popularity of the tonic sol-fa method for school singing was evident, both in England and Australia. By the 1950s the method and its associated school curriculum was no longer practiced widely. However, references were still found in some educational literature into the 1960s. For example, the use of tonic sol-fa was recommended by the Victorian Universities and Schools Examination Board for the training of children in their first four years of secondary school (Courses of Study Forms I to IV, 1968, p. 169) and for students preparing for their school leaving certificate and completing the aural studies and sight-singing component of the subject ‘Music History and Literature’ (Handbook of Directions and Prescriptions for 1969, 1968, p. 364).

In Victoria, Alfred Lane was appointed as the first Supervisor of Music in 1923 and he appointed itinerant music teachers to teach in secondary schools and in some primary schools. By 1940 this group of specialists became known as the Music Branch. In New South Wales, H. F. Treharne was appointed as Supervisor of Music in 1922. Then a School Music Centre was later founded in 1948 under Terrance Hunt. By 1970 there were four Inspectors of Music in New South Wales (Stevens, 2010).

The Australian Broadcasting Commission’s (ABC) first radio programmes went to air on July 1, 1932 and had an inevitable impact on school music education ("History of the ABC 1930s," 2007). Beginning in the 1950s, an integral part of the Commission’s contribution
to school singing was the ABC Sing program. The program consisted of radio broadcasts into school classrooms across the nation. The shows, ‘Let’s Hear the Music’ (later known as ‘Let’s Have Music’) and ‘Singing and Listening’ were focused at lower and upper primary school students respectively ("A Brief History of Sing," 2012). Songs from both broadcasts were published in the annual ABC Sing book. These books were an important teaching resource both to generalist primary teachers and specialist music teachers at both primary and secondary levels. Annual print runs of the ABC Sing book have been enormous over the years, peaking one year in the 1970s with 800,000 copies printed. At this time the ABC distributed the Sing book, and virtually every primary school student purchased a copy each year ("A Brief History of Sing," 2012). For generalist teachers with little musical training, the Sing programme provided the basis for their music program. Not without its critics, Hoermann (1988) asserts that the ABC Sing programme failed to fulfil its potential and that “the overall direction of these programs was often not clear, there are gaps in the learning sequence and many opportunities which could be incidentally used for teacher development are overlooked” (p. 90). Nevertheless, the ABC sing programmes were still being broadcast weekly up until the late 1980s and although the weekly broadcasts have ceased, the ABC still publishes its annual Sing Book and CD recording ("A Brief History of Sing," 2012).

In reflecting on Australian secondary music education programmes during the 1960s, Bartle (1967) alludes to the centrality of the teacher by noting that music programmes flourish in schools “when a personable teacher presents it in an informed and imaginative way, with encouragement and practical support from the headmaster” (p. 16). However many of the issues that were evident in the 1960s are currently problematic in secondary music education and were identified in recent times by the National Review of School Music Education (Pascoe et al., 2005). In particular, Bartle (1967) referred to: poor course content and instruction methods; the absence of vocal work; and the fact that children do not arrive in secondary schools with a common core of musical knowledge. Ironically, he proposed a solution that was evident from the inception of Australian music education and which appears to have been lost along the way. He observed “a desperate need in each State Education Department for a supervisor of music who has the power effectively to exercise an oversight over both primary and secondary courses” (p. 18).
Carroll (1988) described the 1960s and 1970s as a time of experimentation for Australian secondary school music education. During this period, various European pedagogies, including *Dalcroze Eurythmics, Orff Schulwerk* and the *Kodály* concept came to the country via educators who found fascination with these methods overseas. Although none of these approaches were methods for teaching singing per se, all included singing activities (with varying degrees of emphasis) as part of the pedagogy (Choksy, Abramson, Gillespie, Woods, & York, 2001). Their introduction had an inevitable effect on school singing and surpassed the former “sight singing” emphasis as the preferred methods for bringing singing to the masses. Implementing these European pedagogies necessitated the development of new teacher professional development courses and an inevitable rise of various music teacher associations during the 1970s for promoting each methodology (Hoermann, 2013; Royal & Shearer, 2004; Stevens, 1978).

In particular, the introduction of the Kodály method was to become highly significant for school singing programmes owing to its strong emphasis on the act of singing. Moreover, with various teaching tools, such as tonic sol-fa and Curwen’s hand signs, the Kodály method re-established a link with the sight singing movement prevalent at the inception of Australian education. Reflecting on secondary music education during the late 60s, Hoermann and Herbert (1979) offer this insight:

“The weakness of secondary students in the auditory aspects of the music elective programme demonstrated the lack of any effective aural training. There were in fact no established procedures for developing the ear essential for effective musical functioning. Only those endowed with an inherent, high level of auditory functioning were equipped to meet the levels prescribed for higher music study. The possession of an innately good ear was the key to success” (p. 2).

While attending a study tour in Hungary, Hoermann witnessed the Kodály concept in action and decided this approach “gave real evidence that the ear could be trained to a high level within the classroom” (Hoermann & Herbert, 1979, p. 2). With the support of the NSW Department of Education, she established the 'Kodály Pilot Project' in 1971 with two major goals being: (i) to bring a structured programme of music training to children on entry to school, and (ii) to bring music literacy within the reach of all (Hoermann & Herbert, 1979, p. 3). Over the 8 year period of this project, Hoermann worked with consultants to establish a singing-based music curriculum incorporating primary and secondary children in 147 participating schools. Since the programme was delivered largely by teachers who were musically untrained, an intensive course of teacher development and consultation was
provided in the work place. The authors suggest that “the action research, the peer coaching and mentoring, demonstration teaching and the design of the curriculum as the project progressed were powerful strategies” (Hoermann, 2013). Although positive outcomes in relation to student musical development are reported for this project, the authors also acknowledge the lack of standardised music tests that could validate a programme of this nature. The programme was successful in generating interest in vocal based school music curriculum and *The Kodály Music Education Institute of Australia* was established in 1976. It now has branches in most States promoting the singing-based method through professional development activities for teachers (Hoermann, 2013).

Visits to Australia by some noted American choral directors during the mid-70s and 80s, led to the inspiration of a new generation of Australian choral directors and the formation of several associations for choral directors (Carroll, 1988). However even today, activities such as choirs, instrumental ensembles, musical concerts, and theatre productions form part of the extra-curricular activities of some secondary schools. These musical activities often rehearse before school, at lunchtime and after school (Wheeley, 2004).

During the 1980s, educational policy changes led to the decentralisation of education and the gradual adoption of power at individual school level (Comte, 1988). Although the implementation of curriculum passed to schools, over the past 30 years, state education departments have continued to produce curriculum frameworks and syllabi to assist teachers with curriculum development and implementation (*The Arts Framework: P-10 for Total Growth*, 1988; *Curriculum and Standards Framework: The Arts*, 1995; *Music Years 7-10 Syllabus*, 2003). These documents tended to refer to school singing in very general terms as one component of on overall arts education. Despite the time and resources invested by various Government departments in developing and disseminating curriculum reforms, improvements to school singing and music programmes have not always matched expectations. In fact, Hoermann (1988) suggested that the reason for this was because the gap between musical curriculum requirements and teacher abilities had not been narrowed. She suggested further:

“Important variables likely to affect successful outcomes often seem to have been overlooked. For example, the common assumption made in all State documents is that every teacher is able to sing, has access to and is able to use musical instruments as resource tools, and is able to move with music and understand musical symbols and terminology” (p. 86).
Writing in the late 1980s and reflecting on 50 years of Australian education, Comte (1988) notes that “teacher training in arts education at both the pre-service and in-service levels has generally been inadequate” (p. 118). Although a growing body of literature has explored the pre-service training of secondary music educators (Ballantyne, 2006, 2007a, 2007b; Hourigan & Scheib, 2009; Lynch, 2003; W. J. Peterson, 1955; Stowasser, 1990), assessments by the NRSME (Pascoe et al., 2005) suggest that progress in this area over the past 30 years has been only minimal.

2.1.2 The importance of singing in secondary schools

Explanations for the value and importance of singing are well articulated in the vocal literature and much of this information would be helpful for secondary school teachers who need to advocate for the place of school singing amongst the crowded curriculum. Although educators have different reasons for valuing singing, when taken together, the benefits include both musical and extra-musical factors. Page (1995) offers 65 reasons why he believes singing should be central to education and life, including spiritual, social, cultural, emotional, aesthetic, creative and educational benefits. A further 14 justifications are offered in a public statement by the American Academy of Teachers of Singing and summed up in the quote “singing fortifies health, widens culture, refines the intelligence, enriches the imagination, makes for happiness, and endows life with an added zest” (Sjoerdsma, 2001, p. 5). Meanwhile, Welch (2007) describes singing as “one of the most positive forms of human activity, supporting physical, mental and social health, as well as individual development in the same areas” (p. 3). He then describes the benefits of school singing in terms which includes: physical; psychological; emotional; social; musical; and educational factors.

The musical benefits of singing include the ready access to opportunities for musical performance and direct experience of the elements of music. “Singing gives students a personal experience with music, develops their most important means of making music and contributes to their understanding of music.” (Hoffer, 1991, p. 106). However, singing is important not only to the satisfaction of aesthetic ends, but also to the development of musical understanding (Bertaux, 1989; Choksy, 1999; D. Elliott, 1993). Accordingly, singing forms a significant pedagogical process in the European approaches to music education of Emile-Jacques Dalcroze, Carl Orff, Zoltán Kodály; in the English approaches
of Sarah Glover and John Curwen; and also a feature of the American-based approach known as Comprehensive Musicianship (Choksy et al., 2001; Stevens, 2003).

Various authors note the importance of singing in the process of developing aural perception, which is encapsulated in following quote by Bertaux (1989), “the musical ear develops best when singing is an integral part of both vocal and instrumental music instruction” (p. 92). Gordon (1997) contends that a student must be able to sing in order to internalise melodic information. More explicitly, Elliot (1993) suggests that the major inadequacy with many definitions of singing are their failure to recognise singing as “an exquisite form of thinking” or “musical knowing” in action (p. 11). Elliot’s definition of singing encompasses the manifestation of musical knowledge practically in the act of singing. Similarly, singing competency is described by Hughes and Callaghan (2010) as “the example par excellence of auditory-oral musical intelligence” (p. 310). Reimer builds on the notion of a unique musical intelligence and suggests: “our approach to teaching performance needs to be guided by the fundamental principle that we are developing an inherent human intelligence, in which thinking, feeling and acting are uniquely conjoined in the process of bringing music ideas to sonic fruition” (Reimer, 1994, p. 20). Because of its crucial role in the development of musicianship, Philpott, Price, and Lewis (2007) recommend “the best instrumental teaching asks the pupil to sing as much of his music as possible” (p. 97).

Not only does singing benefit the musical development of children, but there is considerable evidence that singing has many extra-musical benefits which includes educational, physical, social, psychological and spiritual factors (M. Elliott, 2010; B. Smith & Sataloff, 2006; Unwin, Kenny, & Davis, 2002; Welch, 2007). Arguments about transferability suggest that there are educational benefits to be gained from musical activity for the human brain in general. According to Staines (1999), transfer is defined as “the consequence of learning skills, knowledge or attitudes on later learning of other skills, knowledge or attitudes” (p. 127). Advocates for the transfer effect assert that music making improves brain function. For example, neuroscientist Norman Weinberger (1998) asserts, “music has benefits to intellectual development that transcend music itself. The learning and performing of music are very likely to be of direct neurobiological benefit” (p. 35).
The idea that music can have significant health benefits is well-endorsed both in Western and non-Western cultures and a detailed analysis of the potential health benefits associated with singing is provided by Stacy, Brittain, and Kerr (2002). In addition, several writers point to psychological benefits inherent in the act of singing, including its ability to promote mindfulness (M. Elliott, 2010) and to influence personal development (Ware, 1998, p. 12).

In considering a variety of psychological benefits, B. Smith and Sataloff (2006) note that singing at every age “requires mental, physical and spiritual engagement” (p. 141). From a social perspective, singing helps children build relationships - with each other (social intelligence) and with adults. In fact, choral singing has been described as a form of group therapy that invites self-awareness, communal involvement, and leads to physical, spiritual and musical enlightenment (B. Smith & Sataloff, 2006). Likewise, a statement by the American Academy of the Teachers of Singing asserted that: “Singing in a choir fosters a spirit of cooperation and helps diminish the unhealthy competition that sometimes accompanies solo study, especially in a music school environment. The so-called "peak experiences" that may be possible in an outstanding choral performance are a source of motivation as well as joy for young choristers” (Sjoerdsma, 2005, p. 7). Similarly, the results of an Australian study by Unwin, Kenny and Davis (2002) at the University of Sydney affirmed this and demonstrated that 30 minutes of group singing can enhance significantly the mood of participants (N=81) who were both singers and listeners/observers.

Another argument for the importance of positive school singing experiences lies in the fact that singing habits and attitudes gained during adolescence can be long lived (Cooksey & Welch, 1998, p. 116). Studies by Hayes (1996) and Walker & Hamann (1995) found that both curricular and co-curricular secondary school musical experiences impact upon the future musical involvement (or lack thereof) of students, both during their schooling and in the years after leaving school. Additionally, experiences of singing at school, both positive and negative, have been shown to be formative and carry through into adulthood (Adler, 2002; Whidden, 2009a, 2009b). Just as some people believe they are unmusical, some adults are likely to believe that they cannot sing due to past negative experiences (Mills, 2002). In fact, a small scale study by Whidden (2009a, 2009b) employed narrative enquiry to investigate adults (N= 12) who self-identify as non-singers and found three reasons why they are likely to have a negative view of their singing ability, including: (i) encountering negative experiences with singing at school; (ii) encountering negative childhood experiences with singing at home; and (iii) the acceptance of a normative concept of singer. Her results
illuminate the important role music educators hold in the advocacy of school singing programmes and the fact that adults who are in charge of adolescent voices have a unique position of power. The attitudes they embody about singing and their assessments of individual singing competency can have lasting effects. This highlights the importance of promoting singing more in schools.

2.1.3 Advocating for School Singing

In 1930, Treharne the superintendent of music in New South Wales schools wrote: “There should not be a school in this wide State, nay in the wide world that does not ring with song. It is the one language in which all the world may find communion and understand” (Treharne, 1930, p. forward). Seven decades later, research by the Music Council of Australia found that as little as 23% of government schools were able to offer students an effective music education compared to 88% of independent schools (“About Music Count Us In,” 2012). Similarly, Lierse (1997) expressed concerns over the poor status of music education in Victorian secondary schools. She found that 48% of secondary schools had cut or reduced their classroom music programs because of the crowded curriculum and that an increasing number of schools were moving the emphasis on music education from the classroom to the extra-curricular area. A slightly more optimistic view, but nonetheless dismal picture was painted by the Australian National Review of School Music Education (Pascoe et al., 2005) which reported that approximately 900 Australian schools (about 9-10% of schools) have no music programme. The Review also noted “evidence points to this being a time when action must be taken, a critical turning point” (p. 144).

The low status of school music programmes reported by these sources inevitably means that opportunities for Australian students to sing are limited and suggests that school administrators may not be sufficiently aware of the value and importance of singing. Therefore, advocacy for school singing is likely to involve fighting for the place of music education, for resources and for funding within an overcrowded curriculum, where economic rationalisation and the pressure of standardised tests create an emphasis on other subject areas. Stevens (2002) describes the concept of the overcrowded curriculum as “one of the most pressing problems for contemporary school education” (p. 1) and advises “a clear understanding by all stakeholders of the rationale—both past and present—for the inclusion
of music in general education is essential if music is to retain a meaningful role in the
education of all of our young people” (p. 8).

Inevitably, advocacy involves educating students, parents and other teachers in the value and
importance of music education and the capacity of all humans to sing. In the second report
of Britain’s Music Manifesto project (Making Every Child’s Music Matter: Music Manifesto
Report No. 2, 2006), Jaffrey states “singing has the potential to involve children and young
people in music on a scale that we have not witnessed before. It is the most elemental form
of music making, and is within the grasp of all of us, whatever our ability. It is a powerful
community activity binding individuals and community together” (p. 4). Similarly, in a
national plan to the reform music education in England, the reviewers call for educators and
policy makers to work together to:

“Develop singing strategies, in and beyond schools, to ensure that every child sings
regularly and that choirs are available. Such strategies will widen singing opportunities
for all pupils, drive up quality and give routes for progression such as access to chorister
programmes, area/county choirs and the National Youth Choir” (The Importance of

Over the past decade, Australia has seen a rise in advocacy strategies in music education.
These strategies have focussed on music education in general and have failed to articulate
the value and importance of school singing to the same extent. The most famous of these
initiatives launched by The Music Council of Australia in 2009 entitled ‘Music: Play for
Life’ involves campaigns to raise the profile of school music and “get music into the public
consciousness as a must-have part of every Australian’s life” ("What is Music: Play for
Life?,” 2009). One of the sub-campaigns of this program, Music: Count Us In, has made
inroads into raising the profile of school singing through a national song-writing
competition, with the winning song being performed in a national event by all participating
schools on the same day at the same time ("About Music Count Us In,” 2012). However,

further research from independent sources is needed to understand the extent to which they
might be having the desired effect of raising the profile of school singing.

Singing may be seen both as an end in itself and a means to many ends. Consequently,
educators have different reasons for valuing it. In the field of music education, advocacy
involves speaking out for the role and benefits of music education. This section of the
literature review has expounded some of these benefits as they relate to school singing
programmes and demonstrated that although a wide body of literature exists which outlines
the benefits of school singing, educators are concerned with the current status and implementation of singing programmes. In the long run, arguments for music education, regardless of their scientific credibility, need to be supported by good music teaching (Spychiger, 1998). In fact bad teaching may well hinder the cause of music education more so than conjecture about the meaning and interpretation of studies that attempt to establish the transfer effect of music education. In order to secure good music teaching, teacher education must be of a sufficiently high standard so as to produce the best musicians, who are effective teachers and who have a thirst for excellence in their field.

2.1.4 Summary: Section 1 literature

As Comte (1988) has suggested, “an understanding of the past can benefit future planning and implementation of arts programs” (p. 102). A glimpse of the historical writings reviewed here demonstrates that school singing in the early Australian education system was characterised by: a philosophy of why singing is important; a method for bringing singing to the masses; a pedagogical bent towards aural comprehension and music literacy; specialist staff responsible for teaching singing; leadership; and assessment or accountability processes for teachers of singing. By contemporary standards, many of these features might be considered ideal. However, early literature demonstrates that problems described in Chapter 1 and associated with poor teacher competency are not new. Indeed, a historical survey of school singing cannot offer an example of progress and steady improvement.

Despite the fact that a variety of curriculum documents around the world (The National Curriculum for England: Music, 1999) uphold the value of singing, a standard curriculum for the vocal education of Australian children does not exist presently and the same can be said for vocal programs in the United Kingdom and America. The resulting variability in vocal programs has been observed in American (Hamann, 2007), British (Cooksey & Welch, 1998) and Australian (Pascoe et al., 2005) schools. In examining the British National Curriculum for Music (1995), Cooksey and Welch (1998) suggested “insufficient attention has been paid to voice development or to the attainment of those basic psychomotor skills that we believe to be so necessary for successful singing experiences, particularly in relation to adolescence.” Similarly, in response to the American National Standards, Shuler (1995) warns that changing frameworks to incorporate new standards will not be enough to improve music education and “institutions that prepare, license (certify), and employ music teachers
must use the standards to focus their efforts, striving to bring all teachers up to the level of those who currently lead our profession.”

Consequently, there is still a need to find methods of training secondary school teachers to work with adolescent voices effectively. Is it possible to develop vocal training strategies suited for the twenty-first century education, which, like the methods of the past, are effective, widely supported, and able to bring singing to the masses?

**Section 2: Adolescent Voice Pedagogy**

“Children have a profound capacity for singing artistically with outstanding technique, and such potential can be realized safely and effectively” (Skelton, 2007, p. 543).

### 2.2.1 Introduction

According to music psychologist Edwin Gordon, singing like talking, is a learned behaviour (1971, p. 272). Similarly, Phillips believes in the capacity of all children to sing and describes singing as a “psychomotor skill” involving both “the physiological process of motor coordination and the psychological process of pitch perception and memory” (1992a, p. 568). Both Phillips and Gordon typify a contemporary attitude to vocal instruction, which asserts that children have an innate ability to sing. Similarly, much of the educational literature maintains that vocal training among children and adolescents is appropriate, desirable and achievable (Bertaux, 1989; Choksy et al., 2001; Cooksey & Welch, 1998; D. Elliott, 1993; Hughes, 2007; Phillips, 1985a). For both teachers and students, this view is empowering, because it places emphasis on the teaching and learning of singing, rather than on the notion that one needs to be talented or gifted in order to sing. If singing is a set of processes that can be learned, then almost all students have the capacity to enjoy singing as long as they have a desire to learn and access to skilled teaching.

A challenge for any music teacher wanting to be effective at working with adolescent voices is the breadth of information and topics covered in the pedagogical literature. As Burgin (1973) has observed, literature on the teaching of singing can also be conflicting and confusing to teachers:
“Literature about the singing voice is voluminous, at times exhaustively researched and accurately expressed and at other times, subjective and opinionated. Much has been written which is confusing and controversial, as well as much that is valid and useful... There is, consequently, a need for the assembling and disseminating of current information and ideas” (p. 7).

However, a critical review of vocal pedagogy texts is necessary in this section of the literature review as an essential preparatory step towards understanding the breadth and complexity of information available to secondary teachers on singing. A review of this literature will demonstrate that teachers of singing must be knowledgeable across an enormous range of areas, including: vocal repertoire, musical genres, languages, vocal anatomy, voice science, performance trends, teaching methods, curriculum or examination requirements, administration, motivation and skill acquisition (Callaghan, 2000; Collyer, 2010).

2.2.2 Voice pedagogy

This ‘assembling and disseminating’ to which Burgin refers in the quote above is a distinct field now known as voice pedagogy. Kiesgen (2005) defines voice pedagogy as a “discussion of how the voice works combined with a discussion of how we can apply that information to improve our own singing and that of others” (p. 41). Welch (2011) extends this definition by focussing on the intended outcomes of voice pedagogy defining it as “the science and art of teaching voice such that the student: maximizes their vocal potential; develops robust, healthy singing habits and voice care; gains appropriate practice and performance mastery of selected repertoire; and develops knowledge, understanding and skills that can be applied to any subsequent singing task” (personal communication, July 26, 2011).

The goal of voice pedagogy is “confident and beautiful singing” (Phillips, 1992a, p. 568) or, as Sundberg (1987) suggests, to create “an obedient instrument through which they can realize musical ideas without any audible technical limitations” (p. 132). According to Hoffer (1991, p. 213), the training of teenage voices should focus on two areas: (i) developing the physical co-ordinations needed for good singing, and (ii) developing the mind by instilling the right psychological attitudes and aural concepts that will allow students to sing well. Similar advice is offered by Gackle (2006) who suggests: “the constant objective
of those who work with adolescent voices is to create satisfying musical experiences for these students while facilitating healthy vocal development” (p. 29).

The history of voice pedagogy may be traced over a period of approximately 6 centuries with the earliest writings dating back to around the 15th century (Miller, 2006; Stark, 1999). The height of this early period was the Bel Canto movement. Beginning in Italy during the early 1600s, this movement is associated with the development of virtuoso solo singing of sacred music and opera (Stark, 1999) and the foundation of voice pedagogy in the Western art tradition (Callaghan, 2000). Stark (1999), who has extensively researched the movement makes the following observation:

“Bel Canto is a term in search of a meaning, a label that is widely used but only vaguely understood… The connotations range over many aspects of vocal history and pedagogy, including several ‘golden ages’ of singing, a number of specific techniques of voice production, and a variety of stylistic vocal idioms” (p. xvii).

The principles and techniques of voice pedagogy during the Bel Canto period were largely an oral tradition as few of the best singers or teachers systematically described their methods in writing (Stark, 1999). Moreover, little record was made of techniques used for instructing adolescents in singing.

In contrast, the birth of a modern approach to voice pedagogy is attributed to Manuel García (1805 –1906), a Spanish singer and educator who is credited with inventing the laryngoscope and a method of vocal pedagogy based on his experimental investigations (Callaghan, 2000; Miller, 2006). Where the teaching of singing had previously been dominated by a master-apprentice model (Collyer, 2010, p. 83), Garcia heralded in a new age of voice pedagogy, which brought together science and tradition. Furthermore, he inspired a generation of pupils who made serious attempts at scientific study of the voice into the twentieth century (Stark, 1999, p. 3). This was the conception of voice science.

Voice science, which has grown to become a discipline in its own right, is a complex symbiosis of several related fields, namely: anatomy, physiology and acoustics (Cowley, 2010). The study of voice science requires knowledge of multiple systems of the body, including: the skeletal, muscular and nervous systems that apply to respiration, phonation, articulation and hearing (McCoy, 2004, p. 79). Since the time of Garcia, science has made great strides in understanding how the voice works through advances in technology. Flexible
and rigid endoscopes now allow researchers to view the vocal folds in operation with clarity and detail. The use of strobe lights and digital imaging allow the rapid vibrations of the vocal folds to be slowed down and studied. Other instruments measure: breath pressure; acoustical properties; resonance; intonation; muscular effort; and some have the ability to offer a singer real-time feedback (McCoy, 2004; Sundberg, 1987; Titze, 2000; Titze & Abbott, 2012). The publication of experimental and scientific information on the voice in academic journals over the past 30 years has given rise to a new approach to singing – a modern vocal pedagogy.

The relationship between voice science and the teaching of singing has been explored by a number of writers (Appelman, 1967; McCoy, 2004; Miller, 1996b; Sundberg, 1987; Thurman & Welch, 2000; Titze, 2000; Titze & Abbott, 2012; Ware, 1998). According to Miller, the reason for investigating how the voice operates is “to avoid muddled notions that make learning to sing more complex than it ought to be” (2004, p. 222). Miller’s notion that voice science facilitates vocal learning finds support amongst other writers. For example, Doscher (1992) believes that physiological knowledge allows a teacher to “devise training methods based on knowledge, not on voodoo” (p. 61). Similarly, Collyer (2010) warns that unless a teacher can draw on fundamental scientific principles to guide vocal development, training is likely to become “an endless and confusing stream of tips and tricks” (p. 90). The essence of the voice science movement, is encapsulated in the following quote from Callaghan (2000):

“It is no longer adequate for practitioners to base their teaching solely on the directives that were used in their own training, or that they have heard used by famous singers in master classes, or on the personal imagery that has worked for them in their own singing. The directives may not be well based in physical function of vocal acoustics, and the images may not suggest the appropriate coordination to the student. This approach may well be ineffective; at the very least, it is likely to be inefficient. Moreover, it may well be deficient in imparting some essential skills such as those needed to prevent vocal damage” (p. 119).

The writers quoted above are known for their work with adult singers. However, the literature also supports the idea that school teachers who work with adolescent voices should have a working knowledge of voice science. For example, Phillips advocates that teachers who work with children’s voices need “to know something about the physical structure and action of the instrument they teach” (1992b, p. xii). Whereas, Bannan (2002) stresses “pupils have every right to assume that anyone who asks them to sing will know how to help them
overcome any problems which might arise when they do: this ought to be true of both classroom teachers and choral conductors” (p. 108).

Still, writers on voice pedagogy disagree on the importance of voice science. For example, Phillips admits that singing, by nature, is subjective and personal and therefore research on singing needs to be read with “a certain amount of circumspection” (1992a, p. 571). It could be argued that the history of vocal pedagogy demonstrates that many singers have been able to achieve mastery of their instrument without the knowledge of vocal anatomy and voice science. C. L. Reid (2005) argues that voice science has tended to reject much of the pedagogic wisdom of the past. He also asserts that the human ear is far superior for understanding the voice than even the best scientific instruments. W. S. Smith (2007), Professor of Voice at Julliard, agrees and makes the following observation:

“The scientific principles of singing are fascinating, but understanding them doesn't necessarily make people sing better. Some singers who know very little about the process sing beautifully; other know a lot about that process and sing poorly… scientific analysis can only tell us what HAPPENS when we sing. It cannot tell us what we must DO to sing well. What HAPPENS when we sing well often has little to do with what we DO in singing” (p. 18).

These writers argue that effective voice pedagogy cannot only focus on the communication of scientific information.

A difficulty likely to be encountered by secondary teachers who seek to understand vocal anatomy and voice science is the lack of standardisation in this field. Voice scientists, speech pathologists, singing teachers and singers often use different terminology to describe vocal processes (Callaghan, 2000). Consequently, school music teachers may not be qualified to take sides in a highly scientific controversy. For the information to be truly accessible, a teacher needs to be able to assess the worth of what is being proposed. After all, there is good science and bad science (Collyer, 2010). Collyer offers a number of suggestions for how a teacher of singing might remain informed of current science: (i) through membership of a professional association, (ii) by reading internet discussion forums and (iii) reading books and journals (p. 97).

A popular belief amongst contemporary voice educators is that great singing requires an integration of both art and science (Ware, 1998). C. L. Reid (2005) makes an important observation along these lines:
“Common ground can and must be discovered where science and art are able to work comfortably together. This compatibility exists in other areas, such as engineering, where both a theoretical and an applied science meet. Therefore the goal of both the voice scientist and the teacher of singing should be to bring this cooperative venture into being. It is on this foundation that the future of voice science must rest. It is also where the future of vocal training lies” (p. 22).

Accordingly, this thesis draws on the wisdom of both the art and science of singing.

2.2.3 The Body, Posture and Alignment

Part of the process for learning any musical instrument involves learning how to hold the instrument and this is no different for singers. A unique aspect of the vocal instrument is the fact that it is located within the body (Doscher, 1994, p. 69) and consequently how the body is held will influence efficiency of vocal function and tone quality. Postural alignment is important in optimising vocal function (Arboleda & Frederick, 2008) and directly affects the shape of the vocal tract (Dayme, 2006, p. 60), breathing efficiency (McKinney, 1994, p. 33), and the body’s ability to send feedback from the muscles to the nervous system (Callaghan, 2000, p. 22). The vocal instrument is literally the body (Callaghan, 2000; Chapman, 2006; Miller, 2000) and consequently, Thurman, Pryor, et al. (2000) describe control of body alignment as “the most fundamental vocal skill” (p. 326).

Secondary school students are likely to lack awareness of how they use their bodies and their habitual posture may be inefficient (Gauthier, 2002; Heirich, 2005). Also, student lifestyles that involve large amounts of time in a slumped posture at desks and computer screens are likely to reinforce poor postural habits (Rubin, Mathieson, & Blake, 2004). Consequently, young singers bring to the classroom, choral rehearsal or singing lesson an accumulation of postural habits and body tensions acquired throughout their day-to-day life (Jordan, 2005). Helping singers understand how they use their own bodies is a necessary part of vocal instruction. There is strong support in the literature that singers should be taught the elements of good posture so that they become habituated (McKinney, 1994, p. 35; Phillips, 1992b, p. 149; B. Smith & Sataloff, 2006, p. 143).

Across the pedagogical literature, arguments for the teaching of posture may be summarised in three key areas: posture helps the singer look good, posture helps the singer feel good, and posture helps the singer sound good. The teaching of posture has been popularised in various approaches to mind-body awareness, including: the Alexander technique (Heirich,
2005), the Feldenkrais method (Feldenkrais, 1972), Pilates (Robinson, Fisher, Knox, & Thomson, 2000), Yoga (Carman, 2004), Rolfing (Roll, 1989) and Body Mapping (Malde, Allen, & Zeller, 2008). Many of these approaches, particularly the Alexander technique and Feldenkrais method, are readily adopted by singing teachers and used as enrichment classes in secondary school music lessons (Heirich, 2005; Nelson & Blades-Zeller, 2002; P. Peterson, 2008; Thurman, Pryor, et al., 2000). In an article by P. Peterson (2008), the author compares and contrasts both the Alexander technique and Feldenkrais methods. She reflects on many years of instruction in both approaches, on the usefulness of these methods for vocal instruction and then concludes: “both… techniques increase awareness of the quality of body usage, both develop an internal kinaesthetic map, and both encourage effortless singing. Choosing one technique over the other is a matter of personal preference” (p. 72).

Dayme (2005) recommends that the elements of good posture are best learned and corrected by means of (i) touch to give new directions to the muscles and (ii) accurate descriptions of efficient physical alignment. Similarly, Gauthier (2002) suggests that voice students need to understand both physically and intellectually how to use their bodies so that they may be more likely to monitor and adjust their own posture. Malde et al. (2008) believe that anatomy and physiology need to be presented to singers in ways that allow them to find its practical application and that teaching posture should enable singers to discover and correct misconceptions about the way their bodies are built and the way they function. The ancient Italian School described the ideal posture for singing as the ‘noble posture’ or ‘soldier at ease’ (Miller, 1996b; Stark, 1999; Vennard, 1968). Other terms used in the literature include: ‘axial’ (Miller, 2004), ‘erect and balanced’ (B. Smith & Sataloff, 2003), ‘functional’ (Nelson & Blades-Zeller, 2002), ‘buoyant, expansive, vibrant and flexible’ (McKinney, 1994). Malde et al. (2008) dislike the term ‘posture’ suggesting that it can often produce rigidity and be antithetical. Phillips (2004, p. 223) describes good alignment as characterised by seven key elements:

1. Feet on the floor, comfortably apart, one foot slightly ahead of the other, weight distributed to the ball of each foot
2. Knees relaxed slightly with hips tucked under
3. Vertically stretched spinal column
4. Shoulders back and down
5. Elevated sternum
6. Head held high and level
7. Hand and arms at sides and slightly back
Vennard (1968) advises that “the head, chest and pelvis should be supported by the spine in such a way that they align themselves one under the other” (p. 19). Malde et al. (2008) believe that good posture is best understood through a system of ‘body mapping.’ Their approach provides descriptions of the structures and movement used in breathing, phonation, resonance, articulation and gesture supported by illustrations and various exploratory exercises.

Many singing teachers advocate commencing singing classes with exercises that emphasise postural awareness as characterised by Jordan (2005):

“…the initial step is to perform activities that will take the posture in a direction of deconstruction – breaking apart the muscular rigidity and postural incorrectness and moving to a state of body alignment borne out of a balanced and aware skeletal system” (p. 10).

Typically, these exercises involve combinations of stretching, relaxation, massage, shaking out tensions and playacting (Haasemann & Jordan, 1991; Jordan, 2005; McKinney, 1994; Phillips, 1992b). In his book, Teaching Kids to Sing, Phillips (1992b) outlines more than 75 graded stretching and limbering exercises that may be used for group vocal instruction with children and adolescents. The exercises are taught using a combination of verbal instruction, photo or pictorial representation, teacher modelling and peer modelling. For studio or one-to-one teaching, Miller (1996a, 2000) recommends providing singers with visual feedback through use of the mirror, video recordings and spectral analysis software. Meanwhile, Chapman (2006) advises teachers to ensure they regularly view their students from various angles and notes that it is “impossible to adequately monitor the student if the teacher is sitting at the piano for the entire lesson” (p. 35).

2.2.4 Respiration

The voice is a wind instrument and writers on singing tend to stress the important relationship between good singing and efficient breathing technique (Hixon, 2006; Miller, 1996b). There is agreement among many pedagogues that breathing can and should be taught as part of vocal instruction (Chapman, 2006; Phillips, 1985a). However, breathing is also a contentious topic and a secondary school teacher turning to the vocal literature could easily become confused about conflicting techniques and approaches. For some, breathing is central as exemplified by Hardy (1906), who stresses: “proper management of the breath lies at the root of all correct voice production” (p. 2). Similarly, Miller (1996b) asserts: “Any
error in vocal technique or any accomplishment of technical skill in singing, usually can be traced to techniques of breath management; control of the breath is synonymous with control of the singing instrument” (p. 37). By contrast, some pedagogical approaches such as *Speech Level Singing* and *Estil Voice Craft* consciously deemphasise breathing and place focus on vocal fold function instead (Buescher, 2004, p. 487; Klimek, 2003, p. 3; Riggs, 1992, p. 22). Dayme (2009) aptly summarises the controversy and states, “there are almost as many techniques of breathing as there are performers; and the researchers and teachers are not seeing any uniformity” (p. 63).

Vocal literature tends to break down the physiology and process of breathing into a number of phases. McKinney (1994) identifies four phases including: (1) inhalation, (2) suspension of the breath, (3) controlled exhalation and (4) a recovery period. In the past, pedagogical literature on breathing has tended to describe processes and physiology with an underlying assumption that all people breathe in the same way. Recent research suggests that some degree of variation in breathing technique is common amongst different body types and sexes (Callaghan, 2000; Cowgill, 2009; McCoy, 2005). Despite the subtle differences among individuals, the literature describes three primary approaches to breathing – high, middle and low (Ware, 1998, p. 85). A useful analogy is offered by Thurman, Theimer, Welch, Grefsheim, and Feit (2000) who compare the upper body to a house that has a ceiling, a floor and walls. In this analogy, air may be moved around this house by (i) raising and lowering the ceiling, (ii) lowering and raising the floor, (iii) expanding the walls, and (iv) a combination of these methods.

High or ceiling breathing, characterised by movement in the shoulders and upper chest, is often called clavicular breathing (Phillips, 1992b, p. 195; Vennard, 1968, p. 27: 111). This is the breath of exhaustion and witnessed in an athlete who has just run at top speed. It is widely agreed that clavicular breathing is not suitable for singing (Doscher, 1994, p. 18; Ware, 1998, p. 85). Some say this type of breathing is shallow and inefficient. However, McCoy (2004, p. 95) refutes this theory and asserts that the primary reason for not using high breathing is because this method makes it virtually impossible for the singer to slow down or manage the outward breath. Additionally, writers assert that clavicular breathing creates tension in the neck and throat which interferes with skilled singing (Doscher, 1994, p. 18; Vennard, 1968, p. 27).
Middle or wall breathing involves expanding and contracting the rib cage. The wall of the rib cage is flexible and Hixon (2006, p. 34) describes two types of rib cage movement which involve changes in diameter on two separate planes, either (i) front-to-back (anteroposterior) or (ii) side-to-side (transverse). Sometimes termed costal breathing (Vennard, 1968, p. 28 para 117) or thoracic breathing (McCoy, 2004, p. 94), this method is associated with corsets (holding in the abdominals) and the traditional English school. While clavicular breathing is often discouraged, the literature acknowledges that costal breathing has some value in singing. Firstly, it is more efficient as even small movements of the rib cage wall can displace large quantities of air due to the fact that it is in contact with a large section of the lungs (Hixon, 2006, p. 40). Second, costal breathing affords the singer excellent opportunity to control the outward breath through coordination of the two sets of intercostal muscles on the inside and outside of the ribcage (McCoy, 2004, p. 95). However, used in isolation costal breathing is likely to create excess body tension and a strained vocal quality (Ware, 1998, p. 85).

Low or floor breathing is more commonly called diaphragmatic or belly breathing (Vennard, 1968, p. 28) and is the most widely practiced method amongst performers and singing teachers. This method of breathing relies on co-ordination between the diaphragm and abdominal muscles (Chapman, 2006; Sundberg, 1987) which is facilitated by maintaining good posture and a comfortably high chest position (Miller, 1996b). The diaphragm is the second largest muscle in the human body and when relaxed it assumes a shape like an upturned bowl and its edges insert into the lower part of the rib cage (McCoy, 2004). The unique shape of the diaphragm means that when it contracts, it flattens like a plate and, to follow the current analogy, the floor of the torso consequently lowers. The flattening of the diaphragm has a two-fold effect. Firstly, it increases the volume capacity of the chest creating lower pressure inside the lungs than the atmosphere outside the body. Provided the airways are free, air is literally dragged into the lungs achieving inhalation. Second, the diaphragm presses down on the abdominal contents and displaces them causing the abdominal wall to move outwards (Hixon, 2006; Sundberg, 1987).

Perhaps the most controversial aspect of respiration in the literature is how the singer should manage the breath following the inhalation process and how this skill should be taught. Various terms are used to describe a controlled expiration during singing, including: breath management, breath control and support. Despite the multitude of terms, there appears to be
agreement on the purpose of breath management. The singer needs to supply the vocal folds with a steady flow of air so that they can produce the required pitches at the required volume for the required duration without experiencing any unnecessary constriction in the throat (Doscher, 1994, p. 23; McCoy, 2004, p. 96). McKinney defines breath management as a “dynamic relationship between forces which bring air into the body and forces which cause air to leave the body” (1994, p. 54). Similarly, Doscher suggests that inhalation and expiration should not feel like opposing actions. Instead, “the inspiratory tendency must be present to some extent during expiration” (1994, p. 22).

2.2.5 Phonation

Whenever humans sing or speak, sound must be initiated, sustained and stopped and this is process is known as phonation. Phonation is achieved through the coordination of muscular effort, vocal fold mass and air pressure. The larynx is composed of cartilage, ligaments, muscle and bone and suspended within the throat. The most visible part of the larynx (primarily in males) is a lump or protrusion in the neck formed by the thyroid cartilage and commonly referred to as the “Adam's apple”. Although human larynges share the same general anatomical features, variation among individuals is common and accounts for differences in voice types and timbre (Ware, 1998, p. 96).

Prior to puberty, both male and female larynges are similar in size. After puberty, the increase in size for the female larynx is only slight while the male larynx grows to be about 20% larger (Titze, 1988). Across the life span, from infancy to old age, the position of the larynx within the neck descends, which partly accounts for some changes in vocal timbre and a lowering of the fundamental speaking pitch with age. Biologically, the larynx functions as a sphincter valve with its primary roles being to: (1) prevent foreign objects from entering the airways and the lungs; and (2) to block the airways so as to increase abdominal pressure, which assists in strenuous tasks such as, heavy lifting, defecation and child birth (Dayme, 2009, p. 89; McCoy, 2004, p. 107; Ware, 1998, p. 95). Its secondary function is the production of vocal tone through the rhythmic opening and closing of the vocal folds.
Perhaps the most discussed organs of the larynx are the vocal folds, which appear as two white bands suspended horizontally in the neck and spanning from front to back. The folds are joined at the front to form the shape of a letter V at rest and come together during phonation (McCoy, 2004, p. 107). The vocal folds vary in length from about 22mm in low male voices to 10mm in children and only 3mm in infants (Doscher, 1994, p. 58). They have a unique multi-layer composition comprised of muscle, ligament and mucus membrane (Thurman, Welch, Theimer, Feit, & Grefsheim, 2000, p. 362) that forms an “extremely complex tensing and relaxing mechanism” (Doscher, 1994, p. 37). The vocal fold mechanism is highly versatile in function (able to vary in length and thickness) and surprisingly robust in its ability to withstand millions of vibratory cycles per day.

The space between the vocal folds is known as the glottis and can be either open or closed. It is one of the few spaces in the human body that has a name even though it is not strictly an anatomical entity. The subglottal area is the windpipe and enclosed space below the glottis and the supraglottal area refers to the vocal tract (throat and mouth) that lies above the glottis. The literature describes four independent, but related actions that occur during phonation (Dayme, 2009, p. 96; McCoy, 2004, p. 116). These are:

1. **Adduction** or closure of the vocal folds
2. **Abduction** or opening of the vocal folds
3. Lengthening and stretching the vocal folds so that they produce higher pitches
4. Shortening and thickening the vocal folds so that they produce lower pitches

Efficient phonation and beautiful singing involves three actions: attack, sustain and release (Alderson, 1979, p. 70; McKinney, 1994, p. 78) and the first of these actions receives considerable attention in the vocal literature. Vocal attack, or (as it is more commonly known today) vocal onset describes the moment and manner in which vocal tone is initiated and involves factors that lead up to the production of vocal tone and the actual generation of tone. The study of vocal onset is considered an essential component of good phonation by many writers who assert that the way a singer commences sound will influence the entire phonatory process and the degree of vocal efficiency in the rest of the phrase that follows (Kiesgen, 2006a, p. 286; McKinney, 1994, p. 78; Miller, 2004, p. 8).
The soft, breathy or aspirate onset occurs when there is a flow of breath prior to adduction of the vocal folds. In other words, there is excessive breath and insufficient cord closure. A breathy onset is characterised by a whisper or the sound of the letter “H” which precedes each phrase. The hard or glottal onset occurs when the vocal folds adduct tightly before the beginning of phonation and subglottic air pressure builds up, eventually causing the vocal folds to open suddenly with an audible pop or explosion (called a glottal plosive). This type of onset is the polar opposite of the aspirate onset in that there is excessive cord closure, but insufficient breath flow. It is characterised by a cough or grunt at the start of each phrase.

The literature advises that both the glottal and the aspirate onset should be avoided for healthy and efficient singing. In particular, voice teachers and laryngologists warn against excessive and repeated use of glottal onsets, suggesting that they have an abrasive effect on the vocal folds and may cause voice disorders (Doscher, 1994, p. 61; McCoy, 2004, p. 119; Stark, 1999, p. 21). Thurman, Welch, Theimer, Feit, and Grefsheim (2000) disagree and suggest that the glottal attack is perfectly safe if used sparingly and for expressive purposes during singing (p. 369). Similarly, Alderson suggests that a light glottal onset is necessary at times to achieve clear diction and to separate vowels between words, such as “he is” and “you are” (1979, p. 74). Doscher contends that the breathy onset is not vocally damaging, but represents an inefficient vocal production (1994, p. 61). Although not stated expressly, it appears that writers who advise against the use of glottal and aspirate onsets are concerned principally with tonal ideals of Western classical singing, since both breathy and glottal onsets occur regularly in contemporary and non-western music.

A singer is able to avoid both extremes of the glottal onset and the breathy onset when there is balance of cord closure and airflow and when both these elements occur simultaneously. This type of onset is “physiologically midway between the hard attack and the soft onset” (Miller, 1996b, p. 4). It is described as a balanced, co-ordinated or simultaneous onset and results in an attack which is clean and quality of tone that is considered the most appropriate for classical singing (Chapman, 2006, p. 60; McCoy, 2004, p. 120). There is general agreement in the literature that the skill of producing a consistent and balanced onset needs to be mastered by novice singers.
### 2.2.6 Vocal Registers

For several centuries, singers and singing teachers have been aware of tonal changes that occur when a singer tries to sing across their entire range, such as when singing consecutive tones (a scale) from the low to high pitches. These changes can be sensed kinaesthetically by singers and perceived aurally by listeners (Thurman, Welch, Theimer, Grefsheim, & Feit, 2000, p. 431). An adult singer with a trained voice can sing across a range of approximately 3 octaves (Phillips, 1992b, p. 41) and, within this range, lies a number of regions known as registers.

Registers are of importance to teachers working with secondary school voices because they can affect how voices are classified (as soprano, alto, tenor or bass) and how singers may be trained to access their full vocal range. In some pedagogical approaches, the voice is considered unbalanced if the singer does not have access to all registers. In other approaches, particularly those advocated for training children’s voices, there is a desire to keep children singing in one register over another (Phillips, 1985b, p. 57). Secondary school music teachers are likely to encounter difficulties in researching the topic of registers and various authors refer to divergent opinions surrounding this topic (Callaghan, 2000, p. 85; Doscher, 1994, p. 171; McCoy, 2004, p. 64; McKinney, 1994, p. 93). The controversy appears to centre on four key issues: (i) whether vocal registers exist, (ii) how many registers there are, (iii) what to call them, and (iv) at what pitches register transitions occur?

Those who argue that registers do not exist are likely to be operating from an idealistic standpoint by arguing that good vocal technique should demonstrate a consistent and seamless vocal quality throughout the whole range (Ware, 1998, p. 115). This idea of no vocal registers is no longer relevant, since modern vocal science has established that registers are indeed a physiological fact (Doscher, 1994, p. 172). Different modes of vibration within the larynx can be observed using indirect and non-invasive methods such as electroglottography and computer software (Bourne, Garnier, & Kenny, 2011, p. 440; McCoy, 2004, p. 67).

From the late 1500s, the Italian Bel-Canto school taught the existence of two vocal registers – voce di petto (chest voice) and voce di testa (head voice). Since technology did not exist that could facilitate the close study of vocal fold vibration, these terms were based on a
singer’s sensation and not necessarily on vocal function (McCoy, 2004). Chest voice was so named because when a singer produced lower pitches at the bottom of the range, sympathetic vibrations were felt in the torso. Similarly, higher pitches produce sympathetic vibrations in the skull. During the, 17th and 18th centuries, a debate ensued between advocates of the traditional two register teaching and teachers who maintained there were more than two registers. Some believed that there were at least three registers and others taught that there were two primary registers and several auxiliary registers (Stark, 1999).

In an effort to be more physiologically accurate and to avoid semantic issues associated with terms such as ‘chest voice’ and ‘head voice’, some writers have proposed new register names that are based on laryngeal function. For example, McCoy (2004, pp. 65-66) uses the terms ‘Thyroarytenoid-Dominant Production’ (TPD) in place of ‘chest voice’ and ‘Cricothyroid-Dominant Production’ (CDP) in place of ‘head voice’. In a similar vein, Edwin (2007) refers to TA-Dominant and CT-Dominant sounds. In a pivotal work, Roubeau, Henrich, & Castellengo (2009) established the existence of four distinct laryngeal vibratory mechanisms. These mechanisms, numbered M0, M1, M2 and M3 describe sound production across the whole vocal range in singing and speaking. Additionally, the writers suggest that “the notions of registers and of mechanisms are different, even though sometimes they may be considered as synonymous. The same mechanism can contribute to the production of several registers” (p. 437).

The prevailing practice in current voice pedagogy is to divide both men and women's voices either into two or three registers. Although this may appear contradictory, both approaches are not mutually-exclusive. The two register theory is based on the notion that there are two fundamental vibrating mechanisms employed in generating vocal tone:

- **Laryngeal mechanism M1 or Thyroarytenoid-Dominant** is characterised by a dominance of the Thyroarytenoid (or vocalis) muscle causing the vocal folds to be thick and to vibrate with greater mass and a longer closed quotient. This mechanism is most commonly associated with chest voice.

- **Laryngeal mechanism M2 or Cricothyroid-Dominant** is characterised by a dominance of Cricothyroid muscle which causes the vocal folds to stretch and thin. There is less vibrating vocal fold mass and the open phase quotient is always longer (greater than 50%). This mechanism is most commonly associated with head voice or falsetto.
The three register theory accepts this basic premise with the addition that the two primary vibrating modes of the larynx combine with acoustical (resonance) factors to produce three perceptual registers (McCoy, 2004; Ware, 1998). Accordingly, in this system the registers of the male voice are designated ‘chest,’ ‘head,’ and ‘falsetto’ and women’s registers are ‘chest,’ ‘middle,’ and ‘head.’ This approach to classifying registers is not universally accepted. Callaghan alludes to some 107 different terms used to identify vocal registers and notes “each group conceptualizes registers in terms of its particular professional paradigm, adversely affecting interdisciplinary communication” (2000, p. 86).

The literature uses various terms to describe transition points from one register to another, including: break, transition, passagio or bridge. The appearance of these transition points may be more or less apparent among individual voices (Callaghan, 2000, p. 90). However, they generally fall within predictable places within both male and female voices. Miller (1996b) specifies that these passagio are important indicators of voice type and that a voice is classified either as soprano, alto, tenor or bass not by how high or low the voice can sing, but by where the passagio occur. The term ‘registration’ is used to describe the process of managing vocal registers. Since there are two opposing sets of muscles connected to the vocal folds (the cricothyroid and the thyroarytenoid), registration is achieved by managing the workloads between muscle groups in “a dynamic, flexible response to task requirements” (Willis, 2010, p. 143).

There is general agreement that sudden or obvious changes of register are undesirable and that skilled singing is characterised by the ability to disguise or blend register transitions (Callaghan, 2000, p. 90; McCoy, 2004, p. 65). However, some authors fail to note that the tonal ideal of the ‘seamless voice’ is most appropriate to Western classical singing and that sudden register shifts appear in various styles of Contemporary Commercial Music and also in some non-Western singing styles. The yodel common in Country and Western, Blues and the folk music of Scandinavia, Persia and Africa is an example.

### 2.2.7 Resonance

Vocal resonance deals with scientific principles of acoustics and the subjective experience of sound. Scientists and singing teachers do not always agree on the best way to describe vocal tone. While some teachers might use terms such as bright, forward and spacious to describe vocal tone, scientists are happier with terms such as formant, frequency, amplitude
and decibel. Despite differences, it is understood that control of vocal resonance is a vital component of effective voice technique (Kiesgen, 2006b, p. 419). Beautiful vocal tone in both adolescent and adult singers is rich in resonance and characterised by “uniformity of vowel production, depth, fullness of tone, and projection or ring” (Phillips, 1992a, p. 570).

In general terms, resonance is “any reaction of physical materials to an original vibrating physical object” (Thurman, Theimer, Welch, Feit, & Grefsheim, 2000, p. 319). When referring to singing, resonance describes “the process by which the basic product of phonation is enhanced in timbre and/or intensity by the air-filled cavities through it which passes on its way to the outside air” (McKinney, 1994, p. 120). McCoy (2004) notes that the key factors of resonance are: (i) intensification (amplification) of tone, (ii) enrichment or change of timbre, and (iii) supplementary vibration of something beyond the original sound source (p. 27).

A resonator is “any object through which the sound wave can be filtered, subsequently enhancing and modifying the final sound product” (Ware, 1998, p. 136). There is agreement that in singing, the two primary resonating cavities are the throat (pharynx) and the mouth (Doscher, 1994, p. 107; Thurman & Welch, 2000, p. 451; Vennard, 1968, p. 83; Ware, 1998, p. 141). The affects exerted by these resonators include, “the various degrees of beauty and ugliness [of tone], and also the spectrum of vowel colours” (Vennard, 1968, p. 96). A unique feature of the voice is the fact that its resonating chambers are not of a fixed size and shape. Instead they are under the conscious control of the singer. Their dimensions may be altered through adjustments of the tongue, lips, soft palate and jaw (Doscher, 1994, p. 107).

The currently accepted scientific explanation for voice production and vocal resonance is known as the source-filter theory (McCoy, 2004; Ware, 1998). In this model, the source describes the sound that originates at the vibrating vocal folds. Unlike the pure sine wave produced by a tuning fork, the sound that the larynx produces is a sound spectrum that consists of a fundamental tone (called the fundamental frequency, the main acoustic cue for the percept pitch) accompanied by overtones (harmonics), which are multiples of the fundamental frequency. The filtering component of the source-filter is the vocal tract which imposes its own resonance properties on the sound spectrum to produce a modified or radiated sound spectrum (Ware, 1998).
A feature of all resonating bodies is that they allow sound to pass through under certain conditions, depending on the frequency of the sound (Sundberg, 1987). In other words, a resonator gives preference to sounds of certain frequencies over other sounds. It selectively attenuates (reduces in intensity) certain frequencies, boosts some frequencies and allows other frequencies to pass through relatively un-attenuated (McCoy, 2004; Sundberg, 1987; Ware, 1998). Thus, vocal tone is a “product of the original glottal sound, minus those overtones which were discouraged by resonance cavities, plus the augmentation of overtones that were encouraged” (Vennard, 1968, p. 83). The term ‘formant’ is used throughout the literature to describe regions of frequencies with high acoustic energy that have been boosted by the vocal resonators (Appelman, 1967; Sundberg, 1987).

### 2.2.8 Articulation

Articulation involves all the movements and adjustments of the speech organs necessary for producing vowels, consonants and an infinite variety of vocal sounds (Ware, 1998, p. 154). A variety of terms used interchangeably in the vocal literature for discussing this topic include: articulation, diction, enunciation and pronunciation. Despite the terminology used, Vennard (1968) makes an important point that skilled singing involves two polarities, “the use of the vocal mechanism as a musical instrument and its use as a means of verbal communication” (p. 163). Articulation is what makes the later of these two ‘polarities’ possible and it is the ability to articulate that makes the human voice unique in comparison to other instruments (Miller, 1996a, 1996b; Vennard, 1968). The study of articulation is important to good vocal technique, because movements of the articulatory system affect the size and shape of the vocal tract, its function as a resonator and ultimately the quality of vocal tone produced (Chapman, 2006; Dayme, 2009).

The anatomy used for articulation consists of both fixed structures (such as the teeth) and moveable structures (such as the jaw and tongue) (Dayme, 2009). Chapman and Morris (2006, p. 98) identify six major anatomical components of the articulatory system which are summarised in Table 2-2 (below). The anatomy associated with articulation has a dual role in both digestion and vocal production (Dayme, 2005, p. 87). This dual role can be problematic and working with singers often involves separating these various functions to allow the maximum degree of vocal flexibility and freedom (McCoy, 2004).
Table 2-2: Components of the Articulatory System

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Vocal folds</td>
<td>Determine whether sounds will be voiced or unvoiced</td>
</tr>
<tr>
<td>Velum (soft palate)</td>
<td>Determines whether vowels or consonants will be nasal or non-nasal.</td>
</tr>
<tr>
<td>Tongue</td>
<td>The principal organ of articulation for most consonants and vowel shapes.</td>
</tr>
<tr>
<td>Teeth/Alveolus</td>
<td>Point of articulation for a number of consonant sounds especially the most common English consonants T and S</td>
</tr>
<tr>
<td>Jaw</td>
<td>Provides opening for vowel sounds and affects oral resonance, but its main function is for eating not for speech.</td>
</tr>
<tr>
<td>Lips</td>
<td>Rounding or spreading of vowels and the articulation of some consonants. Can also elongate and modify the vocal tract.</td>
</tr>
</tbody>
</table>

A consonant is a vocal sound produced with a partial or full closure of the vocal tract and, due to the constriction present, consonants contain more noise elements than a vowel (McKinney, 1994). Consonants are involved in interrupting or stopping sound and thus they separate vocal tone into intelligible units capable of communicating meaning (McKinney, 1994). Consonants also aid in voice projection by “generating plosive noise in the acoustic spectrum” (Ware, 1998, p. 171). The International Phonetic Alphabet recognises 32 consonant sounds used in singing and speech and they are classified according to (i) the manner of articulation, (ii) place of articulation and (iii) whether they are voiced or unvoiced (Chapman, 2006; Ware, 1998). This information is summarised in Table 2-4 (below).

Table 2-3 Classification of Consonants

<table>
<thead>
<tr>
<th>Manner of articulation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops and plosives</td>
<td>(air is trapped and released as an explosion)</td>
</tr>
<tr>
<td>Continuants</td>
<td>(consonants with a prolonged sound)</td>
</tr>
<tr>
<td>Fricative</td>
<td>(air is forced through a narrow gap)</td>
</tr>
<tr>
<td>Liquid</td>
<td>(continuous air flow)</td>
</tr>
<tr>
<td>Nasal</td>
<td>(sound is allowed into nasal cavities)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Place of articulation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lips</td>
<td>(labial)</td>
</tr>
<tr>
<td>Teeth</td>
<td>(dental)</td>
</tr>
<tr>
<td>Alveolar</td>
<td>(ridge just behind the top of teeth)</td>
</tr>
<tr>
<td>Palatal</td>
<td>(hard palate)</td>
</tr>
<tr>
<td>Velar</td>
<td>(soft palate)</td>
</tr>
<tr>
<td>Glottal</td>
<td>(at the level of the vocal folds)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voicing</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voiced</td>
<td>(produced with vocal folds vibrating)</td>
</tr>
<tr>
<td>Unvoiced</td>
<td>(produced without vibration of vocal folds)</td>
</tr>
</tbody>
</table>

A vowel is a sound produced with an open or unconstricted vocal tract and no build-up of air pressure above the glottis. Vowels are the basic building blocks of vocal tone, because they are able to be sustained and essentially carry the tone (McKinney, 1994). Vowels are
normally voiced, but they can also be performed without vibration of the vocal folds, such as by whispering (McKinney, 1994; Miller, 1996b). Some of the vocal texts consider the topic of vowels under the heading of ‘articulation’ and in others under ‘resonance’. This is because both resonance factors and movements of the articulators combine to create vowels.

From an articulatory standpoint, the production of clear vowels is based primarily on the position of the tongue and, to a lesser degree, lip rounding and opening of the jaw (Chapman, 2006; McCoy, 2004; Miller, 1996b). However, vowel sounds are extremely variable because “the tongue does not touch, but rather has target zones in the mouth” (Chapman, 2006, p. 109). Vowels are classified according to the position of the tongue within the oral cavity – high or low and font or back. From a resonance perspective, the human ear recognises a vowel as having certain acoustical properties that are created by configurations of the vocal tract and by tuning the separate cavities of the vocal tract as a single unit (Miller, 1996b; Ware, 1998). All vowels have resonance, but each vowel has its own distinct pattern of resonance that is the result of the number, frequencies, and energy distribution of the overtones that are present (Miller, 2009; Sundberg, 1987).

Various approaches to voice pedagogy are based on the notions that (i) there are preferred vowel sounds for particular styles of singing and (ii) that vowel sounds must be configured for various pitch and dynamic levels (Appelman, 1967; Chapman, 2006; Welch, Thurman, Theimer, Grefsheim, & Feit, 2000). Thus, teaching vocal technique usually begins with the student learning to produce appropriately accurate vowels. In classical singing, vowels may account for as much as 99% of sung sound (Doscher, 1994). Exercises in vowel differentiation feature in various texts on singing (Brown, 1996; Chapman, 2006; Miller, 1993, 1996b, 2004). In working with child and adolescent voices, Phillips (2013) recommends the use of: (i) vowel reference charts, and (ii) tonic-solfa as methods for teaching vowel differentiation and clarity.

A person with clear speech habits is likely to exhibit fewer faults with articulation. However, correcting faults related to articulation can be difficult. Singers are likely to have ingrained habits since they learn to speak at an early age, and the muscular articulation patterns are well developed by the time one begins to think about being a performer (Dayme, 2005, p. 84). For optimal efficiency and tone in singing, the tongue muscles must be allowed to function with as little tension as possible (McCoy, 2004; Miller, 1996b). When pulled back
into a retracted position, the tongue can act as a false depressor of the larynx producing a dark and woolly tone quality and interfering with vocal resonance (Chapman, 2006)

Diction is a crucial aspect of articulation and describes “the flow of language and the idiomatic precision of each language as it is sung” (Blades-Zeller, 1993, p. 52). Poor diction is a diagnostic tool for singing teachers as it likely suggests that a singer has unnecessary tension in the articulatory organs (Blades-Zeller, 1993; Ware, 1998, p. 176). Some writers suggest students recite and/or sing nursery rhymes and tongue-twister in order to develop flexibility of the articulators and focus awareness on diction (Chapman, 2006; Phillips, 1992b). Additionally, Phillips (2013) lists 32 pronunciation issues commonly encountered in working with child and adolescent singers (p. 189).

2.2.9 Adolescent Voice Change

Not only do teachers who work with singing in secondary schools need to be aware of the physiology of voice production, they also need to understand developmental issues that relate to the adolescent voice and their implication for vocal instruction. In the early stages of their secondary education, both males and females will experience a developmental voice change. Male vocal change is mentioned in early publications on choral training (Behnke & Brown, 1885; Martin, 1892) and has been widely researched in more recent times (Adler, 2002; Cooksey, 1992; Killian, 1997; Thurman & Welch, 2000; White & White, 2001; Willis & Kenny, 2008). In the vocal literature, this topic may be referred to as ‘voice mutation’ and colloquially it is known as ‘voice break’. These days, voice educators often reject the term ‘voice break’ as a physiologically inaccurate description of the vocal change process. It is also a term that carries negative connotations as illustrated by Cooksey and Welch (1998):

“The traditional and stereotypical notion that adolescent male voices ‘break’ is untenable in the light of research evidence and it is suggested that a concept of adolescent singing voice ‘transformation’ or ‘change’ is a more accurate representation of the physiological reality” (p. 99).

Writers now acknowledge the existence of a female vocal change (Cooksey & Welch, 1998; Gackle, 1991, 2000b, 2006; Phillips, 1992b). Once thought to be insignificant by voice teachers, literature on female vocal change is growing, but still limited. Although the change experienced by adolescent girls is not as obvious and dramatic as the change experienced by boys, it has implications for the training of female voices and represents a topic not well understood by current secondary school teachers (Gackle, 1991, 2006).
The effects of puberty present challenges for the training of both boys’ and girls’ voices. Hughes (2008) states that the developmental stages of the adolescent voice has “implications for voice usage, vocal health and vocal care” (p. 131). Additionally, the National Review of School Music Education recommends that secondary school music teachers need to be equipped adequately to deal with the physiological and psychological implications of the vocal change process (Pascoe et al., 2005, pp. 22-23). This section will review literature in both these aspects of vocal change and also summarise information on the classification, training and management of changing voices as relevant for secondary music teachers.

**Adolescent voice change: Physiological Implications**

“The nature of working with young voices means teaching individuals who have to build their instrument while simultaneously learning how to play it” (Chapman, 2006, p. xvi).

Physical growth of the vocal anatomy progresses throughout childhood, but the most extensive growth occurs in the first 3 to 5 years and during puberty (Thurman & Klitzke, 2000). In relation to the voice, human growth patterns include: the respiratory system; the vocal tract; and changes in size, position, strength and texture of the muscles and cartilages in the larynx (Thurman & Klitzke, 2000; White & White, 2001). For both boys and girls, the vocal folds become longer, thicker and heavier and their unique multi-layer structure becomes more clearly defined (Cooksey, 2000b). Table 3-2 (below) demonstrates the extent of this growth, highlighting the fact that the growth pattern is more dramatic for boys than for girls.

<table>
<thead>
<tr>
<th></th>
<th>Pre-puberty</th>
<th>Puberty</th>
<th>Growth</th>
<th>Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17.35</td>
<td>28.21</td>
<td>11.57</td>
<td>66.69</td>
</tr>
<tr>
<td>Female</td>
<td>17.31</td>
<td>23.15</td>
<td>4.16</td>
<td>24.05</td>
</tr>
</tbody>
</table>

Source: Thurman and Klitzke (2000)

Physiologically, laryngeal changes that occur during the voice change process for boys will eventually result in a voice that is around an octave lower in pitch, dramatically modified in timbre and much stronger than the pre-pubescent voice (Cooksey, 1992; Killian, 1999). Outwardly, the growth of a boy’s larynx results in a protrusion of the thyroid cartilage known as the ‘laryngeal prominence’ or colloquially as the ‘Adam’s apple’ (Phillips, 1992b).
However, during the transitory stage a boy’s voice sounds neither like an adult male, nor like a child. Moreover, boys are likely to experience a number of vocal difficulties, including: a limited vocal range, a breathy or husky sound, inability to phonate in some sections of the vocal range, a lack of pitch control, lack of vocal stamina and limited dynamic control (Cooksey, 1992; Willis & Kenny, 2008). In some individuals, unexpected cracks or breaks in the voice can occur during speaking and/or singing and these are caused by abrupt changes between the lower or upper register and the falsetto register.

A common feature of the female changing voice is described by Vennard (1968) as the “mutational chink” (p. 63). The chink is characterised by an inability of the vocal folds to close completely at the very front portion due to a weakness of the inter-arytenoid muscles. Perceptually, it results in breathiness of tone and a lack of vocal power (Vennard, 1968). Other characteristics of the female changing voice include: (i) a gradual lowering of the average speaking pitch, (ii) voice cracks and abrupt register breaks, (iii) decreased and inconsistent vocal range, (iv) increased breathiness or huskiness, (v) uncomfortable or effortful singing, and (vi) insecurity of pitch (Gackle, 1985, 1991, 2006).

In summary, vocal stability is difficult for young voices as irregularity exists in muscle development, both for both males and females (Cooksey & Welch, 1998). In young and pubescent voices, the macro muscles may work efficiently, but the micro muscles are likely to be poorly developed. There may be considerable difference from individual to individual and even within an individual from day to day (Cooksey & Welch, 1998, p. 116; Doscher, 1994, p. 241). The most critical time for the adolescent changing voice is between the ages of 13 and 15 for both boys and girls and, by the age of 16, most children have achieved a level of vocal stability. However, according to Doscher, the singing voice is considered a young instrument from the time it changes during puberty to the age of 25. Muscular maturation continues during those years and very few singers fully develop the extrinsic laryngeal muscles before 21 or 22 years of age (1994, p. 197).

2.2.9.1 Adolescent voice change: voice classification
A number of writers have attempted to explain adolescent vocal change through a system of classifications of vocal range and type (Cooksey, 1992; Gackle, 1991; McKenzie, 1956b). The basis of these approaches is the theory that that a changing voice progresses through a number of stages before settling into its adult form. For normal, healthy voices, these stages
are both predictable and sequential. However, while a linear pattern of development occurs, individual profiles within the overall scheme vary considerably. In other words, individuals begin and follow the pattern at variable times and age alone is a poor criterion for voice classification. (Cooksey & Welch, 1998; Phillips & Doneski, 2011).

Various attempts have been made to classify the male changing voice, with the key writers being McKenzie (1956a, 1956b), I. Cooper and Kuersteiner (1973), Swanson (1973, 1977, 1984) and Cooksey (1992, 2000). In his book *Training the Boy's Changing Voice*, McKenzie (1956b) describes the progression of male voice change using the ‘alto-tenor’ model. In this model, voice change is seen as a gradual process in which a boy simultaneously loses notes in his upper register as he gains notes in his lower register. This notion suggests that a soprano I becomes a soprano II, then an alto, then an alto-tenor and finally a tenor or bass. “A boy is transferred to the next lower classification as soon as he begins to have difficulty with the highest notes of the one he is in. Thus, the lowest notes have an opportunity to develop, while the highest notes, being unused, gradually disappear” (McKenzie, 1956a, p. 29).

One of the more popular American approaches for classifying the male changing voice was developed by Irvin Cooper (music supervisor for Canada's public schools) and Kuersteiner with later contributions by Collins (1981). Cooper’s approach recognises four categories of boys’ voices: (i) unchanged or treble voices, (ii) voices in the first phase of change called ‘cambiata’, (iii) voices in the second phase of change called ‘baritone’ and (iv) changed voices called ‘basses’. The goal of this approach is to keep boys in the most singable and comfortable part of their chest voice and to avoid register breaks (Collins, 1981). Cooper also established the Cambiata Press (see www.cambiapatpress.com) which publishes choral music and lyrics designed to appeal to secondary school students and that are arranged for SSCB (soprano I, soprano II, cambiata, baritone), CCBB (cambiata I, cambiata II, baritone I, baritone II), and various other combinations. Cooper’s approach was successful in providing improved teaching resources and offering choral educators practical solutions to involve more young boys in singing (Friar, 1999; Phillips, 1992b).

Currently, many regard John Cooksey as the leading authority on the male changing voice. In a series of four articles in the Choral Journal (Cooksey, 1977a, 1977b, 1977c, 1978), the author first proposed his *Eclectic Contemporary Theory of Male Adolescent Voice Change*
which sought to consolidate existing theories on the male changing voice and advance current thinking based on scientific and empirical research. In the early 1980s, working with speech pathologists, Cooksey conducted a three year longitudinal study to confirm the validity of his approach (Cooksey, Beckett, & Wiseman, 1984). More recently, Cooksey advanced his ideas in several publications (1992, 1993, 2000a, 2000b). His approach to voice classification is based on five criteria:

1. Average speaking pitch
2. Vocal range
3. Tessitura which Cooksey (2000b) defines as “the range of vocal pitches, produced at a moderate intensity, which are judged kinaesthetically by the singer to be produced with the greatest physical ease, and judged aurally and visually by the teacher or conductor to be produced with physical and acoustic efficiency” (p. 824).
4. Pitch areas in which register transitions occur
5. General voice quality in speaking and singing

Cooksey maintains that male voices transform through five predictable and developmental stages over a period of about one to two years, with the most active phase of change between 12.5 and 14 years of age. A summary of Cooksey’s classification system is offered below in Table 3-3.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Classification</th>
<th>Ages</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Midvoice I</td>
<td>12 – 13</td>
<td>Early mutation period. Higher pitches are lost (usually between C5-F5). There is increased constriction, breathiness and overall decrease in richness of tone.</td>
</tr>
<tr>
<td>2</td>
<td>Midvoice II</td>
<td>13 – 14</td>
<td>High mutation period. Lower pitches begin to appear in the vocal range and higher notes become unstable. Falsetto register begins to emerge.</td>
</tr>
<tr>
<td>3</td>
<td>Midvoice IIA</td>
<td>13 – 14</td>
<td>Climax of mutation and key transitional period. Voice quality is often husky or breathy and there is a loss of agility. The most comfortable part of the singing range is limited to 5 notes around G3-D4. The voice is most vulnerable to abuse.</td>
</tr>
<tr>
<td>4</td>
<td>New Baritone</td>
<td>14 – 15</td>
<td>Stabilising period. Voice quality is clearer, but remains light and thin. Range stabilises at Bb2 to D4 and falsetto register becomes easy, but there is often a blank spot (C4-F4) where notes cannot be produced.</td>
</tr>
<tr>
<td>5</td>
<td>Settling/developing Baritone</td>
<td>14 – 15</td>
<td>Post mutational development and re-expansion period. Unique voice qualities begin to appear, but adult-like qualities are still not apparent. There is a gradual expansion of vocal range and capability and greater consistency of vocal production. Falsetto register is clear and focussed.</td>
</tr>
</tbody>
</table>
The most significant work on describing and classifying the female changing voice has been carried out by Gackle (1985, 1991, 2000a) with more recent contributions from Williams (1990), Phillips and Fett (1992) and Howard and Welch (2002). Like Cooksey, Gackle’s work also suggests that the female voice follows a predictable developmental path during voice change. Gackle based her descriptions of the female voice on similar criteria to Cooksey. However, since the range of the female singing voice does not alter significantly throughout the process of voice change, the criteria of voice quality, register breaks and tessitura are most crucial in describing the various stages of female voice development (Cooksey, 1992). Mirroring some aspects of research in the male changing voice, Gackle (1991) proposes three key stages and four classification categories which are summarised below in Table 3-4.
Table 3-4 Classification and description of female voice change

<table>
<thead>
<tr>
<th>Stage</th>
<th>Classification</th>
<th>Ages</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-pubertal (unchanged)</td>
<td>8 - 10</td>
<td>Voice quality: flutelike, light, child, flexible. Register breaks: no apparent. Range and tessitura: see Figure 3-2</td>
</tr>
<tr>
<td>2a</td>
<td>Pre-menarcheal</td>
<td>11 – 13</td>
<td>Voice quality: breathiness of tone appears. Singing may become more difficult. Difficulty in achieving loudness. Register breaks appear at G4-B4. Range and tessitura: see Figure 3-2</td>
</tr>
<tr>
<td>2b</td>
<td>Post-menarcheal</td>
<td>13 – 15</td>
<td>Most critical time at peak of change. Voice quality: Some breathiness and lack of clarity in tone. Register breaks occur between G4-B4 and B4. Range and tessitura: Tessiturae can move up or down or narrow yielding a 5 or 6 note range of comfortable singing. See Figure 3-2</td>
</tr>
<tr>
<td>3</td>
<td>Young adult female</td>
<td>14 – 16</td>
<td>Voice quality: range increases and breathiness decreases. More consistency between registers. Tone is richer and greater ease of production. Vibrato may appear. Register breaks: more typical of older female voices and more common at D5-F#5. Range and tessitura: see Figure 3-2</td>
</tr>
</tbody>
</table>

Figure 3-2 Vocal ranges and tessituras for stages of female voice change

Note: outer pair of notes (white) represent vocal range and inner pair (black) represent comfortable working range (tessitura). Adapted from Gackle (1985, 2000a)

2.2.9.2 Adolescent voice change: Psychological Implications

In addition to the physiological issues associated with the adolescent changing voice, teachers must also help their students deal with their self-perception and the consequent psychological effects of the voice change process. A growing body of literature on the changing voice seems to address physiological processes and key stages, but has yet to explore how boys and girls feel about these processes, how these feelings affect their participation in singing activities and things teachers can do to foster a more optimistic outlook.
A study by Vaughan (1998) of the participation rates of adolescent boys in singing activities across twenty Australian secondary schools in New South Wales, demonstrated that only a small percentage (less than ten percent) of the total sample \((N= 440)\) were involved in some type of choral activity, either within their school or their community. Surveys of the sample suggested that the low participation rate of boys in singing was attributable (in part) to: (i) boys’ feelings of embarrassment at the instability of their developing voice, (ii) a lack of prior experience of singing in primary school, (iii) a lack of enjoyment of formative singing experiences in primary school, and (iv) teachers limited understanding of the importance of vocal health in adolescents.

Another study by Killian (1997) examined perceptions of the voice change process among males \((N= 141)\) including boys, adults, singers and non-singers. Data were collected via audiotaped interviews which were scripted and verbal content was analysed. Results demonstrated (i) that boys remembered significantly more about the voice change process than men, (ii) singers noticed the process more than non-singers, (iii) singers noticed that the change process affected both their singing and speaking voices more than non-singers, (iv) five of every six participants regarded voice change as a positive experience (but eight times more negative than positive comments were made), and (v) the vocabulary used for describing the process was similar across all groups. The author discussed results in terms of teacher education and concludes “given the number of negative experiences mentioned that actively involve choir directors, it seems advisable to disseminate information to future choral educators about the musical expectations and sensitivity necessary to instruct changing-voice boys more effectively” (p. 534).

In a study by (Freer, 2006b), narrative enquiry was used to investigate how the social, academic and musical needs of adolescents might inform the process of teaching them singing. He concluded:

“If we wish for singing and choral music to become part of the “self” of adolescent boys and girls, we must listen to the experiences of young adolescents as expressed through their words and stories. Then, we can reflect what we learn from them in our teaching and rehearsing as the culmination of a constantly renewing cycle of inquiry, theory, research, and practice” (p. 77).
In summary, adolescent boys can (at times) interpret voice change as traumatic, embarrassing and their perceptions can lead to feelings of anxiety, self-doubt and low self-esteem which ultimately affect their willingness to be involved in singing activities (Kilian, 1997; Phillips & Doneski, 2011). If singers are made to feel inadequate about certain aspects of singing such as intonation, limited vocal range or lack of vocal agility, they may cease to continue trying (Hook, 2005). Additionally, Cooksey (2000b) notes that in mixed choir situations, adolescent boys do not want to be associated with singing any type of ‘high’ or ‘soprano’ part and the author suggests “careful psychological preparation, choice of terms, and straightforward explanations of the change process may help all singers reframe the unpleasant connotations” (p. 831). As music educators become better informed about the voice change process, patience with singers under their tutelage may increase. Research is emerging that suggests that boys and girls can learn to sing through the period of voice change with “vocal instruction that includes psychological understanding, encouragement and psychomotor coordination” (Phillips & Doneski, 2011, p. 210)

### 2.2.9.3 The changing voice: strategies for managing the process

The secondary school music teacher will encounter children in a variety of stages of voice change at any point during years 7 to 9 (ages 12-15). Moreover, since growth and development rates are not uniform, it is likely that a teacher will have students at various stages of voice change within the same class at the same time. Inevitably, this presents various challenges, including: (i) how much singing (if any) to include in the music curriculum, (ii) how to select appropriate repertoire, (iii) finding appropriate keys to match vocal ranges, (iv) classification of voices and assigning vocal parts, (v) training of the changing voice and (vi) cultivating positive student attitudes towards singing. How the teacher manages the voice change process and the experience of children during this phase is likely to shape their attitude towards learning music and what they will do with singing for the rest of their lives (Adler, 2002; Gackle, 2006; Harrison, 2003; Hoffer, 1991).

The prevailing opinion among educators is that “although voices do transform and develop quite dramatically during adolescence, singing activities can continue and should be enjoyable” (Cooksey & Welch, 1998, p. 116). However, this has not always been the case and the history of voice pedagogy has seen a variety of approaches for dealing with the boy’s changing voice. Broadly speaking, these might be classified as the “to sing” or “not to sing” approaches. During the nineteenth and twentieth century, a popular belief among British
choral directors was that boys should not sing at all during the period of vocal change. The ‘not to sing’ approach was characterised by tonal ideals and vocal health concerns such that when a boy’s voice began to change, the usual practice was that these boys were told to stop singing for a time and/or asked to leave choir. The following quote exemplifies this view:

“There is no doubt that many valuable voices are lost through overstraining their powers at the period of the break. The custom of retaining boys in the choir after the change has commenced, although it has some scientific defenders, it is to be deplored… Boys who are permitted to overstrain the vocal organs at this period will never, as men, possess good voices... In most instances all vocal tone has been destroyed” (Martin, 1892, p. 21).

The ‘not to sing’ approach has few (if any) advocates today and the dominant opinion among educators is best summed up by Cooksey (2000b): “Young men who are proceeding through their adolescent voice transformation (ages 12 through 15) are capable of singing solo songs and choral music skilfully and expressively if the music is appropriate to their changing vocal anatomy, physiology and acoustics” (p. 822). Moreover, the growing opinion among writers is that there are inherent benefits in keeping boys singing before, during and after the vocal change process. For example, Leck (2009) believes that boys who stop singing when their voices begin to change may actually lose the ability to manage their voice in later years. McKenzie (1956) believed that boys who enter choral programmes and receive vocal instruction prior to their vocal change are “better able to manage their voices and overcome the difficulties that are inherent in the mutation process” (p. 133). Finally, Conrad (1964) suggested that boys will be more successful in managing vocal change if they sing every day and there is no single method that is guaranteed to help all boys manage this process. He advised that, above all, “the teacher must be positive and enthusiastic in his desire to help boys learn to sing” (p. 68).

The literature offers various suggestions for maintaining motivation to sing during the voice change process. For example, Conrad (1964) believed working with mixed groups of boys and girls will be especially motivating for the socialising factor. However, in more recent years, his view is contradicted sharply by others (N. S. Jorgensen & Pfeiler, 2008; Phillips, 1992b; Swanson, 1984; White & White, 2001) who suggest that in a single-sex setting, boys and girls are likely to be less self-conscious of vocal instability, more easily persuaded to sing and that the choral conductor will be able to deal with idiosyncratic and gender-specific technical challenges better. Furthermore, Adler (2002), Harrison (2004b), White and White (2001) suggest that an all-male ensemble can be an effective solution for dealing with gender
identity issues that contribute to the ‘missing male’ factor in secondary school choral groups. In an all-male ensemble, the teacher can work to establish a peer-group where singing is readily accepted as legitimate male behaviour. “Through the use of male role models, gender-specific ensembles, and creative performing opportunities, young men can experience singing in choir as a rewarding, masculine activity” (White & White, 2001, p. 43)

Another suggestion among various writers is that teachers share appropriate scientific information about the voice change process with their students (Freer, 2006a; Skadsem, 2007). These writers assert that adolescents will be less reluctant to sing if they understand what is happening, why it is occurring, and what they can expect to happen next. “Effective choral directors share information about the process of vocal change, using terminology and concepts in a consistent manner so that students learn to use those terms themselves” (Freer, 2006a, p. 50).

Various writers provide sample vocal exercises that may be used for training the changing voice (Freer, 2009; Leck, 2009; Phillips, 1992b; White & White, 2001). A thorough review of these exercises is not possible. However, some general observations can be made. Firstly, Phillips (1992b) offers a complete K-12 curriculum of vocal technique with exercises that encourage the teaching of singing as a psychomotor technique or a co-ordination of physical and musical skills. He believes that a skill-based approach helps build students who are comfortable with their singing voices and that such students will risk singing through the change and are more likely to persist during periods of vocal instability. He challenges vocal teachers to be clear about whether they are teaching songs or vocal technique and to alter their pedagogy as needed to teach vocal technique first and repertoire second. Other writers echo his sentiments suggesting that skill acquisition can be motivating for adolescent singers (Freer, 2006a).

Teacher education is a central theme in the literature with several writers emphasising the notion that teachers need to understand the various stages of voice change for both males and females and that they should educate their students to have a positive outlook on this process (Cooksey & Welch, 1998; Gackle, 2006; Killian, 1997; Vaughan, 1998). Teachers need the ability to design a differentiated adolescent singing curriculum, matched to physical abilities and potential (Cooksey & Welch, 1998).
2.2.10 Pitch Perception and Pitch Accuracy

Throughout literature on music education and voice pedagogy, the inability of children to sing accurately or in tune is a recurring concern (N. A. Cooper, 1995; Langness, 2000; Phillips, 1992b). Colloquially, the term ‘tone deaf’ is used to describe the inability to sing accurately and in the vocal literature other terms may be used to describe these children, such as droners, monotones, uncertain singers, problem singers, submarines, inconsistent and non-singers (Demorest & Clements, 2007; Phillips, 1992b). An estimated 15-17% of the general population self-identify as tone deaf (Demorest, 2011; Williamson, 2009). However, the incidence of inaccurate singing reported among children varies according to the criteria used to measure pitch accuracy and the age groups being measured (Phillips, 1992a, 2013; Phillips & Doneski, 2011). In the past, children may have been assessed as singing poorly because the assessment task was mismatched or inappropriate for their stage of vocal development (Welch, 2006).

Music education research indicates that children are likely to commence their schooling with differing singing competencies and at differing developmental stages which are susceptible to improvement (Welch, 1986, 1994). Furthermore, Welch (1986) notes:

“Progress along the continuum is possible given sufficient interaction with a supportive, stimulating and varied musical environment. Even without such interaction, some children will make progress, but the rest will be relying on their teachers for a recognition of their present ability level, and for a singing curriculum geared to their particular needs” (p. 301).

Numerous other studies have demonstrated that the problem of inaccurate singing in children can be overcome. While individual instruction is often recommended for students experiencing pitch difficulties (Phillips, 1992b), a number of researches have experienced success with improving singing accuracy in group settings (Demorest & Clements, 2007; Porter, 1977).

2.2.11 Student motivation and Singing

Managing the motivation issues inherent in working with adolescent voices is a challenge for music educators and the challenge may be made more difficult by current low status of school music (Pascoe et al., 2005). Students can be motivated and engaged with school singing activities or they can approach it with apathy, disengagement or even anxiety. Bannan (2002) suggests the foremost challenge for the secondary school teacher is “the
creation of the right psychological environment in which to encourage universal participation” (p. 107). The causes for poor motivation are likely to reflect more than just individual differences, but are also reactions to the social context and/or classroom climate (Renwick & Reeve, 2012). McPherson and McCormick (1999) believe that both school cultures and teachers can have a significant effect on student motivation and long-term engagement in music. Lyon (1993) suggests “to encourage singing with people of any age, the teacher must first show enthusiasm for singing, for music, and for people” (p. 20) and Bannan (2002) adds “the quality of vocal leadership of teachers plays a key role in whether pupils respond to them expressively and with confidence” (p. 107).

In assessing various research and theory on student motivation in music education, Renwick and Reeve (2012) also consider the role of the teacher and conclude: “the development of a sense of autonomy and competence need to be supported if young musicians are to gain the capacity to motivate themselves and employ the self-regulatory skills they will need for lifelong musical engagement… Music teachers need to learn how to support student’s autonomy, how to support student’s competence, and how not to be controlling towards students” (p. 156).

The values and attitudes of school leadership can have a tremendous impact on the singing culture of a school and thus, school leadership might be one of the primary influences on student motivation to sing. An article by Bolz (1962), principal of a Californian elementary school, described how, with the help of a music education consultant who provided weekly professional development to all staff, he was able to change the culture of a school: “We now have a singing school. Music literally floats throughout the building…Within a span of one year our school attitude changed from that of apathy towards music to that of a group of music lovers.” (p. 82). Similarly, over four decades later, a study by Barclay (2008) investigated how school principals of three single-sex boys schools in Melbourne view and influence the place of massed singing within their respective school cultures. Data were collected from school documents, a written questionnaire and semi-structured interviews. The findings demonstrated that a principal’s personal history of singing and favourable disposition towards singing are important factors in establishing a singing culture within a school. Also, there was a belief amongst the participating principals that massed singing enhances the overall culture of a school. Gender stereotypes that might inhibit students’
desire to sing can be challenged and debunked through student participation in massed singing experiences.

In a study of primary school students \((N=542)\), Mizener (1993) found that students generally enjoy singing, but that certain factors created both negative and positive attitudes toward singing. Since children’s experience of music in the classroom is often vastly different from their experience of popular music outside the classroom, the author advised careful choice of repertoire to ensure age appropriateness and the use of songs that were more familiar to students. On the other hand, Mizener (1993) also pointed out that, “planning drum accompaniments to singing; playing stationary games as well as active moving games; and including some songs with narrower ranges and lower tessituras (preferred by students who do not like to sing) may have a positive effect on students' attitudes toward singing” (p. 243). Student participation in certain musical activities and experiences at school and at home tended to be associated with positive attitudes toward singing and toward participation in choirs (p. 244).

Music teachers may be able to improve student attitude towards singing by including in their lesson plans, some of the activities preferred by students. In a study of high school students, Neill (1998) found that participants who enjoyed singing in choir in the past and who perceived the vocal program as reputable were more likely to re-enrol in choir the following year. Bannan (2002) suggests that ICT resources can have a highly motivating influence on vocal work in the secondary school. Although he discourages the use of individual workstations that can encourage a sedentary experience of singing, the resources found to be most helpful are those that involve vocal experimentation, both individually and in groups, and those which involve recording vocal samples and loops (p. 118).

A growing body of research is demonstrating that issues of gender can have a significant impact on student motivation in singing. Such research on gender and music explores broad categories, including those that are more psychologically or developmentally-based and those that are more sociocultural. Some studies suggest an existence of stereotyped musical choices and others examine the association of masculinity and femininity with particular instruments (Harrison, 2007). Much of the gender-based studies exploring school singing focus on the issues experienced by boys. Boys tend to be less intrinsically motivated than girls, relying on external support, such as parents for their motivation (McPherson, Davidson, &
In their musical studies, boys tend to be less motivated and are more likely to give up instrumental learning (McPherson & Davidson, 2006). Secondary school music teachers often experience difficulties in engaging boys in singing.

The term “missing males” was coined by Koza (1993) to describe boys' reluctance to participate in music education programs and since her seminal work, the issue of missing males in school singing has been studied by various writers (Adler, 1999, 2002; Hall, 2004, 2005, 2006, 2009; Harrison, 2003, 2004b, 2007; Vaughan, 1998). In a study of the low participation rates of adolescent boys in singing activities, Vaughan (1998) accredits boys’ reluctance to sing at least partially to their sense of self-consciousness which arises from the instability of their changing voices. Additionally, boys may have less confidence in their musical ability because of Western society’s feminine associations with music (McPherson & Davidson, 2006). Adler (1999, 2002) found that as singing does not construct or defend masculinity, it carries with it gender incongruent and therefore homophobic labels. Harrison (2007) advises “the management of gender issues in music education demands the attention of the musical community. Too few students are able to realise their full potential as a result of stereotyping and other gender-related societal forces” (p. 278).

**2.2.12 Summary and critique: Section 2 Literature**

Literature reviewed in this section draws heavily from respected and accessible handbooks on singing and vocal technique and demonstrates the complexity of the physiological, psychological and pedagogical knowledge associated with the teaching of singing. Secondary school teachers seeking to increase their knowledge in voice pedagogy are likely to turn to these sources for self-directed study. Many of these writers suggest that a knowledge of how the voice works or of voice science is necessary in order to teach singing effectively (Callaghan, 2000; Miller, 1996a, 1996b, 2005; Phillips, 1985b, 1992b). However, some of these respected publications also come from educators who have built their careers working with adult opera singers in tertiary institutions, such as: Chapman (2006); Miller (1993, 1996b); W. S. Smith (2007). This raises questions about the accessibility, appropriateness and application of the information to secondary school music teachers who are working with adolescent voices.
Aside from Phillips (2004, 2013), there is a dearth of literature addressing the practicalities of how to work with adolescent voices. Phillips (1992a) suggests: “since vocal production is basically the same from childhood through adulthood, the knowledge gained in the voice science area needs to be more actively disseminated among those who teach singing at the elementary and secondary school levels” (p. 574). Gackle (1991) suggests that teachers working with adolescent voices need to develop their abilities in five key areas:

1. Understanding of how the adolescent voice matures in order to give proper guidance to the development of voice skills and the selection of music;
2. Understanding of the potentials, limitations, characteristics, and unique qualities that may be encountered in individual adolescent voices;
3. Strategies to assess the vocal abilities of each young singer and to help them develop healthy, efficient skills for self-expression in speaking and singing;
4. Ability to choose music that is within the physiological capabilities of young changing voices, and to assign vocal parts appropriately.
5. Aural recognition of when adolescent voices are working efficiently and healthily within their developmental capabilities.

What do teachers do with scientific information on the voice when they stand before a class of adolescent voices or when they have to run a rehearsal for the current school production? How does a teacher translate information from voice science and systematic descriptions of vocal function into day-by-day, lesson-by-lesson content? Do these texts address the totality of a secondary teacher’s experience in working with: vocal technique; repertoire; musicianship; changing voices; student motivation; crowd control or classroom management; advocacy for singing programs; and a myriad of other related areas? Additionally, literature on vocal pedagogy provides little reference to the processes or education that will best help secondary school teachers to “understand” the voice best and little is known about the path to competency in singing instruction for school music teachers. Some of this information is likely to be known to highly experienced teachers who have achieved successful school vocal programmes, therefore further study directly with practicing teachers is likely to yield a rich source of data to explore this topic further.
Section 3: Teacher Education and Development

The first chapter of this thesis alluded to various problems associated with school singing in Australian secondary schools. Specific concerns centre on the variability or patchiness of school vocal programs and the perception that teacher knowledge and skills in working with adolescent voices is lacking. Professional development has been proposed, both in the *National Review of School Music Education* (Pascoe et al., 2005, p. 128) and in other literature (Langness, 2000, p. 203). Subsequent chapters of this thesis will explore whether professional development can make a difference in the way teachers approach working with adolescent voices. In anticipation, this chapter will critically review literature dealing with teacher professional development.

2.3.1 Best practice in teacher professional development

Professional development helps teachers develop the content knowledge and skills they need to succeed in their classrooms (Charalambos & Glass, 2004). Literature on the professional development of teachers is expansive and research interest in this topic has contributed to a wide understanding of the types of activities that contribute to professional growth. The term ‘professional development’ may describe a vast array of experiences and interactions in which teachers “increase their knowledge and skills and improve their teaching practice, as well as contribute to their personal, social, and emotional growth as teachers” (Desimone, 2009, p. 182). Professional development may also occur in a variety of contexts, including: pre-service and in-service training; continuing education; peer-support; collaborative projects; conferences; workshops; self-reflection; and informal discussions with colleagues (Desimone, 2009; Little, 1993; Rock & Levin, 2001).

Ultimately, the purpose of teacher professional development is to enhance the educational experience of students by improving the quality of teaching. There is a growing body of literature which explores what constitutes innovation and best practice in teacher professional development. At the heart of this discussion is the notion that ideas about how students learn best should also apply to the way teachers learn best (Lieberman, 1995a). Thus, best practice in professional development closely aligns with best practice in teaching. Effective professional development involves teachers both as learners and as teachers (Darling-Hammond & McGlaughlin, 1995) and the effectiveness of any professional
development activity is dependent on how carefully educators conceive, plan and implement it (Mizell, 2010).

Recent decades have seen considerable changes in the way professional development is approached with the key change agents being identified as politics, pedagogy and innovation (Rodrigues, 2005). Nearly all proposals for educational reform and school improvement are likely to include the need for high-quality professional development (Desimone, 2009; Gusky, 2000). As subject areas add new content and as new approaches to education emerge, teachers must grow and develop continually. Accordingly, professional development might be best viewed as evolutionary, rather than revolutionary (Joseph & Keast, 2005). Valuable professional development should focus on curriculum content, include active participation, and should be coherent, ongoing, and collective (Desimone, 2009). Active learning within a professional development experience suggests that participants are engaged through discussing, problem-solving, assessing student work, critiquing, analysing, or creating knowledge. Within such a framework, teachers need opportunities to share their expertise, learn from peers and collaborate on real-world projects (Charalambos & Glass, 2004).

Rather than a single experience, effective teacher professional development involves learning opportunities that span a teacher’s entire career (D. J. McIntyre & Byrd, 1998) and literature on teacher education refers to this notion as ‘lifelong learning’ (Basharat, Iqbal, & Bibi, 2011; Cropley, 1981; Day, 1999; Fleming, 1998) and/or ‘continuous professional development’ (Harwood & Clarke, 2006; Lessing & de Witt, 2007; Luneta, 2012; Taitelbaum, Mamlok-Naaman, Carmeli, & Hofstein, 2008). The principle of lifelong learning (LLL) is important, both for students and teachers, but implementing it requires additional knowledge, attitudes and skills from teachers. Consequently, LLL offers a useful rationale for the further development of teacher knowledge (Cropley, 1981). In his seminal book on the topic of LLL, Day (1999) defines professional development as:

“all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skill and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives” (Day, 1999, p. 4).
While most definitions of professional development focus primarily on the acquisition of pedagogical content knowledge, Day provides a more holistic view, recognising the importance both of formal and informal learning opportunities. He also looks deeper at the rationale and motivation behind professional development, suggesting that making a difference to student lives and expectations, which he describes as the moral purpose of teaching, provides the impetus for teacher professionalism. Other writers have similarly acknowledged that informal experiences of professional development are important and may be perceived as more valuable by educators than formal or structured learning (Eraut, 1994; Hammel, 2007).

After reviewing literature on professional development published over the past decade in academic journals, Avalos (2011) concludes that what is most apparent is the extent to which professional development is moving away from the traditional in-service training model. These traditional models, often characterised by lectures and one-off workshops, may have limited efficacy and are unlikely to create sustained change in teacher practice (Levine, Cooper, & Iii, 2000). Similarly, Sykes (1996) delivers a scathing assessment of "one-shot" teacher workshops which he believes to be “superficial, faddish in-service education that supports a mini-industry of consultants without having much effect on what goes on in schools and classrooms” (p. 464). A further problem associated with the teacher workshop model is that educators responsible for organising and delivering them may lack formal education in how to do so (Mizell, 2010).

From its outset, teacher education has been based around the notion that knowledge about teaching is transmitted to teachers from others. “In the knowledge transmission model, educational researchers, positioned as outsiders to classroom life, seek to quantify generalizable knowledge about what good teaching is and what good teachers do” (Johnson & Golombek, 2002, p. 2). However, in the past three decades, the topic of reflective practice has become central to many discussions of teacher professional development as a tool by which teachers might construct their own knowledge. Values underlying literature on teacher reflection emphasise that an analysis of needs, teacher beliefs, teacher self-efficacy, problem-solving, and change processes are all factors that contribute to teacher professional development (Avalos, 2011). Similarly, Rock and Levin (2001) suggest that encouraging teachers in best practice means encouraging them to become reflective about their teaching. A helpful review of reflection and its use in teacher education is offered by Hatton and Smith.
The authors propose several distinct forms of teacher reflection, including “reflection-in-action” and “reflection-on-action” (p. 45). Day (1999) also outlines several types of reflection and suggests that behaving as a professional involves a commitment to inquiry in which teachers reflect in, on and about their actions in order to understand themselves better as teachers and improve their teaching.

Various literature on professional development has explored the relevance of the learning environment. Although professional development is often completed by teachers outside their classroom environment, teachers may benefit most by learning in a setting where they can apply what they learn immediately (Mizell, 2010). Accordingly, powerful opportunities for teacher learning can be found within a teacher’s own classroom. Self or observer examination of teacher practice is one way to achieve this (Putnam & Borko, 2000). Examples of teachers inquiring into their own practice are found throughout the professional development literature, including: teachers analysing and reflecting on transcripts of their teaching (Kucan, 2007); using action research to inquire into an aspect of curriculum (C. J. Ward, 2009; Wong, 2011); using self-assessment rubrics as a mechanism for change (Ross & Bruce, 2007); using reflective journaling (Esbenshade, 2002); participating in collegial focus group discussions (Gibson, 2002); using online discussion forums (Prestridge, 2010); using video recordings (Borko, Jacobs, Eiteljorg, & Pittman, 2008); and through narrative analysis (Rust, 2002). As another form of self-directed professional development, Zeichner (2003) reviewed various forms of research completed by P-12 teachers in the USA. He concluded:

“The experience of engaging in self-study research helps teachers to become more confident about their ability to promote student learning, to become more proactive in dealing with difficult situations that arise in their teaching, and to acquire habits and skills of inquiry that they use beyond the research experience to analyze their teaching in an in-depth manner. Teacher research, under certain conditions, seems to develop or rekindle an excitement and enthusiasm about teaching and to provide a validation of the importance of the work that teachers do that seems to be missing from the lives of many teachers” (p. 317).

A large scale study by Garet, Porter, Desimone, Birman, and Yoon (2001) compared the effects of different characteristics of professional development on the learning of a relatively large sample (N= 1,027) of mathematics and science teachers. Data were collected from a survey conducted as part of the national (American) evaluation of the Eisenhower
Professional Development Program\textsuperscript{2}. Their results describe three core features of professional development activities that are likely to have significant, positive effects on teachers' self-reported increases in knowledge and skills and changes in classroom practice. The features include: (a) a focus on content knowledge; (b) opportunities for active learning; and (c) coherence with other learning activities. Through these core features, the following structural features significantly affect teacher learning: (a) the form of the activity (workshop vs. study group); (b) collective participation of teachers from the same school, class, or subject, and (c) the duration of the activity.

2.3.2 The Professional Development of Music Educators

The ongoing professional development of music teachers is probably the best method of improving music education in schools (Haack & Smith, 2000) and an important factor that contributes to a sense of career success and fulfilment for educators (Stein & Robbins, 2005). Literature on this topic recommends that music teachers should: include professional development as part of their career goals; include experiences that are both institutional and individual; and create partnerships with other educators. In his national review of music education in England, Henley (2011) states “any music education system should provide the professionals concerned with a rewarding and structured career, with opportunities for both personal and professional growth” (p. 25). Meanwhile, the National Review of School Music Education in Australia (Pascoe et al., 2005) identified deficits in music teaching amongst large numbers of Australian teachers, particularly generalist classroom teachers in primary and middle schools. It is reported that only a small proportion of schools have designated instrumental or vocal programmes. Support materials from systems and sectors are not available nor relevant to half of the responding teachers and appropriate professional development is not accessible to about 30% of responding teachers. The review recommends music-specific professional development is urgently required for Australian teachers.

Meaningful professional development for music educators has five main attributes: it is voluntary; it is long-term; it occurs within a teacher’s classroom context; it is reflective, and teachers have collegial support while engaging in it (Standerfer, 2008). Professional development specific to music education is generally not offered within individual schools

\textsuperscript{2} The Eisenhower Professional Development Program operated in the USA between the years of 1985 and 1990 as a nationally-funded program to support in-service professional development for teachers of mathematics and science.
and therefore, music teachers must seek out suitable professional learning experiences on their own (Conway, 2003). Educators who have mandated professional development requirements must consider opportunities that: are affordable; do not interfere with teaching schedules; and which meet teacher needs in terms of school demands and personal teaching skills development (Bowles, 2003). Bauer, Forsythe, and Kinney (2009) found that, among a sample (N= 783) of music teachers, “the most desired approach to professional development was attending professional music conferences” (p. 109).

One study found that professional development needs of experienced music teachers (N= 19) are likely to change throughout a teacher’s career and that informal interactions with other music teachers are often perceived to be a powerful form of professional development (Conway, 2008). Another study by Eros (2013) sought to investigate the professional development needs of three experienced music teachers in the second stage of their career (4 – 10 years of experience). Data were collected through participant surveys, participant journals, semi-structured interviews and a focus group interview. While the study had only a small group of participants, some interesting key themes were raised, including: various forms of professional development (both informal and formal); professional development needs at various points in teacher careers; obstacles to professional development; and concerns about the lack of professional development.

In the past decade, literature has emerged that explores the potential of practical music making experiences as a valuable professional development activity for music educators (Bernard, 2005; Fredrickson, 2006; Pellegrino, 2010, 2011; Russell, 2009; Scheib, 2006; Stanley, 2009). For example, in a survey of attitudes held by string teachers, Russell (2009) found that teachers who remain active as a musicians exhibit greater job satisfaction. Other reasons for teachers to make music outside the classroom include: to nurturing themselves; to gaining credibility with students; to facilitate their development as good instrumental/vocal models; to build empathy by remembering the process of being a musical learner; to mastering new repertoire or musical genres; and to combat teacher burnout (Pellegrino, 2010, 2011).

Research into music teachers’ careers has established that teachers can feel isolated, both from their fellow music teachers and from other professionals in their schools (Conway & Christensen, 2006; Hammel, 2007; Lipscomb & Sindberg, 2005). To address this,
Lieberman (1995a) envisages the possibility of transforming schools into learning organizations, in which teaching communities and students grow together and solve problems collectively. However, Barrett (2006) establishes that there are few opportunities for music teachers in school settings to work collaboratively with their colleagues, because their busy schedules hinder the ability to consult with colleagues during school hours. Moreover, music teachers are often involved in extra-curricular activities during break times and outside school hours.

On a different vein, Cain (2010) investigated how music teachers use action research as a means of improving music teaching in secondary school classrooms in the UK. The author worked alongside seven high school music teachers as an advocate for action research and as a facilitator that enabled them to conduct their own practitioner-based action research projects. The data collected included teachers’ entries into the project’s wiki, transcripts of their presentations, individual and group interviews, and individual questionnaires. The types of knowledge generated by these projects was analysed and it was found that this knowledge included experiential, presentational, propositional and practical knowing. He concludes that while it is unrealistic to expect all action research to generate Big K knowledge, a teachers’ action research is a valuable form of professional development and has the potential to generate knowledge that can be generalised to other teachers. Accordingly, this concept of action research in teaching has been developed as a crucial element in the present study (see Chapter 5).

Outside schools, professional networks, collaborations, and partnerships help connect teachers with communities that can support their learning, provide resources and connect teachers with topics that are intrinsic to their work (Barrett, 2006; Lieberman, 1995a). Barrett (2006) lists a number of roles that music teachers can assume within the community such as: leadership roles in professional organisations; organising community music events; mentoring young teachers; and collaborating with community arts groups. She further notes the potential of these activities to bring teachers into contact with “ideas, resources, people, and settings that complement and extend school offerings” (p. 22). Fredrickson (2006) suggests that universities with music departments could provide valuable professional networks by “reintroducing teachers to the things about the study of music that motivated and inspired them when they were students” (p. 6). Similarly, Day (1999) explores the potential of universities to foster lifelong learning partnerships with teachers.  As another form of partnership, Shaw (2011) studied the professional learning opportunities arising
from artist in residence programs in schools. The findings for her study provide grounded propositions about teacher learning that illustrate the potential for artist/teacher collaborative partnerships to serve as important professional development opportunities and address teacher isolation within schools.

In the United States, certain schools designated as Professional Development Schools (PDS) operate as a partnership between university teacher education programs and the public school system. In providing professional development in music education, many of the PDS pair an experienced music teacher with a university student in a mentoring relationship (Conkling & Warren, 1999). The author concludes “bringing practicing music teachers together with university music faculty to improve teaching and learning for both groups of students affords teachers an excellent opportunity to bring about school reform and it affords university professors an opportunity to make their work more professionally relevant” (p. 23).

In England, a national plan for music education launched in 2011 by the Department for Culture, Media and Sport determined that: (i) schools cannot be expected to do all that is required of music education alone and (ii) a music infrastructure that transcends schools is necessary (The Importance of Music: A National Plan for Music Education, 2011). As part of this new infrastructure, new music education hubs will be established in all regions and will augment and support music teaching in schools, providing continuing professional development and strengthening leadership practice, including acting as a gateway to sources of expertise, and local networks to address music teacher isolation. Additionally, the British government has pledged to audit music teacher qualifications; provide new courses of Initial Teacher Training (ITT) in music; and provide continuing professional development (CPD) to music teachers.

2.3.3 Summary and critique: Section 3 Literature

Professional development requirements of Australian educators are dictated by State education departments or teacher registration boards. For example, teachers registered in Victoria, must keep records and substantiate that they have “undertaken a defined quantity and scope of professional development activities when applying for renewal of registration” (VIT, 2012). The current requirement for teachers registered in Victoria is 100 hours of
professional learning activities over the course of 5 years. Similarly, teachers registered in New South Wales are expected to “maintain a record of effective ongoing professional learning” and “engage in professional development to extend and refine teaching and learning practices” (NSWIT, 2012).

Among the many recommendations posed by the National Review of School Music Education (Pascoe et al., 2005), the following addresses the need for professional development of music educators:

“Provide programmes of professional development for primary and secondary specialist teachers – including instrumental and vocal teachers - to develop and maintain specific knowledge, understanding, skills and values and refresh perspective on music education (p. xviii).

However, despite mandated requirements, participation in professional development, appears to be largely an individual teacher’s decision. As Avalos (2011) has suggested, “Not every form of professional development, even those with the greatest evidence of positive impact, is of itself relevant to all teachers” (p. 10). There is a paucity of research into the professional development choices that Australian music teachers make; the motivation behind those choices; and the way teachers apply knowledge gained from professional development experiences to improve practice. Teachers are likely to select professional development activities in which they will participate from the various options on offer by a disparate set of providers (Sykes, 1996).

**Section 4: Interconnected themes in the literature**

The final section of the ‘Review of Literature,’ explores the intersection between the three related themes of school singing, adolescent voice pedagogy and teacher education. Specifically, this intersection concerns the education and professional development of secondary school music educators who work with adolescent voices. Literature on the pre-service education and professional development of teachers in adolescent singing is scarce and there is tremendous potential to explore this important area further, particularly empirical studies that investigate how teachers acquire vocal knowledge and the kind of knowledge and skills that are employed by teachers who work with adolescent voices effectively.
A problem inherent in reviewing literature on the education and development of teachers in singing is that the term ‘singing’ in the context of Australian secondary schools, can have diverse meanings. In some schools, studio singing is offered on a user-pays basis and taught by specialist singing teachers. In other schools, massed singing is promoted as an enriching experience or expression of school patriotism and community (Barclay, 2008). In some schools, classroom singing forms the basis for the sequential teaching of music curriculum (Choksy et al., 2001; Hoermann & Herbert, 1979). Harrison (2004a) has observed incongruity between the way vocal teaching is approached by studio voice teachers, by classroom teachers and by choral conductors with conflicting opinions, philosophies and goals between three types of vocal teachers. Therefore, the question of generalizability arises when a study has focused on one particular context for teaching singing, such as studio teaching, or if a study has addressed only one type of singing, such as classical singing.

General music education literature suggests that professional development of teachers in the area of singing needs to include not only knowledge of voice pedagogy and voice science, but development of the teacher’s own vocal skills and confidence. Similarly, Callaghan (1997) argues for a multifaceted approach to the education of voice teachers, taking into account various forms of knowledge accumulated experientially and through research as well as the students and teaching contexts:

“A flexible model of professional education for singing teachers needs to take account of both the craft knowledge currently employed by practitioners in their approach to skill teaching and the voice knowledge accumulated through experimental and qualitative research. It needs to take into account the clients of the singing teaching profession and the setting in which their work will be done” (p. 249).

Like other writers in music education, Henry (2001) recognises the value of professional development partnerships (PDP) for bridging the divide between research and practice. He suggests “through the efforts of a PDP, researching the child voice can become a more collaborative effort among researchers and practitioners, thus deepening their mutual understanding of child vocal development” (p. 6).

A study of exemplary American classical singing teachers \(N=16\) by Blades-Zeller (1993) found members of the group were educated initially through the American university and/or conservatory system and then later taught within the same system. The study demonstrates that these studio voice teachers accessed their education and development largely through membership in the National Association of Teachers of Singing (NATS); by reading journals...
on singing; and by attending conferences organised by NATS. Some of the teachers also cited attending concerts, recitals and listening to recordings as professional development activities. Similarly, Kiesgen (2005) encourages studio voice teachers to view themselves as “advanced learners” who stay apprised of voice science as well as past and present methods of vocal instruction through regular reading. He concludes: “contact with other teachers through live master classes and discussions, and the reading of books on voice pedagogy keep us fresh and flexible as teachers and make us truly effective in the voice studio” (p. 4).

Harrison (2004a) found marked differences in the training and skill of secondary school teachers who direct various school music ensembles. Instrumental ensembles (concert bands, orchestras and chamber groups) were commonly directed by specialist instrumental teachers who possess technical knowledge of one or more instruments found in that particular ensemble. Conversely, school choral groups were often directed by generalist or classroom music teachers, most of whom have no formal training in singing or vocal pedagogy. A study by Hughes (2007) corroborates these ideas and found that within a sample of secondary schools in New South Wales, instruction in group singing was delivered largely by classroom music teachers. Although some of these teachers worked alongside vocal specialists, many worked in isolation. She further adds:

“The reality is that for many students, school singing begins with teachers who may not have experience, interest or confidence in singing. Where singing is not a priority or where singing is not included in school activities in constructive ways, the issue of negative transference and whether students will emulate these traits is raised” (Hughes, 2007, p. 294).

The study by Hughes highlights the fact that many classroom or generalist music teachers are working with children’s voices on a daily basis and may have little practical training in voice pedagogy or access to relevant support. Australia is yet to see any form of organised professional development programmes specific to school singing. However, overseas models prove that such programmes are achievable. For example, in January 2007, the UK Government announced it would invest £40 million over four years in a national singing programme for primary schools and appointed English composer and television presenter, Howard Goodall as national ambassador for school singing. The “Sing Up” programme sought to raise the profile of singing and increase the participation of British children in singing through a threefold initiative: a high-profile public campaign to demonstrate the value of singing; publication of accessible teacher resources on the internet; and a comprehensive professional development programme for teachers who wish to lead singing
(Goodall, 2007). The “Sing Up” programme represents one of the largest and best resourced programmes of professional development in school singing yet attempted. In an independent national review of music education in England Henley (2011) noted:

“The Sing Up programme has been successful in engaging primary schools with singing and has begun to give primary school teachers the confidence to teach the subject, with a tool-kit of resources to help make that possible. Every school should have an on-going singing programme, either developed in their local area, or using the resources created by Sing Up.” (p. 11).

**Conclusion**

This chapter has reviewed literature on the phenomenon of singing in Australian secondary schools, starting with a historical perspective. The complexities of teaching adolescent voices were then explored, demonstrating the breadth of physiological, psychological and pedagogical knowledge that secondary school teachers who are seeking to expand their knowledge in singing may need to possess. In Section 3, literature on the professional development of teachers, music educators and music educators working with adolescent voices was discussed. A dearth of research into the professional development of secondary music teachers in the area of voice pedagogy was unearthed, which drives the development of the present study. The subsequent chapters report on the three-phase study exploring factors that both detract from or enhance teacher skills and knowledge in working with adolescent voices. This important topic will be explored from a variety of angles and using several different groups of participants.
Chapter 3: The Voice of Secondary Teachers

Phase 1: A survey of Australian secondary school teachers: their opinions, knowledge and skills in working with adolescent voices.

3.1 Introduction

In order to establish the needs of teachers who work with adolescent voices and to develop mechanisms to meet these needs, it was essential to ascertain a general overview of their current beliefs, attitudes and their self-perceptions of their skills and knowledge. To achieve this, an anonymous, online, mixed-method questionnaire was devised, which aimed to collect both qualitative and quantitative data from a broad range of secondary school music teachers who have an interest in the teaching of singing or whose teaching somehow incorporates singing activities. This initial phase of the study was conducted between 2010 and 2012 and the questionnaire received 238 responses from secondary school music teachers in every State of Australia.

3.2 Methodology

The use of surveys is a form of descriptive research which is common in education and useful for gathering factual information and data on attitudes, behaviour and experiences (R. Burns, 2000; Gay, Mills, & Airasian, 2006). Surveys may seek to explore relationships and patterns where no assumptions are proposed or, alternatively, they may be used to test and confirm hypotheses. Nevertheless, the data they provide are “descriptions of feelings and perceptions, values, habits, and personal background or demographic characteristics such as age, health, education and income” (Fink, 2006, p. 4). Whilst various strategies for survey design are suggested in the literature (R. Burns, 2000; Louise Cohen, Manion, & Morrison, 2007; Gay et al., 2006), the process outlined by Gray (2009, p. 2) was adopted for the design of this study, because it provided a clear structure that matched the goals and expectations of this project. Gray’s process incorporated the following eight steps:

1. Define objectives
2. Define population and sampling method
3. Design a data collection strategy
4. Develop questionnaire
5. Collect data
6. Manage data
7. Analyse data
8. Report results
3.2.1 Defining the objectives

The rationale for this survey was to complete a situational analysis and explore the nature of working with adolescent voices in Australian secondary schools from the perspective of current teachers. This survey speaks to the overarching research question for this thesis, ‘what factors enhance and detract from teacher skills and knowledge in working with adolescent voices?’ It does this by collecting information on teachers who are currently implementing vocal programmes and through analysing their perceptions and opinions. This information may be used to better understand the experience of teachers and to help devise professional development programmes that are likely to be meaningful and address current teacher needs.

3.2.2 Defining the population and sampling method

The population for this study was broadly defined as secondary school music teachers who, in some way, work with adolescent voices. Identifying the population presented challenges as previous research has suggested that secondary teachers who work regularly with singing may not consider themselves to be ‘singing teachers’ per se (Hughes, 2007). Because of this, in the present study, the term ‘singing teacher’ was avoided in favour of more generic terms such as ‘singing activities’ and ‘working with voices’. However, this also meant that an accurate population was impossible to determine. An invitation to participate in the questionnaire was extended to all teachers who considered themselves to be: a secondary school music teacher using singing activities in the classroom; a teacher of singing (whether choral, classroom or studio) who works with secondary-aged children; and/or a teacher conducting a community choir or vocal ensemble catering for secondary students.

Methods for sampling survey populations may be broadly classified into probability and non-probability techniques (Gay et al., 2006; Sue & Ritter, 2007a). Probability techniques draw randomly from a wider, known population via a pre-defined technique, whereas non-probability sampling is not random and targets a particular group with the understanding that this group may not necessarily represent the wider population (Louis Cohen, Manion, & Morrison, 2011). In general, probability sampling is considered to be superior, because it is more likely to be representative of the wider population and affords the researcher opportunities to make generalisations about the population (Gray, 2009). However, when a population is unknown, a probability sample is impossible to gather.
Non-probability sampling is considered appropriate for exploratory research and the most practical option for online surveys (Sue & Ritter, 2007a). Because of the exploratory nature of the present study and the obscure population parameters, this survey employed the technique of convenience or opportunistic sampling. A convenience sample is a form of non-representative sampling where respondents were selected because they were accessible, willing to participate and/or possessing an interest in the survey topic (R. Burns, 2000; Louis Cohen et al., 2011). The sample was recruited from both government and independent secondary schools across Australia. Also, multiple strategies for promoting the survey (electronic, written, institutional and cold-canvasing) were used. Lastly, features of the online survey software were used to prevent a respondent from completing the survey more than once.

3.2.3 Data collection

Surveys may be described as cross-sectional or longitudinal with the distinguishing factor being the manner in which data is collected. A cross-sectional survey is a stand-alone study in which data is collected once from participants in a single time period. Alternatively, when data is collected in two or more instances for the purpose of measuring change or growth over time this may be described as a longitudinal survey (Gay et al., 2006). Methods for collecting data in both cross-sectional and longitudinal surveys may include: personal interviews, telephone interviews, postal surveys, self-administered surveys and interviewer-administered.

As a form of survey, self-completed questionnaires are often used to gather large-scale data from a sample population in order to report with some degree of statistical validity that particular characteristics occur with regularity and/or that certain factors are related (Louise Cohen et al., 2007). One strategy for administering self-completed questionnaires is to use electronic resources, such as email and web-based software. Growing in popularity among researchers, this strategy has both inherent advantages and disadvantages (Louis Cohen et al., 2011; Fink, 2003; Gray, 2009). In this study, the advantages of being able to reach large groups of teachers from around the country as well the ability to use several forms of self-rating scale were judged to outweigh the potential disadvantages inherent in working with electronic surveys.
Accordingly, a self-completed cross-sectional questionnaire was considered appropriate for this study, because it had the capacity to provide detailed information regarding the existing knowledge and practices of secondary school teachers who work with singing as part of their day-to-day duties. The use of an internet-based survey gave the opportunity to access a large number of teachers across both metropolitan and rural areas of the country without excess intrusion into teacher’s busy schedule. An additional consideration was that this type of survey was a cost- and time-effective strategy for a single researcher.

3.2.4 Questionnaire development

In order to gather initial information about the needs of singing teachers, survey questions were formulated around some key concepts: (i) teacher demographics, (ii) pre-service teacher education in singing, (iii) teacher opinions and attitudes towards singing, and (iv) the professional development of teachers. These key concepts gave rise to a set of subsidiary research questions (outlined below) which became the basis for the formulation of the individual survey questions.

<table>
<thead>
<tr>
<th>Key concept #1: Teacher demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Who teaches singing to Australian secondary school students?</td>
</tr>
<tr>
<td>• In what contexts does the teaching occur?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key concept #2: Teacher education and knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is the range of skills and knowledge in voice pedagogy possessed by teachers who work with adolescent voices?</td>
</tr>
<tr>
<td>• What formal and informal education have teachers experienced in singing?</td>
</tr>
<tr>
<td>• What aspects of their pre-service education do teachers deem most helpful?</td>
</tr>
<tr>
<td>• Where do teachers source additional information about working with singing?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key concept #3: Teacher opinions and attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What opinions and attitudes do Australian secondary school teachers hold about working with adolescent voices?</td>
</tr>
<tr>
<td>• How do teachers perceive their skills and knowledge in working with singing?</td>
</tr>
<tr>
<td>• In what areas do teachers feel their knowledge is lacking? In what areas could professional development be most beneficial?</td>
</tr>
<tr>
<td>• What resources are most likely to help teachers be more effective?</td>
</tr>
</tbody>
</table>

Survey questions may be broadly classified as open (or open-ended) and closed. Open questions allow respondents to use their own words and are typically qualitative in nature, whereas closed questions ask respondents to choose from a set of pre-selected answers and lend themselves to quantitative analysis (Fink, 2003; Gray, 2009). This questionnaire
An initial draft of the questionnaire was submitted to University of Sydney Human Research Ethics Committee and approved. Moreover, since respondents to this online survey were essentially volunteers, other steps suggested by Sue and Ritter (2007b) were adopted to address the ethical implications of this study. These steps included:
1. Use of an initial welcome screen explaining the nature and objectives of the survey, giving the identity of the researchers, clarifying how the data would be used and outlining the expected time needed to complete the survey. This information allowed respondents to give informed consent.

2. An assurance of respondent confidentiality and anonymity. The use of online software to submit responses, rather than email also protected anonymity.

3. Respondents were given the option to provide contact details if they wished to receive further information about this study and/or if they wished to participate in further elements of this research project. This option was left until the end of the survey and was preceded by a warning screen explaining that this step was voluntary and how any contact details supplied would be used.

4. Ethical reporting and interpretation of results which sought to avoid any deliberate misrepresentation of the data or findings and avoided reporting data in a way that could compromise anonymity.

Research instruments such as a self-completed questionnaire provide a single opportunity to gather meaningful data from respondents. If questions are inaccurate, ambiguous, or too complicated then the effectiveness of the research-instrument is compromised and the likelihood of a non-response to, or misinterpretation of the questionnaire is increased. To address these concerns, piloting is recommended by numerous authorities (Louis Cohen et al., 2011; Gray, 2009; Litwin, 2003). Accordingly, this questionnaire was piloted by three colleagues – two experienced researchers and one high school music teacher who was a member of the target sample. Piloting occurred with the questions on paper first and then with the questionnaire in its final electronic form. Colleagues received a piloting checklist (Litwin, 2003, p. 67) and were asked to comment on content, style, ambiguities, ease of online navigation and overall survey length. The questionnaire received three revisions before its final form was adopted (see Appendix D).

3.2.5 Data Collection

Recruitment of the sample was handled through an invitation to participate in the survey sent to secondary schools in metropolitan areas of all Australian States and Territories. The invitation was sent both via mail and facsimile. Using the database of an independent marketing/promotions company, 857 invitations were sent via facsimile to schools. A second distribution group comprising 293 secondary schools was created from searches of an online telephone directory and this group received written invitations via mail. Further invitations were distributed electronically (with permission) via the email lists of professional associations, including Australian National Association of Teachers of Singing (ANATS),
The Kodály Music Education Institute of Australia (KMEIA), and the Association of Music Educators Victoria (aMuse). These methods ensured a broad coverage of the target sample. However, the success of these recruitment strategies by mail or facsimile is difficult to gauge, because both methods constitute cold canvassing and may rely on the actions of intermediaries receiving the invitation to pass it on to potential respondents. Invitations sent via professional associations were more likely to reach teachers directly, but may lead to an over-representation of respondents who are members of a professional association.

3.2.6 Data analysis

The survey was administered via the web-based software, Survey Monkey. This software provided a basic level of data analysis by suppling descriptive statistics of the responses received. All data from the Survey Monkey responses was downloaded as a spreadsheet and imported both into quantitative and qualitative data analysis statistical software packages for further study. Software used in the analysis of data from this questionnaire included SPSS (IBM) for quantitative data and NVivo (QSR Software) for the qualitative data contained in open-ended responses.

The various statistical processes employed in the analysis of quantitative data are explained in more detail in the results section. Analysis of the qualitative data used a simplified form of thematic analysis (Louis Cohen et al., 2011; Guest, MacQueen, & Namey, 2011). This was an iterative process in which the data were examined from different perspectives at different times. Using a process of auto-coding in NVivo (Bazeley, 2007), the data were coded so it could be studied for each individual respondent and also responses to particular questions. Then, using a process described as open coding (Louis Cohen et al., 2011; Gray, 2009) or free-coding (Bazeley, 2007), nodes were attributed to each new occurrence of a theme or idea. Next, a process of axial coding (Louis Cohen et al., 2011; Gray, 2009) was used to connect or relate each of the free codes through a process of clustering items into sets (Bazeley, 2007). Each of the sets were re-examined, and grouped until it was deemed that no new ideas were being generated.
3.3 Results

3.3.1 Section 1: Teacher Demographics

The questionnaire received 238 viable responses. Questions in Section One - Teacher Demographics sought to profile respondents in terms of their gender, level of teaching experience, the context(s) in which they work with singing and the extent of their working week that is devoted to the teaching of singing activities. 72% of the respondents were female. In describing their level of teaching experience, respondents could choose between 5 options: (i) 0-5 years (beginning teachers), (ii) 5-10 years (intermediate level), (iii) 10 – 15 years (experienced), (iv) 15 – 20 years and (v) 20+ years (highly experienced). The majority of respondents indicated they were either highly experienced (with 20+ years of teaching, 24%) or relatively inexperienced teachers (5 or less years, 29%).

A Pearson chi-square analysis was performed to test the relationship between gender and voice teaching experience of the respondents. The test revealed that gender was independent of experience level $\chi^2(4, N= 232) = 2.48, p = 0.12$ meaning that neither males nor females who responded were any more or less experienced. Fewer teachers in the middle bands of experience ($N= 60$) (between 5 and 20 years of experience) seemed to respond to this survey.

In classifying their working context, respondents could choose from five categories, including: studio tuition (one-to-one), studio tuition (small groups), classroom music teaching, choral director, director of small vocal ensembles. There was also the option to select more than one category or specify a category not represented. The majority of respondents (78%) identified as classroom music teachers, with the next most popular response (55%) identifying as choral directors. A common trend was for respondents to select both ‘classroom music teacher’ and ‘choral conductor,’ highlighting the fact that secondary school music teachers often have multiple roles and responsibilities.

More than half of the respondents (56%) said that they work either in an Independent or a Catholic school, while 29% worked in Government schools. The higher proportion of respondents in independent schools compared to government schools may align with research by the Music Council of Australia which found that as little as 23% of government schools offered an effective music education compared to 88% of independent schools ("About Music Count Us In," 2012).
Most respondents (62%) indicated that they worked with students of both sexes (co-educational settings) with the next most popular response (40%) indicating work with girls (single-sex groups). Respondents also revealed that they worked with singing across a variety of contexts, including: school choirs, classroom singing, small vocal groups, and studio/private teaching. However, the most prevalent were classroom teaching (68% of respondents) and school choirs (66% of respondents). A surprising finding was that for many respondents, working with singing activities appears not to be a major focus of their normal working week. About half the respondents estimate that they spend a small to moderate amount of their average working week (between 0 and 40% of the week) on singing or singing activities, while only a minority (14% of respondents) claim to spend the greater part (from 80 to 100%) of their time working with singing (See Figure 3-1).

Figure 3-1 Estimated time fraction of an average working week devoted to singing

3.3.2 Section 2: Teacher Education, Knowledge and Skills

The academic qualifications of respondents ranged between no formal qualifications to higher research degrees. However, most respondents (67%) tended to have either an undergraduate degree or postgraduate degree in music education that did not explicitly include the study of singing. A smaller group (27%) indicated they had majored in singing.
in their undergraduate or postgraduate education. Respondents were asked about several areas of informal training that may contribute to their understanding of singing. These areas included: experience as a performer, singing with a community choir, completing performance based examinations (such as the Australian Music Examinations Board) and undertaking private tuition with a teacher of singing. A large number of respondents (61%) indicated that they had taken tuition at some time with a private teacher of singing. This question also provided an option to specify other types of informal training and several respondents elaborated on their involvement in community and church choirs and some described long experiences with singing throughout their school education.

To explore the dimension of teacher knowledge and skills further, respondents were asked to rate aspects of their experience and training in terms of how useful or significant these areas were in helping them work with voices. Ten sub-topics of experience and training were chosen and these topics considered a variety of factors, including academic education, informal learning, professional development courses and practical experience with singing. Using a five point Likert scale, respondents rated each item as: (i) not applicable, (ii) not useful, (iii) somewhat useful, (iv) useful or (v) very useful. Accordingly, the maximum coded score for each item was 4 (suggesting that the respondent views this training as highly significant) and the minimum possible score was 1 (denoting a low level of significance). The middle numerical value on this scale is 2.5 and an overview of teacher ratings in Table 3-1 (below) demonstrates that the first five items have means above this middle value and the remaining five items have means below this value. Selecting ‘not applicable’ was an indication that the respondent believed this training or experience was never completed and these values were not included in the calculation of means. Additionally, there were respondents who did not respond at all to this question and some respondents who only responded to certain items in this question.
Table 3-1 Teacher Self-Assessments of their Training and Experience

<table>
<thead>
<tr>
<th>Activity</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>N.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactions with colleagues and professional networks</td>
<td>209</td>
<td>3.2</td>
<td>1.0</td>
<td>9 (4%)</td>
</tr>
<tr>
<td>Experience as a performer (professional or amateur singing)</td>
<td>211</td>
<td>3.1</td>
<td>1.3</td>
<td>21 (10%)</td>
</tr>
<tr>
<td>Singing in community choirs or vocal ensembles</td>
<td>213</td>
<td>2.8</td>
<td>1.3</td>
<td>28 (13%)</td>
</tr>
<tr>
<td>Professional development courses/seminars</td>
<td>208</td>
<td>2.7</td>
<td>1.4</td>
<td>33 (16%)</td>
</tr>
<tr>
<td>Private singing lessons</td>
<td>210</td>
<td>2.6</td>
<td>1.7</td>
<td>54 (26%)</td>
</tr>
<tr>
<td>Professional Publications on the teaching of singing</td>
<td>208</td>
<td>2.2</td>
<td>1.3</td>
<td>40 (19%)</td>
</tr>
<tr>
<td>University classes in music education</td>
<td>212</td>
<td>2.0</td>
<td>1.2</td>
<td>24 (11%)</td>
</tr>
<tr>
<td>Involvement in professional associations</td>
<td>210</td>
<td>2.0</td>
<td>1.4</td>
<td>58 (28%)</td>
</tr>
<tr>
<td>University classes in voice pedagogy</td>
<td>210</td>
<td>1.7</td>
<td>1.5</td>
<td>76 (36%)</td>
</tr>
<tr>
<td>Practical examinations (e.g. AMEB)</td>
<td>202</td>
<td>1.2</td>
<td>1.4</td>
<td>93 (46%)</td>
</tr>
</tbody>
</table>

Note: Responses on a 5 point Likert scale, where 0=Not Applicable (NA), 1=not useful and 5=very useful. A NA response was not included in the calculation of means.

For the most part, respondents indicated that they had not received classes in voice pedagogy at university. Furthermore, university classes in music education were only rated useful by a third of respondents. In general, respondents rated their practical experience as a performer, their professional development courses and their interactions with other colleagues as being the most significant aspects of their training.

3.3.3 How respondents source knowledge and skills about singing

Many respondents (64%) said that they read professional publications on the teaching of singing and a variety of publications were named. The most commonly mentioned included various newsletters produced by music associations, such as the Kodály and Orff associations, the Australian National Association of Teachers of Singing (ANATS) and the Australian National Choral Directors Association (ANCA). Text books on singing that respondents mentioned frequently included: Chapman (2006), Miller (1996b), Phillips (1992b) and Thurman et al. (2000). These texts were included in the review of voice pedagogy literature in Chapter 2.

The majority of respondents (58%) indicated they were eclectic in their approach to working with voices, borrowing techniques widely from a variety of named approaches and sources. A smaller number (43%) said they used a particular method or named approach to the teaching of singing. Approaches mentioned by several respondents in this category included
Estil Voice Training\(^3\), Speech Level Singing\(^4\) and Bel Canto\(^5\). However, the most popular of the named approaches was the Kodály\(^6\) method, mentioned by 58 respondents. This is an interesting finding as Kodály is not a method of teaching singing per se, but rather an approach to the development of musical skills.

Membership of a professional association did not feature prominently in the sample, with only 35% indicating that they were members of an association that has an interest in the teaching of singing. The majority of responses (65%) indicated no membership in such associations. The associations mentioned most frequently by respondents included various State branches of *The Australian National Association of Teachers of Singing* (ANATS) and also the *Kodály Music Education Institute of Australia* (KMEIA). The fact that the researcher is known in both associations and that recruitment strategies included contacting members of these associations may have been a contributing factor in the high responses from these groups. However, it is also plausible that these two associations tend to attract more secondary school teachers who have an interest in singing and who are therefore likely to respond to a survey that involves school singing. Among the group who indicated membership of an association, many tended to be members of multiple associations. Many respondents (62%) said they read publications on the teaching of singing and, when asked to elaborate on which publications they read, respondents mentioned newsletters and journals published by the professional associations named previously.

### 3.3.4 How respondents perceive their skills and knowledge

A ‘voice teaching self-efficacy scale’ was constructed for this questionnaire to measure respondent’s perception of their teaching ability and their level of confidence in managing various aspects of working with adolescent voices. This scale was constructed by selecting and grouping various topics found in the critical analysis of the voice pedagogy literature (see Chapter 2) and also informed by the researcher’s experience as a secondary music teacher. Using a five point Likert scale and a multi-item question, respondents were asked

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3 Based on research conducted by American voice specialist Jo Estil during the 1970s, Estil Voice Training is both a certification programme for teachers and an approach to vocal technique that breaks singing down into a number of discrete functions known as compulsory figures (www.estillvoice.com).

4 Speech Level Singing (SLS) is a pedagogical approach developed by Los Angeles vocal coach, Seth Riggs. SLS claims to achieve what other pedagogical approaches cannot, “an effortless, powerful and expressive voice” that allows one to sing clearly and freely anywhere in the vocal range (www.speechlevelsinging.com).

5 Bel Canto is an ambiguous term, which in this context, is taken to mean classical voice training.

6 The Kodály concept is based on the educational philosophies of the Hungarian composer Zoltán Kodály and is a method of music education that involves the use of singing to build aural acuity and musical literacy.
to rate themselves either as: (i) not confident, (ii) somewhat confident, (iii) confident, (iv) very confident or (v) always confident across 19 sub-topics of voice pedagogy. In this scale, the maximum possible confidence score is 5 (denoting an extremely positive view of skills and knowledge) and the minimum possible theoretical score is 1 (denoting an extremely low level of confidence). Accordingly, if a respondent generated a score close to 3, this can be perceived to be a relatively neutral response. Results are outlined in Table 3-2 below.
Table 3-2 Voice teaching self-efficacy scale

<table>
<thead>
<tr>
<th>Voice Pedagogy Sub-Topic</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaking down and teaching a song</td>
<td>212</td>
<td>4.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Teaching vocal expression</td>
<td>212</td>
<td>4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Teaching aural skills</td>
<td>212</td>
<td>4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Pitch accuracy</td>
<td>212</td>
<td>4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Working with diction or text</td>
<td>212</td>
<td>4.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Using your own voice (as teacher) to model</td>
<td>212</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Performance craft</td>
<td>212</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Sight singing</td>
<td>211</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Helping students to practice</td>
<td>209</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Caring for your student’s vocal health</td>
<td>212</td>
<td>3.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Teaching breathing</td>
<td>211</td>
<td>3.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Vocal warm ups</td>
<td>212</td>
<td>3.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Repertoire selection</td>
<td>212</td>
<td>3.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Caring for your own vocal health</td>
<td>212</td>
<td>3.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Posture</td>
<td>212</td>
<td>3.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Vocal range and registers</td>
<td>212</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Resonance and tone development</td>
<td>210</td>
<td>3.3</td>
<td>1.3</td>
</tr>
<tr>
<td>The changing voice</td>
<td>212</td>
<td>2.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Vocal anatomy/physiology</td>
<td>212</td>
<td>2.7</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Valid N (list wise) 202

Note: Responses on a 5 point Likert scale, where 1 = not confident and 5 = always confident.

To explore the notion of teacher confidence on the voice teaching self-efficacy scale further, individual confidence ratings were combined in order to create an overall confidence score and reliability tests demonstrated a high level of internal consistency in support of this ($\alpha = 0.96$). The minimum possible overall confidence score was 0 and the maximum possible score was 76. The mean confidence score for all respondents was 50.5 (Minimum = 8, maximum = 76, $SD = 17$). This score demonstrated a moderate degree of confidence for respondents across multiple topics, but the measures of central tendency also demonstrated a high degree of variability among respondents.

In examining confidence ratings on individual items, an interesting trend was observed. Respondents tended to rate themselves higher on some items such as: teaching songs and expressive singing. Conversely, topics in which respondents reported lower degrees of
confidence included: the changing voice and vocal anatomy/physiology. This variation in confidence ratings across various items appeared to suggest the existence of some underlying factors of confidence, and so the factorability of the 19 individual confidence items was examined. Several well-recognised criteria for determining the factorability of a correlation were used. Firstly, 18 of the 19 items correlated at least .3 with at least one other item, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was .94, above the recommended value of .6, and Bartlett’s test of sphericity was significant ($\chi^2 (171) = 3637.1$, $p < .05$). The diagonals of the anti-image correlation matrix were all over .5, supporting the inclusion of each item in the factor analysis. Finally, the communalities were all well above .3, confirming that each item shared some common variance with other items. Given these indicators, a principal components analysis was conducted with all 19 confidence items.

Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors. Only two factors presented initial Eigen values greater than one and the Eigen values indicated that the first two factors explained 61% and 8% of the variance respectively. Solutions for three and four factors were examined using varimax and oblimin rotations of the factor loading matrix. The two factor solution, which explained 69% of the variance, was preferred because of: (a) its previous theoretical support; (b) the ‘leveling off’ of Eigen values on the scree plot after two factors; and (c) the insufficient number of primary loadings and difficulty of interpreting the third and subsequent factors. There was little difference between the two factor varimax and oblimin solutions and both solutions were examined before deciding to use the oblimin rotation for the final solution. An oblimin rotation provided the best defined factor structure. All items in this analysis had primary loadings over .5. Three items had a cross-loading above .3 (repertoire selection, expression, pitch accuracy and working with diction or text), but these items also had strong primary loadings above .5. The forth item (working with diction or text) showed almost equal loadings in both components and was thus eliminated from both components.

Interestingly, the two factors extracted appear to suggest some obvious distinctions. The individual items (or confidence topics) in the first component included: vocal anatomy, posture, breathing and resonance which relate to the more technical aspects of singing or voice technique. Conversely, items in the second component, such as aural skills, sight
singing and musical expression relate to more fundamental musical skills. In light of this, the factor labels ‘vocal technique’ and ‘musicianship’ were adopted and the factor loading matrix for this final solution is presented in Table 3-4 (below).

**Table 3-4 Factor loadings and communalities for 19 items on the teaching self-efficacy scale based on principal components analysis**

<table>
<thead>
<tr>
<th></th>
<th>Component 1</th>
<th>Component 2</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal anatomy/physiology</td>
<td>.97</td>
<td></td>
<td>.71</td>
</tr>
<tr>
<td>Posture</td>
<td>.91</td>
<td></td>
<td>.79</td>
</tr>
<tr>
<td>Caring for your own vocal health as teacher</td>
<td>.85</td>
<td></td>
<td>.71</td>
</tr>
<tr>
<td>Breathing</td>
<td>.85</td>
<td></td>
<td>.70</td>
</tr>
<tr>
<td>Resonance and tone</td>
<td>.85</td>
<td></td>
<td>.84</td>
</tr>
<tr>
<td>Caring for your students’ vocal health</td>
<td>.83</td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>Vocal warm-ups</td>
<td>.82</td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>Range and registers</td>
<td>.75</td>
<td></td>
<td>.77</td>
</tr>
<tr>
<td>The changing voice</td>
<td>.66</td>
<td></td>
<td>.60</td>
</tr>
<tr>
<td>Using your own voice to model concepts</td>
<td>.64</td>
<td></td>
<td>.53</td>
</tr>
<tr>
<td>Repertoire selection</td>
<td>.56</td>
<td>.34</td>
<td>.66</td>
</tr>
<tr>
<td>Aural skills</td>
<td></td>
<td>.93</td>
<td>.73</td>
</tr>
<tr>
<td>Sight singing</td>
<td>.87</td>
<td></td>
<td>.66</td>
</tr>
<tr>
<td>Breaking down and teaching a song</td>
<td>.62</td>
<td></td>
<td>.64</td>
</tr>
<tr>
<td>Helping students practice</td>
<td>.61</td>
<td></td>
<td>.58</td>
</tr>
<tr>
<td>Expression</td>
<td>.36</td>
<td>.59</td>
<td>.73</td>
</tr>
<tr>
<td>Performance craft</td>
<td></td>
<td>.56</td>
<td>.57</td>
</tr>
<tr>
<td>Pitch accuracy</td>
<td>.34</td>
<td>.55</td>
<td>.64</td>
</tr>
<tr>
<td>Diction or text</td>
<td>.47</td>
<td>.49</td>
<td>.75</td>
</tr>
</tbody>
</table>


Composite scores were calculated for both components identified in the factor analysis and the internal consistency for each of the scales was examined using Cronbach’s alpha. The alphas were high for both the musicianship ($\alpha = 0.92$) and vocal technique ($\alpha = 0.96$) scales. No substantial increases in alpha for any of the scales could have been achieved by eliminating any of the items.

The average confidence score for all respondents in the vocal technique component was 3.4 (Minimum = 1.1, maximum = 5, $SD = 1$, variance = 1) and the average confidence score for
all respondents in the musicianship component was 4.0 (Minimum = 1.4, maximum = 5, $SD = .8$, variance = .73). These scores demonstrate that respondents report greater confidence in handling the musical aspects of working with adolescent voices than in handling aspects that concern vocal technique. Also, the measures of central tendency taken with communalities in Table 3-3 suggest that there is greater variability among respondents for their confidence in handling vocal technique than in handling musicianship. This points towards the fact that most of the respondents were not specifically trained in singing.

To compare respondent’s gender and their mean confidence ratings, an independent-samples t-test was conducted. There was no significant difference in the scores for males ($N=59$, $M=49.1$, $SD=18.9$) and females ($N=152$, $M=51$, $SD=16.3$) conditions; $t (209) = -.73, p = .46$. These results suggest that neither males nor females rate themselves as more confident in working with adolescent voices. Further tests were conducted to explore the circumstances under which respondents may be likely to demonstrate a higher overall confidence score. An independent samples t-test was conducted to test the hypothesis that respondents who are members of a professional association are likely to generate higher confidence scores. There was a significant difference in the confidence scores for respondents who are members of an association ($N=73$, $M=55.7$, $SD=14.9$) and respondents who are not members ($N=136$, $M=47.6$, $SD=17.6$) conditions; $t (207) = -3.35, p=.001$) and these results suggest that respondents who are members of an association differ significantly in their confidence ratings from respondents who have no membership. Also, there was a trend for respondents who are members of a professional association to report greater levels of confidence in working with singing activities.

Next, respondents’ overall confidence score was compared with the level of teaching experience they reported using a one-way between subjects ANOVA. Five groups of experience level were included in this test: (i) 0 to 5 years, (ii) 5 to 10 years, (iii) 10 to 15 years, (iv) 15 to 20 years and (v) 20+ years. The test demonstrated a significant difference in overall confidence scores for the five conditions [$F(4, 206) = 6.53, p < .05$]. However, post hoc comparisons using the Tukey HSD test indicated that these differences were only significant when confidence scores for respondents in the beginning (0-5 years) experience group were compared to teachers in other groups. See table 3-3 (below).
Table 3-3 Voice teaching confidence scores in relation to teaching experience

<table>
<thead>
<tr>
<th>Experience level</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5</td>
<td>60</td>
<td>42.9</td>
<td>15.8</td>
<td>8.0</td>
<td>68.0</td>
</tr>
<tr>
<td>5 to 10</td>
<td>40</td>
<td>48.7</td>
<td>15.0</td>
<td>10.0</td>
<td>75.0</td>
</tr>
<tr>
<td>10 to 15</td>
<td>32</td>
<td>54.2</td>
<td>18.5</td>
<td>10.0</td>
<td>76.0</td>
</tr>
<tr>
<td>15 to 20</td>
<td>28</td>
<td>54.5</td>
<td>16.1</td>
<td>21.0</td>
<td>76.0</td>
</tr>
<tr>
<td>20+</td>
<td>51</td>
<td>57.1</td>
<td>15.3</td>
<td>11.0</td>
<td>76.0</td>
</tr>
<tr>
<td>Total</td>
<td>211</td>
<td>50.7</td>
<td>16.8</td>
<td>8.0</td>
<td>76.0</td>
</tr>
</tbody>
</table>

Note: minimum possible score = 0 and maximum score = 76

Taken together, these results suggest that the confidence scores of respondents do increase during the first five years of teaching and when plotted on a histogram, an interesting observation was made (see Figure 5-2 below). Reported confidence scores appear to increase sharply during the first ten years of experience and after the ten year mark, there appears to be less appreciable growth in teacher confidence scores.

Figure 3-2 Teacher confidence scores in relation to teaching experience

An independent-samples t-test was conducted to test the hypothesis that respondents who have completed professional development workshops and courses would demonstrate higher confidence scores. As expected, there was a statistically significant difference in the reported confidence scores for the group that had completed professional development (N=133, M=53.3, SD=16.4) when compared to the group that had not completed any professional development (N=79, M=45.7, SD=17.1) conditions; t (210) = -3.22, p = .002 and these results
show that respondents who have completed professional development courses also tend to feel more confident in working with singing.

A Spearman Rank-Order Correlation Coefficient was computed to assess the relationship between a respondent’s overall confidence score and the amount of time spent teaching singing. Predictably, there was also a positive correlation between the two variables, $r (N=213) = .378, p < .05$, suggesting a strong positive relationship between increases in the time spent teaching singing and increases in teacher confidence scores.

**Figure 3-3 Teacher confidence scores in relation to time spent teaching singing**

![Bar chart showing teacher confidence scores in relation to time spent teaching singing.](chart)

To explore whether there was a relationship between teacher confidence scores and their level of study, a comparison was made between respondents’ mean confidence scores and their highest level of academic qualifications using a one-way between subjects ANOVA. Six groups of academic qualifications were included in this test:

i. No formal academic qualifications  
ii. Undergraduate degree majoring in music/music education, but not strictly singing  
iii. Undergraduate degree with a major in singing  
iv. Postgraduate degree majoring in music/music education, but not strictly singing  
v. Postgraduate degree with a major in singing  
vi. Research degree (PhD or Masters) in singing or voice science

The test demonstrated a significant difference in overall confidence scores for the six conditions [$F(5, 197) = 6.13, p < .01$]. Post hoc comparisons using the Tukey HSD test
indicated that these differences were significant when respondents with a music education degree were compared to respondents with a major in singing. They were also significant when respondents with no formal qualifications were compared to respondents with postgraduate degrees. Taken together, these results demonstrate that respondents who majored in singing (either at an undergraduate or postgraduate level) report the highest overall confidence scores in working with adolescent voices. Also, that post-graduates tend to be more confident than undergraduates. Figure 3-1 (below) illustrates these relationships.

**Figure 3-3-1 Teacher Confidence Scores in relation to academic qualifications**

![Bar chart showing confidence scores by academic qualification.]

### 3.3.5 Where respondents believe their skills and knowledge are lacking

In their open answers, respondents were asked to comment on topics where they felt their vocal knowledge was lacking or needing improvement and 95 responses to this question were recorded. A thematic analysis of these open-ended responses using the NVIVO software package identified seven major topics:

i. Vocal technique
ii. Vocal anatomy
iii. The changing voice
iv. Repertoire selection
v. Musicianship
vi. Vocal health
vii. General improvement needed across all areas
The **vocal technique category** was assigned to responses that included breathing, registration, projection and warming up the voice. The **vocal anatomy category** included various references to anatomy, physiology and vocal development. References to the boy’s changing voice and the selection of appropriate repertoire to accommodate the changing voice were assigned to a **changing voice category**. Various comments from respondents indicated that they lacked confidence in sourcing repertoire for both choral and classroom singing and these comments were assigned to a **repertoire selection category**. This category also included responses from teachers who felt they were confident in their knowledge of repertoire from one particular musical genre, but needed assistance in selecting repertoire from other genres. The **musicianship category** described comments where respondents referred to teaching musical skills such as ‘singing in tune’ and ‘sight-singing’. Several respondents referred to vocal health. However, many of these responses were ambiguous in that it was unclear whether respondents meant caring for their own voices, caring for their students’ voices or caring for voices in general.

From the list of categories above, three topics accounted for the majority of responses where participants felt their skills were lacking and these included: vocal anatomy; the adolescent changing voice; and vocal health. These qualitative descriptions provide further confirmation of the statistical data that measured participant confidence across individual items. They suggest that a considerable number of respondents tend to be less confident when it comes to working with aspects of vocal technique. The two quotes below exemplify responses from participants who identify a lack of training in vocal anatomy:

**Respondent #050:** As an instrumental music teacher not strictly instructed in singing, I feel that my knowledge is lacking in the more technical areas of the anatomy/care of the voice, along with vocal registers and ways to improve vocal tone.

**Respondent #007:** I feel as though I came out of university with no confidence in singing/choral work. It was only after I attended many PDs, went to do my Kodaly Level and learnt from my director that I’m starting to improve my knowledge in this area [vocal anatomy]. I wish I knew more about this topic in general.
3.3.6 Section 3: Teacher Opinions and attitudes

Section three of the questionnaire explored respondents’ attitudes to the teaching of singing. To begin, respondents were asked to rate on a five point Likert scale how strongly they agreed with 16 statements concerning working with adolescent voices. Possible responses ranged from: (i) strongly disagree, (ii) disagree, (iii) no opinion, (iv) agree or (v) agree strongly. In this instance, the maximum possible score for each item is 5 indicating strong agreement with the statement, while a score of 3 can be considered a fairly neutral response. Responses (sorted in order of descending mean) are summarised below in Table 3-5. The last item in the table which appears to have a low mean score is really a reverse scored item and hence its mean is best regarded as a fairly neutral response.

Table 3-5 To what extent do respondents agree with statements about singing?

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary school students should sing</td>
<td>198</td>
<td>4.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Teaching singing to secondary school students is worthwhile and rewarding</td>
<td>200</td>
<td>4.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Singing is an important part of my approach to teaching</td>
<td>194</td>
<td>4.4</td>
<td>0.9</td>
</tr>
<tr>
<td>I can access repertoire my students will like</td>
<td>197</td>
<td>4.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Teaching singing to secondary school students is challenging</td>
<td>195</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Secondary school students enjoy singing</td>
<td>199</td>
<td>4.0</td>
<td>0.9</td>
</tr>
<tr>
<td>I have access to resources that support my teaching</td>
<td>197</td>
<td>3.9</td>
<td>0.9</td>
</tr>
<tr>
<td>I have access to relevant information on teaching singing</td>
<td>196</td>
<td>3.8</td>
<td>1.0</td>
</tr>
<tr>
<td>I practise singing and try to maintain my skills</td>
<td>196</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>I care for my own vocal health</td>
<td>195</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>My students have access to good vocal models</td>
<td>197</td>
<td>3.7</td>
<td>1.0</td>
</tr>
<tr>
<td>I feel my school administration supports the teaching of singing</td>
<td>197</td>
<td>3.7</td>
<td>1.1</td>
</tr>
<tr>
<td>I feel adequately trained for teaching singing to secondary school students</td>
<td>197</td>
<td>3.7</td>
<td>1.2</td>
</tr>
<tr>
<td>I have access to further training in the teaching of singing</td>
<td>196</td>
<td>3.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Publications on the teaching of singing are easy to understand</td>
<td>196</td>
<td>3.4</td>
<td>0.9</td>
</tr>
<tr>
<td>I feel embarrassed or self-conscious to sing in front of my students</td>
<td>201</td>
<td>1.7</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note: Responses on a 5 point Likert scale, where 1=strongly disagree and 5=agree strongly. Responses sorted in order of descending means.

Results summarised in the table above demonstrate that respondents generally have positive views on the place of singing in the secondary school, with the majority believing that secondary school students should sing; that singing was an important part of their approach to teaching; and describing the teaching of singing to secondary school students as “worthwhile and rewarding.” As one respondent wrote:
Respondent #013: “They actually love it when they can be persuaded to let go.”

Another mentioned:

Respondent #041: “Many secondary students have beautiful voices and I enjoy the challenge of showing them what they are capable of achieving. I thoroughly enjoy the interaction between my students and I. So many are intelligent and questioning. They are high-spirited and have definite opinions and are willing to argue a point. I find this very demanding and I really enjoy the exchange of ideas.”

A Pearson product-moment correlation coefficient was computed to assess the relationship between teacher responses to the statement “I feel adequately trained” and “I feel embarrassed to sing in front of my students.” Predictably, there was a negative linear correlation between the two variables \[r = -0.22, n = 196, p = 0.002\] meaning that increases in the amount of training respondents experience are likely to lead to decreases in the degree of embarrassment they feel in using their voices to teach. To test whether there were differences in the embarrassment ratings among either male or female respondents, an independent-samples t-test was conducted to compare respondent’s gender and their embarrassment ratings. There was not a significant difference in the scores for males (M=1.79, SD=1.12) and females (M=1.61, SD=0.95) conditions; t (198) = 1.11, p = 0.27. These results suggest that neither males nor females among this sample feel any more or less embarrassed to sing in front of their students.

Aside from the issue of personal embarrassment, respondents indicated a number of other challenging aspects involving their work with adolescent voices. There were 173 open responses recorded to this question. A thematic analysis of these responses revealed that challenges commonly described by respondents centred on: the motivation of students; building student self-confidence; and sourcing appropriate repertoire. Of these challenges, student motivation was most often mentioned by respondents as their key concern. Motivation issues were often experienced when students appeared disinterested or difficult to engage in singing activities. This was summed up by one respondent, who stated:

Respondent #052: My biggest challenge involves dealing with students who are disinterested, or who do not want to participate.

Of the respondents that mentioned problems they encounter with student motivation, many identified problems involving working with boy’s voices. According to one participant (#055), “I encounter resistance to singing by some students, especially boys. It takes a lot of energy to overcome their negativity. I have to be resilient!” Other problems included the
reluctance of boys to sing and self-consciousness arising from the adolescent boys’ changing voice. Respondent #011 confirms this saying, “Getting boys to sing at the higher part of their register, particularly when their peers are around. They are scared their voice will crack.” Given the difficulties experienced by teachers dealing with adolescent male voices, it follows that many also have difficulties sourcing repertoire to interest boys. Accordingly, respondent #072 wrote: “Selecting repertoire to engage boys is difficult as is overcoming their inhibitions and preconceived ideas about singing.”

Another common theme associated with student motivation involved helping students overcome perceived negative effects of peer-pressure. Respondents #154 and #024 commented respectively:

“Getting them to make any kind of commitment to singing. Even the students that enjoy singing think that it is uncool to sing in front of their peers.”

and

“My students are always embarrassed to sing in front of fellow peers or think they cannot sing well, so they will not sing for me in class”

Another area of opinion that was sought from respondents was how they believed the pre-service education of teachers in school singing could be improved to address current problems. There were 152 responses recorded for this question and participants offered a variety practical suggestions for moving forward with teacher education. After a thematic analysis, three categories of response were observed with the key difference between these categories being different opinions about who was responsible for implementing teacher education and professional development. For some participants, improved training involved better or more comprehensive pre-service teacher education in the area of singing or voice pedagogy. The three quotes below offer examples:

Respondent #055: “General teacher education should include subjects on singing, how the voice works, safe voice production techniques and voice care.”

Respondent #069: Perhaps more core subjects at the undergraduate university level that teach us how to teach singing. Many music teachers find themselves teaching in smaller schools, and they need to teach everything - not only their specialist instrument area. There is no choral specialist at my school, but I enjoy singing so I teach it in the classroom and run a choir. But there is no one in my school who has been specifically trained to teach singing.

Respondent #080: Tertiary music teacher training was quite dismal in many ways when I was studying... I have learnt more from attending conferences and so on. There are always PD sessions available, but teachers often struggle to find the time to attend them.
This participant describes difficulties with tertiary training and suggests that poor knowledge of vocal technique is also a threat to teachers’ vocal health:

**Respondent #076:** “Many pre-service teachers who come to this school cannot sing in tune or with competence themselves, let alone teach singing at any level. Many have had no training in voice care and management at all and will have careers shortened or compromised by vocal damage occurring as a result of the completely inadequate training.”

Other respondents focussed on the professional development of working teachers. By describing a potential mentoring role of more experienced teachers, this person indicates their belief that the teaching profession (not just the universities) has a role to play in advancing teaching education in singing. One teacher suggested, “I think we need PD regularly and the opportunity to be able to link up with more experienced teachers, to watch, learn and practise” (Respondent #015).

In the quotes below, a different attitude is revealed. These respondents describe inadequacies in the skill base of those working with school singing, but they also suggest that teachers have a degree of responsibility in addressing these inadequacies. For example, one participant describes problems with the tertiary training of teachers, but then suggests that teachers need to mitigate against this by attending professional development seminars and joining professional associations:

**Respondent #077:** “I have found many young graduates teaching singing without enough knowledge of how their own technique works. Pedagogy classes are a must. Also, encouragement to join associations like ANATS and regularly attend professional development courses.”

This participant describes taking steps to address the perceived inadequacies of his vocal education:

**Respondent #085:** “It’s difficult to place singing teachers in every school. I am a trumpet player but have ‘crossed the streams’ because somebody had to teach it. The classroom singing has increased because of my improved knowledge.”

### 3.4 Discussion

In this study, issues related to school singing instruction, teacher skills and teacher knowledge have been explored via an online survey of secondary school teachers. The goal for this survey was to provide a situation analysis by exploring the nature of working with adolescent voices from the perspective of the teacher. The relatively large number of
responses received provided a rich source of data for exploring this topic further. When taken together, the analysis of both quantitative and qualitative data collected from this questionnaire revealed a number of key themes that provides a snapshot of the overall topic of this thesis from the perspective of one group of participants. These themes, which were explored through the survey include concepts related to: (i) teacher identity, (ii) teacher self-efficacy, (iii) professional learning and, (iv) teacher professional networks.

3.4.1 Teacher Identity

The topic of teacher identity has attracted considerable attention in music education literature, (Ballantyne & Grootenboer, 2012; Hargreaves, MacDonald, & Miell, 2012; Hargreaves, Purves, Welch, & Marshall, 2007; Mark, 1998; Roberts, 1991). From an examination of the data collected in this questionnaire, a possible typology of identity has emerged which suggests that teachers who are currently working with singing in an Australian secondary school are likely to exhibit at least some of the following characteristics:

(i) Be female.
(ii) Either have been teaching for a short period of time (between 0 and 5 years) or highly experienced (20+ years).
(iii) Feel positively about the value and importance of singing in the secondary school.
(iv) Have completed an undergraduate degree in music education with no formal qualifications in singing or choral music.
(v) Come from an instrumental background – having initially trained in their music education degree on an instrument.
(vi) Be a classroom or generalist music teacher who assumes multiple roles within a school. Vocal teaching roles may include: class or massed singing; conducting a school choir; working with school productions; school concerts; and assessing music performances at more senior levels.
(vii) Spend a small amount of their working week teaching singing activities.
(viii) Feel most confident in working with musical aspects of singing – such as pitch, musical expression and breaking down a song.
(ix) Feel least confident at teaching technical aspects of singing, such as vocal registers, resonance and anatomy.
(x) Have completed some conferences or workshops with a professional association that has included some aspects of singing.
(xi) Have patchy or inconsistent knowledge across the field of voice pedagogy, particularly in the area of vocal technique, vocal anatomy and voice science.
(xii) Have strong opinions on the need for improvement in the training of teachers.
Responses to this survey did not support the idea proposed in *The National Review of School Music Education* (Pascoe et al., 2005, p. 128) that teachers are fearful of singing in front of their students. In fact, 89% of survey respondents either disagreed or strongly disagreed with the statement “I feel embarrassed or self-conscious to sing in front of my students”. Furthermore, a fairly neutral response was recorded from participants when responding to this topic on a multi-item question (See Table 3-5). The differences in findings here may be a result of different sampling methods between this study and the NRSME. For example, teachers who voluntarily respond to a survey on school singing are likely to be less self-conscious about singing. However, further study would be needed to better understand the concept of teacher self-consciousness or embarrassment about singing in front of students.

As most respondents reported either a high degree of teaching experience (20+ years) or a relatively low degree (0 – 5 years), there was an underrepresentation of teachers who have an intermediate level of experience (between 5 and 20 years). This finding raises further questions: was the survey question poorly structured, or does the lack of responses in this middle band point to a larger problem? Are Australian secondary schools having difficulties retaining music educators after 5 years of experience? A number of international studies have found that as many as 50% of new teachers leave the profession within the first 5 years of entry into teaching with inevitable negative consequences for student achievement, school economics and building depth into the teaching profession (Darling-Hammond & Sykes, 2003; Ingersoll, 2001; Ingersoll & Smith, 2003). Furthermore, issues including the poor status of teaching as a profession; underqualified teachers; a lack of administrative support; and poor student motivation have been identified (among others) as factors contributing to high teacher attrition rates (Ingersoll, 1999). Interestingly, the same issues often plague the implementation of school singing programs and addressing these issues may contribute positively to retaining music teachers and building a depth of experience and skill in the profession.

International research studies suggest that primary school music teachers spend approximately one third of their instructional time in the music class on singing activities (Baldridge, 1984; Moore, 1981). In contrast, the majority of respondents in this study estimated that they spend a smaller fraction of their working week focussing on singing activities. This finding raises further questions that cannot be answered in the scope of this study. Is this because respondents were largely generalist teachers who need to focus their
attention on multiple areas? Is this because these teachers are not well-trained in singing and consequently choose to focus on other aspects of music education where they feel more competent? If singing is just one of many things secondary school music teachers have to do, how much time would they realistically commit to further training in voice pedagogy?

### 3.4.2 Teacher self-efficacy

Grounded in Bandura’s theoretical framework of ‘social cognitive theory’ (Bandura, 1993), the concept of self-efficacy is a useful lens through which teacher skills and knowledge may be understood better. Self-efficacy plays a key role in human functioning by influencing behaviour and other determinants of success, such as: goal-setting; outcome expectations; perception of opportunities and obstacles; whether people think erratically or strategically; optimistically or pessimistically; and how long they persevere in the face of obstacles (Bandura, 2006). There is a growing body of literature that explores the meaning and development of teacher self-efficacy in various educational contexts (Cooper-Twamley, 2009; Erdem & Demirel, 2007; Ross, 1994; Shumacher, 2009; Teater, 2004; Tschannen-Moran, Hoy, & Hoy, 1998). In particular, self-efficacy in music education is explored by McPherson & McCormick (2006). However, empirical research which measures the self-efficacy beliefs of music teachers who work with adolescent voices is sadly lacking. In the context of this study, self-efficacy describes the extent to which teachers believe their instruction will have a positive effect on student achievement (Ross, 1994). Therefore, competency in working with adolescent voices does not only concern what teachers know (voice pedagogy) and can do (singing ability), but it also incorporates their self-judgements of these elements.

By inquiring into participant’s confidence in their ability to work with adolescent voices, this study has explored factors contributing to the instructional self-efficacy (Redmon, 2007) for a group of teachers who work with adolescent voices. In order to do so, it was necessary to develop a singing self-efficacy scale. A similar process has also been explored by Himonidesa et al. (2011). Scales of this nature are likely to be important tools for future research of teacher effectiveness in voice pedagogy. Using the constructed self-efficacy scale, participant confidence scores in this study were calculated across multiple sub-topics in adolescent voice pedagogy and individual scores were combined to create an overall confidence score. The high degree of variability among participant confidence scores may,
in part, explain the reported patchiness of singing programmes in Australian schools (Pascoe et al., 2005).

Data collected in this study suggests that there appears to be at least two components that account for teacher self-efficacy belief in working with adolescent voices – (i) confidence in working with the musical aspects of singing and (ii) confidence in working with vocal technique. Confidence in working with the musical side of singing is reflected in a teacher's general level of musicianship, whereas confidence in the more technical side of singing is generally demonstrated by teachers who have a strong background in singing; who have observed experienced teachers of singing in practice; or who have completed professional development in singing. When participant confidence scores were graphed, a trend was observed for the scores to increase steadily during the first ten years of teaching experience and to show only slight improvement thereafter. This figure of ten years resonates with the work of Ericsson, Krampe, and Tesch-Römer (1993) whose theoretical framework has challenged traditional notions of professional expertise, asserting that expert skill at any discipline is not so much the result of experience or innate talent, but rather “the result of individuals' prolonged efforts to improve performance while negotiating motivational and external constraints” (p. 363). Ericsson (2002) defines excellence as “consistently superior achievement at the core activities of a domain” (p. 22) and suggest a period of ten years of sustained and deliberate practice is needed for an average person to achieve excellence in any domain. In light of Ericsson’s research and the findings in this phase of the present study, professional development activities in singing for music educators are likely to be most beneficial during the first ten years of teaching practice. Moreover, if activities which constitute deliberate practice in the domain of voice pedagogy can be identified in future research, then teacher skills and knowledge in this domain might be improved significantly.

3.4.3 Professional Learning

Due to variations among Australian universities, the preparation of a music teacher in Australia cannot be easily described with a 'typical' model. While there is some degree of commonality with the inclusion of courses in the theory of music; musicology; music performance; principal instrument studies; ensemble studies; and a variety of elective components, there is also tremendous variety in teacher education for the music specialist (Hourigan & Scheib, 2009; Pascoe et al., 2005; Schmidt, 1989). This sense of diversity was
evident in the participant responses. The majority indicated that they had completed generalist training in music education and/or training as an instrumentalist. Most respondents indicated that they had not received any classes in voice pedagogy at university, which may suggest either that there was no training of this nature provided, or that the training occurred within the context of a more general course that respondents do not immediately recognise as voice pedagogy. These findings agree with research by Harrison (2004a, 2005) and Hughes (2007) who observe a lack of tertiary training in singing among Australian teachers who conduct school choirs or lead school-based singing activities.

For the most part, respondents did not rate their university training as significant or relevant in providing the vocal knowledge needed for their current teaching contexts. There is evidence of a widespread belief among respondents in the need for reform in the pre-service education of music teachers which is also echoed across the music education literature (Brophy, 2002; Darling-Hammond, 2006; Harrison, 2006a; Pascoe et al., 2005). Since many secondary school teachers with music education or instrumental music degrees find themselves unexpectedly working with adolescent voices, the inclusion of required voice pedagogy classes in undergraduate courses seems an important initiative for addressing the inconsistencies across vocal programmes in Australian schools (Pascoe et al., 2005). However, further research is needed to understand what should happen in these classes, including: the most appropriate content; mode of delivery; and ways in which university classes in voice pedagogy may benefit pre-service teachers.

At undergraduate level, vocal classes might focus on giving pre-service teachers an opportunity to improve their singing; to gain a general knowledge of vocal technique; and to participate in choral groups. Regardless of the calibre of pre-service courses, there is no way for university music education programs to meet the needs of teachers over a lifetime of teaching in countless situations (Bowles, 2003). Those who focus on university training as the primary solution may be failing to appreciate the importance of continuous professional development and/or lifelong learning in the scheme of teacher development (Day, 1998, 1999; Fleming, 1998; Harwood & Clarke, 2006). Professional development courses which offer training in voice pedagogy to working teachers are likely to be more effective than undergraduate classes in voice pedagogy, because they allow teachers to apply what they are learning to practical teaching situations; to experiment; to question; and to consult with working teachers. Moreover, a growing body of research into school-university
partnerships (Burton & Greher, 2007; Conkling & Warren, 1999; Day, 1998; Stein & Robbins, 2005) and teacher mentoring (Cain, 2007; Campbell & Brummett, 2007; Conway, 2003) suggests that the most effective forms of teacher development are likely to involve collaboration between both the universities and the teaching profession as a whole.

3.4.4 Professional networks

More so than other non-musical professions, Australia appears to have a multitude of professional associations for music teachers. Respondents mentioned 16 different professional associations and the survey data indicates that the participants rely heavily on the professional development training provided by these associations. This training may be limited in scope and is likely to occur at one-off workshops, conferences and seminars. Additionally, respondents’ professional reading about singing often involves newsletters, journals, webpages and teacher reference material published by these music associations.

Only a minority of respondents were actually members of an association, even though a large number (61%) claim to have completed some sort of professional development or training with one of these associations and describe this training either as being “useful” or “very useful”. The low membership levels might be explained by the fact that participants’ schools are members of the organisations and individual teachers tend to not take out private membership. Additionally, these associations probably allow people to attend professional development activities without being members. Membership of these associations is voluntary and most associations are non-profit organisations that receive no outside funding. Respondents who were members, tended to be members of several associations simultaneously.

In Australia, music associations have a unique role in building the teaching profession. Outside the universities, they are the largest provider of ongoing teacher education and professional development. Whereas teachers may have contact with universities for a few years at the beginning of their careers, potentially they can be in contact with music associations throughout their entire career. Moreover, the skills and knowledge they encounter at professional development activities can apply to aspects of their current work in schools. Little research has currently been directed at understanding the role and importance of these associations and their value is not always acknowledged by the
universities and the Government. There is tremendous potential for partnership with professional associations that currently lies untapped (Conkling & Warren, 1999; Pascoe et al., 2005). Such partnerships could well hold the key for a higher standard of teacher education and skill.

### 3.5 Conclusion

School singing varies enormously from school to school and across the various states and territories. The determining factor in whether schools actually have a vocal programme as well as the quality and outcomes of such programmes appears to depend on the skill and passion of individual music teachers. An important aspect of the discussions related to music teacher identity is described as “the disconnect between teachers’ descriptions of their jobs and the ideals of music education with which they identify” (Frierson-Campbell, 2004, p. 6). This disconnect is evident in many of the responses to this survey. Teacher participants espoused an idealistic or positive attitude towards the role of singing in secondary school music education. However, when teachers try to apply what they know and what they believe about singing to their day-to-day, lesson-by-lesson teaching they invariably experience this disconnect. This phase of the study indicates that teachers appear to struggle to implement what they know to be good. The source of these struggles revolves around issues that concern student motivation and attitudes; support for singing within the wider school culture; school scheduling issues; sourcing appropriate repertoire and their poor understanding of how to work with vocal technique. The *National Review of School Music Education* (Pascoe et al., 2005) has identified several Australian schools with exemplary singing programmes, demonstrating that the difficulties experienced by teachers can be overcome.

These issues will be explored further in the following chapter. In particular, Chapter 4 presents the second phase of this study. It will explore this issue further through inquiring into the opinions and practices of successful teachers and experts in the area of adolescent voice pedagogy.
Chapter 4: The Voice of Experts

Phase 2: Semi-structured interviews with a panel of experts in voice pedagogy

4.1 Introduction

This chapter reports on the results of a second phase of this study where the aim was to build on the knowledge gained from a survey of secondary school teachers in the previous phase. In this chapter, the nature of voice pedagogy in Australian secondary schools is explored from the perspective of other stake-holders. Semi-structured interviews were conducted with a panel of twenty experts who include: writers on voice pedagogy; voice researchers; teacher educators; conductors/directors of choirs; and highly experienced secondary school music teachers. The interviews were carefully transcribed. Phenomenography was used to carry out an analysis of these transcripts, focusing on the process of moving from individual conceptions of voice pedagogy to developing a group conception, and finally towards forming conclusions about factors that both contribute to and detract from teacher knowledge and skills in working with adolescent voices.

4.2 Methodology

As a qualitative research methodology, phenomenography is a technique that explores a person’s experience, understanding and/or the meaning they give to a specific situation or phenomenon. The term phenomenography was first used by Ference Marton in the early 1980s (Marton, 1981, 1986). Originally, it was developed in response to educational research questions (Marton, 1986, 1988) and, although it may be used to study a variety of fields, phenomenography has been popular among researchers in the study of teaching and learning (Booth, 1997; Bowden & Walsh, 2000; Svensson, 1997). It has also been used successfully to explore issues in music education (A. Reid, 1999, 2001; A. Reid & Petocz, 2003). In essence, phenomenography is about the observation of variation and accounting for the range of variation in people’s perceptions. Phenomenographic researchers categorise their subjects’ descriptions and the basic unit of description in this research is a ‘conception’ that may describe a way or seeing, conceptualizing, apprehending, experiencing or understanding something (Marton & Pong, 2005). The expected outcome of this type of study is a set of conceptions (or logically related categories) which seek to map “the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects
of, and phenomena in, the world around them” (Marton, 1986, p. 31). Furthermore, these categories or conceptions are distinguished from each other by their structural or qualitative difference (Marton, 1988; A. Reid & Petocz, 2003).

Over the past 25 years, phenomenography has matured as a research methodology so that epistemological and ontological assumptions; a theoretical basis and methodological requirements underlying the approach have emerged. Moreover, there are examples of both variation and commonality in phenomenographic practice (Åkerlind, 2012). This particular study has been influenced by the concept of developmental phenomenography which seeks to “find out how people experience some aspect of their world, and then to enable them or others to change the way their world operates” (Bowden & Walsh, 2000, p. 3). Furthermore, developmental phenomenography aims to “develop generalisations about ways to organise learning experiences in the particular field of study” (Bowden & Walsh, 2000, p. 4). The research outcomes that emerge from this approach can help in the planning of learning experiences that will lead students and teachers to a more powerful understanding of the phenomenon under study, and of other similar phenomena.

This study centres on how various experts understand the phenomenon of adolescent voice pedagogy and their understanding of factors that both contribute and detract from teacher skills and knowledge in this area. Central to this process is the discovery of the qualitatively different ways that various experts demonstrate an awareness of and give meaning to their experience of working with adolescent voices. Phenomenography was chosen for this study based on the researcher’s observation that a great deal of subjectivity exists in the field of voice pedagogy and that teachers of singing tend to have vastly differing views of the topic (Kiesgen, 2005; Miller, 1996a; Stark, 1999). Understanding how each expert can be highly competent, yet possess divergent views promises to provide a rich source of knowledge on this topic and has the potential to contribute to the overarching research questions for this study. The outcome of this study is a set of logically related categories that describe these experts’ conceptions and accounts for the differences in their views. These conceptions and the structural relationships between each conception provide the ‘outcome space’ for this aspect of the research (Åkerlind, 2012).
4.2.1 Participating Experts

For this study, an expert is defined as a person with extensive knowledge or ability in the teaching of singing, based on their research, professional experience, or occupation. As the goal of phenomenographic research is to explore the variation that emerges from the whole groups’ experience of voice pedagogy, several techniques were employed to maximise the possible variation of opinion. Firstly, a selection of both Australian and international experts were used. Additionally, a list of various ‘types’ of vocal expert were devised. Each of the participating experts were assigned to a primary ‘expert type.’ It was recognised that some individuals may have expertise across multiple domains, but this was addressed by assigning experts to the type that best describes the work for which they are known. Experts selected for this study were representative of five different types:

<table>
<thead>
<tr>
<th>Type</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Author</td>
<td>AUT</td>
<td>Author of a recognised textbook or series of journal articles on voice pedagogy.</td>
</tr>
<tr>
<td>2 Researcher</td>
<td>RES</td>
<td>Voice scientist or researcher of voice pedagogy employed at a University of high standing.</td>
</tr>
<tr>
<td>3 Teacher Educator</td>
<td>TED</td>
<td>Responsible for the training of secondary music teachers or the training of singing teachers.</td>
</tr>
<tr>
<td>4 Conductor/Director</td>
<td>DIR</td>
<td>Directing a highly-regarded vocal group or choir that specialises in adolescent voices.</td>
</tr>
<tr>
<td>5 Highly experienced Teacher</td>
<td>HET</td>
<td>Secondary school music teacher with fifteen years or more experience and a track record in working with adolescent voices.</td>
</tr>
</tbody>
</table>

Identifying a population of experts representative of these various types which included both Australian and international practitioners, required careful advance organisation. A list of potential experts in each category was brainstormed using my knowledge of vocal experts who: had presented at conferences and workshops; were involved in professional associations; were well-regarded in the profession; or who had written extensively on the topic of voice pedagogy. Colleagues were consulted for further suggestions to supplement the list of potential candidates.

4.2.2 Design of the Interview Protocol

Inevitably, the form of the interview protocol would, to some extent, shape the data collected. Thus, the primary task in the design of this interview involved translating the key
research objectives (outlined in Chapter 1) into questions that would comprise the main body of the interview. Before writing the interview questions, a list of key themes was devised (Louis Cohen et al., 2011). These themes included: teacher knowledge; teacher skill; teaching resources; teacher education; professional development; and the design and delivery of professional development courses in singing. The flow of questions was considered carefully and a progression was developed that involved working from questions of a more general nature towards questions that were more specific. Questions were also designed to provide opportunities for respondents to demonstrate their expertise on the topic.

In the early part of the interview, questions were devised to help put the interviewee at ease and asked participants to reflect on their experiences and development as a professional. This progressed to questions that caused participants to think about how their experiences might relate to the development of the profession as a whole.

Before commencing the interview process, a pilot or mock interview was conducted as a technique for analysing both the interview technique and the question content (Åkerlind, 2005). The questions were then revised to produce the final interview schedule (see Table 4-2).

<table>
<thead>
<tr>
<th>No.</th>
<th>Question stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Can you describe your general approach to working with voices?</td>
</tr>
<tr>
<td>Q2</td>
<td>When it comes to the teaching of singing, little is known about the path from novice to master teacher. What was your path like and how do you think one becomes a great teacher of singing?</td>
</tr>
<tr>
<td>Q3</td>
<td>What professional knowledge and skills do you think a teacher should possess?</td>
</tr>
<tr>
<td>Q4</td>
<td>If a teacher is working with Secondary School or adolescent voices, should they have additional or different knowledge?</td>
</tr>
<tr>
<td>Q5</td>
<td>Are there particular methods, approaches to singing or vocal exercises that you consider valuable for working with high school students?</td>
</tr>
<tr>
<td>Q6</td>
<td>What resources do you think would best help teachers work with high school singers?</td>
</tr>
<tr>
<td>Q7</td>
<td>In what areas, do you see a need for better information or resources?</td>
</tr>
<tr>
<td>Q8</td>
<td>What are your thoughts about the current status of singing in secondary schools?</td>
</tr>
<tr>
<td>Q9</td>
<td>How could the training of teachers who work with high school students be improved? What is it you think teachers need to know to raise the standard of singing in Australian schools?</td>
</tr>
<tr>
<td>Q10</td>
<td>I am putting together a professional development course to help high school teachers be more effective at working with voices. What advice could you offer and what do you think should be included in this course?</td>
</tr>
<tr>
<td>Q11</td>
<td>Are there other issues that you feel are important that have not been raised so far?</td>
</tr>
</tbody>
</table>
4.2.3 Ethics

The ethical implications implicit in any interview process are outlined well in the educational research literature (R. Burns, 2000; Louis Cohen et al., 2011) and for this study, these implications were addressed through an application to the University of Sydney Human Research Ethics Committee, which was subsequently approved (see Appendix A). The detailed nature of this application process ensured that the design of the research and the ethical implications of each part of the design were carefully examined. In particular, the issue of anonymity/confidentiality of the interview responses was considered in the design of this study. In order to give weight to the information provided by each interviewee and to demonstrate that each participant possessed the necessary skills and expertise to offer an expert opinion, it was decided that participant names and their position should be included in the write up of this study. In order to ensure that the interview participants were aware that their real names would be used and that they understood the reasons for this decision, a participant information statement and consent form (see Appendix B) was issued to each interviewee. Written consent was obtained before conducting an interview.

4.2.4 Recruitment of the experts

Potential experts were contacted via email and invited to participate. The email included a brief description of the project, a participant information statement (see Appendix B) and a copy of the interview questions (Table 4-2). The panel of participating experts was chosen from among those who expressed willingness and with a view to including: both males and females; a range of age groups; varied geographic locations; and various types of expertise. The table below details the experts who participated in this study, their location and the expert type that was attributed to each.
<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Type</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>E01</td>
<td>Scott McCoy</td>
<td>AUT</td>
<td>USA Princeton</td>
<td>Former president of NATS, Lecturer in Voice Pedagogy, author.</td>
</tr>
<tr>
<td>E02</td>
<td>Kenneth Phillips</td>
<td>AUT</td>
<td>USA Iowa</td>
<td>Author of “Teaching Kids to Sing” and numerous publications on child voice pedagogy.</td>
</tr>
<tr>
<td>E03</td>
<td>Ron Morris</td>
<td>AUT</td>
<td>AUS Brisbane</td>
<td>Speech pathologist, researcher and co-author of “Singing and Teaching Singing”</td>
</tr>
<tr>
<td>E04</td>
<td>Patrick Allen</td>
<td>AUT</td>
<td>UK Sussex</td>
<td>Author of “Singing Matters” and acclaimed British high school teacher of group singing.</td>
</tr>
<tr>
<td>E05</td>
<td>Richard Gill</td>
<td>DIR</td>
<td>AUS Melbourne</td>
<td>Director of Victorian State Opera Well-known advocate for music education.</td>
</tr>
<tr>
<td>E06</td>
<td>Paul Holley</td>
<td>DIR</td>
<td>AUS Brisbane</td>
<td>Director of the Brisbane Birralee Blokes choir for teenage boys.</td>
</tr>
<tr>
<td>E07</td>
<td>Lyn Williams</td>
<td>DIR</td>
<td>AUS Sydney</td>
<td>Director of Gondwana Choirs and Sydney Children’s Choir.</td>
</tr>
<tr>
<td>E08</td>
<td>Elizabeth Scott</td>
<td>DIR</td>
<td>AUS Sydney</td>
<td>Director of choral music at Sydney Conservatorium High School</td>
</tr>
<tr>
<td>E09</td>
<td>Mark O’Leary</td>
<td>DIR</td>
<td>AUS Melbourne</td>
<td>Director of the Young Voices of Melbourne and the Exaudi Youth Choirs</td>
</tr>
<tr>
<td>E10</td>
<td>David Lawrence</td>
<td>DIR</td>
<td>UK Coventry</td>
<td>Director of youth choirs across Britain. Guinness World Record holder for conducting the largest youth choir of 6,846 singers.</td>
</tr>
<tr>
<td>E11</td>
<td>Kathryn Sadler</td>
<td>HET</td>
<td>AUS Melbourne</td>
<td>Studio teacher, Director Melbourne Youth Music.</td>
</tr>
<tr>
<td>E12</td>
<td>Robert Edwin</td>
<td>HET</td>
<td>USA Philadelphia</td>
<td>Studio teacher, former president of NATS and advocate for child voice pedagogy.</td>
</tr>
<tr>
<td>E13</td>
<td>Anthony Young</td>
<td>HET</td>
<td>AUS Brisbane</td>
<td>Classroom music teacher, tertiary lecturer and choral conductor.</td>
</tr>
<tr>
<td>E14</td>
<td>Chris Shepard</td>
<td>HET</td>
<td>AUS Sydney</td>
<td>Director of Music at Sydney Grammar School.</td>
</tr>
<tr>
<td>E15</td>
<td>Robert Braham</td>
<td>HET</td>
<td>AUS Perth</td>
<td>Director of Music at Trinity College, Perth and highly experience choral conductor.</td>
</tr>
<tr>
<td>E16</td>
<td>Graham Welch</td>
<td>RES</td>
<td>UK London</td>
<td>Foremost British researcher on singing and music education.</td>
</tr>
<tr>
<td>E17</td>
<td>Ingo Titze</td>
<td>RES</td>
<td>USA Utah</td>
<td>Foremost voice scientist in USA, researcher, teacher educator and author.</td>
</tr>
<tr>
<td>E18</td>
<td>Jeanette Lovetri</td>
<td>TED</td>
<td>USA New York</td>
<td>Inventor of the Somatic Voicework approach, teacher educator and conductor of the Brooklyn Youth Chorus.</td>
</tr>
<tr>
<td>E19</td>
<td>Seth Riggs</td>
<td>TED</td>
<td>USA Los Angeles</td>
<td>Acclaimed teacher of Grammy award winning celebrities, teacher educator and inventor of Speech Level Singing method.</td>
</tr>
<tr>
<td>E20</td>
<td>Claire Preston</td>
<td>TED</td>
<td>AUS Melbourne</td>
<td>Teacher at Victorian College of the Arts Secondary School and lecturer at the University of Melbourne.</td>
</tr>
</tbody>
</table>
4.2.5 The interview process

Potential experts were given the choice of completing the interview in person (where practical), by telephone or via Skype. Two experts requested to complete the interview electronically via email so that they had greater time to formulate their answers.

4.2.6 Data Collection

Data collected from each interview included notes from the researcher and an audio recording of the entire interview. A verbatim transcript of the interview was created from the recording and the reliability of the research was further enhanced through the process of interview transcript confirmation and content verification by each interview participant (Silverman, 2000, p. 185). This process of member checking (Cresswell, 1998, p. 202) also enabled the interview participant to amend the researcher’s summary of the interview content, or the actual transcript if appropriate, and therefore ensured the veracity and validity of content (p. 208).

4.2.7 Data Analysis

Full phenomenographic studies are planned and executed in such a way that all relevant aspects of the research, from planning through to reporting, are undertaken from a phenomenographic perspective. Although this was not the case in this study, Bowden and Walsh (2000) acknowledge that phenomenographic techniques may be employed by researchers with data gathered previously. Accordingly, the phenomenographic aspect of this study begins with data analysis. Transcripts of phenomenographic interviews are the primary focus of data analysis and the transcripts of the expert interviews in this study were subjected to rigorous phenomenographic analysis.

This process involved reading all transcripts many times and devising a draft set of categories of description drawn from the transcripts. The transcripts were then re-read and tentative allocations of each transcript were made to one of the draft categories. In this way, the set of categories was not determined in advance, but ‘emerged’ from the data as a result of the analysis, in relationship with the researcher (Åkerlind, 2012). The focus was on the interviewee’s meaning, taking the transcript as a whole, rather than on the occurrence of particular statements corresponding to a specific category description. Through an iterative process in which the data were examined from different perspectives at different times, final
descriptions were produced that reflected the similarity in understanding among the transcripts allocated to each category and the differences between the categories.

**4.3 Results**

**4.3.1 Paths to competency**

When it comes to the teaching of singing, little is known about the path from novice to master teacher. What was your path like and how do you think one becomes a great teacher of singing?

Experts were asked to reflect on their development as voice professionals and to consider significant factors that may have contributed to their development. Many of these experts seem able to succeed in making singing work with adolescents when other music teachers struggle with the same task. Therefore, a key research interest was to explore aspects of each expert’s story that might account for their skills and knowledge. Six categories of response were identified in the interview transcripts and these are summarised in the table below.

**Table 4-4 Paths to competency - categories of response**

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Brief explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Instrumental background</td>
<td>Experts started as an instrumentalist and were later exposed to singing.</td>
</tr>
<tr>
<td>2   Vocal background</td>
<td>These experts were singers or describe a long history of involvement in singing prior to working with voices.</td>
</tr>
<tr>
<td>3   People</td>
<td>These experts identify the influence of family and/or significant people who inspired them.</td>
</tr>
<tr>
<td>4   Experience teaching</td>
<td>Experts who feel that they gained skills by teaching and reflecting on their experience as teachers of singing.</td>
</tr>
<tr>
<td>5   Personal quest</td>
<td>These experts describe frustrations, difficulties or dissatisfaction with the status quo, which then inspired them to go looking for answers.</td>
</tr>
<tr>
<td>6   Pedagogical approach</td>
<td>These experts discovered a particular approach or method to working with voices that has inspired them.</td>
</tr>
</tbody>
</table>

**Category 1 - Instrumental background**

Expert responses in this category referred to initial training as an instrumentalist, which progressed to working with voices at a later point in the career. This experience was true for many of the experts who worked with voices in a school classroom or choral setting, whereas experts who worked with voices in a studio or one-to-one teaching context tended to come from a singing background which will be discussed later. Experts who began their professional career as instrumentalists tended to describe some sort of a transition point whereby they became curious about singing and working with voices. For some experts, like
Anthony Young, this transition point occurred because of a change in their employment situation where they found themselves in a position of needing to work with voices. Anthony reminisced that:

“My path has gone from being a keyboard player with considerable experience of playing for singers in various styles, to being someone who sang in restaurants and bars while accompanying myself. My need to know more about vocal technique resulted from my change of career to being a choral director and classroom teacher using a voice-based teaching method.”

Several experts in this category indicated that they had worked as an accompanist prior to working with voices. This type of work allowed them to be around singers and singing teachers, but without the need to take direct responsibility for working with the voices. Chris Shepard acknowledged that, “my greatest education was playing piano in voice teaching studios throughout my undergraduate years.”

For the experts who describe prior work as an accompanist, it was clear that the many hours spent observing the teaching of singing provided a rich learning environment in which they were able to absorb and synthesise pedagogical information. For example, Richard Gill recounted his experience:

“My view is what you are saying is right. Little is known about the path from novice to master teacher. When I was a student, I worked in singing studios. I played accompaniments for singing teachers. I worked with about five different singing teachers when I was a student and I would hear one say “you breathe with your fourth finger” and another one say “no you don't, you breathe with your left eyebrow” and another one say “no, you breathe through your nose.” I built up my knowledge by listening to a whole range of views and by listening to a range of good singers.”

**Category 2 - Vocal background**

In contrast to the experts who began their career as instrumentalists, others came to the teaching of singing through their prior experience as singers. The types of vocal experience discussed by experts included both performing as a soloist and in choral groups. Some experts were able to recall positive and memorable experiences in school singing programs, such as school choirs and school productions. Experts who described this type of vocal background appear to value it highly and attached significance to these formative experiences in building their skills and knowledge for their later work with voices. Elizabeth Scott was amongst these respondents. She revealed that:
“I feel comfortable working with voices because I sing. I have worked as a professional singer and I have had lessons from a lot of different teachers and learnt a lot of different techniques. I feel confident in my vocal technique and in my ability to be able to talk to children about how to sing. I know there are choral conductors who don’t sing professionally or who aren’t singers. I wouldn’t say it is a must, but it’s a distinct advantage.”

Interestingly, experts with a vocal background were represented across all the different categories of experts. A poignant example was offered by one of the most respected international voice scientists, Ingo Titze. Despite his wealth of scientific knowledge, Titze attributes great importance to his experience as a vocalist. He reflected that:

“I rely a whole lot on my own experience. If I wasn’t a singer myself, much of the science I do wouldn’t be worth as much. The combination is what helps… What really makes you a better singer and more confident teacher, I think, is the experience. We talk a lot about motor learning in our field - the way you learn gestures and motor behaviour, which is what voice is all about. You have to have lots of practice and you have to reflect on the practice and have somebody there to help you determine whether you've learnt something.”

Category 3 - Significant People

A common theme among the expert responses in this ‘paths to competency’ category was the role of significant people in providing grounding, inspiration and/or training in working with voices. The contribution of these significant others occurred at various points in the expert teacher’s life and career. For some experts, this contribution occurred during the early and formative part of the career with the value of the contribution only being fully realised or appreciated at a later stage. For other experts, the contribution of significant others was sought to address concerns the expert had about their skills and knowledge. For the experts who described an early or formative experience, a common theme was to describe a musical up-bringing where parents, family members and school teachers provided a solid grounding in music. Exposure to music and singing in her formative years was a key factor for Elizabeth Scott. She said:

“I grew up in a family of musicians and both my parents taught music. My father was a professional flute player in an orchestra and was head of the woodwind department at the Conservatorium of Music. I grew up always having a lot of music education going on in my house and grew up with a lot of classical music around me. No-one in my family sang... I got involved in singing in year 11 and 12 at high school. I was pushed into it by my high school music teacher who wanted me to audition for a school musical which I wasn't interested in. But he pushed me into it and he gave me the lead role. I just fell in love with singing from then.”

For other experts, a significant person assumed the identity of a vocal guru who possessed a high degree of vocal knowledge and was greatly revered by the expert. The influence of this
vocal guru extended beyond the level of general musical training reflected in the quote above, because it offered specific guidance on how to work with voices. In describing their relationship with a vocal guru, it was common for experts to refer to the guru as a mentor, advisor or source of inspiration and for expert to refer to themselves as an apprentice, novice, student or intern. Robert Edwin suggested that his parents filled the role of vocal mentors and said:

“Fortunately, my path from novice teacher to master teacher was clear and well-lighted. My parents were both professional singing teachers in New York City and I was literally raised in their independent studio. I was singing from birth, and later in life when I expressed a desire to teach, was allowed to apprentice in my mother’s studio.”

Rather than a specific vocal guru, some experts described the contribution of several vocal role models. What differentiated these comments from the previous was the notion of collegial support where experienced teachers worked to support less experienced teachers. As Mark O’Leary noted, a key part of this collegial support included observation of teaching:

“For me the path has always involved watching the work of other people that I respect. This goes right back to when I started working with voices. I was fortunate early in my career to be working in schools with people who are very confident and very passionate about what they were doing. I worked with people in community settings who were likewise. I was fortunate enough to be able to do a study tour when I received my Churchill Fellowship where I was watching outstanding practitioners, sitting in on their rehearsals and sitting in on their singing lessons, seeing what they did as opposed to what they said they did.”

**Category 4 - Experience Teaching**

In contrast to the experts who identified environment, up-bringing or other people as factors in their development, some experts believe their experiences of ‘on the job learning’ to be significant. In these responses, the notion of learning to teach *through* teaching and developing insight through experimentation seems to shine through. As Paul Holley recalled:

“My journey involved a good deal of trial and error… I would try something and then listen very carefully and see if the result I achieved was as I intended. If not, back to the drawing board and try something else.”

Expert responses in this category seemed to stress the notion of achieving results through diligence, repetition and reflection. Along these lines, Scott McCoy conceived that gaining experience in teaching voice is like practicing an instrument:

“In general, I believe one becomes a competent teacher in the same manner one excels as a musician: practice. Masterful teaching requires a high-level understanding of and love for the subject matter, which holds true for teaching just about anything, musical or not.”
**Category 5 - Personal quest**

Some experts attribute their skill in working with voices to a type of personal struggle or quest that involved a level of dissatisfaction with the status-quo and a consequent search for answers to address the perceived lack. Various types of deficiencies are described by these experts, including: poor teaching; confusion over the application of teaching; a lack of information on a certain topic of interest; technical difficulties with the voice; or some aspect of their teaching they feel is not successful. This struggle was exemplified by Jeanette LoVetri:

“My own path was circuitous and difficult. I had three years of not wonderful, but not awful private training starting at age 15 with a local teacher. I sang quite a bit in various places and ended up at Manhattan School of Music in New York City as a college freshman. In short order, I was very unhappy and did not return to the conservatory the following year. I continued my vocal studies privately, with once a week lessons, struggling with classical repertoire and languages without any real clear or helpful guidance. I was always seeking to sing music theatre repertoire and the popular songs of the time. It was up to me to figure out the transition from Mozart and Handel to Lieber and Stoller or the Beatles. I was generally frustrated with the lesson process and confused almost all the time about my voice and how it should/could work. I was desperate to find information that was consistent and sensible.... I continued to study, read, attend conferences and finally began research of my own. I have been privileged to work since then with some of the most noted medical doctors and voice science researchers in the world and continued to investigate all kinds of other things that helped me be a better teacher.”

Conversely, Kathryn Sadler used the experience of teaching others to explore her own vocal needs. She remembered that:

“When I started teaching singing, there were things in my voice that didn’t work and I worked it out through my teaching, because you’re analysing what your students are doing and it starts to have an impact on your own singing. I learned a lot from teaching my own students.... The pathway I suppose is that we never arrive; that we are always learning; that just like any other physical endeavour, we are still learning about how the body works.... I think that the notion that we are explorers; that our singers are exploring; that we are exploring together.”

**Category 6 - Pedagogical approach**

The discovery of a particular pedagogical approach to singing was a significant factor in the path to competency for some experts. Across the expert panel, five of these named methods of singing were mentioned, including: Estil Voicecraft, Speech Level Singing, Somatic Voicework, The Accent Method and The Kodály concept. It was common for experts to describe the discovery of a particular method was ‘highly significant’ or that their teaching was ‘strongly influenced’ by a particular method. Three such examples are given below:
Mark O'Leary: “The Kodály approach has been really important to me as a way of using the voice to develop aural and music-reading skills. I find that immensely valuable and a key part of what I do.”

Kathryn Sadler: “I would say without question that the Estil’s research is monumentally significant. That’s been the single most important thing to me without question. I came across it in 1997 when Jo was here and I actually met this person. Helen Tiller, a master Estil instructor, is my mentor. I’ve been working on and off with her over the years and she is the best in the business…It had a big effect on me.”

Ron Morris: “I think the Accent Method is a very useful system, simply because with this method you can teach the airflow and support principles away from actual singing. You can train the body for the task, without actually having to do a lot of singing.”

However, these well-recognized approaches to singing were not the only type of pedagogical interest among the experts in this category. Other experts based their approach on an inclination towards or personal interest in a particular aspect of voice pedagogy. Examples of these included: various forms of body awareness or postural training; aural development; music literacy; vocal registers and voice science. For example, Seth Riggs ascribes his success in teaching voice to a particular pedagogy that involves identifying and unifying the vocal registers:

“What I am doing is the nuts and bolts of how the voice works. The strength of this method is that I have a way of identifying the bridges and putting them together. What we are doing in my method is so simple. A good voice is even from bottom to top. If the larynx stays down and the vocal cords stay together from the very bottom of the vocal range to the very top, everything is fine. This also applies to all vowel and consonant combinations throughout any phrase. If at any point the larynx jumps up or down or the tone becomes breathy then there is something wrong with the vocal process.”

The essence of this Rigg’s discovery is an experiential type of pedagogy which, instead of relying on voice science is based on a singer’s experience of vocal sound. Conversely, other experts, such as Kenneth Phillips, ascribe their success to the discovery of a science-based and physiologically-based approach to working with voices:

“I taught public school choral music, grades 7-12, for the first ten years of my teaching career. As a novice I soon realized that I had been taught little about working with adolescent singers, and so I began reading and “experimenting” with exercises and vocalises I would find in professional resources. During this time I learned of a vocal pedagogy course being offered at a nearby university, and I enrolled for a semester. The book used in the course was Singing Technique: How to Avoid Vocal Trouble by Klein and Scheide. These authors focused on the scientific or physiological components of the singing voice, and I had both my eyes and ears opened by their work. I became a firm believer that a voice instructor must have the same skills as a medical doctor when it comes to diagnosing problems. The only way a voice teacher can do this is to understand the mechanical workings of the voice. Ever since then I have focused on the blending of science and art.”
4.3.2 Teacher knowledge and skills

What professional knowledge and skills do you think a teacher should possess? If a teacher is working with Secondary School or adolescent voices, should they have additional or different knowledge?

Having reflected on factors that contributed to their own journey towards competency, experts were asked to describe in more detail the knowledge and skills they believed were most helpful for music teachers who work with adolescent voices. Focus was given to discovering the qualitatively different ways in which experts conceive of the notion of the skilled teaching of singing. Six categories of response were identified in the interview transcripts, which are summarised in the table below:

Table 4-5 Teacher knowledge and skills - categories of response

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Brief explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Personal qualities</td>
<td>Responses that describe personal qualities or attributes that a teacher of singing should possess.</td>
</tr>
<tr>
<td>2 Singing experience</td>
<td>Responses that emphasise the need for a teacher to sing or to be a singer.</td>
</tr>
<tr>
<td>3 Musicianship</td>
<td>Responses that discuss the general musical ability of a teacher.</td>
</tr>
<tr>
<td>4 Formal training</td>
<td>Responses that describe courses or formal training that teachers should undertake.</td>
</tr>
<tr>
<td>5 Management skills</td>
<td>Responses that discuss how teachers manage the learning environment and the learners.</td>
</tr>
<tr>
<td>6 Pedagogy</td>
<td>Responses that advocate that the teacher has a particular pedagogy or approach to teaching voice.</td>
</tr>
</tbody>
</table>

Category 1 – Personal Qualities

When discussing vocal teaching skills, experts sometimes made reference to areas that were outside music education and voice pedagogy. Several experts described qualities or attributes they believed should be evident in effective teachers of singing. It was clear that experts included these personal qualities in their conceptions of what good teachers know and can do. Moreover, experts considered these attributes as foundational to other skills and knowledge. Accordingly, the first category of response in this section that explores the conceptualisation of teacher knowledge and skills is ‘Personal Qualities.’

For some experts, ideal personal qualities are characterised by a sense of optimism about singing which is reflected in the belief that all people can sing. As Graham Welch philosophically observed, “You first have to believe that everybody can sing and then the next challenge is working out how you can solve that.”
Belief in the capacity of all people to sing has a logical outcome. If all people can sing, then singing must be a teachable and learnable behaviour. Moreover, if singing can be learned, then schools have a special role to play in building singing communities. Kenneth Phillips expressed these sentiments aptly:

“I believe that singing is a learned behaviour, and all those people free of physical or mental defects can be taught to sing. While some children learn to sing from the vocal model of their parents or guardians, most do not have a satisfactory model to emulate. Therefore, it is up to the schools to provide a singing curriculum that will serve all students, not just the so called ‘gifted.’”

Alternatively, for Jeanette LoVetri, her belief in a person’s capacity to sing creates a sense of mission that finds its expression in teacher demeanour and positive student relationships. She commented:

“Singing, from the standpoint of physical control, is a learned behaviour. Once the body has been disciplined to respond freely and spontaneously, the heart has a pathway to express the human condition through vocal song. Music educators should take this as a high calling and regard their work with dignity, bringing their own joy of singing, their enthusiasm and commitment to the classroom every single time they are with students.”

Implicit among the expert opinions in this category is the idea that effective teachers exude a sense of passion, joy or enthusiasm for singing. Also, that this sense of passion forms the basis for student motivation. Elizabeth Scott summed this up, observing:

“One of the key aspects about teaching any subject, is that the teacher has to be passionate about what they teach. It's the passion that inspires the kids to want to find out what's so good about it.”

In addition to the sense of passion mentioned by Elizabeth, two related teacher qualities mentioned commonly by experts included (i) a love of teaching and (ii) a love of working with young people. As Anthony Young suggested, “teachers need big hearts, small egos and a love of teaching. A love of singing is important as is the ability to engender that love of singing in others.” Paul Holley also reflected on this concept and offered these thoughts:

“For me, working with high school kids has at times been the most rewarding and at other times been the most frustrating experience. For me it's about continuing to put in the hard yards and to keep working with a group of kids until they finally have that light bulb moment where things start to make sense. Working with kids, there can be that real frustration because they are not getting something or they are not changing. It's important to keep encouraging them to explore and to keep trying. I've come across a few teachers who made me think, 'why are you even working with kids and choirs? You don't appear to like kids at all.”
Category 2 – Singing experience

Among the experts surveyed, many placed value on the idea that effective teachers should be able to sing and/or that they should undertake tuition in singing. According to Robert Braham, “A singing teacher needs to be a trained singer. Choir directors also need to be trained singers but not necessarily to the level of a professional soloist.”

Furthermore, Paul Holley focuses on the importance of singing as a pedagogical tool, stressing that skilled teachers are able to use their voice to teach musical concepts. He asserted:

“My feeling is that anyone who is going to be a music teacher must sing and unless they are willing to do that, they should not be teaching music. Singing is so pivotal in teaching music to any age group. If you're going to ask the kids to do it, you need to be willing to do it yourself.”

Experts also reported that good voice teaching is evident when teachers lead by example and when their vocal knowledge is, to some degree, based on practical experience in singing. As Jeneatte LoVetri noted:

“Teachers who will deal with singing should have to sing and study singing with a competent teacher who understands vocal function and voice science from a health and stylistic point of view. Teachers should have a strong base of understanding how vocal sound is made, how it can be changed, and what kinds of sounds are both healthy and normal.”

Another reason experts believe teachers should undertake training in singing is to enable them to demonstrate the skills that they demand of their students, thus ensuring that are good vocal role models. In summary, “A teacher should be able to model a good vocal sound” (Kenneth Phillips).

Category 3 – Musicianship

In addition to vocal ability, some experts suggested that effective teachers of singing also need to be good musicians. For example, two of the participating experts made the following recommendations:

Robert Edwin: “Musicianship is high on my list, as is (at least) basic keyboard skills. Being able to “practice what you preach” improves credibility far more than “do as I say, not as I do.”

Anthony Young: “A singing teacher also needs strong personal musicianship and a good diagnostic ear. They need to be able to hear ‘what a voice is doing’. The ability to audiate more than one part simultaneously is very important for choral conductors.”
The term musicianship was used several times, although experts did not always interpret this term in the same way: For Robert Edwin, the term musicianship seems to encompass formal musical training, skills in accompanying students and the ability to sing at a reasonable standard, whereas Anthony Young emphasises the skilled ear and the teacher’s aural comprehension. This theme of ‘musicianship through listening’ was picked up by another expert, Richard Gill, who described it as the skill of listening attentively to voices:

“Lots of teachers don't really listen to what their kids are doing. They play for them, but don't listen to every single note. I think the skill of listening is the most important skill a teacher can have.”

Thoughts about musicianship among the expert sample also encompassed knowledge of appropriate repertoire for adolescent voices and stylistic knowledge of various musical genres. In particular, contemporary music genres were valued by some experts who saw that these styles are more likely to appeal to adolescent singers. According to Graham Welch:

“Teachers of music in secondary schools tend to be graduate musicians from the Western classical background. Some of them will have some experience of popular genres and other types of music. By and large most of the musical skills they have are from a musical department or Conservatorium according to a Western palate. That is not necessarily a great deal of use. Although it might have given them a great deal of musical skills and understanding, it doesn't prepare them with a background in a musical skills and genres that adolescents may be interested in.”

Likewise, Jeneatte LoVetri stated:

I would expect the teachers to know the difference between classical singing styles and the styles that are now referred to in the USA as Contemporary Commercial Music (previously called non-classical). I would expect the teacher to understand the differences between rock, pop, jazz, gospel, R&B, country and other styles, based on the way they are performed by professionals who are successful in any given style.

**Category 4 - Formal Training**

Many experts saw the need for some type of formal training in voice pedagogy to create knowledgeable teachers. Some experts suggested that this training should occur at university during pre-service teacher education; some suggested that it could be provided by professional associations; and others were not clear about the best approach for providing teacher education. The content of the training recommended by experts, included: vocal anatomy, vocal function, vocal health and voice science. Both Robert Edwin and Jeanette LoVetri commented respectively:
“While there is no substitute for experience, a teacher of singing needs to know, first and foremost, how the instrument works. Sadly, our profession is still loaded with pre-science and old pedagogical baggage. I find it embarrassing that many of our colleagues still don’t know how the diaphragm works or that the vocal folds actually produce phonation!” (Robert Edwin).

“Without a scientific, functional approach to teaching singing, a great deal of time can be wasted in rehearsals, students will not necessarily learn to improve the responses of the vocal mechanism and the body, and they will not be equipped to go forth as versatile, well trained vocalists for the rest of their lives” (Jeanette LoVetri).

Moreover, Chris Shepard alludes to the notion that good voice teachers need to have acquired a great deal more vocal knowledge than that which they received through their own vocal training:

“In a perfect world, I think that any voice teacher should have taken a course on basic vocal pedagogy, if only to make it clear that there is more to teaching voice than passing on one’s own vocal technique and training! I particularly worry about vocal health in young singers; the same way that all schoolteachers are required to have a First Aid certificate, I think that all singing teachers should have a “Vocal First Aid” course that helps them to identify potential vocal damage.”

**Category 5 – Pedagogy**

According to expert opinion, effective voice teachers have their own personal pedagogy or approach to working with voices. This pedagogy consists of a set of knowledge and skills which are refined through teaching experience. Ron Morris asserted:

“I think that journey from novice to expert now does require that you get better at teaching by doing it, but there is also a set of knowledge-based skills that need to be acquired along the way and that I think is the biggest change in teaching singing. It's no longer teaching as you were taught – it’s analyse, assess, decide, acquire knowledge, develop a personal pedagogy that you then improve with practice.”

Experts who subscribe to a particular named approach to teaching singing, sometimes recommended this approach as necessary education for teachers, while other experts simply recommended that teachers should have a pedagogy that is deliberate, considered and flexible. Nonetheless, it was generally agreed that a personal pedagogy should arise from research and study so that teachers avoid simply recycling techniques acquired through their own singing lessons. According to Ingo Titze:

“Another thing that every teacher has to be confident enough about is to have the courage to vary their approach with the individual. So many teachers, in my opinion, just deliver what they have learnt from their teacher and their teaching becomes a matter of passing on the bag of tricks that they were handed.”
**Category 6 – Management Skills**

Responses in this category reflect the opinion of several experts that good teaching is synonymous with effective management skills. A range of different management skills were discussed by the expert panel and the description provided by Graham Welch offered a succinct introduction to this topic:

> “You have to be able to manage the learning environment and that means the resources, time, the space and matching all of those to the individual needs of the kids you are working with.”

Building on this theme, Mark O’Leary suggested that management skills involved being organised which is evident in the way that vocal instruction is planned and executed:

> “I think organisational skills are so important and are often neglected… I find that if you want to have a really good rehearsal or an effective singing session of any type, you have to work hard to ensure that it is both a learning experience and an enjoyable experience. For me, that means planning the experience so that nothing goes to chance. It involves thinking carefully about what happens in the session; how long you need to spend on particular tasks; what the point of the task is; and whether it is something that is going to be a joy or a chore for the students. It is fine to have things that might be a chore, but they have to be balanced out with things that are a little bit more joyful or uplifting.”

The management skills discussed by the experts were not restricted to external factors, such as the learning environment and lesson flow, but also included management of the learners themselves and their attitudes. For example, good management for Paul Holley involved the ability of the teacher to create a supportive and open learning environment in which students feel comfortable to express themselves vocally:

> “Another, important thing for me is about being able to create a space in which children feel free sing and take risks. As a teacher, there is a certain amount you need to understand about the psychology of the age group that you are working with. In my experience, it's not a ‘one size fits all’ approach. If you're working with 10-year-olds, you've got to know that these are the kinds of things you will need to do to motivate them; this is where the students might be at. When you're working with 16-year-olds, it will be different. When you're working 25-year-olds, it will be different again.”

**4.3.3 Teacher education and training in singing**

*How could the training of teachers who work with high school students be improved? What is it you think teachers need to know to raise the standard of singing in Australian schools?*

The expert panel seemed to share the belief that the current standard of teacher education in voice pedagogy was inadequate and that teachers of adolescent children generally lacked the skills necessary to work effectively with singing. Experts agreed that a better or more
A comprehensive approach to teacher education in singing was needed in order to improve the status quo. However, they did not always agree on the best way to achieve this and there were qualitatively different ways in which these experts described what was ideal or desirable in teacher education. Three separate, but inter-related categories of response were identified in the transcripts that related to teacher education which are summarised in the table below:

Table 4-6 Teacher Education - categories of response

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Brief explanation</th>
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<tbody>
<tr>
<td>1 System or regulatory</td>
<td>Responses that describe the need for better training in universities and for structures that require teachers to complete more comprehensive voice pedagogy courses.</td>
</tr>
<tr>
<td>2 Individual responsibility</td>
<td>Responses that suggest that teachers need to educate themselves and to take responsibility for self-improvement.</td>
</tr>
<tr>
<td>3 Collective or collegial responsibility</td>
<td>Responses that suggest by working together, teachers can help improve the profession. Often this involves the more experienced and successful teachers supporting newer teachers in mentor type relationships</td>
</tr>
</tbody>
</table>

**Category 1 - System or regulatory**

Experts in this category view teacher knowledge and skills as resulting from participation in a system or process. Accordingly, these responses attribute a lack of teacher competency to something that is wrong with ‘the system,’ such inadequacies in the current approach to teacher education. Experts in this category often advocate changes that involve minimum standards or that require teachers to complete training that is more rigorous. Some experts felt that teachers simply needed greater exposure to singing and regular opportunities to sing. For example, David Lawrence suggested that vocal work could be included into the university curriculum by ensuring that musical concepts were taught through singing. He asserted:

“I think that the amount of time spent on working with voices in the university colleges needs to increase. There is so much of the music curriculum that could be taught through the voice. I'm not quite sure it is given enough emphasis.”

Other experts suggest that teacher education needs to include specific courses which deal with voice pedagogy and which provide information on the training of adolescent voices. For example, Kenneth Phillips suggested:

“Colleges and universities need to require of music education students a course in child and adolescent vocal pedagogy. While I was a professor at The University of Iowa, I implemented and taught such a course. It was very popular among students, and it laid the foundation for working with students at the elementary and secondary levels. There
is so much information that must be covered in the regular elementary and second methods courses, and there is little room for an in-depth study of the child and adolescent voice. This needs to change… Colleges and universities continue to turn out elementary and secondary vocal music teachers who have only a minimal understanding of the voice and appropriate vocal pedagogy for young singers.”

Ron Morris expressed similar thoughts:

“I think one of the best ways of doing that would be within their college experience or after they have done their music degree and they go to do their education degree, there should be something in there about adolescent voices and how they’re different both to children’s voices and to adult voices. I have a real belief that schools teachers should be told about children's voices and how they differ from adult voices and that they should be given some skills and techniques to work with kids. There needs to be special instruction about adolescent boys and they also need to know about young adult voices so that it's not just about boys. This could be part of their university education, particularly if they are studying choral conducting or wanting to be classroom music teachers.”

Other experts acknowledged that courses in vocal pedagogy already exist in some institutions, but they believed there are inadequacies in the resources or time allocated to these courses. Elizabeth Scott observed that:

“People who are doing the education degrees at universities are not getting trained in any kind of instrumental pedagogy or vocal pedagogy. Teachers are not coming out qualified in any way to run instrumental or vocal programs or to conduct bands, choirs and orchestras. They do run some choral pedagogy classes at the Conservatorium, but the hours have been greatly reduced. They have some conducting lessons aimed specifically at choirs. I think that everybody needs to be part of vocal pedagogy class and I doubt they have this. If teachers don't have the skills, they can't teach it well.”

**Category 2 – Individual responsibility**

Not all experts believe that universities alone are key to building teacher knowledge and skill. Some describe the need for teachers to take responsibility for self-improvement or to educate themselves. There is a sense of overlap between this category and the previous. Responses in both categories suggest that the path to improving teacher knowledge and skill involves completing additional training. However, the unique aspect of the expert opinion in this category is a sense of volition on the part of an individual teacher. When experts discuss the responsibility of individual teachers, a common suggestion is that they should pursue individual tuition in singing. For example, Robert Braham rationalised:

“All choral directors need to have singing lessons at least to a point where they can be useful in front of a choir. It would be unlikely for an instrumental ensemble director not to play at least one of the instruments in the ensemble.”
In this quote, Robert Braham points to a dichotomy of skill between instrumental music teachers who direct school ensembles and generalist music teachers who are often responsible for directing school choirs. While he is happy for school choir directors to have a minimal level of skill to the point that they are ‘useful,’ other experts described the need for a higher level of skill where teachers work to gain a practical understanding of the principles of voice technique and pedagogy. Jeanette LoVetri stressed that:

“Teachers who will deal with singing should have to sing and study singing with a competent teacher who understands vocal function and voice science from a health and stylistic point of view. Teachers should have a strong base of understanding how vocal sound is made, how it can be changed, and what kinds of sounds are both healthy and normal. They should understand the difference between vocal production and style so as not to confuse or muddle together the two things, which are distinct from each other. They should learn the difference between “classical” training and functional training, as they are not the same thing. They should be familiar with various “mainstream” styles and the differences between them and they should understand what vocal fatigue symptoms are.”

Category 3 – Collective or collegial responsibility

In contrast to the experts who see individual responsibility as the basis for teacher improvement are those who advocate a more collegial approach. These experts suggest that by working together, teachers can improve the profession collectively. For example, Graham Welch advocated a consultative type process, suggesting that successful teachers are likely to have insights into what is not working in the profession:

“One of the ways that they developed things in England was to find the teachers who are the good role models. You talk to people within the music and school cultures and find out who is doing some interesting work. Who would you study with? Who has got some great music going on? You get those people together and you say here we have some people who are successful in this thing that everybody else finds difficult. You get them together for a few days and get them to put together an agenda for how to bring about change.”

Another expert, Kathryn Sadler, agreed with the process of consulting more experienced teachers, but suggested that all teachers could benefit from the experience of working together with a more interactive type approach. She recommended:

“We need to bring together various experienced teachers with learning teachers - internships and the like. I think we need more interactive forums. We might have a forum where several teachers get together with other teachers and compare approaches. So a teacher might say “here are my exercises” and we all do them together so that people have a feeling for each different approach. I don't think it's possible for one person to teach other teachers how to teach singing. You can only learn about singing through observing and ideally that observation is interactive. Forums are the way to go. Sharing, sharing, sharing! Everyone needs to stop being afraid. We all feel vulnerable. We all cling to too much to what we know, because we are frightened it’s wrong. We've
got to stop doing that. We've got to be curious and realise that we’re all saying the same thing - just in different ways.”

On the other hand, Jeanette LoVetri suggests a more formal or structured approach where mentors apprentice pre-service or early career teachers into the profession. She stated:

“What we need is the old “Guild System” whereby someone with many decades of training and experience has a group of young teachers working underneath him or her as apprentices. The young people need to watch and listen to a senior teacher for at least two years. Then, the young people need to teach singers with the master teacher overseeing their teaching, giving guidance and applying corrections until the master teacher feels confident that the young teacher is on a solid, useful path. In light of the difficulty of doing this in our present society, another approach might be to ask those who were teaching singing to attend conferences or intensive trainings whereby a great deal of vocal information is imparted in a short time. In this situation there would be opportunity for a smaller amount of guided work with a master teacher in a one-on-one situation and in small group sessions. A master teacher should be recognized by many different people from diverse backgrounds as being someone who is very capable at applying vocal exercises such that a vocalist clearly sounds and feels better after working with the master teacher. A master teacher should also be able to help every singer find his or her uniqueness, individuality and artistic point of view so that the music is personal, expressive and satisfying to singer and audience both.”

4.3.4 Teacher professional development – content and delivery

Given that the next phase of this study focuses on the professional development of secondary school music teachers in singing (see Chapter 5), a particular interest for this second phase was to gain the opinion of experts in relation to the content and delivery of successful professional development courses. The majority of experts interviewed agreed that the professional development of secondary school teachers in adolescent voice pedagogy was necessary and that such programs had the potential to raise teacher skill and confidence. The opinion expressed by Clare Preston was typical of several on the panel - that teachers who are successful in working with voices have extended themselves by learning a great deal more than was provided in their pre-service teacher education. She stated:

“Teachers who get good results have probably outsourced all their professional development. Effective teachers, in their first five years of teaching, discover what they don't know and what they want to learn. Successful teachers are lifelong learners. In my case, I outsourced all my professional development. My university years were only successful in that I achieved a qualification. All my growth as a teacher has been post-university.”

Although experts agreed on the importance of professional development programs, there were qualitative differences in the ways that experts described the content of these courses.
Six categories of professional development content were identified in the interview transcripts and are summarised in the table below:

**Table 4-7 - Professional Development Content - Categories of response**

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Brief explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Observation</td>
<td>Responses that suggest teachers learn by observation of teaching</td>
</tr>
<tr>
<td>2 Singing experience</td>
<td>Responses that suggest teachers need to gain practical experience in singing.</td>
</tr>
<tr>
<td>3 Collaborative</td>
<td>Responses that describe the need for participants to contribute</td>
</tr>
<tr>
<td>4 Voice science</td>
<td>Responses that suggest that teachers need knowledge of vocal anatomy or voice science.</td>
</tr>
<tr>
<td>5 Repertoire &amp; Materials</td>
<td>Responses that suggest that teachers need to be given sample repertoire, vocal exercises and materials.</td>
</tr>
<tr>
<td>6 Rehearsal strategies</td>
<td>Responses that describe a need for teachers to be trained in how to run rehearsals and administer vocal programs</td>
</tr>
</tbody>
</table>

**Category 1 – Observation**

Expert conceptions of teacher learning included several forms of learning via observation, including: demonstration, imitation, and modelling. One expert, Ron Morris, suggests that workshop presenters could demonstrate teaching concepts using course participants and a set of sample materials:

“I think there’d need to be some very specific information and some demonstration of teaching skills, perhaps providing them with a set of exercises that they could use and then as required modify to suit their needs, based on the needs of the adolescent voices.”

Alternatively, Mark O’Leary believed that pre-service teachers should observe the work of experienced teachers and that this observation should ideally take place in a variety of real learning contexts. He suggested:

“I would try to ensure that the course involves as much as possible observations of the good programs that are out there. Programs in a variety of contexts - both inside and outside schools and with different types of schools. I think you can learn so much from watching people in their environment working with their kids.”

On the other hand, Kenneth Phillips proposed a different approach to the workshop context and suggested, “Use students as demonstration models. Nothing teaches better than the students themselves!”

**Category 2 – Singing experience**

In contrast to the experts who described a more passive or observational approach to teacher education are those who advocated for an active approach. For example, many of the experts
stressed the importance of practical singing experience within the scope of teacher professional development courses. However, there were also differences in the way that each expert expressed their rationale for including singing. Some felt that positive personal experiences in singing would help build teacher enthusiasm and confidence. Specifically, David Lawrence proposed:

“I think a strong emphasis on simply singing for themselves; singing for their own voices; enjoyment of singing. One of the strongest weapons a teacher has is their own enthusiasm for singing. That stands at the core of a teacher’s confidence. Let’s develop that. Let’s work from the inside out and once they are comfortable doing that, there is any number of resources we can offer them.”

Other experts viewed practical singing as a type of experiential learning enabling teachers to understand vocal technique through direct personal experience. The inference behind expert comments in this category was that teachers who have experienced vocal training personally will be better at teaching it. As Seth Riggs asserted:

“If you’re training high school teachers, one of the most crucial things is that you have to get them to do it. You have to show them how to keep the larynx down, how they can sing through the bridges and even where those bridges are in their voice.”

On a more personal level, Paul Holley revealed:

“One of the things I’d like to address this year is just to go back and get some vocal lessons for myself - not just for the development of my voice, but to give me ideas for working with voices, fixing problems and strategies for teaching certain concepts… I am a practical and kinaesthetic learner, so I would rather go and learn about this in lesson with somebody, rather than read about it in a textbook.”

A further motive offered by experts for including practical singing experiences involved developing a teacher’s capacity to model vocal techniques with their voices. Implicit in these comments is the idea that students learn to sing by modelling the vocal sounds of a vocally-capable teacher. According to Claire Preston, this skill is essential. She emphasised that:

“Voice tuition is important. Teachers don't need to be professional singers or soloists. They need to sing in tune, deliver a supported sound, demonstrate different vocal colours, and use their voices confidently in their teaching.”

**Category 3 – Collaborative Process**

Conceptions in the ‘collaborative process’ category described the interaction of teachers within a learning community and stressed the social nature of learning. David Lawrence illustrated this, indicating that:
“Singing is such a participative act. I was once asked about the number of books I have read on choral conducting. I own quite a few books on this topic, but have never read any of them. I am quite a practical musician and I find it much more inspiring to go to a workshop; to meet other teachers; get some ideas for repertoire; and really take part in the process. It's like reading about dance. You can't learn dance by reading the steps. You have to get it into your body.”

Implicit in this view was the idea that quality professional development experiences should involve teachers actively in sharing their experiences and strategies, and in collaborative problem-solving tasks. Moreover, experts appeared to value knowledge that is both constructed and emergent. Graham Welch summed this up, asserting:

“If we set ourselves up as master teachers, then all we do is reinforce a model in which there is always somebody who knows more than us. What we have to do as effective educators, whether we are working with kids or whether we are working with adults, is we have to create a space in which they can contribute and in which they can bring whatever their working on in the moment and use it. Enabling whoever is on your course to actually contribute and bring ideas - to bring something that works for them. If everybody in the course is required to bring one thing that works for them, then you are already starting off with a bank of ideas.”

**Category 4 – Voice science**

In the previous three categories, expert conceptions focussed on teacher learning from an experiential perspective. However, other notions centred on the content of teacher development sessions. Among these, several experts described the need for teachers to be instructed in scientific information relating to vocal anatomy and function. According to Ingo Titze:

“I think they need to really know the instrument and that's where the sciences are helpful. I think a teacher needs to understand the instrument and hopefully some of the science behind it, but the teacher does not need necessarily to give that to the student.”

Robert Edwin develops this idea further and suggests:

“A professional development course for high school vocal music teachers must include from current resources, the anatomy and physiology of the singing system and how that system functions. Fact-based pedagogy also includes current psychology and neuroscience research findings.”

These experts stressed a positivist approach to voice pedagogy and the inclusion of empirical research in pre-service teacher education. An assumption that underlies their opinions is that in order to teach vocal technique effectively, a teacher must understand how the voice works.
**Category 5 – Repertoire and materials**

Expert suggestions did not always focus on teacher skills and knowledge, but also on the teaching materials and resources needed to implement effective vocal programs. Expert comments in this category view teacher education partly as a process for sharing musical repertoire, stylistic knowledge and resources that can be readily applied to various teaching contexts. Some experts described the need to provide resources teachers can use, either in the classroom or for group instruction. Patrick Allen observed that, “Teachers need repertoire, games and warm ups they can readily use in the classroom.”

Other experts alluded to the need for a breadth of resources. In particular, the notion of a broad-based education in many musical genres was popular among experts. This opinion is exemplified by Robert Edwin: “Many musical genres should be covered (literally Bach to rock) so that teachers are non-judgmentally fluent in both their similarities and their differences.”

On a different tack, Paul Holley suggested providing teachers with a set of strategies for dealing with common vocal faults and vocal issues likely to arise in the process of working with adolescent voices:

> “They need to walk out feeling like they have a bag of tricks in a sense that they can try in order to fix problems that they are likely to come across. So you have this 13-year-old girl who has really breathy sound, what things can you do that are likely to help her? You have a 14-year-old boy whose voice is changing and he desperately wants to sing like a man. What might you be able to do to help him in that situation? The 7-year-old child who doesn't match pitch very well. What can you do to help him? These are some really practical needs that teachers have.”

**Category 6 – Rehearsal Strategies**

Concepts, both in the previous category and in this category dealt with the practical day-to-day needs of teachers and with the application of voice pedagogy to real-life teaching contexts. Whilst the previous category deals with the musical materials teachers use, this category focuses on the way teachers manage learners and the learning environment. In particular, some of the experts emphasised the importance of managing and running a rehearsal and the unique needs of musical ensembles in contrast to music classes. To delve into this, Claire Preston posed a range of questions that are fundamental to a teacher’s planning for rehearsal:
“Developing a teacher’s knowledge of rehearsal pedagogy is really important! How do you plan for and then run an engaging rehearsal? How do you break down pieces? How do you teach more than one work during a rehearsal? How do you teach sections of pieces so that each week you are working on a different part of a piece - polishing some pieces, introducing something new and working on the guts of another piece? How do you ensure you are working at different levels and catering for a variety of learning styles within a rehearsal?”

Paul Holley summed this topic up, saying:

“I’d like to see teachers actually taught how to deal with rehearsal situations; how to run an ensemble; how to choose repertoire; rehearsals strategies. Even just how to work in an ensemble. If you're a teacher and you’re now standing in front of a choir or 50 kids, that’s different to being a classroom teacher where you're standing in front of 25 kids.”

4.4 Discussion

This second phase of the study has explored the experiences of a range of expert voice teachers; their opinions about what constitutes the skilful and knowledgeable teaching of singing; and their suggestions regarding how to achieve more teachers who are competent in working with voices. This chapter has explored four key themes which were reflected in the interview transcripts: (i) paths to competency for teachers of singing; (ii) identifying and describing skills and knowledge; (iii) systems for teacher education; and (iv) the content of professional development courses in singing. Taken together, an analysis of expert opinion around the skills and knowledge most important to working with adolescent voices reveals the existence of at least three key factors: (i) developing an identity as a voice teacher, (ii) developing teacher craft knowledge and (iii) structures and systems for the training of teachers.

4.4.1 Identity as a voice teacher

This particular study has asked a sample of experts to reflect on their journey from novice to skilled teacher. In so doing, it raises questions relating to how the musical identities of these educators develop as they move from pre-service preparation through to becoming experienced teachers who work with adolescent voices.

The experts represent a diversity of musical backgrounds. Some started their musical journeys as singers; some were instrumentalists; some were raised in musical families; some were inspired by a particular vocal guru or pedagogy; and some stumbled seemingly
accidently into the teaching of singing. Regardless of their background, each expert at one point in time appears to have formed an opinion around their identity that says ‘I am now a teacher who works with voices.’ In some cases this was a conscious decision and, for other experts, the realisation came later in their career. An interesting discovery in this study was that attaching a label to this identity was sometimes problematic. Teachers who work in a studio context were often happy to call themselves a ‘singing teacher,’ ‘voice coach’ or ‘teacher of singing.’ However, other experts, even those who work regularly with adolescent voices either in a classroom or choral setting, did not always see themselves as singing teachers per say, but preferred a label that was less specialised. This was exemplified by Lyn Williams, who claimed, “I really don’t consider myself to be a teacher of singing in any way, but rather a conductor of choirs.”

Regardless of the label, the identity as a voice professional of the participants in this study appears to be an evolution of a variety of factors that come together to shape one’s singing self, including: background, culture, education and experience. There were qualitatively different ways in which the expert sample developed their identities as voice professionals. Although each expert’s experience was unique, their narratives highlight five distinct categories that account for the differences in their experience. When taken together, these categories could be reorganised to construct a developmental process or continuum. This might contribute to an understanding of how any teacher is able to develop both confidence and skill in working with adolescent voices. The process is illustrated below (see Figure 4-4-1).

Figure 4-4-1 Development of teacher identity as a singing specialist
The developmental process illustrated above begins with cultivating a certain set of personal qualities that are desirable for teachers of any subject, including: inter-personal intelligence; passion for the subject matter; and an interest in working with young people. First-hand experiences of singing, both as a soloist and in vocal ensembles, are an important foundation of the next stage of this process. In the third stage of the process, experience as a singer is supported by formal musical training covering areas such as: aural training, music literacy, repertoire, music history and theory of music. Additionally, several experts stressed that musical training should also include practical skills on an accompanying instrument - typically piano or guitar. A teacher who has both singing experience and formal musical training is then ready for the more specialised study of voice pedagogy, which includes vocal anatomy; the function of that anatomy; voice science; vocal health; historical and contemporary approaches to training voices and the identification and correction of common vocal faults. This background combined with observation of effective teaching, participation in professional networks and personal experience working with voices, leads a teacher to formulate their own pedagogy. At the heart of this pedagogy lies the ability for teachers to adapt their prior experience and learning to meet the needs of a particular educational context.

4.4.2 Craft knowledge

Expert teachers of singing have more than just a strong sense of identity as voice teachers. They possess a complex base of knowledge, which includes knowledge of the subject matter they are teaching; knowledge about teaching and learning in general; knowledge about how the subject matter may be effectively taught; and knowledge about how students typically grapple with this subject matter (Grimmett & MacKinnon, 1992; Leinhardt, 1990). Additionally, expert teachers have a degree of experience in applying this knowledge base successfully to a particular educational context. Literature that explores teacher knowledge uses a variety of terms to describe the various types of knowledge that teachers possess. However, the term ‘craft knowledge’ has been adopted widely to represent the metaphorical ‘glue’ that brings all the various teacher knowledge bases to bear in the act of teaching (Grimmett & MacKinnon, 1992; Leinhardt, 1990; Meijer, 2010). Craft knowledge is defined by Meijer (2010) as “the accumulated wisdom and know-how teachers construct through experience, and which is the basis for dealing with everyday teaching situations” (p. 642).
The topic of craft knowledge in the teaching of singing remains largely unexplored and there is tremendous potential for further research in this area. The vocal literature makes only a passing acknowledgement that effective teachers of singing actually possess a form of craft knowledge (Callaghan, 2000; Howard et al., 2007; Welch et al., 2004). In his interview, Mark O’Leary alludes to the idea that teachers who work effectively with singing possess a high degree of craft knowledge:

“The other thing that is important is the obvious part of really knowing your craft well. This involves understanding what voices can and can’t do; knowing what people of various ages can do as far as rehearsal demands go; what their concentration spans are as like. To be successful, you need to realise what people's limitations are and also what they are capable of achieving. You need to find that spot in the middle where they are challenged and stimulated, but not challenged to the extent that they are going to fail or become discouraged. It's about always finding the right degree of difficulty to work towards.”

In light of this, a subsequent question raised in this study is: in what ways do expert conceptions contribute to an understanding of teacher craft knowledge in voice pedagogy? Mark O’Leary’s quote above deconstructs the notion of craft knowledge, suggesting that some of the component parts include an understanding of the vocal characteristics or capabilities of the learners coupled with an ability to tailor instruction to meet the needs of the learners. Although other experts do not address the idea of craft knowledge directly, there were qualitatively different ways in which various experts conceptualise the kind of knowledge and skills that effective teachers of singing possess. Six categories of response were identified in the interview transcripts that related directly to teacher knowledge and skills. When taken together, these categories suggest that experts place varying degrees of emphasis on: what is taught (content); how it is taught (pedagogy); and who is taught (the learners and how learners grapple with content and pedagogy). This tripartite concept of music teacher craft knowledge is illustrated below:

![Figure 4-2 Components of music teacher craft knowledge](image-url)
Teacher craft knowledge is likely to be more than the sum of its parts. However, insight into the content and nature of teachers' craft knowledge can help to articulate what is largely tacit knowledge of experienced teachers and lead to a better understanding of the complexities of teaching (Meijer, 2010). Additionally, these insights may offer a basis for reviewing current practice and advocating for change in teacher education and professional development.

### 4.4.3 Teacher development and education

An area of interest for this study is exploring processes that are likely to contribute to the development of teacher craft knowledge in working with adolescent voices. A phenomenographic analysis of the interview transcripts demonstrated that there were qualitative differences in the way experts described the types of learning and experiences that they believed create effective teachers. Expert descriptions suggest that education and professional development programs needed to be rich in several forms of learning. When taken as a whole, expert transcripts described four types of learning: factual learning; experiential learning; observational learning and collaborative learning (see Figure 4-3).

Factual learning was represented by expert comments that suggested there is a body of information, namely vocal anatomy and voice science that teachers need to learn in order to be successful. Experiential learning was represented by expert comments that advocated for teachers to have practical experiences in singing and that they should learn about vocal technique by experiencing it directly. Observational learning was summed up by expert comments suggesting that teachers learn to be effective by watching experienced educators work with children and demonstrate teaching skills in workshop scenarios. Collaborative learning was represented by expert comments that advocate an interactive or social approach to teacher development, where teachers support each other, share strategies, discuss and problem solve.
4.4.4 Structures and systems

The qualitatively different, yet compatible ways in which the expert panel described various systems represent a possible framework for conceptualizing teacher education and professional development programs in singing. In this framework, both formal institutions, teachers and the teaching profession as a whole have a role to play in the development of professional identities, teacher craft knowledge and implementing various systems for music educators who work with adolescent voices. This emerging framework will be explored in more detail in Chapter 5.

4.5 Conclusion

One question raised in this study is whether there is a common knowledge base that might be derived from the content of what these expert teachers know. In particular, what knowledge can contribute to the enhancement of teaching practice and which elements of this knowledge speak to the professional development of teachers who desire to be more effective?

The next chapter focuses on the third phase of this research project, which endeavours to implement a practical application of the knowledge base gathered from the expert interviewees. It explores the collective knowledge gathered in this chapter by implementing a course of professional development for teachers working with adolescent voices and provides a platform to reflect on the research questions further.
Chapter 5: The Voice of Teacher Development

5.1 Introduction

In this chapter, the results of a third and final phase of the study are reported. This stage involved the implementation and examination of a series of professional development modules relating to the teaching of singing in Australian secondary schools. In the educational literature and in the previous two studies, the professional development of teachers has emerged repeatedly as a proposed solution to the patchiness and the poor quality of vocal education in Australian secondary schools. In this study, a model of nested action cycles was used to explore the process of professionally developing a group of secondary school music teachers in the area of adolescent voice pedagogy. A professional development course was devised and presented over a series of six workshop sessions. The researcher assumed the role of trainer and adviser, providing participants both with group vocal instruction and a set of teaching resources. Resources provided to the participants were developed from a review of the pedagogical literature (see Chapter 2) and based around the recommendations of a panel of experts in a previous study (see Chapter 4). The professional development course included: information on vocal anatomy and voice pedagogy; sample repertoire and vocal exercises; observation and demonstration of teaching; and practical experiences in singing. Additionally, participants were supported in their efforts to use action research to inquire into aspects of their own practice and ultimately to improve their skills and knowledge in working with adolescent voices.

The research plan involved exposing teacher participants to the course material and asking them to reflect on the significance and relevance of this information to their teaching. Participants were also encouraged to discuss their experiences during sessions and to find solutions to their everyday teaching problems through interaction with their colleagues. Based on these experiences, participants set new goals for action and reported on their progress via journal entries and debriefing sessions with other participants. While presenting the course, the researcher sought to explore and develop his capacity to present professional development by reflecting on the process of constructing and delivering the training; the way participants responded to the training; and their suggestions for what constitutes effective professional development.
5.2 Review of Related Literature

5.2.1 Action Research Literature

Action research describes a family of approaches to enquiry that are based on the notion of pursuing change or understanding through doing. McNiff and Whitehead (2011) define action research as “a form of enquiry that enables practitioners in every job and walk of life to investigate and evaluate their work” (p. 7). The action research approach has wide applicability and has been used in a variety of contexts, such as social sciences (management, organisational development, communication, social services, home economics), health sciences (nursing, health promotion, family medicine, occupational medicine) and in technological areas (ergonomics, production engineering, information systems, agriculture and cattle raising, architecture and urbanism) (Dick, 2009, 2011; Thiollent, 2011). It is also recognised as a method by which teachers can improve their practice (Louis Cohen et al., 2011; Volk, 2010).

The purpose of action research is ultimately for action to occur, differentiating this approach from others where the primary aim is likely to be research or investigation. The unique purpose means that the design of action research projects is generally more flexible than for other types of empirical research. However, a review of the literature reveals that action research tends to follow a basic framework, which includes: identifying a problem, planning a course of action or intervention to address the problem, carrying out the action, observing and reflecting on the outcomes, and planning further action if necessary (Costello, 2011; Kemmis, 1999; McNiff & Whitehead, 2011).

The process of action research cannot be described adequately as a predictable or mechanical sequence of steps (Kemmis & Wilkinson, 1998). Instead, writers conceive of action research as a cyclical or spiralling process (R. Burns, 2000; Louise Cohen et al., 2007; Costello, 2011; Hardy, 1906; Holly, Arhar, & Kasten, 2009). Cycles generally alternate between periods of action and critical reflection. For instance, a common cycle in Australian action research developed by Kemmis and McTaggart (1988, p. 14) is: plan → act → observe → reflect
In the literature, the cyclical nature of action research is often represented diagrammatically. For example:

![Figure 5.1 An action-reflection cycle](source: McNiff & Whitehead, 2011, p. 9)

While some texts represent action research as a single cycle, in practice, multiple or spiralling cycles may be used to create more in-depth studies or an extended action research model (Costello, 2011).

Whether the research involves a single cycle or multiple cycles of action, a key feature is the emphasis on reflexive process (Gay et al., 2006; Kemmis & McTaggart, 1988; McNiff & Whitehead, 2011) which involves researchers in “thinking, reflecting and/or theorising about their own practices, behaviours and situations” (Stringer, 2008, p. 11). Reflection is present at every stage of action research and may involve reflection in action, reflection on action or critical reflection (Louise Cohen et al., 2007). The goal of the reflective process is to “make sense of processes, problems, issues and constraints made manifest in strategic action” (Kemmis & McTaggart, 1988, p.15).

Common methods of data collection in action research include: diaries, email, online discussion forums, observation, interviews, questionnaires, narratives, photography, audio and video recording (Gray, 2009; Mertler, 2012). Given that action research can involve quite subjective observations and analysis of the researcher, using small samples with isolated cases, issues of data validity need to be addressed. Action research literature suggests a number of strategies employed by researchers to reduce possible threats to
validity. Multiple methods of data collection may be used to facilitate triangulation (Costello, 2011; Gray, 2009). Costello (2011) adds further strategies including: “prolonged involvement, negative case analysis and audit trail” (p. 56). McNiff and Whitehead (2011) suggest the ultimate test of validity is for researchers to put their findings forward in the public arena to demonstrate methodological rigour and so that validity of claims can be tested against other’s critical assessment.

5.2.2 Action research and teacher professional development

Action research has a proven track record in bringing about positive educational change and promoting teacher self-improvement (R. Burns, 2000; Louise Cohen et al., 2007). The literature recommends that both pre-service and in-service teacher education programs include experiences in action research (Volk, 2010). Over the past six decades, action research has become increasingly popular as a form of professional learning and problem-solving in education where it is typically carried out with “the intent of using the data collected to help educators understand or try out new or needed methods or paradigms for teaching or administrating” (Gay et al., 2006, p. 271). In one sense, the action research approach has much in common with the normal planning and problem-solving processes used by teachers in the course of their day-to-day work. However, a strength of the action research approach lies in its “systematic execution of carefully articulated processes of inquiry” (Cain, 2008, p. 4). Once completed, other teachers and pre-service teachers are a potential audience for action research and they may use research reports to explore improvements in their own practice (Cain, 2012).

In pre-service teacher education courses, action research has been used to foster skills in reflection, problem solving and professional enquiry (Darling-Hammond & McGlaughlin, 1995; Rock & Levin, 2001). Some educators believe if they train teachers from the outset to use an inquiry process that requires ongoing reflection and critical analyses, then the teachers will be more likely to continue in this direction throughout their careers (Arnold, 1993). Ponte (2010) observes that student teachers often commence courses with the expectation that they will learn how to teach and what their lessons should contain (educational knowledge), but over time they can learn to see and use action research as a way to develop their practice (methodological knowledge) continually for lifelong learning.
In a series of case studies with pre-service teachers (N=25) at the University of North Carolina, teacher educators Rock and Levin (2001) investigated the effects of engaging student teachers in action research projects as a form of professional development and concluded:

“Collaborative action research experiences provided opportunities for pre-service teachers to gain valuable insights about self as teacher, their students, the curriculum, teaching, and their roles and responsibilities as teachers… It is this type of work that will lay the foundation for the acquisition of knowledge, skills, and attitudes necessary for continued pursuit of professional development through their careers” (Rock & Levin, 2001, p. 19)

However, not all writers are equally praising of the role of action research in pre-service teacher education. Some suggest that action research works best when it is based around practical problems and when it is planned and executed by the primary stakeholders (Peters & Gray, 2007). The process by which student teachers select topics for investigation may be arbitrary and flawed, because “such research, generated by pre-service teachers who are only temporarily at a school site, does not appear to appreciably affect the work of the faculty at those sites, nor is collaboration with site faculty a necessary part of the process” (Peters & Gray, 2007, p. 211). In this way, successful action research requires a degree of ownership and involvement that can be difficult to achieve with pre-service teachers (Burnaford, Fischer, & Hobson, 2001).

As a form of professional development for working teachers, it has been found that the quality of teaching can be improved if teachers are empowered and use their own teaching experiences as a basis for professional growth (Costello, 2011; Gay et al., 2006; Kemmis, 1999; Kitchen & Stevens, 2008). Stringer (2008) adds that action research allows for a systematic process of enquiry that enables teachers “to plan sustained and substantive learning opportunities, build into their ongoing teaching work, tapping their collective wisdom and gaining access to other sources of expertise” (p. 168). Additionally, the action research model is an inherently flexible approach to professional development, because it can be carried out by individual teachers, groups of teachers, or by teachers in collaboration with academic researchers (Avalos, 2011; Ponte, 2010).

Cooper-Twamley (2009) investigated the impact of participation in action research on teacher efficacy using mixed methods and a multiple case study model. Participants included
four high school math teachers and five fifth grade generalist teachers from different suburban districts. Their research questions focussed on the role of action research as a form of professional development. Data collected included a pre-test and post-test, teacher journals and classroom observations. Data analysis showed that participation in action research positively impacted teacher efficacy, especially in the area of instructional practices.

5.2.3 Action research in music education

A growing body of literature explores the use of action research in music education as a tool, both in the pre-service education and in the professional development of music educators (Cain, 2008, 2010, 2011, 2012; Conway, 2000, 2001; Gifford, 1997; Major, 2007; C. J. Ward, 2009; West, 2011; Wong, 2011). When applied to the field of music education, action research refers to specific studies of music teaching and learning that are carried out by music teachers themselves or in collaboration with other teachers (Conway, 2001). As one of the most prolific writers on this topic, Cain (2008) affirms the potential of action research to: produce new knowledge; improve practice; and make a significant contribution to the field of music education.

However, these benefits must be contrasted against writers who describe an inevitable divide between research and practice in music education (Cain, 2010, 2012; Louis Cohen et al., 2011; Conway, 2001; E. R. Jorgensen, 2010). It has been suggested that musicians and music teachers have very little interest in what researchers do and that music research is often inaccessible to these professionals because it originates within academic communities (Conway, 2001). Conway further suggests that action research represents a potential strategy to bridge the gap between research and practice in music education.

The process of constructing action research is likely to resonate with musicians and has been compared to the act of rehearsing music. Both “share a focus on practical problems… both tackle problems to which there is no single, correct answer and both invoke a view of knowledge that goes beyond statements of fact” (Cain, 2010). This author suggests that many music teachers may be undertaking action research informally with little being published, because they may not value the new knowledge that emerges from their exploration. Cain calls on the academic community to help music teachers appreciate the value of their
research by “finding norms and practices that are more in tune with the varied types of knowledge that are understood, used and valued by musicians and teachers” (Cain, 2010, p. 173). In a more recent article, Cain (2012) explores a number of action research approaches and suggests that some of this research in music education is inherently flawed, because it relies on paradigms that are inappropriate for classroom-based action research. He concludes that the participatory action research paradigm (which involves teachers in doing and reflecting) best represents the reality faced by music teachers and is the most suitable method for research.

5.3 Research Design

5.3.1 Rationale

As outlined throughout this thesis, teachers can struggle with teaching singing to secondary aged students. Hence, there is tremendous variability in the quality of vocal programs throughout Australian secondary schools, with some key determining factors being teacher knowledge, skill and confidence in working with adolescent voices. Participants in Chapters 3 and 4 have suggested teacher professional development as a solution to bridge this gap. Although this solution seems plausible, it also raises many questions. What type of professional development is needed? What should the content of this professional development include? Who should provide this professional development? How do teachers typically respond to such professional development? In actuality, little is known about the paths that build highly skilled and confident teachers of singing. There is certainly an extensive literature on the professional development of teachers. However, there is scant empirical research on the professional development of school music teachers who work with adolescent voices.

In this third phase of the study, these questions are explored through the eyes of: (i) a cohort of secondary school music teachers who seek to build their skills and confidence in working with adolescent voices; and (ii) a researcher who seeks to develop his capacity to deliver effective professional development in the area of voice pedagogy. Action research was implemented for this study after a review of the literature demonstrated its potential to help teachers improve the quality of their teaching by using their experiences as a basis for reflection and professional growth. Additionally, by educating a sample of teachers in the process of action research, it was hoped that this final phase of the study might provide
participants with a model for their ongoing professional development and for the dissemination of professional knowledge.

5.3.2 Design

The design of this phase of the research is described as a model of nested or inter-connected action cycles, in which researcher and participants both play a role as co-researchers. In this symbiotic relationship, all participants develop together and as a result of each other’s cycles of action and reflection. The model is illustrated below:

Figure 5-1 Model of inter-connected action cycles

At the macro level, the design involved creating and delivering a course of six professional development sessions to a group of secondary school music teachers, reflecting overall on the process and reporting the results. The research plan for this macro level involves just one cycle of action and mirrors the 4 part structure of Kemmis and McTaggart (1988), namely: plan, act, observe and reflect. The research goal at this level is to investigate how professional development courses might enhance teacher skills and knowledge in singing and, as a result, improve the educational experience of Australian students.

At the intermediate level, each of the six component workshop sessions forms its own cycle of action and reflection. Both participant feedback and the reflections of the researcher are used to modify the content and delivery of successive workshop sessions. The research goal at this level is to explore how teachers respond to the professional development experience. That is, how and under what conditions they grow in confidence and skill.
At the micro level, the study design involves the researcher as a facilitator who supports teacher participants to use action research to inquire into aspects of their own teaching. The research goals at this level are to: improve participant skills and knowledge in working with adolescent voices; and by educating teachers in the process of action research, provide a model for their ongoing professional development and lifelong learning.

5.3.3 Participants

The participants in this phase of the study were sixteen self-selected secondary school music teachers. Consistent with other studies utilising action research in teacher education, the sample was small scale and inevitably purposive. Participants were recruited using an email advertisement sent out via music education networks and professional associations. The advertisement called for volunteers who were interested in improving their confidence and skill in working with adolescent voices. All volunteers were accepted with the final cohort comprising those who were available and willing to commit to the process as outlined in the participant information statement. The participants included: six males and ten females. Together they represented independent, catholic and government schools and a variety of levels of teaching experience as outlined in the table below.

Table 5-1 Teacher participant characteristics

<table>
<thead>
<tr>
<th>No</th>
<th>Sex</th>
<th>School type</th>
<th>Teaching context</th>
<th>Experience level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>F</td>
<td>Government</td>
<td>Classroom music teacher</td>
<td>Beginning</td>
</tr>
<tr>
<td>02</td>
<td>M</td>
<td>Government</td>
<td>Studio voice teacher</td>
<td>Beginning</td>
</tr>
<tr>
<td>03</td>
<td>F</td>
<td>Catholic</td>
<td>Classroom music teacher</td>
<td>Experienced</td>
</tr>
<tr>
<td>04</td>
<td>M</td>
<td>Independent</td>
<td>Classroom music teacher</td>
<td>Experienced</td>
</tr>
<tr>
<td>05</td>
<td>F</td>
<td>Catholic</td>
<td>Classroom music teacher, head of department</td>
<td>Experienced</td>
</tr>
<tr>
<td>06</td>
<td>F</td>
<td>Independent</td>
<td>Studio voice teacher</td>
<td>Intermediate</td>
</tr>
<tr>
<td>07</td>
<td>F</td>
<td>Independent</td>
<td>Classroom music teacher</td>
<td>Experienced</td>
</tr>
<tr>
<td>08</td>
<td>F</td>
<td>Independent</td>
<td>Choral director</td>
<td>Experienced</td>
</tr>
<tr>
<td>09</td>
<td>M</td>
<td>Government</td>
<td>Choral director</td>
<td>Intermediate</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>Government</td>
<td>Classroom music teacher</td>
<td>Intermediate</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>Government</td>
<td>Classroom music teacher, band director</td>
<td>Experienced</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>Independent</td>
<td>Choral director</td>
<td>Experienced</td>
</tr>
<tr>
<td>13</td>
<td>F</td>
<td>Independent</td>
<td>Studio voice teacher</td>
<td>Beginning</td>
</tr>
<tr>
<td>14</td>
<td>F</td>
<td>Government</td>
<td>Choral director</td>
<td>Intermediate</td>
</tr>
<tr>
<td>15</td>
<td>F</td>
<td>Independent</td>
<td>Choral director</td>
<td>Experienced</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>Catholic</td>
<td>Classroom teacher and studio voice teacher</td>
<td>Experienced</td>
</tr>
</tbody>
</table>
In addition to the teacher participants, four secondary school students (aged 12, 14, 16 and 18) were drawn on for the purpose of providing vocal demonstrations. However, these students were not used for generating research data and the findings of this study are based on teachers’ responses to their professional development.

5.3.4 Ethics

The ethical implications of this study were addressed through an application to the University of Sydney Human Research Ethics Committee. A participant information statement and consent form (see Appendix B) were issued to each participant in the study and written consent was obtained before the study commenced. Teacher participants were assured that their involvement in this study was cost free, voluntary and that they were free to withdraw from the project at any time without prejudice. Furthermore, participation in this study was anonymous.

In terms of the students who gave demonstrations, written parental consent was sought prior to their involvement and it was a requirement for a parent to be present at all times when their child was demonstrating. The students were addressed by first name only and their school was not identified during presentations. Through the participant information statement and consent forms, parents and students were assured that they could decline to answer any questions which make them feel uncomfortable and they could ask for the demonstration to be stopped at any time. As the researcher is a full member of the Victorian Institute of Teaching, the necessary police record checks and clearances for working with children were automatically assured. The same was true for all workshop participants, since they were registered secondary school teachers which necessitates membership of the VIT.

5.3.5 Course design

Design of the content and support materials for the professional development course at the centre of this study involved considerable time and preparation. A significant consideration was the need to translate information from the fields of voice science and voice pedagogy into a format that was accessible, memorable and applicable to the needs of secondary school music teachers. The final content emerged from a critical review of the vocal pedagogy literature (see Chapter 2) and based on recommended content and approaches from a panel
of experts in the previous phase (see Chapter 4). From these sources, course content was devised around five distinct categories and these are summarised in the table below:

Table 5-2 Professional development course content

<table>
<thead>
<tr>
<th>Category</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Materials</td>
<td>Songs, singing games, choral repertoire, sample vocal exercises.</td>
</tr>
<tr>
<td>2 Practical singing</td>
<td>Opportunities for participants to sing; to develop their love of singing; and foster greater confidence using their voices.</td>
</tr>
<tr>
<td>3 Listening to voices</td>
<td>Guided listening and analysis of a variety of vocal sounds in music of various genres. Examples of excellent singing at secondary school level.</td>
</tr>
<tr>
<td>4 Observation</td>
<td>Demonstration of vocal teaching concepts and opportunity for participants to observe vocal instruction with students.</td>
</tr>
<tr>
<td>5 Voice pedagogy</td>
<td>Anatomy, voice science and strategies for working with voices.</td>
</tr>
<tr>
<td>6 Action and reflection</td>
<td>Group discussion and facilitation of individual action research</td>
</tr>
</tbody>
</table>

Support materials comprising various topics integral to these categories were written from scratch and then compiled into a course booklet (see Appendix F). Teacher participants were given a course booklet at the start of the course and advised that individual workshop sessions would refer to some of this information, but not all of it. Participants were asked to make time over the duration of the course to read over the materials and to note what information they gravitated towards and what information seemed useful to them. This would form part of the research observations. The fact that the researcher is an experienced secondary school music teacher, who has published books of teaching resources (Wicks, 2008, 2010) and has presented these resources previously at music education conferences was significant. It meant that the sample repertoire and materials given in the course booklet could be based on things known to work with Australian secondary school students.

5.4 Data collection and Analysis

5.4.1 Data collection

The data were collected through a combination of methods including: researcher observation; reflective journals created both by the researcher and participants; audio recordings of workshop sessions and verbatim transcripts of subsequent debriefing sessions. Teacher participants were asked to complete a journal and to update their journals by submitting a new entry after each workshop session. Participants completed journal entries electronically and submitted by email. Although they were free to write about anything, a
journal template, which included eight stem questions to help facilitate cycles of reflection and action, was provided for the participants.

Table 5.3 Participant reflective journal questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Question stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To what extent was any action you took this week effective or ineffective?</td>
</tr>
<tr>
<td>2</td>
<td>After this latest session, what do you now know that you didn’t know before?</td>
</tr>
<tr>
<td>3</td>
<td>What are some ways you could potentially transform your new knowledge into action?</td>
</tr>
<tr>
<td>4</td>
<td>In light of (2) and (3), what do you plan to do differently this week?</td>
</tr>
<tr>
<td>5</td>
<td>To what extent have you been able to improve your skills in working with adolescent voices?</td>
</tr>
<tr>
<td>6</td>
<td>What was most helpful or beneficial for you in this week’s session?</td>
</tr>
<tr>
<td>7</td>
<td>What thoughts/ideas do you have this week about the professional development of teachers in the area of singing?</td>
</tr>
<tr>
<td>8</td>
<td>Tell me anything else you think I should know…</td>
</tr>
</tbody>
</table>

5.4.2 Data validity

Although some researchers have argued that data validity does not apply to qualitative research, most acknowledge the need for some checks of quality, rigour or trustworthiness in qualitative research projects (Bresler & Stake, 2006; R. Burns, 2000; Louis Cohen et al., 2011; Gray, 2009). Louis Cohen et al. (2011) outline a number of steps that researchers can take to ensure data validity in their research and several of their suggestions were adopted for this study. Triangulation, involving multiple sources of data and data collection methods was employed, with the various sources including observation of participants, debriefing discussions and reflective journaling. The use of multiple action cycles over a seven-week period ensured prolonged engagement with the topic and persistent observation of participants. A documented audit trail was constructed that included raw data and records of analysis and data reduction processes. Lastly, a process of member checking (Gray, 2009; Mertler, 2012) was used whereby a summary of key topics and findings was presented to participants at each successive action cycle. These summaries formed the basis of the debriefing discussions at the end of each professional development module.

5.4.3 Data analysis

A major purpose of qualitative research is to “identify those issues or features of a situation that make a difference, that are responsible for, or have a significant impact on the issues investigated” (Stringer, 2008, p. 87). Accordingly, the process of data analysis for this study involved sifting through the data collected to identify information that was most pertinent to
the research goals outlined previously. This sifting process was facilitated using NVivo10 qualitative data analysis software. All data, including transcripts, participant journals and researcher observations were loaded into the software.

Using a process of categorical coding, data were labelled initially according to workshop sessions, responses from individual participants, responses to particular questions and responses to the six major topics presented in each workshop session. This process of categorical coding allowed for inter-participant evaluations to be made and for these evaluations to be checked against records of course content and researcher observations. Key themes gradually emerged through an iterative process of reading and re-reading the data. A second round of coding utilised the process of analytical coding (Richards, 2009), where the contextual meanings of data were examined more closely. Eventually, theory was generated by looking for connections between the codes.

5.5 Findings - Workshop 1

In this introductory workshop, participants were briefed on the course goals, the scope of the material to be covered and the dual nature of the course, both as a professional development experience and a research project. An outline of the topics covered is summarised in the table below.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Materials</td>
<td>An ice-breaker game called Pass the beat, a folk dance called Down the River, A call and response activity using This Old Man</td>
</tr>
<tr>
<td>2 Practical singing experience</td>
<td>Vocal warm ups</td>
</tr>
<tr>
<td>3 Listening to voices</td>
<td></td>
</tr>
<tr>
<td>4 Observation</td>
<td></td>
</tr>
<tr>
<td>5 Voice pedagogy</td>
<td>Walk through the course booklet and contents</td>
</tr>
<tr>
<td>6 Action and reflection</td>
<td>Introduction to the course philosophy and the action research method. Group discussion around the 3 biggest challenges we face in working with secondary voices</td>
</tr>
</tbody>
</table>

5.5.1 Researcher observations

Participants represented a disparate group from a variety of schools and teaching contexts with the common goal of wanting to improve their knowledge and skill in working with adolescent voices. During introductions, a tremendous variety of both teaching and singing experience was evident among the participants. For example, one participant had post
graduate qualifications in vocal performance, while at the other end of the spectrum, another participant was a new graduate who had majored in flute, was teaching classroom music for the first time and had very little idea how to work with adolescent voices. Two participants were choral directors, but most were generalist or classroom music teachers – some with little or no vocal experience. The workshop commenced with an ice-breaker activity and then a singing and movement game. Although these activities were presented as ‘things to do with your students’, it was evident that the games functioned in much the same way as they do in the classroom. Singing repertoire together that was fun and playful helped to break down barriers and establish a sense of group cohesion. Although singing games are not a method for teaching singing, they have been shown to be an effective tool in teacher education (Griffin & Butler, 2005; Megarry, 1981; Souto-Manning, 2011) and are described by Wicks (2008, p. 10) as a “unique type of learning process where teacher and student are located in the same individual.” Participants were noticeably more at ease working with the games than with the more technical vocal exercises introduced later in the session. This experience highlighted the power of play within music education and its unique ability to make participants (both adult and child) more receptive to learning.

In the same way that classroom teachers think about progression of tasks, a strategy used in this workshop was to commence the session with a game that involved only speech and rhythm and then to progress to an activity that was more challenging because it required the participants to sing. This strategy seemed to be successful at breaking the ice and allowing participants to feel more at ease with singing, highlighting the notion that best practice in teacher professional development often mirrors good practice in teaching (Lieberman, 1995b). Also, that effective professional development involves teachers both as learners and as teachers (Darling-Hammond & McGloughlin, 1995). One participant articulated these ideas in her reflective journal and also demonstrated that she had applied this realisation to make improvements to her teaching:

**Participant 15:** I liked the way today’s session started with “Pass the Beat around the Room.” I realised a ‘fun’ activity is a great way to ease into the session, to start on a positive note and to gather everyone’s focus. I’m now going to try to begin each music session with some sort of ‘ice-breaker’ - keep it short (approx. 5) and fun. With so many time constraints and pressure to cover so much material is it important to structure the lesson for optimal learning – starting with a feel good activities supports research that were are more open to learning when in the right frame of mind.
5.5.2 Debriefing discussion

Using co-operative learning techniques that have proven successful for the presenter in past teaching experiences, participants formed groups of three and were asked to discuss common challenges they experience in working with adolescent voices. After allowing time for discussion, each group was asked to devise a list of their top three challenges. These groups then merged with another to form a group of six.

In their new groups, participants shared the ideas from both lists and were asked to synthesise the challenges and produce a new top three list that represented the views and experiences of the entire group. The group merging and synthesising process was repeated several times until participants were once again a single large group. After some lively discussion and sharing, participants produced a top three list that summarised the whole group’s experience. The consensus was that the three biggest challenges participants faced in working with adolescent voices involved: (i) student motivation (ii) the selection of repertoire and (iii) scheduling and managing time constraints within a school structure. It was both an interesting and surprising discovery that participants described challenges which involve practical and grass-roots teaching issues. No mention was made of voice science, voice pedagogy or the more technical side of working with voices. One participant expressed this in his journal quite memorably:

**Participant 11:** At present I am not trying to teach singing. I am just trying to get my students to sing.

This participant alludes to a perceived difference between the more serious side of teaching singing and less formal idea of working with voices. It was an important finding that the issues mentioned by this participant and other in the group refer to concepts that are rarely discussed in the vocal literature accessible to secondary school teachers. This finding suggests that there is a disparity between the day-to-day needs of teachers and the information available to them about working with voices. Another participant explained the concept aptly:

**Participant 13:** I think that we all need more professional development on HOW to teach singing. There is only so much reading on anatomy and other areas of teaching voice that I can handle. The hands on information is what I really find beneficial.

The tension between a practical versus a theoretical/academic understanding of singing is well articulated in the voice pedagogy literature (Callaghan, 2000; Helding, 2007; Miller,
It was also evident in the content of the course booklet, because little or no information had been included that dealt with the practical concerns expressed by the participants. This discovery led to the realisation that subsequent changes in content and additional materials would be necessary for the future workshop sessions.

5.5.3 Participant journals

In their reflective journals, several participants focussed their comments on the value and importance of the co-operative learning or group discussion exercises featured during this workshop. A common theme was that participants valued the opportunity to share their experiences and that, through sharing with other colleagues, they came to the realisation that they were not alone in their struggles. Two examples of quotes that illustrate these sentiments are given below:

Participant 01: Meeting other teachers and hearing their stories was great. I realised that the challenges faced by other music teachers are the same as mine.

Participant 06: What was most helpful this week was getting to know everyone and having a chance to discuss challenges we face when working with voices. Regardless of expertise or setting there are issues that we all seem to relate to.

Another participant echoed these thoughts, but also saw that there was a practical problem-solving element to sharing experiences:

Participant 12: We need to share these things with each other more often! Working on our own as we often do in studio teaching, you get stuck for ideas on how to move forward with particular problems.

5.6 Findings - Workshop 2

The second workshop provided participants with further repertoire resources and featured a demonstration voice lesson. Session content is summarised in the table below (see Table 5-5). In reflecting on the previous session, it was evident that participants needed a great deal of practical help and strategies were devised that would make this session more practical. Also, many of the concerns shared by the participants during discussions and the topics they had written on sticky notes in the previous workshop demonstrated a limited degree of self-reflection. Consequently, in order to help the teachers develop their action research skills, it was evident that strategies to foster a greater degree of reflexive practice would need to be employed. In essence, participants needed help to focus more directly on applying their experiences to improve teaching outcomes.
Table 5-5 Workshop content - session 2

<table>
<thead>
<tr>
<th>Topic</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Practical singing experience</td>
<td>Participants improvised phrases on <em>Marching on to Freedom Land</em>. Introduce the sample vocal exercises in the course book.</td>
</tr>
<tr>
<td>3. Listening to voices</td>
<td>Demonstration lesson with “Sarah”, 16 year old Year 10 student.</td>
</tr>
<tr>
<td>4. Observation</td>
<td></td>
</tr>
<tr>
<td>5. Voice pedagogy</td>
<td></td>
</tr>
<tr>
<td>6. Action and reflection</td>
<td>Discussion and reflection on the process used for teaching <em>Down the River</em>. How can you use this process in your teaching? General advice about approaching the journal tasks.</td>
</tr>
</tbody>
</table>

5.6.1 Researcher observations

A feature of this workshop was a demonstration session in which the researcher taught a 30-minute singing lesson to a 16-year-old (Year 10) female. The purposes were: to show the capabilities of an adolescent female voice; to offer insights into the diagnosis and correction of vocal faults; and to model strategies for teaching voice technique. The approach adopted for this demonstration was influenced by aspects of the discussion in the previous workshop and by comments in the participant journals. An attempt was made to provide an approach that was more practical and less technical. Considerable reflection was given to the questions about how to make the demonstration session engaging for the participants. The strategy trialled during this session was to develop two checklists (or schemas) that would allow participants: (i) to identify structural features of the demonstration lesson, and (ii) to make a diagnosis or assessment of the student’s vocal technique as they observed the lesson in progress.

The first of these schemas outlined the intended structure for the demonstration lesson. This structure was communicated to participants prior to commencing the demonstration and reference was made to it during the demonstration. The structure consisted of five elements: (i) a discovery where information about the student, their prior singing history and current vocal goals was gathered, (ii) an assessment were the student performed scale patterns and a fragment of a known song in order to diagnose current vocal issues, (iii) lesson goals where the diagnosis was explained to the student contextually or in an age-appropriate manner, (iv) a lesson consisting of vocal exercises and reviewing song repertoire, (v) a summary that included a review of the original diagnosis and how this was addressed in the lesson as well as recommendations for future development.
The second schema focussed on the task of assessing the student’s vocal technique and followed advice given during one of the expert interviews in the previous phase (see Chapter 4). The expert advised that good voice teaching could be characterised by a process of working on vocal technique from the outside inwards. Adolescents sometimes have a great deal of difficulty controlling internal aspects of their voice technique, but they can readily change external aspects, such as their posture, breathing and obvious signs of tension in their bodies. Thus, a teacher should first deal with obvious external issues and then work inwards to address the more complex matters. Using two big sheets of butcher’s paper, the heading ‘outside’ was written on one and ‘inside’ on another. Participants and the researcher brainstormed a list of vocal technique issues that could be categorised under these headings. Through discussion, concepts were grouped and synthesised and a final list was created (see Figure 5-3).

Figure 5-3 Schema for assessing adolescent vocal technique

Outside
- **Posture**: rigid? too relaxed?
- **Breath**: correct motion?
- **Body connection**: singing with whole body or only throat?
- **Face**: signs of tension/discomfort
- **Articulators**: signs of tension in jaw and tongue
- **Larynx**: high, neutral, low

Inside
- **Onset**: breathy, glottal, balanced
- **Vowels**: dark or bright
- **Register**: chest, head, falsetto, mix
- **Pitch**: accurate?
- **Tone**: Vibrant or straight
During the demonstration lesson, reference was made to this schema in terms of the presenter referring to topics that were being addressed. At the conclusion of the lesson, participants were given the opportunity to ask questions and to offer their thoughts on the lesson. Some participants were surprised that the issue of breathing was not covered in much detail during the demonstration lesson. The presenter responded by explaining that there are different theories about breathing – some singing teachers believe that the breath controls the sound and others believe that the sound controls the breath. One participant made reference to this discussion in her journal:

Participant 07: Sarah’s lesson was challenging to me. I really thought she needed help with breathing and was surprised you commented that many teachers place too great an emphasis on breathing. Your diagnosis led you to add consonants to her vowels and it made her focus on making strong syllables for which she had to automatically measure a greater intake of breath and use more diaphragmatic breathing. Her sound became more even in volume, better placed, more in tune, more vibrant. She was breathing better.

5.6.2 Participant journals

Eleven participants mentioned the demonstration lesson in their reflective journals after this session, suggesting that the experience of observing a voice lesson was a memorable part of the workshop. However, they described the experience in varying ways. For some, it was unclear whether the demonstration appealed only for novelty or entertainment value.

Participant 15: I loved observing a singing lesson and watching how Darren approaches connecting the various vocal registers using all the exercises and techniques we have been learning – lip bubbles, various scale patterns and vowels.

Another participant demonstrated a degree of metacognition by reflecting on the broader applicability of her observational experience.

Participant 13: Watching a lesson in action was fantastic. I think the tertiary education process should include observation and education in vocal pedagogy, regardless of the instrument. It wasn’t the case when I did my degree, not sure if it is now.

Only a few participants made reference to the schematic tools developed for this session, but those who mentioned them suggested that the diagrams were helpful methods of conceptualising the process of voice pedagogy. As one of the participating teachers explained:

Participant 07: I learned how to structure an effective one-on-one singing lesson from assessment, setting lesson goal, technical program through to repertoire and review. This will definitely be useful for teachers in guiding their approach to teaching singing.
Another participant suggested that having a road map or direction inspired confidence in the process of working with voices:

**Participant 02:** identifying how a particular voice fits into the "outside/inside" map helps demystify the voice and makes the idea of teaching it far more approachable. Having a map and boundaries/boxes around things is important for confidence and direction.

Another participant mentioned that she had adapted and applied this information to suit her own teaching context:

**Participant 12:** The checklists were incredibly helpful and I’ll be putting them up in my teaching room to prompt not only myself, but my students to self-analyse and to encourage us both to listen actively to their sound.

### 5.7 Findings – Workshop 3

The third session of this professional development course included further repertoire and resources; focussed listening to various vocal qualities; a second demonstration lesson; and some information about voice science. The workshop content is summarised by topic in the table below (see Table 5-6). In reflecting on the previous workshop, it was obvious through journal comments that participants were using self-reflection more freely and that they were applying some concepts to their own teaching contexts. This was attributed to the more structured processes, such as the checklists introduced in the previous workshop and also to the deliberate use of questioning employed by the presenter. In the previous session, questions were used to promote higher order thinking among participants (Abbott & Wilks, 2005; Onosko, 1992). It was resolved that this workshop session would further these initiatives.

### Table 5-6 Workshop content - session 3

<table>
<thead>
<tr>
<th>Topic</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Materials</td>
<td>Ice breaker games for the classroom, Speech rhyme <em>Doctor B</em>, <em>Canon Ding Dong</em>. Tools and games for teaching music reading.</td>
</tr>
<tr>
<td>2 Practical singing experience</td>
<td>Practicing vocal exercises in groups of males and females. Think alouds as the presenter works with voice groups.</td>
</tr>
<tr>
<td>3 Listening to voices</td>
<td>A big listening sample of male voice qualities in various contemporary genres</td>
</tr>
<tr>
<td>4 Observation</td>
<td>A sample 30 minute lesson with “Josh”, an 18yo Year 12 student plus think alouds where presenter explains his pedagogy. Modelling techniques for teaching sight singing.</td>
</tr>
<tr>
<td>5 Voice pedagogy</td>
<td>Theory of phonation highlighting the major themes vocal fold adduction, vocal onsets and how the different registers are produced</td>
</tr>
<tr>
<td>6 Action and reflection</td>
<td>Summary of journal content.</td>
</tr>
</tbody>
</table>
5.7.1 Researcher observations

A major focus in this workshop was on the sounds and characteristics of the adolescent male voice. This topic was explored both by listening to recorded examples and through a 30 minute demonstration lesson with an 18 year old (Year 12) male student. Listening examples focussed mostly on contemporary singing, but covered a wide variety of possible male vocal sounds, including: chest voice; the high chest voice (yelling or belting); the mixed voice; falsetto; connected head voice; screamo styles in heavy rock singing (both screaming on inhalation and exhalation); breathy tone; use of auto-tune and digital processing effects.

After listening to each recorded example, the teachers were quizzed about what they were hearing and a discussion ensued on how these sounds are produced.

Participants were encouraged to avoid making subjective judgements about the vocal sounds, but rather to discuss vocal sounds from the point of view of vocal function. The theory behind this approach, which emerged from expert interviews in the previous study (see Chapter 4), is that teachers who can assess vocal technique functionally are able to provide correction more skilfully than teachers who rely on subjective interpretations. A particularly poignant moment in this workshop session is encapsulated in the following quote where the presenter explains the basis of a functional approach to voice teaching.

**Presenter:** What I’m trying to do is open a new door for you and say here is another way we can listen to voices. We can listen functionally and ask ourselves what is going on with that voice? What are the vocal folds doing? What kind of onset did we hear? What is the filtering process doing? What are the articulators doing? Are the vowels bright or dark? What register is being used? The reason this is useful to you is that one day you will hear your Year 7 class singing and you will realise, they are all singing too high in their chest voice and that’s why it sounds bad. With that realisation, you can prescribe a tool that will help get them out of chest voice. As we’ve already seen, a lip bubble or “boo” syllable is likely to be very successful at that. This represents best practice in voice teaching, because it is based on diagnosis and prescription. If you were to say “boys would you stop yelling” you’re assuming that your students know how to stop yelling and it is likely that they don’t. They are yelling because that’s the best way they know to produce the tone.

It was evident that the expert who recommended this functional approach was right. It was contributing to a greater sense of confidence among participants. Some of the participants were starting to use standard vocal terminology readily in their discussions throughout this session. However, the functional approach seemed to appeal most to those who had a vocal background and who were already familiar with various elements of vocal technique. These ideas are encapsulated in the following quote:
Participant 02: What was most helpful today was the concept of diagnosis: including breaking the voice down into consistently observable parts (the sheets on the wall). This eliminates the fear of ‘not knowing it all’ and makes me feel empowered to facilitate improvement in students’ voices.

On the whole some participants were still not confident in distinguishing the different vocal registers and making functional diagnoses of vocal sounds. Hence, future sessions need to continue the theme of ‘ear training’ or learning to listen objectively to voices.

The demonstration element of this session involved the presenter working with an eighteen year old student in Year 12 who was preparing for his Victorian Certificate of Education (VCE) examinations in Contemporary Voice. The use of a subject at an advanced level was a strategy to show participants what is achievable by a student at the end of his secondary education. Strategies implemented in Workshop 2 for engaging participants using checklists and schemas were retained. Additionally, a new strategy was implemented where the presenter adopted the use of “think aloud” protocols (Fawcett, 1993; L. Ward & Traweek, 1993). Think aloud protocols are a tool for providing insight into various cognitive processes. In this case they were used by the presenter to give insight into the thinking processes used by an experienced teacher in conducting a singing lesson.

During the assessment/diagnosis phase of the lesson, the presenter paused several times to explain what he was hearing and to outline any vocal faults that he believed needed correction. The presenter then explained which vocal exercises were likely to help this student. Before asking the student to perform each vocal exercise, the presenter paused to explain what he was intending to achieve and which vocal exercises he believed would help to address the issue. After the student performed the vocal exercise, the presenter then asked participants to say whether they believed the student was (i) better, (ii) the same, or (iii) worse. He also asked the demonstration student to offer his opinion about this. At the end of the lesson, participating teachers were given the opportunity to ask the student questions. Several enquired along the lines of, “how did you get into singing?” and “how often do you practice?” and “what exercises have helped you the most?”

In all, the techniques implemented helped to make a very practical and engaging demonstration lesson and the participants appeared to stay focused throughout the process. Allowing the participants to ask questions of the student was successful because the student
was mature and not threatened by strangers asking him about his singing. It was clear that this demonstration lesson was a highlight of the workshop and it was mentioned in the reflective journals. One participant explained that the use of think aloud protocols had been very helpful to him:

**Participant 02:** The diagnostic approach you demonstrated gives me confidence that I can help students – as long as I learn to listen to voices. The guidelines suggested to ask yourself and the student "is it better, is it the same or is it worse?" is also useful because it suggests to always come back to observation of the voice.

Another participant alluded to the idea that female teachers sometimes feel insecure in working with male voices and explained why it was helpful for her to hear a male teacher demonstrating with a male student.

**Participant 13:** “Learning from observation or demonstration is really helpful … Hearing Josh sing the exercises helped me hear what a male voice is capable of. I have been afraid to push my boys into their head register because I have been scared of having them feel uncomfortable or like I am pushing them too much. My skills in teaching males developed a lot this week and I was able to discuss with my students about the registers of their voices and the fact that if we do more exercises and use the whole voice we can in turn strengthen the entire voice”

An interesting finding was reflected by one participant who realised that she was learning both from the content of demonstration sessions and from the manner in which the demonstration sessions were conducted:

**Participant 07:** I learned a lot by observing your professional behaviour during the demonstration lesson - not to criticise, but diagnose and to apply vocal exercises to develop a solution to vocal problems.

### 5.7.2 Participant Journals

A common theme in the participant journals after this session suggests that the participants were feeling more confident in working with adolescent voices. Whilst this gain in confidence cannot be attributed to any single factor, it is clear the teachers were applying various concepts demonstrated to date and they were feeling that certain aspects were working for them. For example:

**Participant 11:** Until I started to participate in these sessions I have avoided trying to teach songs with melodies to most of my classes. The reason is that 99% of the time there is resistance by the class to participate in any way shape or form… I have re-discovered a way to introduce songs to my classes through the games, role-playing, observations and discussions we have been having in these workshops.

In terms of teacher uptake of the concepts, an interesting finding is that it had taken three sessions and 7.5 hours of instruction thus far for participants to feel more confident with
these concepts. This finding suggests that pacing is an important factor in successful professional development experiences. Also, that short or one-off singing workshops are likely to be far less successful in building teacher confidence and skill than ongoing professional development.

5.8 Findings – Workshop 4

The fourth session of the course presented more repertoire, and included further listening and analysis of voice technique. Since the previous sessions had involved the demonstration of voice teaching using singing students, this session focused on working with the participants’ voices directly. In reflecting on previous sessions, it was evident that they had featured knowledge that was primarily generated by the instructor. Therefore, a goal of this session was to empower participants by including a session where they were responsible for generating the knowledge. The workshop content is summarised by topic in Table 5-7 below.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Materials</td>
<td>Singing game called Aqua Qua, Folk song called BINGO, Using a folk song as a basis for creative work. Behaviour management strategies for working with singing games in groups</td>
</tr>
<tr>
<td>2 Practical singing experience</td>
<td>Practice of sample vocal exercises and singing canons from course booklet. Use of semi-occluded vocal tract exercises.</td>
</tr>
<tr>
<td>3 Listening to voices</td>
<td>A big listening sample of female voice qualities in contemporary genre</td>
</tr>
<tr>
<td>4 Observation</td>
<td>Observing presenter work with participant voices in single-sex groups</td>
</tr>
<tr>
<td>5 Voice pedagogy</td>
<td>How to break down and teach a song to groups of children and the application of this technique to “I Can See Clearly Now”. Vocal registers and differences between falsetto and head voice.</td>
</tr>
<tr>
<td>6 Action and reflection</td>
<td>Brainstorm a list of songs suitable for classroom (massed) singing, try and teach one of the songs on your list using the technique demonstrated this session</td>
</tr>
</tbody>
</table>

A major focus this session was on the application of voice pedagogy to group singing. The presenter explained that his approach to classroom singing uses three types of songs. Songs used for pedagogical purposes, such as short folk songs and canons from which rhythmic, melodic or harmonic elements can be extracted. These songs are taught for the purposes of developing musical literacy, aural skills and are a common feature in the Kodály and Orff approaches to music instruction. Another type involves songs used for play and include various forms of singing games, folk dances and speech rhymes. The third type of song is
used purely as enjoyable massed singing experiences and are not deconstructed to the same extent as songs in the first two categories.

This workshop explored skills in teaching songs from two of these categories - songs for play and songs for massed singing. The session opened by teaching a singing and action game, A-Qua-Qua (Wicks, 2008). The strategy used for teaching this game modelled teaching techniques to be explored later in the workshop. It involved breaking down the text, rhythm and melody of the song and teaching all of these elements in insolation before performing the song as a whole. The seven-step process used for teaching this song is outlined below:

1. Learn isolated words by rote from lists on whiteboard
2. Recite the words as complete phrases
3. Recite the phrases in time while clapping an off-beat
4. Learn melodic patterns from the song by rote. Sing these patterns on the syllable ‘da’ while showing melodic contour with hand.
5. Put words and melody together and sing song phrase by phrase
6. Consolidate learning through a game – teacher plays melodic fragment from song on the piano and participants sing back the words that match this pattern
7. Play the singing game as a group

This process was constructed after reflecting on the developmental sequence outlined by Welch (1994). In this article, the author describes the ontogenesis of singing behaviour in preschool children and observes that young children typically learn the elements of a song in order of words, rhythm, and melody. Upon reflection, it was decided that this is a logical process for humans of any age to learn a song. Accordingly, a sequence was constructed which followed Welch’s overall pattern, but was adapted to meet the needs of older students. The adapted sequence is illustrated below (see Figure 5-5). It consists of four main phases where text, rhythm, and pitch are isolated and studied separately before being united with the song. Dot points alongside each of these phases describe possible activities the teacher may use to assist students at each phase of learning the song. The exact time spent by the teacher and the number of activities taken to consolidate learning at each phase varies according to the complexity of the song and the capabilities of the learner.

Before presenting this sequence was presented to the participants, it was appraised carefully by the presenter. In the capacity of the presenter’s normal teaching duties, the sequence was used to teach four different classes of Year 7 (12 year-old) boys the popular song *I Can See Clearly Now the Rain Has Gone*. Through a process of analysis and reflection at the
conclusion of each class, the presenter refined and adjusted both the lesson plan and the description of the sequence. The final sequence is illustrated below:

**Figure 5-5 Developmental sequence for teaching adolescents a song**

<table>
<thead>
<tr>
<th>Text</th>
<th>Rhythm</th>
<th>Pitch</th>
<th>Song</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clarify and explain any words that are unclear</td>
<td>• Clap rhythmic patterns from the song and ask students to imitate</td>
<td>• Demonstrate melodic contour of individual phrases using gesture or visual aids on board</td>
<td>• Put words, rhythm and melody together phrase by phrase</td>
</tr>
<tr>
<td>• Teach by rote single words that are challenging or may present difficulties</td>
<td>• Read rhythmic fragments written on white board</td>
<td>• Sing melodic fragments on a single syllable</td>
<td>• Begin with chorus or phrases occurring most commonly in the song</td>
</tr>
<tr>
<td>• Have students read text aloud in phrases</td>
<td>• Vocalise rhythmic fragments on a single syllable (such as ‘doo’ or ‘ba’) or using rhythm duration syllables</td>
<td>• Use relative pitch names (such as tonic sol-fa or scale degree numbers) to isolate phrases or fragments</td>
<td></td>
</tr>
</tbody>
</table>

Participants were given a copy of the presenter’s lesson plan along with the developmental sequence and this was discussed during the workshop. The presenter shared his experience in teaching the song and offered practical advice. At this point, it was realised that a video recording of the presenter teaching a class of students coupled with the handouts would have made for a rich learning experience. However, the need to obtain relevant permissions and seek approval from ethical committees made this impossible in the given time constraints. Instead, the teacher participants were invited, where appropriate, to trial this lesson plan with a current group of students and to journal about the results. One teacher reflected on her application of this process:

**Participant 03:** I had some great success this week by breaking the song teaching process down into even smaller self-contained activities. The students seem to retain more of the knowledge and skills taught.

Another participant demonstrated a more sophisticated engagement with the action research process by suggesting that she had reflected on the processes presented this session and then adapted them to address other teaching needs:
**Participant 15:** I absolutely loved the way Darren broke down and taught us the song. I’ve been applying this technique to other areas such as my piano students and also tried it with my 6 year-old son, who is learning piano and trumpet. It makes sense to break down a song in its simplest form and then build it up. By breaking repertoire down into manageable bite size chunks/patterns enables students to experience the essence of the song in a layering effect. Also by separating rhythmic patterns, intervals etc., gives students an anchor or something familiar, which they refer to when they eventually put the piece together.

In the following part of the session, participants were engaged in generating new knowledge through a facilitated process. The knowledge they generated was a list of class singing resources. To commence the process, participants were presented with a short list of songs that have previously proven successful for the presenter in group or class singing contexts. The group discussed various musical features of these songs and then focussed on features that are likely to account for the success of these songs for group singing. A list of these features were brainstormed, categorised, and then grouped by the participating teachers. The final list of musical features represented a set of criteria teachers might use for selecting songs for class singing. The final list is illustrated below:

**Figure 5-6 Criteria for selecting songs for class singing**

<table>
<thead>
<tr>
<th><strong>Melody</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Singable</td>
</tr>
<tr>
<td>• Limited pitch range (within an octave)</td>
</tr>
<tr>
<td>• Few or no awkward intervalic leaps</td>
</tr>
<tr>
<td>• Catchy or repetitive melodic hook</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Rhythm</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rhythm pattern can easily be clapped by students</td>
</tr>
<tr>
<td>• Some syncopation is fine if limited</td>
</tr>
<tr>
<td>• Use of a repetitive or catchy rhythmic hook can be appealing</td>
</tr>
<tr>
<td>• Use of: body percussion; pat-a-cake; actions; or interaction with classmates is appealing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Lyrics</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Themes that children can relate to: friends, holidays, having fun, pets, hobbies.</td>
</tr>
<tr>
<td>• Avoid strongly romantic songs</td>
</tr>
<tr>
<td>• Middle of the road themes - not too cool and not too dated - are likely to work best</td>
</tr>
<tr>
<td>• Avoid lyrics that are suggestive or could be considered inappropriate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Harmony / Accompaniment</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strong melody that can be performed without harmonic support.</td>
</tr>
<tr>
<td>• Easily performed acoustically a-cappella or with one accompanying instrument (guitar/piano)</td>
</tr>
<tr>
<td>• Simple descant or predictable harmonies as an option for the clever students</td>
</tr>
<tr>
<td>• Use of rhythmic or melodic ostinato as an accompaniment</td>
</tr>
</tbody>
</table>
Participants were then asked to apply this new knowledge by brainstorming and extending the list of songs for class singing. A lively discussion ensued and various suggestions for song titles were offered. Suggestions were checked for suitability against the established criteria. Additionally, participants used their journals to make further suggestions of songs during the week. The final list included 45 song titles and was collated by the presenter and sent by email to all participants. A copy of the list is given below:

Table 5-8 List of suggested popular songs for class or group singing

<table>
<thead>
<tr>
<th>Song Title</th>
<th>Artist(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spicks and Specks - Bee Gees</td>
<td></td>
</tr>
<tr>
<td>Make Your Own Kind of Music - Mamma Cass</td>
<td></td>
</tr>
<tr>
<td>Daydream Believer - The Monkees</td>
<td></td>
</tr>
<tr>
<td>Only You - Yazoo</td>
<td></td>
</tr>
<tr>
<td>I Can See Clearly Now the Rain is Gone - Jimmy Cliff</td>
<td></td>
</tr>
<tr>
<td>Raindrops Keep Falling on My Head - Bacharach</td>
<td></td>
</tr>
<tr>
<td>True Colours - Cindy Lauper</td>
<td></td>
</tr>
<tr>
<td>Bad Leroy Brown - Jim Croce</td>
<td></td>
</tr>
<tr>
<td>Blackbird - Beatles</td>
<td></td>
</tr>
<tr>
<td>Let it Be - Beatles</td>
<td></td>
</tr>
<tr>
<td>Downtown - Petula Clark</td>
<td></td>
</tr>
<tr>
<td>Chasing Cars - Snow Patrol</td>
<td></td>
</tr>
<tr>
<td>Fix You - Cold Play</td>
<td></td>
</tr>
<tr>
<td>Crazy Little Thing Called Love - Queen</td>
<td></td>
</tr>
<tr>
<td>Don’t Worry, Be Happy – Bobby McFerrin</td>
<td></td>
</tr>
<tr>
<td>Hey Jude – Beatles</td>
<td></td>
</tr>
<tr>
<td>Lion Sleeps Tonight (Mbube) – Traditional</td>
<td></td>
</tr>
<tr>
<td>Ring – AABA</td>
<td></td>
</tr>
<tr>
<td>S.O.S – AABA</td>
<td></td>
</tr>
<tr>
<td>Moondance – Van Morrison</td>
<td></td>
</tr>
<tr>
<td>Lean on Me – Bill Withers</td>
<td></td>
</tr>
<tr>
<td>Stand by Me – Ben E King</td>
<td></td>
</tr>
<tr>
<td>Minnie the Moocher – Blues Brothers</td>
<td></td>
</tr>
<tr>
<td>Jeremiah was a Bullfrog (Joy to the World) – Creedance Clearwater</td>
<td></td>
</tr>
<tr>
<td>Yellow Submarine – Beatles</td>
<td></td>
</tr>
<tr>
<td>Imagine – Lennon &amp; McCartney</td>
<td></td>
</tr>
<tr>
<td>Salt Water – Julian Lennon</td>
<td></td>
</tr>
<tr>
<td>Viva la Vida – Cold Play</td>
<td></td>
</tr>
<tr>
<td>Time of Your Life – Green Day</td>
<td></td>
</tr>
<tr>
<td>Over My Head (Cable Car) - The Fray</td>
<td></td>
</tr>
<tr>
<td>Tears in Heaven – Eric Clapton</td>
<td></td>
</tr>
<tr>
<td>Feeling Groovy (59th Street Bridge Song) - Paul Simon</td>
<td></td>
</tr>
<tr>
<td>You've Got a Friend - Carole King</td>
<td></td>
</tr>
<tr>
<td>I Feel the Earth Move - Carole King</td>
<td></td>
</tr>
<tr>
<td>I Still Haven’t Found What I’m Looking For – U2</td>
<td></td>
</tr>
<tr>
<td>I'm Yours - Jason Mraz</td>
<td></td>
</tr>
<tr>
<td>Wonderwall - Oasis</td>
<td></td>
</tr>
<tr>
<td>God Only Knows - The Beach Boys</td>
<td></td>
</tr>
<tr>
<td>People Get Ready – Traditional</td>
<td></td>
</tr>
<tr>
<td>Swing Low, Sweet Chariot – Traditional</td>
<td></td>
</tr>
<tr>
<td>Windmills of Your Mind – Petula Clark</td>
<td></td>
</tr>
<tr>
<td>Boppin the Blues – Blackfeather</td>
<td></td>
</tr>
<tr>
<td>La Bamba – Los Lobos</td>
<td></td>
</tr>
<tr>
<td>Fame – Irene Cara</td>
<td></td>
</tr>
</tbody>
</table>

The list represents a useful teaching resource and it was pleasing that participants were able to support each other in this way and that they were able to produce a resource that had wider applicability for secondary school music teachers. One participant referred to this list in her reflective journal after this session:

**Participant 14:** Having a list of suitable songs for massed singing is another great resource to have come from this session. I have already ear marked a few songs that I’ll try with my classes.

Upon reflection, this activity highlighted the fact that teachers have the capacity to make a difference by contributing practical solutions to the day-to-day problems they experience. Moreover, it was tremendously empowering for this group of participants to feel that they were completely part of the solution and not just articulate the problems. If time had permitted, a worthwhile project would be to annotate this list of songs by giving suggested source recordings, classifying the songs for their level of difficulty and suggesting strategies for teaching each song. However, the scope of this activity was enough to demonstrate, both to
the presenter and participants that the solution to poor vocal programs in Australian secondary schools is multi-faceted and that current teachers have a role to play in this solution.

5.8.1 Findings – Workshop 4 (Part B)

Due to scheduling issues and participant availability, Workshop 5 needed to be postponed a week. To help participants maintain their momentum during this break, they were offered the opportunity to schedule a free personal singing lesson with the presenter over the week. Six participants took up this opportunity and each received a 45 minute personal lesson. In order to reinforce course content, personal lessons followed the same structure as developed in Workshop 2 (see Figure 5-2 Schema for structuring an individual voice lesson). The lesson was recorded onto CD and given to participants to facilitate revision and home practice. Lesson content included a vocal assessment, vocal exercises and application of vocal technique to repertoire. Where possible, participants were encouraged to work on repertoire that they were currently teaching.

Although individual singing lessons were not originally envisaged as part of this training course, the combination of individual and group tuition proved to be a powerful learning experience and a highlight of the course. Comments in the participants’ journals suggest that this was a meaningful experience. However, participants reflected on the experience in different ways. For one participant, experience held meaning for her personal development of vocal technique.

Participant 7: I had not had a singing lesson for a long time and was facing it with trepidation, but I was also very interested to receive feedback and try out the techniques and my voice. I learned that the current set of exercises can improve my performance. I learned that my voice seems to respond better on rapid arpeggios and scales more than slow and sustained exercises. I enjoyed the lesson. I have reviewed the CD x3 and enjoyed listening to the work I did that day. I have practiced the exercises and it has consolidated the learning. I should commit to personal practice as frequently as possible to improve my level of self-awareness and skill.

Another participant focussed on the experience post lesson and her review of the audio recording of the lesson. She discovered that having personal space to review and reflect on her learning was an important process for moving forward:
Participant 15: I found the audio recording of my lesson and practice CD fabulous. Having someone model the sound and then hearing yourself do it. Actually making the connections yourself away from that particular moment and stepping back that was really good. The kinds of questions you asked me during the lesson, such as "how does that feel different?" and "how does that compare to the other sound?" really helped me focus on what was happening. It was very helpful.

Another participant seemed to reflect more on the pedagogy and the manner in which the lesson was conducted. This participant made connections between her experience as a learner and her teaching, which demonstrated a high degree of reflective practice:

Participant 13: I realized in my singing lesson with Darren that I had to be very focused on what he was asking because he kept making me repeat the phrases rather than moving on. It made me realize that I rush through songs sometimes too quickly. I should stop my students more in their pieces and really work on getting the sound quality I want for the piece. Being the student again makes me remember how I learn best and I want to understand where the connection is between my exercises and the goals for my pieces.

In reflecting on the experience of teaching the participants individually and reading their reflections after the event, a number of findings emerged. Some participants appeared to acquire skills better through working on repertoire and some responded better through working on scales/arpeggios or technical exercises. This suggests that a multifaceted approach incorporating technique and application is likely to be the most successful approach for the individual instruction of teachers.

For some participants working with their vocal technique using songs that are part of their current teaching repertoire was a very powerful experience, because teachers had a basis for comparison between how their voice feels and sounds normally and how it feels after any adjustments to their vocal technique. Moreover, some important learning seemed to occur when participants reviewed their lesson privately, suggesting that successful reflexive practice in music education involves more than just thinking about one’s experiences, but also repeating musical experiences or what musicians achieve through practice and rehearsal.

5.9 Findings – Workshop 5

In the previous workshop, the participating teachers had been empowered through the group processes to develop new teaching resources. This was a memorable feature of the workshop and before delivering this session, the presenter reflected deeply on this experience and, in
doing so, recalled the advice given during one of the expert interviews in the previous phase (see Chapter 4):

**Graham Welch:** If we set ourselves up as master teachers, then all we do is reinforce a model in which there is always somebody who knows more than us. What we have to do as effective educators, whether we are working with kids or with adults, is we have to create a space in which they can contribute.

In response to reflection and the expert advice, a goal for this workshop was to offer participants opportunity to present something. Further workshop content is summarised by topic in Table 5-9 below.

**Table 5-9 Workshop content - session 5**

<table>
<thead>
<tr>
<th><strong>Topic</strong></th>
<th><strong>Brief description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Materials</td>
<td>Singing game called Chickens and Hens, demonstration of pat-a-cake actions, its many variations and application to various musical tasks. Extending and applying singing games across a wide variety of ages. 3-part African song called <em>Somagwaza</em></td>
</tr>
<tr>
<td>2  Practical singing experience</td>
<td>Vocal warm-ups and further practice of a set of sample vocal exercises from the course booklet.</td>
</tr>
<tr>
<td>3  Listening to voices</td>
<td>Observing presenter work with participant voices individually</td>
</tr>
<tr>
<td>4  Observation</td>
<td>Reading and discussion from the course book of vocal development and common characteristics of adolescent singers in the middle school and senior secondary years.</td>
</tr>
<tr>
<td>5  Action and reflection</td>
<td>Discussion point: What does your experience so far tell you about the way teachers are likely to acquire skills in working with adolescent voices?</td>
</tr>
</tbody>
</table>

Email communication with participants prior to the workshop called for volunteers who had a song or idea they would like to share with the group. One participant, who has an interest in African folk songs, took up the offer and presented *Somagwaza* a three-part African song with accompanying movement. Having a colleague present for part of the session was both well-received and a novelty for the group. Also, having someone expound on a topic for which they have a passion and special interest was particularly engaging. One participant later reflected on this experience and realised that she could apply it to her own teaching.

**Participant 14:** Learning the African song was great! I’ve begun to consider, as a motivational tool, to get a specialist clinician in to work with my students.

By this stage of the course, participants had undertaken ten hours of instruction together over a four-week period. It was obvious to all concerned that there had been a change in the group dynamic. The time spent sharing, learning and singing together forged a greater sense of group cohesion, mutual respect and camaraderie. Participants were more open to being
challenged and less inhibited about singing in front of each other. With this new freedom, the practical singing experience during this session focussed on individual participant voices. Participants sang vocal exercises in front of each other and some happily received individual help in front of the group. According to one participant:

**Participant 7:** We were really encouraged to move forward with our own vocal techniques this session and I was thrilled that at this stage of the course we all are ‘asked’ to be models for each other. It was just great.

In particular, one teacher commented that he had never been able to sing high notes and that he believed he was a bass singer for this reason. The presenter suggested that, based on the quality of his speaking voice, the participant was most likely a tenor who has never learned to navigate his *passaggio* and, consequently, did not know how to access the top of his vocal range. The participant agreed to let the presenter help him and within ten minutes of vocalising he had achieved a dramatic transformation in the quality of his vocal sound and was singing high pitches with relative ease. There were cheers and applause from the other participants and an intense discussion about vocal ranges and voice classification ensued. It was an important finding that this topic could be taught contextually with reference to the voices of the course participants, rather than as theory without a context. This was a memorable part of the workshop and the participant later reflected on this experience in his journal:

**Participant 4:** I discovered today that I can sing in the tenor range. I am gobsmacked about this revelation and am left a little stumped as to what to do with it. I would like to experiment further and see where this voice thing could take me. My perception of what “tenor” actually means has changed. I think I would be inclined in the future to encourage other male singers to see whether they can sing more comfortably in the upper register.

Other participants described this observational experience in their journals and it was noted that the positive experience of one participant, had also impacted others. In reflecting on the experience, one observer found meaning in the process of improving and was inspired by the other participant’s improvement as well as her own.

**Participant 15:** It’s interesting how more confident I feel within myself, singing in front of the other group members. Witnessing Participant 4’s vocal transformation and the other group members work through their singing journeys was totally inspiring and I don’t feel alone in my search for vocal improvement.

The participants were displaying considerably more confidence in using their voices and singing in front of each other. Sensing improvement in her vocal skills, this participant’s reflection moves to consider how she can maintain the momentum.
Participant 14: I’m totally won over by this technique you have shown us, but my question is how are we now going to continue on with this? One-off workshop sessions are probably not going to help teachers with their voices and their confidence. They need to keep having singing lessons and where do those resources come from? I can’t afford to keep having personal lessons.

5.10 Findings - Workshop 6

Table 5-10 Workshop content - session 6

<table>
<thead>
<tr>
<th>Topic</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Materials</td>
<td>Revision of all singing games taught over the course. General advice on how to teach games with groups or classes.</td>
</tr>
<tr>
<td>2 Practical singing experience</td>
<td>Practice of warm-up exercises in course book.</td>
</tr>
<tr>
<td>3 Listening to voices</td>
<td>Singing the exercises for each other.</td>
</tr>
<tr>
<td>4 Observation</td>
<td>Demonstration lesson with “Thomas,” a 12 year old Year 7 student. Modelling language and techniques for speaking to students about singing and improving student motivation.</td>
</tr>
<tr>
<td>5 Voice pedagogy</td>
<td>How to structure and deliver vocal warm ups</td>
</tr>
<tr>
<td></td>
<td>How to build a school singing culture.</td>
</tr>
<tr>
<td>6 Action and reflection</td>
<td>Student motivation – what are the problems and solutions?</td>
</tr>
</tbody>
</table>

5.10.1 Debriefing discussions

The participants discussed the topic of student motivation at length during this workshop, which had been identified in a previous session as one of their most pressing challenges. Participants were asked to describe how they experience motivation problems and what the lack of student motivation looks like for them. A lively discussion ensued in which participants identified some key themes. One of these involved experiences of students not wanting to sing or seeming to display resistant attitudes towards singing. One participant described this theme memorably and expressed the sense of frustration that can often accompany these experiences.

Participant 11: I have some kids who are totally unmotivated to do anything. You want to try and brighten their day a little bit with some singing and they are stubborn and will not even open their mouths.

Participants highlighted their experience that dealing with student motivation issues can be a source of teacher stress and job dissatisfaction (Brophy, 1996; 2010). Other participants suggested they experience passive aggressive tendencies or attention-seeking behaviour from students during group singing activities. The range of negative behaviour they described included students singing with silly noises, deliberately singing incorrect lyrics, or mimicking the teacher in an uncomplimentary fashion. One teacher complained that she
lost members of her school band when she incorporated singing activities into their
rehearsals. These experiences resonate with literature reviewed in Chapter 2 (see 2.2.9 and
2.2.11) where psychological aspects are shown to be pertinent to working with adolescent
voices.

A further theme that emerged involved a lack of commitment among students in attending
scheduled choir rehearsals. In many schools, these choir rehearsals are regarded as extra-
curricular activities and consequently, rehearsals are scheduled during break times or outside
school hours. Some participants experienced difficulty in compelling students to attend these
rehearsals and they may not be supported in this endeavour by colleagues and school
administration. For example, several participants spoke about staff who schedule competing
interests during their choir rehearsals:

**Participant 03:** Other teachers seem to think that what they're doing is so much more
important than a choir rehearsal and that they can schedule other things during your
rehearsal time. It's a lack of collegial support and it makes life very difficult.

One participating teacher described an experience where school administration had
questioned his competence and threatened him with performance management, because he
had been unable to maintain student attendance at choir rehearsals. The teacher choked back
tears as he made this comment:

**Participant 16:** The school are happy to point out my deficiencies, but they don’t want
to be part of the solution and they don’t want to accept that their scheduling and their
school culture is really a big part of problem. They want a choir they can trot out at
official school events, but they won’t give me support or time to achieve this. Working
in large independent schools puts you under a lot of pressure to perform. You’re only
as good as your last concert.

After discussing how they experience motivation issues with students, participants were
asked to explore what they believed were the causes for these issues. Peer pressure was
identified as one of the main causes. When singing has a poor status within school culture,
students are reluctant to appear to be out of step with behaviour that is viewed as acceptable
among their peers. Another key reason for poor student motivation towards singing was a
lack of support for singing across the wider school culture. Examples given for the lack of
support included restrictive or unrealistic school schedules. Participants described the
difficulties with running school choir rehearsals at lunch times and the fact that when singing
is viewed as an extra-curricular activity, it has lower status within a school culture.
Conflicting musical interests was another cause and two participants described experiences of wanting students to sing repertoire that they felt had more musical or educational value, but the students wanted to sing repertoire that was more in step with popular culture. Along these lines, some participants suggested that students have unrealistic expectations of their voices and that the popular media provides poor vocal role models. Consequently, if students are not confident that they can sing well, they are unwilling to take a risk for fear of making a fool out of themselves or being ridiculed by peers. This illustrated the need for teachers to understand the psychological implications for working with adolescent voices (see Chapter 2.2.9).

Another participant described an instance where students who are capable singers are also unwilling to sing:

**Participant 05:** I have a student in my class who is actually a singer. She is having classical singing lessons and studying opera. She refuses to open her mouth, because she thinks if the other girls hear her, it would be social suicide.

After discussing the symptoms and causes of motivation problems among students, participants were asked to share with each other strategies they found to be effective at dealing with these problems. This was a more difficult discussion. Participants seemed happier to share their problems than to discuss solutions. A technique trialled in this session to generate discussion around the topic of solutions was to share a list of ten strategies which have been known to work at addressing student motivation issues. Participants were asked to comment on the strategies, to share examples where they had used these strategies or similar, and to identify times during the professional development course they had seen the presenter employ these strategies. The list of the suggested strategies is given in Table 5-11 below:
### Table 5-11 Strategies for addressing student motivation issues

<table>
<thead>
<tr>
<th>No</th>
<th>Suggested strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In group settings, keep the lesson moving by teaching a series of short 10 min segments and aim not to stop between activities unnecessarily</td>
</tr>
<tr>
<td>2</td>
<td>Use singing games, ice-breakers and communal music making activities</td>
</tr>
<tr>
<td>3</td>
<td>Try to offer corrections and new instructions on the fly rather than stopping tasks</td>
</tr>
<tr>
<td>4</td>
<td>Be task-oriented rather than behaviour focussed</td>
</tr>
<tr>
<td>5</td>
<td>Vary sitting/standing and student placement within classroom</td>
</tr>
<tr>
<td>6</td>
<td>Use open-ended tasks that allow students to present the final product how they like</td>
</tr>
<tr>
<td>7</td>
<td>Find opportunities for students to perform and then reflect on their performances</td>
</tr>
<tr>
<td>8</td>
<td>Take the students to see live performances</td>
</tr>
<tr>
<td>9</td>
<td>Use peer modelling by getting older students in to work with younger classes</td>
</tr>
<tr>
<td>10</td>
<td>Get an outside clinician or specialist in to work with your students</td>
</tr>
</tbody>
</table>

This technique was successful in generating much discussion. However at times, it was difficult to keep the group discussion focused on the topic of solutions. Participants found it easier to describe student motivation problems than to suggest possible solutions. When pressed, each participant was able to describe at least one or two strategies that have proven successful in the past and each participant was able to comment on or validate other participant’s ideas. The strategies suggested by the participating teachers varied in their understandings of teacher agency. For example, this quote places emphasis on teacher attitudes and a sense of learned optimism:

**Participant 11:** I think we have to remember that what we’re doing is a long-term investment. Be persistent and be consistent! Somewhere along the line it will click!

Another quote emphasises teacher actions and suggests that teacher behaviour and demeanour has a strong influence on student motivation:

**Participant 16:** The way I use my voice and body language is important. I find as many ways as I can to communicate passion for singing and to make it seem exciting. I move around the room while students are singing and sing at students and listen to their singing. When I address the class, I am not apologetic or dismissive. I try to steam roller them into singing and mostly it works for me.

Other suggestions focus on the role of students. This participant suggested that students can create an intrinsic sense of motivation through the competitive nature of working in groups:

**Participant 15:** What really works for me in all my classes is the students’ love of competition. Getting them working in teams, awarding points, creating competition between the teams. It can be very motivating!
Another participant focused on singing in a studio context as opposed to classroom singing and suggests that students can create their own motivation through regular home practice and revision.

**Participant 01:** If students are practising during the week, they are more likely to remember their lessons, come to the lesson and be focussed.

That participants could work together to find solutions to one of their most pressing issues was an important highlight of the professional development course. In this way, teachers were able to create new knowledge from their collective wisdom. Each participant left this workshop with a long list of strategies to try out, as one person put it:

**Participant 02:** This week I took on board suggestions and attempted to break my lessons down into a series of 10-minute sections. While I didn't always stick to this (mainly due to lack of varied content – something I'm working on) it definitely helped provide more feeling of motion and progression, and the students seemed to be more engaged.

### 5.11 Discussion

The overarching purpose of this thesis is to investigate factors that both enhance and detract from music teacher skills and knowledge in working with adolescent voices. The process outlined in this chapter has explored these factors through the experiences of a group of secondary school music teachers who were undertaking a professional development course in order to improve their skills and confidence in working with voices. Results of this study demonstrate that over a six-week period and as a consequence of participating in a professional development course involving action research, a group of secondary school music teachers were able to improve their skills, knowledge and confidence in working with adolescent singing. That the participants improved is probably inevitable and not the most interesting result to emerge from this study. Participants put time aside to focus on learning new information and skills and, under these conditions, it is to be expected that they will improve. However, some interesting questions to emerge from this phase of the study are: (i) what new knowledge was created during the process of improving, both by the researcher and the teacher participants; and (ii) how did this improvement occur?

Research literature has demonstrated that teacher knowledge is an all-encompassing concept, which includes “a large variety of cognitions, from conscious and well-balanced opinions to unconscious and unreflected intuitions… in the mind of the teacher, components of
knowledge, beliefs, conceptions, and intuitions are inextricably intertwined” (Verloop, van Driel, & Meijer, 2001, p. 446). Similarly, when taken together, the results of this study demonstrate that the new knowledge created by teachers during their professional development experience exists in various domains, including: (i) knowledge of self, (ii) knowledge of community; (iii) knowledge of students; and (iv) knowledge of voice pedagogy.

5.11.1 Knowledge of self

The changes experienced by participants in the course of this phase of the study were not only about learning new techniques and new repertoire; they also concern the participants’ sense of what they are doing and why, even affecting their identity and knowledge of self. The notion of musical identities is explored by Hargreaves et al. (2012) who define it as “ubiquitous, constantly evolving aspects of the self-concept that are negotiated across a range of social situations” (p. 31). These authors demonstrate that musical identities may be constructed and influenced by the development of musicianship. For example, a student who learns to play a challenging musical work on their instrument will experience a confidence boost that influences in a positive way how the student feels about their musical abilities (Hargreaves et al., 2012). Similarly in this study, professional development in the area of voice pedagogy has impacted the participant’s understanding of their craft; their perceived sense of competency; their confidence and their sense of musical identity.

In the following series of quotes, the workshop participants demonstrated awareness of these changes in their musical identity. However, there are also qualitative differences in the way they described the cause of these changes. For this participant, the vocal modelling provided by other colleagues and the shared experience of growing alongside others was important:

**Participant 15:** It’s interesting how much more confident I feel within myself to sing in front of the other group members and my students. Witnessing Participant 4’s transformation and the other participants working through their singing journeys is inspiring. I no longer feel alone in my search for vocal improvement.

For these teachers, new information and learning is attributed as the source of their increased confidence. Inherent in this assessment is the participant’s judgement that the new information is valuable and that it replaces or supplements previous knowledge.

**Participant 16:** The thing I’ve really noticed is how much more confident and decisive I am in my teaching. I feel like I have a lot more information and that what I am giving the students is worthwhile.
Another teacher commented that:

**Participant 13:** I think the information I am reading and gaining from the workshops has helped massively. It’s made me more confident in the way that I teach and gives me more facts about what commonly happens to secondary singers and has helped guide my lessons, especially with the warm up exercises and then what to start working on when they are singing their pieces.

In contrast, this participant attributes her increased confidence to the perceived improvements in personal singing skills:

**Participant 14:** Taking up the offer of a free singing lesson has totally transformed my understanding and has inspired me on a personal level and given me renewed confidence in my singing.

### 5.11.2 Knowledge of self within community

Originally this training course was developed to provide a forum for sharing information about vocal pedagogy, improving teacher skill and for developing reflexive practice among a subset of secondary school music teachers. Although the course was successful in achieving these aims, the most significant finding was unexpected. The course provided an opportunity for a group of professionals to work together on a shared problem - how to make singing work in the context of a secondary school. Through sharing individual perspectives on this problem; exploring potential solutions; through the collective experience of learning a new body of knowledge; and through the experience of singing together, a valuable learning community and professional network was created. This finding correlates with Ponte (2010) who observed: “learning to do action research can be classed as a form of professional socialization, that is, the gradual internalization of a set of professional norms and values” (p. 546).

At the macro level, the nature of this investigation was primarily collaborative. The focus is not on individual improvement, but on developing common stocks of professional knowledge (R. Burns, 2000) which can help address the present research problem articulated in Chapter 1. Through sharing experiences and voicing reflections on the teaching and learning of singing, participants in this study were involved in a process of deep reflection. In this process, the reflective capacities of each teacher were enhanced and a collective culture was created by contributions fed back into it. Over ensuing weeks, a sense of camaraderie developed amongst the participants from which each was challenged to take steps to improve their teaching situation. Importantly, each participant felt empowered to
implement changes that were appropriate and relevant to their individual teaching contexts and in keeping with their level of vocal expertise.

The participant quotes given below describe these experiences aptly:

**Participant #06:** “Getting involved in a workshop with a group of like-minded colleagues has been enjoyable. I personally felt stretched and challenged as burning issues in our daily teaching lives were discussed.”

**Participant #01:** “The most helpful thing was meeting other music teachers, hearing their stories, and exploring the practical activities. I realised that the challenges faced by other music teachers are the same as mine.”

**Participant #02:** “Overall, I’m now aware that other teachers struggle with aspects of teaching, and it’s OK that I do too! Helped me reflect on what I can do, and more importantly it identified areas for improvement, as opposed to not knowing where to begin when attempting to provide a well-rounded, balanced and optimal voice course.”

### 5.11.3 Knowledge of students

The multifaceted knowledge base of effective teachers also includes knowledge of the students they teach (Mayer & Marlanc, 1997). The results of this study demonstrate that providing teachers with information on voice science and vocal function alone is unlikely to solve the problems surrounding the teaching of singing in Australian secondary schools. Instead, the knowledge base of effective teachers includes information about how students learn to sing; how they grapple with vocal concepts; and the types of repertoire likely to appeal to particular adolescents. An unexpected outcome of this study was the fact that it was able to contribute to the participants’ knowledge of their students in meaningful ways. However, there was also variation in the knowledge participants gained of their students which is encapsulated in the series of quotes below.

Some participants, used the repertoire and course materials provided throughout the professional development course to test or judge their effectiveness. The outcome was that they were able to form an opinion about the sorts of materials that were likely to appeal and be effective in working with adolescent voices. As the following participants explained:

**Participant 06:** My choir members loved the vocal exercises I gave them from p. 44 of your book. In addition, I gave them some sight reading and aural training exercises and they went home smiling!

**Participant 03:** I’m finding that the students are very willing to take part in ice breakers and warm ups. They think it is fun, and enjoy that everybody is participating together. The exercises are very effective at consolidating rhythmic skills.
For other participants the course material provided an opportunity for them to dialogue with their students, which fostered a greater understanding between both. For example:

**Participant 07:** Each week the students have given me more feedback so I feel that these methods have created a better understanding in the students of their vocal technique and how to control. I feel that the increased but simply put knowledge has sped up the learning process for them.

**Participant 12:** The checklist you gave us is on my wall and has prompted a fair amount of discussion of technique and an increased awareness in my students. Asking them, “what can you improve?” has been very effective.

The process of learning helped some participating teachers empathise with their students by remembering what it is like to be a student. Others felt that they were able to use the course information to provide greater depth in the content they were teaching:

**Participant 04:** I think letting students know some of the processes behind what they are doing or what they should be trying to achieve can really help, especially adolescents who have the capabilities to understand some basic vocal terminology. I found it effective in having my students understand a little bit more about their voices and where things are placed and also what is normal for their age.

### 5.11.4 Knowledge of voice pedagogy.

When commencing this training course, teacher participants described inadequacies both in their general musical training; in their pre-service teacher education; and in their own singing self. The sources of these inadequacies were often attributed to a mismatch between the skills and knowledge taught in their teacher education courses and those the participants felt they needed in order to meet the demands of teaching. Participants said that they could not recall a subject at university that addressed the topic of how to work with adolescent voices. As the quote below illustrates, a further limiting factor for some participants was the fact that their initial musical training was as an instrumentalist and that they had unexpectedly found themselves working with adolescent voices at a later stage of their career development. This was illustrated by one of the teachers:

**Participant #06:** I personally find these workshops very helpful, because I was primarily trained as a classical pianist (and have been teaching piano for 28 years). I want to improve my vocal confidence because I have to conduct choir/s and teach singing as part of the school music classroom program.

Some participants had majored in singing as part of their undergraduate music studies and, in general, these participants expressed greater confidence in working with adolescent voices. However, even one of the teachers who majored in singing expressed confusion about voice pedagogy as the quote below demonstrates.
**Participant #02:** I think that there’s so much misinformation or just plain misunderstanding surrounding vocal pedagogy, it means many teachers themselves may not understand their own vocal technique. This is certainly my experience, even after having attended one of the country’s most ‘prestigious’ tertiary music institutions - at a postgraduate level. I graduated with many unanswered questions and not what I considered a strong vocal technique. I think ultimately this type of shortcoming interferes with the ability to teach voice well, because in order to do so the teacher needs a clear, logical, simple overall concept of how the voice works. This is why the diagnostic approach you presented today is so appealing to me.

The teacher participants involved in this study seem typical of the profession in that they express similar views about the need for more comprehensive training in voice pedagogy in university courses, as did the survey sample (see Chapter 3) and a panel of experts in voice pedagogy (see Chapter 4). Despite the popular belief that better or more comprehensive pre-service teacher education is needed to address the current problems with school singing, the experiences of these participants provide evidence that university courses alone are likely to be ineffective at building teacher skills and knowledge in working with high school singers.

As the experts in the previous phase of the study (see Chapter 4) recommended, teacher skills and knowledge are likely to grow in an environment that is rich in multiple types of learning. Accordingly, this training course incorporated opportunities for factual learning, observational learning, experiential learning and collaborative learning. Factual learning included a variety of information on vocal anatomy and voice pedagogy and was supported by a set of course notes.

A critical review of vocal pedagogy texts (See Chapter 2) was an essential preparatory step towards helping the presenter to simplify and offer information from voice science in a manner that was accessible to secondary school teachers. On the whole, participants did not respond to this information as expected. A small number of participants with a strong background in singing appeared interested in this factual content. Almost none of the participants wrote about factual learning in their reflective journals and none described any of the factual information in responding to the question “what was most helpful to you in this session?” One teacher seemed to account for this in her journal by suggesting that the factual learning represents hard work:

**Participant 12:** Having read the sections on Breathing, Phonation, Resonation and Articulation, it seems like there’s a lot of information to take in.
Observational learning in this study involved the presenter working with current secondary school students, both male and female across a variety of ages. Each of the students received a mini singing lesson covering vocal technique and age-appropriate repertoire. Think aloud protocols and observational check lists were among the strategies used to make these sessions relevant and engaging for the participants. Another form of observation involved the presenter modelling techniques and processes for teaching song repertoire and classroom games. Participants reacted positively to the various opportunities to observe vocal instruction in practice and many commented in their journals that they ‘enjoyed’ these experiences. Crucial to this research was not whether the participants enjoyed the experience, but rather how the observational experience impacted their teaching and confidence. Also the types of observation that are likely to be most effective at enhancing participants’ understanding of voice pedagogy.

Experiential learning involved providing participants with vocal instruction, both individually and in a group context. It also involved active learning during workshop sessions of a sample repertoire of songs, games and choral works. It was surprising how quickly new repertoire was adopted by participants and comments in their journals suggested that they began teaching this material to their classes immediately. Two inferences were drawn from this. First, that the participants have a need for quality teaching resources and that they sometimes struggle to source this on their own. Second, participants need to invest time into sourcing repertoire and learning this material thoroughly before attempting to teach it. This training course provided a means for teachers to do just that and the fact that the repertoire found its way into their curriculum so readily is a reflection that the efforts needed to learn new repertoire are sometimes neglected by teachers. As was discovered in the survey of current teachers (see Chapter 3), the need to source repertoire is partly addressed through the newsletters of various professional associations. It might also be addressed through an online resource library for secondary school music teachers.

However, it was not only repertoire that the participating teachers needed more access to, it was also a need to enhance their own vocal skills. For example:

**Participant #15:** Having an individual singing lesson was an exciting and critical moment. Until then I didn’t understand what I was supposed to feel or do vocally. Having the opportunity to experience firsthand the process and hearing the difference in my voice was a big learning moment for me. I needed to get my head around what I had to do vocally first, without the pressure of an audience... I cannot stress nor recommend more highly the benefit of an individual lesson to boost one’s confidence. The residual benefit has certainly flowed into my teaching in choir. I’ve noticed that I
have become more confident and have been more willing to demonstrate vocally to the students (unaccompanied, without the aid of the piano). Thus, from my experience, in order to improve singing in schools, it is crucial to improve teachers’ singing skills.

Another participant also picked up on this, emphasising the need for teacher participation and collaboration:

**Participant #15:** Upon reflection I have realised and experienced firsthand through my own participation in these Action Songs during our Sessions, is that they really help to foster co-operation, teamwork and build camaraderie amongst the participants. Sharing a few laughs really helps to put everyone at ease and helps one to feel more comfortable participating in activities, sharing opinions and asking questions.

Collaborative learning was represented in this course by a variety of group processes, debriefing discussions and dialogue around ‘action and reflection’.

**Participant #12:** The opportunity to share and exchange what works in my context and listen to what can work in a different context and see how we can use it to apply in our own teaching is always uplifting and re-energising. Stagnation is the enemy of teaching and especially in music, where repetition is the fundamental element in our pedagogy that can be a real danger.

A professional development course that is offered as a one-off workshop style event can enable the sharing of repertoire and materials, but is likely unsuccessful in effecting long-term change to a teacher’s pedagogy. As one teacher wrote:

**Participant 15:** It has been great to do a series of workshop/sessions – I think this has been one of the strengths of this course. One off session aren’t enough, you need the follow up session to practice your new found skills to participate in discussion and consolidate your understanding. The group aspect is good to bounce off ideas and to collaborate with like-minded people and form networks with other teachers in your area. A lot has been covered over the 6 session and probably too much for me to take in all at once in such a short time frame. A lot of this information would be perfect at the beginning of the year so that teachers have more opportunity to try out material and trial it on a number of classes over a period of time.

Another participant found that:

**Participant 11:** As a group we are fortunate to becoming aware of better technique for the voice and spotting uses of technique in others and our own singing. This course is long enough now that patterns are starting to emerge and this is helping me to connect the learning across lessons.
Conversely, one of the participating teachers felt that there still needed to be more time between sessions in order to implement what he had learnt:

**Participant #14:** Although I am really enjoying the weekly sessions, I am finding them to be quite challenging. Even though I love attending the sessions because I’m thirsty for knowledge, I’m also struggling to trial ideas with so much going on – excursions, reports, and school hall renovations. Perhaps an intervals greater than a week between sessions is advantageous to enable greater opportunity to trial material with different classes.

### 5.12 Conclusion

The findings from this phase of the study demonstrate that adapted action research can be used as a strategy to foster meaningful professional development experiences in singing for secondary school music teachers. While no perfect model for conducting professional development exists, an action research approach offers several advantages over the more conventional workshop format by involving participants as learners, teachers and generators of new knowledge. Cowley (2010) is similarly optimistic about the role of action research in this context and suggested, “The idea that research into teaching should be applied implies the potential for changes in practice. To this end, teachers of singing have much to gain from reflecting on their own practice and utilising developments in action research over recent decades” (p. 124). However, despite the benefits, the success of an action research model relies on a teacher’s capacity to develop a research stance towards their teaching; to examine their thoughts and actions; and to produce accounts of their reflections (R. Burns, 2000).
Chapter 6: Voices in Harmony: Discussion and Conclusion

6.1 Introduction

Educational literature abounds with advocacy for school singing, demonstrating that singing benefits young people on many levels – musically, educationally, psychologically, socially and spiritually (D. Elliott, 1993; Hoffer, 1991; Making Every Child's Music Matter: Music Manifesto Report No. 2, 2006; Page, 1995; Sjoerdsma, 2001; Welch, 2007). Beyond this, singing is likely to have important benefits for the health and well-being of our young people (Davidson, 2011). As a component of best practice in music education, singing is also core to musical learning and to the acquisition of higher order musical thinking skills, such as audiation or inner-hearing (Choksy et al., 2001; D. Elliott, 1993; Gordon, 1997, 1999; Kodály, 1974). This thesis is based on a belief in the primacy of singing in Australian secondary schools, both for students and teachers: Singing not just for its own sake, but because it is fundamental to humanity (Mithen, 2005; Welch, 2005, 2007). As an important expression of our humanity, singing is a necessary component of education, particularly if that education seeks to develop the whole person. It is this fundamental role that provides the strongest justification for the inclusion of singing in the musical experience of all Australian children.

Despite the apparent benefits of singing, writers and the participants in this study have acknowledged that the current status of singing in Australian secondary schools is problematic. This is evidenced by low levels of student engagement in singing; the poor standard of singing from school students; the variability or patchiness of singing programmes offered across Australian schools; and the fact that teachers feel they lack confidence and expertise in working with adolescent voices (Pascoe et al., 2005). Literature reviewed in Chapter 2 of this thesis demonstrates that these problems are not new and that educators have been making similar observations about singing since the beginning of Australian schooling in colonial times (Hughes, 2007). Moreover, statements from educators, both in the USA and the UK suggest that the problems associated with school singing are not confined to Australian schools, but can be found throughout the developed...
Western world (Finney, 2000; Freer, 2006b; Gates, 1989; Langness, 2000; Ofsted, 2012; Peggie, 1998).

In addition to the problems outlined above, there is a lack of a cohesive approach to singing across Australian secondary schools. In some schools, studio singing is offered on a user-pays basis and taught by specialist singing teachers. In other schools, massed singing is promoted as an enriching experience or expression of school patriotism and community (Barclay, 2008). In some schools, classroom singing forms the basis for the sequential teaching of music curriculum (Choksy et al., 2001; Hoermann & Herbert, 1979). However, the reality for many Australian secondary school students is that there is little or no access to school singing programmes ("What is Music: Play for Life?," 2009).

In secondary schools where singing opportunities exist, this study has found that the teaching of singing is frequently handled by generalist music teachers who are likely to: have training as an instrumentalist; have no specialist knowledge of singing; and juggle multiple roles and responsibilities within the context of one or multiple schools. These results align with others (Ballantyne, 2007a; Harrison, 2005, 2006b, 2010) and, in particular, Hughes (2007) who found: “the reality is that for many [Australian] students, school singing begins with teachers who may not have experience, interest or confidence in singing” (p. 294).

In researching this topic, it was discovered that a gap exists between being qualified to teach music in Australian secondary schools and being knowledgeable, skilled and confident to work with adolescent voices. Therefore, the aim of this exploratory, mixed-method study was to investigate factors that enhance or detract from teacher skills and knowledge in working with singing. This mixed-method study has been enhanced by a rich source of qualitative and quantitative data from three separate groups of participants and in three interconnected phases. An analysis and discussion of the data and findings from each distinct participant group has been presented in Chapters 3, 4 and 5. In light of the research questions outlined in Chapter 1, it remains the task of this chapter to: tie these discussions together; explain the meaning and significance of the key findings; suggest areas for further research; and offer a conclusion.
When taken together the findings and discussion topics from previous chapters point towards five key themes that will be explored in this chapter: (i) teacher identity, (ii) teacher self-efficacy, (iii) teacher knowledge, (iv) teacher learning and development and (v) professional networks.

### 6.2 Teacher Identity

In his book, *The Courage to Teach*, Palmer (2007) explores the premise that good teaching cannot be reduced to technique alone, but is rooted in the identity and integrity of the teacher. In the wider educational literature, the topic of teacher identity has gained considerable interest as a framework for studying how teachers work, learn and develop (Beijaard, Meijer, & Verloop, 2004; Hargreaves et al., 2007; Roberts, 1991). For example, Ballantyne and Grootenboer (2012) suggest, “the impact of music teacher identity on the nature of music teaching and learning is one that has the potential to illuminate influences underlying the professional practices of teachers” (p. 368). The illuminating potential described by the authors has been relevant to this study and prompted the first research question (see Chapter 1): How do secondary school music teachers identify with the role of teaching singing to adolescents? In considering factors that enhance and detract from teacher skills and knowledge in singing, teacher identity has been found to play a crucial role throughout Chapters 3, 4 and 5.

By exploring the experiences and opinions of various groups of participants around secondary school singing, this study has raised questions relating to how the *singing identities* of music educators develop as they move from pre-service teacher education through to becoming experienced teachers who work with adolescent voices in schools. It was found that a variety of factors appear to come together to shape a teacher’s singing identity, including: teacher beliefs about the value/importance of singing; prior experiences with singing; a teacher’s own vocal skill; teacher knowledge of appropriate vocal pedagogy techniques and repertoire; and teacher instructional and singing self-efficacy. At some point in their career, experienced teachers of school singing in this study appear to have constructed an identity that places their own singing and the teaching of singing at a central place within their professional skillset. Either they have come to the realisation that they are ‘singing teachers’ or, at the least, that they are teachers who work with singing.
In constructing their singing identity, participants in all three phases of this study demonstrated that the term ‘singing teacher’ can mean different things to different people. As one participant explained, “I am not a formally trained singing teacher, but I do work with voices nearly every day, because I believe that’s what good music teachers do” (Survey Respondent #053). Another participant expressed similar sentiments, “I really don’t consider myself to be a teacher of singing in any way, but rather a conductor of choirs” (Expert #07). Yet another participant also made distinctions between the role of a singing teacher and the use of singing within a classroom context, “At present I am I not trying to teach singing. I am just trying to get my students to sing” (PD Participant #11).

The data gathered throughout this study, demonstrated that teachers who work directly with singing on a professional level may think differently about their identity. Moreover, the existence of at least three sub-groups of musical identity emerged among the participants who work with singing in secondary schools, namely: classroom teachers, choral conductors and studio voice teachers. These categories exist because members of each group regard each other as different. Moreover, they consider the knowledge base and skillset required within each sub-group as different. This finding aligns with Harrison (2004a) who observes a widespread incongruity between the way vocal teaching is approached by studio voice teachers, by classroom teachers and by choral conductors with conflicting opinions, philosophies and goals between three types of vocal teachers.

That school singing could be any better placed with less distinction between these identity roles is speculative. However, it raises a number of questions: What are the common and diverse stocks of knowledge about adolescent voice pedagogy that exist across all the music teacher groups? How can the knowledge of one group inform the practice of another? Further research is needed in order to explore these questions in greater depth. However, if common ground can be found between the knowledge and skillset of choral directors, studio voice teachers and classroom teachers, then school singing stands to benefit in some tangible areas: (i) pre-service teacher education and teacher professional development courses in singing can be structured around a knowledge base that is relevant to all teachers who work with adolescent voices; (ii) with a common foundation of knowledge, teachers have a basis for professional dialogue and sharing of practice; (iii) secondary school music educators may have a clearer idea of what to teach in relation to what is currently a nebulous topic; and (iv)
the educational experience of Australian children may be enhanced through them receiving more consistent information on their singing from all their teachers.

### 6.3 Teacher Self-Efficacy

Music teacher skills and knowledge in working with adolescent voices may be explored through several analytical lenses and using various types of measures, such as: the number of students involved in school choirs; student opinion polls; student scores on external music examinations; and the breadth of vocal programmes offered in a particular school. However, in this study and in some of the research literature, teacher beliefs and behaviours are identified as an important aspect of the nature of teaching competence (Agne, 1999). A teacher’s judgments about their performance and results are often defined in the educational literature under the umbrella of teacher self-efficacy. This concept is grounded in Bandura’s theoretical framework known as ‘social cognitive theory’ (Bandura, 1993). It is believed that self-efficacy plays a key role in human functioning by influencing human behaviour and also indirectly affecting other determinants of success, such as: goal-setting; expectations around outcomes; perceptions around both opportunities and obstacles; whether people think erratically or strategically, optimistically or pessimistically; and how long they persevere in the face of obstacles (Bandura, 2006).

In fact, a growing body of literature explores the meaning and development of teacher efficacy in various educational contexts (Cooper-Twamley, 2009; Erdem & Demirel, 2007; Ross, 1994; Shumacher, 2009; Teater, 2004; Tschannen-Moran et al., 1998). The term ‘instructional self-efficacy’ describes the extent to which teachers believe their instruction will have a positive effect on student achievement (Redmon, 2007; Ross, 1994). More specifically, the notion of a teacher ‘singing efficacy’ was explored by Himonidesa et al. (2011) in assessing the impact of teacher professional development in singing for primary school teachers. Within this framework, teacher confidence in working with adolescent singing is a reflection of a teacher’s singing and instructional self-efficacy and encompasses: teacher beliefs about their own singing ability; their ability to improve the singing of others; and their self-assessments about the worth of their vocal knowledge.
In this study self-efficacy scales were constructed and used to explore teacher self-beliefs in Chapter 3. Quantitative data demonstrated two factors or dimensions to teacher self-efficacy which included factors related to both the musical skills and technical vocal skills associated with leading singing activities. In addition, teacher participants demonstrated a variety of self-efficacy beliefs that underpin their work with school singing activities. These ranged from a belief that their strategies were ineffective in assisting student development to a conviction about the value of singing education that the individual teachers could provide. For example, survey respondent #024 states, “I don't think my strategies really help that much in the overall development of my students voice/singing.” Similarly, survey respondent #058 reflects, “Although I've had some success in the choral field, I really don't feel well qualified or competent as a vocalist or vocal instructor.” A more optimistic judgement was made by this respondent who reported, “Over the past few years, I’ve increased in confidence that my strategies actually work. I’m seeing improvement in individuals over time and an increase in quality and quantity of singers in my school” (survey respondent #034). Interestingly, these three divergent beliefs were given by teachers who all reported similar demographic information: female classroom music teachers who worked in government secondary schools and had between 0 and 5 years of teaching experience. Further research might seek to explore the extent to which variation in the self-efficacy portrayed among music teachers might account for the patchiness observed in school singing programmes. It is plausible that music teachers focus their instructional time on activities where they have a greater sense of self-efficacy and avoid tasks where they feel less confident or capable. The result is that Australian students may experience a radically different quality of vocal education depending on where they go to school and who their teachers are.

In exploring the relationship between teacher self-efficacy and the teaching of singing in Australian secondary schools, this study has also raised questions about the types of teacher development that are likely to impact teacher self-efficacy positively. A hypothesis suggested by Borich (1999) is that teacher self-concept is “acquired through social interaction and is subject to change through experience” (p. 93). Moreover, Tschannen-Moran et al. (1998) believe that perceptions that a performance has been successful tend to raise self-efficacy beliefs and build expectations of future success. Both views resonate with the experience of teacher participants in the third or professional development phase of this
study. It was found that the changes experienced by participants in this phase of the study were not only about learning new techniques and new repertoire; they also concern the participants’ sense of what they are doing and why, even affecting their identity; knowledge of self and self-efficacy beliefs.

6.4 Teacher Knowledge

In exploring school singing through the lens of music teacher skill and development, this study has inevitably considered issues related to teacher knowledge. In particular, it sought to investigate research questions 2 and 3: What skills and knowledge about singing do Australian secondary school teachers currently possess?; and, what skills and knowledge do teachers need to be effective in working with adolescent voices in Australian secondary schools? (see Chapter 1).

The current skills and knowledge possessed by secondary school music teachers have been examined (see Chapter 3) and juxtaposed with those required to work effectively in vocal teaching. A review of literature (see Chapter 2) coupled with data gathered from current secondary school teachers and experts (see Chapters 3, 4 and 5) have demonstrated both inconsistencies in the way school singing is approached throughout the country, as well as complexities, and at times, contradictions in the knowledge base considered appropriate for teachers working with adolescent voices.

The full gamut of singing activities practiced in Australian schools includes both classroom and co-curricular singing as well as singing in a variety of contexts including: massed (or whole school) singing, choral rehearsals, vocal ensembles, classroom music lessons, school cultural events, and private (studio) instruction. A consequence of such diversity of practice is that people are likely to have differing views about what singing in schools actually is. Moreover, these differing views contribute to a varied understanding of: (i) what the teaching of singing at secondary school level involves; and (ii) what types of knowledge secondary school teachers need in order to enhance their work with adolescent voices. For example, in this study, teachers of studio singing are more likely to be music graduates with a major in solo vocal performance and may or may not have completed studies in music education. These teachers are likely to emphasise: vocal technique; solo performance; home practice; and the development of vocal artistry. Conversely, the participating teachers who work with
singing in the classroom are likely to have general training in music education and to have majored as instrumentalists. In their day-to-day work, these teachers are likely to focus on: repertoire selection; student participation and motivation; enjoyment; vocal blend; diction; and the development of musicianship through singing.

In addressing research question 7 (what content is likely to increase teacher competency and confidence in working with adolescent singing?) there was considerable variation in response. This study has observed disparity between singing experts, vocal pedagogy texts and music teachers with regard to the vocal knowledge each group thinks is required to enhance current teacher practice in working with adolescent voices. The teachers surveyed (see Chapter 3) suggested that their knowledge was most lacking in: vocal technique, vocal health and the adolescent changing voice. Conversely, vocal pedagogy texts generally emphasise vocal anatomy; vocal function and voice science. From another angle, it was found that experts in singing place varying degrees of emphasis on several forms of knowledge: what is taught (content); how it is taught (pedagogy); and who is taught (the learners and how learners grapple with content and pedagogy). When taken together, these varied facets were described in Chapter 4.4.2 as contributing to a music teacher’s craft knowledge in singing.

Nevertheless, it was evident from participant responses in Phases 1 and 3 of this study that current music teacher knowledge needed to be extended in all areas of voice pedagogy involving: voice science; the developmental phases of adolescent vocal physiology; and strategies for addressing the psychological and physiological implications of the adolescent changing voice. This body of knowledge impacts their pedagogy and their confidence in working with adolescent voices. However, knowledge of voice science and voice pedagogy is not a panacea and does not ensure that a secondary school teacher will be successful in working with adolescent voices.

The data gathered in this study also demonstrates that teachers can struggle with more fundamental issues when working with adolescent voices. Some challenges described by participants (see Chapter 5.5) involved sourcing appropriate repertoire for classroom and choral singing. Teachers also reported that they struggle with issues related to: the poor status of singing within individual school cultures; restrictive school scheduling; and a lack of support from school administration and colleagues for singing programmes. These issues
are not addressed adequately by voice science or in the current voice pedagogy texts. However, they were able to be addressed when teachers participated in collaborative learning experiences where they share their knowledge, experiences and problem-solve together.

In summary, this study has found that teachers who work effectively with adolescent voices possess a complex knowledge base that includes: knowledge of self, knowledge of the subject matter, knowledge of learners, knowledge of teaching and applied knowledge through practical vocal skills. Likewise, Callaghan, Emmons, and Popeil (2012) suggest that highly competent teaching of singing requires at least three types of knowledge: content knowledge, pedagogical knowledge and pedagogical-content knowledge. Although proposed by highly experienced voice teachers, their view could easily apply to effective teaching in almost any discipline. Thus, in the absence of a solid research base directly addressing school singing, current music teacher knowledge could be enhanced by considering the extensive body of literature that already defines the skills and knowledge of effective teachers and by relating this meaningfully to the area of school singing.

Outside music education, there is wisdom to be found in a myriad of diverse fields, including: business, health science, psychology, medicine, linguistics and various natural therapies. Future research might explore some of these fields and their potential to add to the knowledge base of school singing. For example, teacher participants in Phase 3 of this study (see Chapter 5) reported various problems surrounding the motivation of students. Several issues surrounding the motivation of students emerged, including: recruiting, training and retaining singers (particularly adolescent boys), which are challenges faced by many secondary school teachers. This raises questions regarding the extent to which motivational theory from business and psychology may be helpful to teachers who are struggling with student motivation issues. As a further example, Barnes (2009) makes the following observation:

Ultimately, the path to being a good singing teacher is not so different from the one that leads to being a good psychotherapist- empathy, an avid interest in process as well as product, the flexibility to adjust vocabulary in order to achieve understanding, technical as well as instinctive knowledge and driving curiosity. Most patients love their therapists and think they are the best around; the same is true of singers and their teachers. (p. 31).
6.5 Teacher Education and Development

Both the educational literature and participants in this study acknowledge that teacher education and development plays an important role in addressing current problems surrounding the implementation of school singing programmes. Dissonance was also observed between the participants' views on teacher education and development and those espoused in the literature. Moreover, data from the three phases of this study have demonstrated that the participants placed varying degrees of emphasis on three factors related to teacher education and the development of teacher skills and knowledge. These include: the role of pre-service tertiary education; individual responsibility; and, collegial support; (see Figure 6-1). These findings address research questions 4 and 7 (see Chapter 1): What professional development is needed to help teachers raise the standard of singing in Australian secondary schools; and, what content is likely to increase teacher competency and confidence in working with adolescent voices? Although this point has been discussed previously (see Chapter 4.3.3), this section will briefly revisit these factors in light of further data from the subsequent phases of the study.

![Figure 6-1 Factors contributing to the development of teacher skills and knowledge](image)

It was common for some participants across all phases of this study to attribute the current problems associated with music teacher skills and knowledge in teaching singing (at least in part) to poor initial teacher education. Thus, a popular belief among practicing teachers and vocal experts is that the current level of pre-service teacher education in singing offered by various tertiary institutions is not rigorous enough and that these institutions are not preparing teachers for their profession adequately. Participants often stressed the need for changes in the pre-service education of teachers that included minimum standards of competency in singing; vocal pedagogy classes; increased contact hours; and content that is
perceived as more relevant by practicing teachers. Similar arguments can also be found in the literature, such as Teachout (1997) and Brophy (2002). Conversely, this view was seemingly contradicted by some participants (see Chapter 3.3) who rated initial teacher training as not significant in influencing their current teaching practice. This finding aligns with Lierse (1998), who in a study on teacher effectiveness, concluded that “teachers believe they developed most of their technical skills on the job, and after they had graduated from their music course” (p. 77).

Irrespective of the potential for improvement in pre-service teacher education, it is impossible for music teachers to learn everything necessary for lifelong success during their undergraduate years, both because of time limitations and because the profession will inevitably evolve over the many years that the teacher will spend in music education (Shuler, 1995). Teacher education does not end with the receipt of a degree and, teacher preparation programs represent only the initial step in the course of a career requiring continuous professional development (Christensen & Fessler, 1992). The significance for this present study is that the current problems surrounding school singing and teacher knowledge may, in part, be tackled through enhancing pre-service teacher education, but this does not represent a complete solution. To this end, tertiary institutions have a part to play by producing teachers who view themselves as lifelong learners (Day, 1998). Individual teachers also have a role to play by having realistic expectations of their pre-service teacher education and by accepting their ongoing need to further their development as professionals.

In particular, effective music educators need to manage their career-long development across dual identities as both musicians and educators (Pellegrino, 2009, 2011). Both these facets require separate, but interrelated forms of life-long development. As one respondent explained, participating in music-making experiences outside the teaching environment can successfully contribute to a teacher’s ongoing development as a musician:

Survey respondent #176: I have always thought it crucial that music teachers are actively engaged in music making outside of the classroom/work environment. My years in the Sydney Chamber Choir, various church choirs, and as an extra for the Australian opera - ALL of this keeps me alive and feeds back to the students. They can sense the passion and it prevents you from stagnating as a practitioner.

Expert opinions in Chapter 4 also identified the benefits of personal experience with singing and suggested that without firsthand experiences of singing, teachers are unlikely to develop a passion for singing and confidence using their own voices in teaching situations. These
factors have also been found to be a necessary component of inspiring and motivating students in Chapters 4 and 5. As Shuler (1995) has suggested: “teachers do not teach what they cannot do themselves. They are unlikely to emphasize, teach, or even, in many cases, value what they are not comfortable modelling themselves” (p. 2). Teachers may be the products of an education and upbringing that has been starved of firsthand singing opportunities, which will inevitably impede their effectiveness in working with adolescent voices. However, the experience of participants during the professional development phase of this study demonstrated that these difficulties can be overcome when teachers adopt an optimistic stance toward their vocal improvement. Furthermore, as this participant demonstrates, teachers can find opportunities to improve their vocal skills through singing in community choirs and taking singing lessons, thus enabling life-long development:

Survey respondent #224: I had no experience of singing in secondary school myself. Who knew it would eventually prove so critical for my career? I have had to teach myself everything and learn from colleagues. I have received singing lessons at my own expense and joined choirs to experience good directors.

Another factor found to be significant in this study was the participating teacher’s willingness to engage in their development through the process of action and reflection. This addresses the sixth research question: How (or in what format) should the professional development occur? As a form of reflexive practice, the action research model described in Chapter 5 offers advantages over the more conventional workshop format by: encouraging teachers to enquire into their own practice; empowering them to take steps to change certain aspects; and by involving them as learners, teachers and generators of new knowledge. In particular, the action research approach utilised in this study provided teachers with a unique opportunity to engage in authentic learning about themselves as teachers; about themselves as teachers who need to demonstrate singing as part of classroom practice; about the young person who sings; and finally about ways to engage young people to sing. These findings align with literature reviewed previously that establishes the potential for action research to bring about positive educational change and promote teacher self-improvement (D. Burns, 2007; Louis Cohen et al., 2011; Stringer, 2008; Volk, 2010). It also suggests that action research models could be incorporated meaningfully into professional development modules in singing for music teachers. Further aspects to the action research model used in this study that were found to be important were: (i) the professional development modules were an ongoing experience; and (ii) they were positioned such that the participating teachers had opportunities to go away and deliberately refine their knowledge and skills. Also, that they
had the opportunity to operate within a professional network, or as members of a wider learning community.

6.6 Professional Networks

A review of historical literature in Chapter 2 demonstrates that, in the past, Australian government education departments provided specialist music support units and senior advisors, such as a music superintendent responsible for supporting music teachers, providing professional development, providing syllabus documents, teaching resources and inspecting the quality of teaching (Blake, 1973; Chaseling, 2007; Pascoe et al., 2005). Over time these services supporting music in schools have been contracted, removed or, in some cases, outsourced (Pascoe et al., 2005). Their role has largely been replaced by various not-for-profit music service organisations and music associations. An internet search reveals that a myriad of these music associations exist (See Table 6-1 below) with varying specialisations according to: geographic regions; particular instruments; various types of music ensemble and different pedagogical approaches.

Table 6-1 Selected Australian Professional Associations for Music Educators

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<thead>
<tr>
<th>Association Name</th>
<th>URL</th>
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<tr>
<td>Association of Directors of Music Independent Schools</td>
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</tr>
<tr>
<td>Association of Music Educators</td>
<td><a href="http://www.amuse.vic.edu.au">www.amuse.vic.edu.au</a></td>
</tr>
<tr>
<td>Australian Band and Orchestra Directors Association</td>
<td><a href="http://www.aboda.org.au">www.aboda.org.au</a></td>
</tr>
<tr>
<td>Australian National Association of Teachers of Singing</td>
<td><a href="http://www.anats.org.au">www.anats.org.au</a></td>
</tr>
<tr>
<td>Australian National Choral Association</td>
<td>wwwanca.org.au</td>
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<tr>
<td>Australian National Council of Orff Schulwerk</td>
<td><a href="http://www.anocos.org.au">www.anocos.org.au</a></td>
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<tr>
<td>Australian Society for Music Education</td>
<td><a href="http://www.asme.edu.au">www.asme.edu.au</a></td>
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<tr>
<td>Australian Strings Association</td>
<td><a href="http://www.austa.asn.au">www.austa.asn.au</a></td>
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<tr>
<td>Kodály Music Education Institute of Australia</td>
<td><a href="http://www.kmeia.org.au">www.kmeia.org.au</a></td>
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<tr>
<td>Music Teachers Association of Queensland</td>
<td><a href="http://www.mtaq.org.au">www.mtaq.org.au</a></td>
</tr>
<tr>
<td>Music Teachers Association of New South Wales</td>
<td><a href="http://www.musicnsw.com.au">www.musicnsw.com.au</a></td>
</tr>
<tr>
<td>Music Teachers’ Association of South Australia</td>
<td><a href="http://www.mtasa.com.au">www.mtasa.com.au</a></td>
</tr>
<tr>
<td>Percussive Arts Society (Australian Chapter)</td>
<td>community.pas.org/australia/</td>
</tr>
<tr>
<td>Victorian Music Teachers Association</td>
<td><a href="http://www.vmta.org.au">www.vmta.org.au</a></td>
</tr>
<tr>
<td>West Australian Music Teachers’ Association</td>
<td><a href="http://www.musicteacherswa.org.au">www.musicteacherswa.org.au</a></td>
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</tbody>
</table>

Many of these music associations offer professional development opportunities to educators through: publications, online resources, conferences, workshops, seminars and voluntary roles on the managing boards of these associations. In terms of research question 5 (regarding who should provide professional development), survey results presented in
Chapter 3 demonstrate that as a profession, school music educators have become largely dependent on the various PD programmes offered by these associations to fulfil their PD mandates. Also these associations fulfil a valuable role in creating supportive professional networks. Survey participant #003 exemplifies these points in the following quote:

“I think aMuse has become incredibly widespread in the past five years, particularly since they implemented the email list. I think nearly every music teacher in Victoria must get those emails. It’s fantastic. It is how I find out about everything – what jobs are going and what PD sessions are on offer.”

The professional development programmes offered by various music associations were rated highly by participants in Chapter 3 with many suggesting they were more useful than their university studies. The significance for this particular study is that, in the absence of vocal pedagogy classes at university, school music teachers are likely to draw on their PD experiences with these associations for their information on school singing. Further study is needed to assess the breadth of information on school singing offered by these associations and to assess whether (i) the training provided addresses issues pertinent to teachers currently working with singing in schools, and (ii) how closely the training aligns with current research in voice pedagogy.

The NRSME (Pascoe et al., 2005) recognises the role of music associations as one of the primary stakeholders in music education and advises them to work in partnership with government and tertiary institutions to “establish and maintain music mentoring and networking programmes” (p. 119). Additionally, the report offers a set of guidelines (p. 105) for how these organisations can support music in schools. Despite these recommendations, there is presently a lack of research that examines the role and significance of these associations in contributing to the professional development of Australian music educators. The recommendation that these associations should work in partnership, both with the government and with the tertiary sector, seems unrealistic given that these associations are often run by volunteers with minimal resources and that they receive no government funding.

Nonetheless, if partnerships of this nature were possible, music teacher education could benefit in several tangible ways. First, music associations could profit from the educational research base of the tertiary sector, ensuring that the PD programmes they offer and the teaching methods used sufficiently represent best practice in teacher education. Second, the status of teacher PD programs offered by associations could be enhanced though
accreditation from the government and tertiary sector. Third, tertiary institutions could have a means to stay in contact with teachers beyond their initial teacher training and, in so doing, have access to a rich source of data generated through practice-based research. Fourth, a more comprehensive and co-ordinated approach to teacher PD arising from strong partnerships is likely to present a stronger case for government funding and support.

Beyond professional associations, this study has shown that teachers can form valuable professional networks when they come together as colleagues for their mutual development. Through sharing individual perspectives on problems surrounding school singing; through exploring potential solutions; through the collective experience of learning a new body of knowledge; and through the experience of singing together, a valuable learning community and professional network was created for the teacher participants in this study. This finding resonates with the work of Wenger (1998) who proposes a social learning model involving ‘communities of practice.’ He defines such a community as a “group of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly” (Wenger & Trayner, 2011). Moving away from a psychological and cognitive view of learning, Wenger contends that we become who we are as we learn through social interactions in practice. Similarly, in the quote below, a participant from the professional development phase of this study recognises the potential for more deliberate learning communities to address problems surrounding teacher skills and knowledge in school singing:

**Participant 12:** We should start with forums which rely on accumulated working knowledge; that are run by teachers who are experiencing success and who share what works for them. Simple and practical. Having the opportunity to do this with a focus on singing in particular is immensely useful as there are few forums where this occurs at a grass roots level. I think it is essential that what was established in this professional development course continues and believe that having “play groups” (much like new mothers do) could be a simple and cost free framework for moving forward initially. As students graduate from university they elect to be part of an established “pod” that focuses specifically on vocal skills and their use in the classroom, the studio (any instrument) or the ensemble (any ensemble). That way a brass teacher who in their first year is taking the year 9 band can have some assistance finding and developing tools for using voice to enhance the students’ learning of aural and sight reading skills.

### 6.7 Limitations and Further Research

There are two main limitations that relate generally to all phases of this study. These are: the generalizability of the findings and the collection of self-reported data. The generalizability of these research findings is limited due to the relatively small scale, and primarily
qualitative nature of this research, as well as the difficulty in determining the parameters of
the relevant population. The scarcity of empirical research into the area of the professional
development needs of music teachers who work with adolescent voices meant that there was
also no intent to produce results that could be generalised to the whole population of
secondary music teachers. Rather, the purpose of this exploratory study was to delve into the
beliefs and needs of music teachers who work with adolescent voices and point towards
possible trends that may drive further research. Future research may seek to design a series
of empirical studies that were representative of the population and that could quantitatively
verify and expand the theory generated in this study.

Second, data collection techniques used throughout this study relied on self-reported data
that cannot be independently verified. Therefore, participants’ statements must be taken at
face value. Self-reported data contain several potential sources of bias, such as: (1)
participants may be demonstrating a selective memory by remembering some facts and
experiences and not others; (2) participants data may be susceptible to telescoping where
recent events are perceived as more remote than they are and distant events as being more
recent than they are; (3) participants may attribute positive events and outcomes to their own
agency, while attributing negative outcomes to external factors; and (4) reported data is
susceptible to exaggeration.

Sampling issues are identified as a major challenge for researchers using internet based
surveys (Louis Cohen et al., 2011). For this particular questionnaire, estimating the size and
characteristics of the population from which the sample was drawn is almost impossible.
Although it was not the purpose of this particular investigation, collecting additional
demographic information from respondents such as age, State or postcode would allow for
more detailed inter-participant comparisons to be made. Further research might seek to
repeat this questionnaire using a recruited or screened sample.

Interviews of the nature employed in Phase 2 of this study rely on the respondent being
willing to give accurate and complete answers. They also rely on the skill of the interviewer
to enable an objective interview. Consequently, it was impossible within the limits of this
small study to ascertain whether the responses of the expert participants correlated with their
practice. Further research may seek to follow up interviews with observations of teaching.
The opportunity to explore discrepancies between espoused theories of teachers versus their theories in practice could potentially provide for a rich and interesting study.

The professional development course featured in Phase 3 of this study relied chiefly on perceptual data in terms of what teachers believed they had learned from the experience of professional development, their reflections and areas where they notice improvements in their teaching. Darling-Hammond (2006) describes a set of research and assessment strategies used to evaluate outcomes of a teacher education program at Stanford University. Two forms of assessment were used, including perceptual data on what candidates feel they had learned and independent measures of what they had learned (data from pre-tests and post-tests, performance assessments, work samples, employers’ surveys, and observations of practice). Similarly, further research could supplement the findings of this study by including some objective measures of student improvement or observation of teaching both before and after the intervention. Alternatively, additional data might be gathered through focus group discussions and reflection with the participant’s students.

Repeating this study, but involving students as co-researchers presents both ethical challenges, but also an opportunity for generating some rich research data. It also provides an opportunity for triangulation of the action research data (R. Burns, 2000; Louis Cohen et al., 2011; Mertler, 2012). Both these suggestions would involve adopting a different research stance towards the problem. Since participants in Phase 3 functioned in the role of co-researchers, further research opportunities might also consider the opportunity for the teacher participants to advance the knowledge they gained by sharing the results with their colleagues. Additionally, participants could consider writing an article for a professional journal or presenting a conference workshop.

Other opportunities for extending this research have been suggested throughout this thesis (see Chapters 3.4, 4.4 and 5.11).
6.8 Conclusion

Changes to societal values and social norms mean that active participation in singing appears to be much less of a feature in the recreational activities of Australian children than in previous generations. Many children no longer attend church services or participate in youth groups where they might be likely to participate in singing activities. Data collected in 2009 by the Australian Bureaux of Statistics on the singing behaviour of children aged between 5 and 14 years suggests that just 6.1% of children participate in any form of singing outside school hours. Consequently, Australian children are likely to live in homes where no one sings to them or models singing as a desirable behaviour. The consequence is that Australian children appear to engage with singing more on a passive level than on an active level. If children are to realise the many benefits of singing (discussed throughout this thesis), then it seems that schools have an important role to play in helping to achieve this end. Thus, this study reasserts the central role of both schools and school music teachers in building vibrant and successful singing cultures among our young people.

Driving this study was the central problem outlined in Chapter 1 concerning the patchiness or variability of singing programmes in Australian secondary schools. The solution proposed by the NRSME and many of the participating experts in Chapter 4 locates this problem around teacher education – both pre-service teacher education and professional development (Pascoe et al., 2005). However, this study has also highlighted other factors that impact the quality of school singing that cannot be addressed adequately through better teacher education. For example, participants have identified problems surrounding the poor status of singing in Australian secondary schools; issues surrounding the motivation of students; a lack of relevant resources to support vocal programmes; insufficient support from school administration; and prohibitive school scheduling.

Thus, after considering this topic from a variety of angles and through the experience of many participants, this study asserts that the NRSME may propose an incomplete solution to the problems surrounding school singing. Experiences of the participants in Chapter 5 demonstrate that teacher professional development based on an action research model can
be effective in improving aspects of teacher knowledge and skills in working with adolescent singing. Moreover, teacher education of this nature is likely to represent a vital component in a broad-based solution to problems surrounding school singing. However, relying on teacher education alone is likely to provide a slow and inefficient means of tackling what is really a nation-wide problem. In addressing similar issues of patchiness in English music education programmes, Henley (2011) arrives at a different solution:

“There is no way of tackling the patchiness in the quantity and quality of Music Education available, both in different areas across the country and in different schools within the same area, without creating a national plan, which lays down the expectations of how Music Education should develop over the coming years” (p. 15).

Henley’s proposal for a national plan of action is equally applicable to the situation in Australian schools. In fact, a national plan of action may well hold the key to the break the current cycle of poverty around school singing in Australia, while addressing many of the deficiencies outlined throughout this study. The goal of a national plan for Australian schools should be to ensure that patchiness is replaced by consistency and that Australian children are able to enjoy the same quality of vocal education, no matter which school they choose to attend, no matter where their teachers are trained, and no matter where they happen to live. More than wishful thinking, experiences in the UK with the Sing Up programme have already demonstrated that a national programme around school singing is possible and that it has the potential to achieve positive results (Goodall, 2007; Henley, 2011; Himonides et al., 2011; Saunders, Papageorgi, Himonides, Rinta, & Welch, 2011).

Certain elements of the English national singing programme shown to be successful also point the way to what a national plan for Australian schools could include. These are: a high-profile public campaign to raise the profile of singing and demonstrate its importance; publication of teacher resources in an accessible form on the internet; and a comprehensive professional development programme for teachers who wish to lead singing (Goodall, 2007). In addition, the English programme received considerable financial backing from the government, support from various policy makers and many music teachers. Where the English programme fell short was in not providing for secondary school singing, which this study has demonstrated is an areas where resources are most lacking and where teachers often experience the greatest difficulty. Another deficiency was that despite the successes established through independent research (Himonides et al., 2011; Saunders et al., 2011; Welch et al., 2009), government funding was withdrawn for the Sing Up programme after
just four years. These deficiencies present challenges to Australian policy makers who seek to implement a national singing programme.

At this present time, Australian policy makers work to develop a national curriculum. The opportunity exists to consider the role of school singing in that curriculum and to launch a national singing programme that can support curricular reform. Invariably, teacher education must form part of a national plan for school singing and it is to this area that the present study speaks.
Appendix A: Ethics Approval Letters

The University of Sydney

Human Research Ethics Committee

ASIN 15 211 511 84 W

Marietta Coutinho
Deputy Manager
Human Research Ethics Administration

Telephone: +61 2 8627 8176
Facsimile: +61 2 8627 8177
Email: mcoutinho@usyd.edu.au

Mailing Address:
Level 6
Jane Foss Russell Building – G02
The University of Sydney
NSW 2006 AUSTRALIA

Ref: PB/PE

4 December 2009

Associate Professor Peter Dunbar-Hall
Sydney Conservatorium of Music – C41
The University of Sydney
Email: p.dunbar-hall@usyd.edu.au

Dear Professor Dunbar-Hall,

Thank you for your correspondence received 20 November 2009 addressing comments made to you by the Human Research Ethics Committee (HREC). After considering the additional information, the Executive Committee at its meeting held on 26 November 2009 approved your protocol entitled “Vocal Pedagogy in Australian Secondary Schools”.

Details of the approval are as follows:

Ref No.: 11-2009/12240
Approval Period: November 2009 – November 2010
Authorised Personnel: Associate Professor Peter Dunbar-Hall
Mr Darren Wicks

The HREC is a fully constituted Ethics Committee in accordance with the National Statement on Ethical Conduct in Research Involving Humans-March 2007 under Section 5.1.29

The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans. We draw to your attention the requirement that a report on this research must be submitted every 12 months from the date of the approval or on completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed.

Special Condition of Approval

Please provide letters of permission from all participating schools when they are received. Please provide NSW Department of Education approval as necessary.

Chief Investigator / Supervisor’s responsibilities to ensure that:

1) All serious and unexpected adverse events should be reported to the HREC as soon as possible.
(2) All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.

(3) The HREC must be notified as soon as possible of any changes to the protocol. All changes must be approved by the HREC before continuation of the research project. These include:
- If any of the investigators change or leave the University.
- Any changes to the Participant Information Statement and/or Consent Form.

(4) All research participants are to be provided with a Participant Information Statement and Consent Form, unless otherwise agreed by the Committee. The Participant Information Statement and Consent Form are to be on University of Sydney letterhead and include the full title of the research project and telephone contacts for the researchers, unless otherwise agreed by the Committee and the following statement must appear on the bottom of the Participant Information Statement. Any person with concerns or complaints about the conduct of a research study can contact the Deputy Manager, Human Ethics Administration, University of Sydney, on (02) 8627 8176 (Telephone); (02) 8627 8177 (Facsimile) or human.ethics@usyd.edu.au (Email).

(5) Copies of all signed Consent Forms must be retained and made available to the HREC on request.

(6) It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

(7) The HREC approval is valid for four (4) years from the Approval Period stated in this letter. Investigators are requested to submit a progress report annually.

(8) A report and a copy of any published material should be provided at the completion of the Project.

Yours sincerely

[Signature]

Associate Professor Philip Beale
Chairman
Human Research Ethics Committee

Copy: Mr Darren Wicks
dwicks@usyd.edu.au

Encl. Approved Participant Information Statement - Teachers
Approved Participant Consent form - Expert Teachers
Approved Participant Consent form - School Teachers
Approved Survey
Approved Advertisement
Approved Interview questions - Teachers
Approved interview questions - Experts
Dear James,

Thank you for your correspondence dated 12 April 2012 addressing comments made to you by the Human Research Ethics Committee (HREC).

I am pleased to inform you that with the matters now addressed your protocol entitled ‘Singing in Australian Secondary Schools: Action and reflection in the professional development of teachers who work with adolescent voices’ has been approved.

Details of the approval are as follows:

- Protocol No.: 14682
- Approval Date: 23 April 2012
- First Annual Report Due: 30 April 2013
- Authorised Personnel: Dr James Renwick, Mr Darren Wicks

Documents Approved:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version Number</th>
<th>Date</th>
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<tr>
<td>Participant consent forms (parent, caregiver &amp; school teacher)</td>
<td>2</td>
<td>15/4/12</td>
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<tr>
<td>Participant information statements (parent, caregiver &amp; school teacher)</td>
<td>2</td>
<td>15/4/12</td>
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<tr>
<td>Questionnaire</td>
<td>1</td>
<td>16/3/12</td>
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HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

- Continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans.
- Provision of an annual report on this research to the Human Research Ethics Committee from the approval date and at the completion of the study. Failure to submit reports will result in withdrawal of ethics approval for the project.
All serious and unexpected adverse events should be reported to the HREC within 72 hours.

All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.

Any changes to the protocol including changes to research personnel must be approved by the HREC by submitting a Modification Form before the research project can proceed.

Chief Investigator / Supervisor’s responsibilities:

1. You must retain copies of all signed Consent Forms (if applicable) and provide these to the HREC on request.

2. It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

Patricia Engelmann
Human Ethics Administrator
On behalf of the HREC

cc: Mr Darren Wicks

This HREC is constituted and operates in accordance with the National Health and Medical Research Council’s (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.
Appendix B: Participant Information Statements

Participant Information Statement - Teachers
Singing in Secondary Schools

(1) What is the study about?
This study will investigate the way Australian secondary school teachers approach the teaching of singing, their understanding of vocal teaching principles and how teachers may be better trained in this area.

(2) Who is carrying out the study?
The study is being conducted by Darren Wicks and will form the basis for the degree of Doctor of Philosophy (PhD) at The University of Sydney under the supervision of Dr. James Renwick, Conservatorium of Music.

(3) What does the study involve?
This study involves developing and implementing a professional development course for teachers. If you agree to participate, you will attend a series of five workshops. These workshops involve a mixture of lectures, demonstrations, listening, and group discussion on the topic of voice teaching. You will complete a short electronic survey before starting the course and after you finish the course. While the course is running you will be asked to reflect on your experience and write your thoughts in a weekly journal that will be given to the researcher. An audio recording of the workshop sessions will be made. However, this recording will NOT be distributed and will be used by the researcher only for the purpose of analysis. A small number of secondary school students will be used to provide demonstrations during some workshops.

(4) How much time will the study take?
There will be five workshops each lasting 2 hours (a total of 10 hours course time). Workshops will be delivered after school hours over several weeks. In addition to attending the course, you will be asked to complete an online survey before starting the course and a further survey after finishing the course. The survey will take you approximately 10 to 15 minutes to complete. Weekly journal entries will take you between 5 and 20 minutes to complete, depending on the degree of detail in your responses to set questions.

(5) Can I withdraw from the study?
Participation in this study is entirely voluntary - you are not under any obligation to consent - and if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney.

Completing the online survey and volunteering to participate in these workshops is an indication of your consent to participate in the study. The survey is anonymous and you can withdraw your consent any time prior to submitting your survey. Once you have submitted the online survey anonymously, your responses cannot be withdrawn.
PARTICIPANT INFORMATION STATEMENT (Cont’d)
Singing in Secondary Schools

(6) Will anyone else know the results?
All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report of the study may be submitted for publication, but individual participants will not be identified in such a report unless their opinion is being sought as an expert. Experts may be named and their position published in order to give weight to their responses and demonstrate that they have relevant skills and experience to offer an expert opinion.

(7) Will the study benefit me?
This study will contribute to the body of knowledge in this field and help address the lack of information that exists on secondary school singing programs.

(8) Can I tell other people about the study?
You are free to discuss any part of this study.

(9) What if I require further information?
When you have read this information, Darren Wicks will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact:

Darren Wicks
Tel: 0412-430-052
Email: dwic8461@uni.sydney.edu.au

Dr. James Renwick
Chair, Music Education Unit
Conservatorium of Music
University of Sydney
Tel: (02) 9351 1334
Email: james.renwick@sydney.edu.au

(10) What if I have a complaint or concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or hr.humanethics@sydney.edu.au (Email).
Participant Information Statement - Parent and students Version

Singing Secondary Schools

(1) What is the study about?
This study will investigate the way Australian music teachers approach the teaching of singing in secondary schools and how teachers may be better trained in this area.

(2) Who is carrying out the study?
The study is being conducted by Darren Wicks and will form the basis for the degree of Doctor of Philosophy (PhD) at The University of Sydney under the supervision of Dr. James Renwick, Conservatorium of Music.

(3) What does the study involve?
Teachers involved in this study will complete surveys, interviews and a series of professional development workshops. A small number of secondary school students will be used to provide demonstrations during teacher workshops.

Your child is invited to participate in this study in the role of student demonstrator. He/she may be asked to sing short excerpts of a song, to demonstrate vocal exercises or to discuss his/her experiences of singing at school. There will be approximately 8 to 15 registered secondary teachers present during the demonstration. The purpose of these demonstrations is to help teachers gain a better understanding of how to work with adolescent voices. Workshops in which your child participates may be recorded, but recordings will not be distributed and will be used only by the researcher(s) for the purpose of analysis. A parent is required to be present at all times during demonstrations.

(4) How much time will the study take?
Demonstrations will take between 10 and 30 minutes to complete. Your child is only required to be present for his/her scheduled demonstration and then you are free to leave.

(5) Can my child withdraw from the study?
Participation in this study is entirely voluntary - you are not under any obligation to consent.

Your decision whether or not to permit your child to participate will not prejudice you or your child’s future relations with The University of Sydney. If you decide to permit your child to participate, you are free to withdraw your consent and to discontinue your child's participation at any time without affecting your relationship with the University of Sydney. You or your child may request to stop the demonstration at any time or decline to answer any questions that you or your child are not happy with.
PARTICIPANT INFORMATION STATEMENT (Cont’d)
(Parent and students Version)
Singing in Secondary Schools

(6) Will anyone else know the results?
All aspects of the study, including results, will be strictly confidential and only the researchers will have
access to information on participants. Your child’s school will not be named during his/her participation and
all student volunteers are MUST NOT wear school uniform.

A report of the study will be submitted for publication, but individual participants will not be identified in such
a report.

(7) Will the study benefit me?
This study will contribute to the body of knowledge in this field and help address the lack of information that
exists on secondary school singing programs. Ultimately, it is hoped that this study will improve the musical
education of Australian secondary school students by creating more highly skilled teachers.

(8) Can I tell other people about the study?
You are free to discuss any part of this study.

(9) What if I require further information?
When you have read this information, Darren Wicks will discuss it with you further and answer any questions
you may have. If you would like to know more at any stage, please feel free to contact:

Darren Wicks
Tel: 0412-430-052
Email: dwic8461@uni.sydney.edu.au

Dr. James Renwick
Chair, Music Education Unit
Conservatorium of Music
University of Sydney
Tel: (02) 9351 1334
Email: james.renwick@sydney.edu.au

(10) What if I have a complaint or concerns?
Any person with concerns or complaints about the conduct of a research study can contact The Manager,
Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177
(Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep
Appendix C: Participant Consent Forms

Participant Consent Form – School Teachers
Singing in Secondary Schools

1. ………………………………………………….., consent to participate in the research project Singing in Secondary Schools.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher(s).

3. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) or The University of Sydney now or in the future.

4. I understand that my involvement is strictly confidential and no information about me will be used in any way that reveals my identity.

5. I understand that being in this study is completely voluntary – I am not under any obligation to consent.

6. I understand that interviews with me may be recorded. Recordings will be used only by the researcher(s) for the purpose of analysis. I understand that I can stop these recordings at any time if I do not wish to continue, the recording will be erased and the information provided will not be included in the study.

7. I consent to:
   (i) Audio-recording YES □ NO □
   (ii) Receiving Feedback YES □ NO □

If you answered YES to the “Receiving Feedback, please provide your details i.e. mailing address, email address.

Feedback Option
Address: ____________________________________________

Email: ____________________________________________

Signed: ………………………………………………………………………………………….. Date: ……… / ……… /……

Print Name: ………………………………………………………………………………………..
PARTICIPANT CONSENT FORM – Experts

Voice Pedagogy in Australian Secondary Schools

I, ................................................................., consent to participate in the research project Voice Pedagogy in Australian Secondary Schools.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher(s).

3. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) or The University of Sydney now or in the future.

4. My opinions are being sought as an expert in the field of voice pedagogy. As such, my name and position may be published in the final thesis, but only if it is necessary to give weight to my opinion and demonstrate that I have relevant skills and expertise to offer an opinion.

5. I understand that being in this study is completely voluntary – I am not under any obligation to consent.

6. I understand that interviews with me may be recorded. Recordings will be used only by the researcher(s) for the purpose of analysis. I understand that I can stop these recordings at any time if I do not wish to continue; the recording will be erased and the information provided will not be included in the study.

7. I consent to:
   i) Audio-recording  YES ☐ NO ☐
   ii) Being named in the final thesis  YES ☐ NO ☐
   iii) Receiving Feedback  YES ☐ NO ☐

   If you answered YES to the “Receiving Feedback Question (iii)”, please provide your details i.e. mailing address, email address.

Feedback Option (for receiving summary results)

Address: ....................................................

Email:  ....................................................

Signed: .............................................................................. Date: .......... / .......... / ........

Title of Project Voice Pedagogy in Australian Secondary Schools
Version 2, (05/09/2011)
PARTICIPANT CONSENT FORM – Parent/Caregiver

Singing in Secondary Schools

I, ............................................................................ [PRINT YOUR NAME], agree to permit
............................................................................ [PRINT CHILD’S NAME], who is aged ........ years, to
participate in the research project, Singing in Secondary Schools.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and
   any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Statement and have been given the opportunity to
discuss the information and my child’s involvement in the project with the researcher(s).

3. I understand that being in this study is completely voluntary – I am not under any obligation to
   consent.

4. I understand that my child’s involvement is strictly confidential. I understand that research data
   gathered from this study may be published. However, no information about my child will be
   used in any way that is identifiable.

5. I understand that I can withdraw my child from the study at any time without prejudice to my
   or my child’s relationship with the researcher(s) or the University of Sydney now or in the
   future.

6. I understand that a parent is required to be present at any time while my child is providing
   demonstrations and that I or my child may request to stop the demonstration at any time or
   decline to answer any questions that make me or my child uncomfortable.

7. I understand that the teacher workshops in which my child participates may be recorded.
   Recordings will be used only by the researcher(s) for the purpose of analysis. I understand that
   I can stop these recordings at any time if I do not wish to continue, the recording will be erased
   and the information provided will not be included in the study.

Please turn over
PARTICIPANT CONSENT FORM – Parent/Caregiver
Singing in Secondary Schools

8. I consent to:
   i) Audio-recording       YES ☐       NO ☐
   ii) Receiving Feedback  YES ☐       NO ☐

   If you answered YES to the “Receiving Feedback”, please provide your details i.e.
   mailing address, email address.

   Feedback Option:
   Address: __________________________
   Email: ____________________________

Signature of parent: __________________________
Print name: __________________________
Date: __________________________

Signature of child: __________________________
Print name: __________________________
Date: __________________________
Appendix D: Online Questionnaire

1. Introduction

Working with Secondary School Voices

2. How many years have you taught in secondary schools?

3. Which of the following best describes you? (Check as many as apply)

- [ ] Teacher
- [ ] Administration
- [ ] School Board
- [ ] Other...

4. Turn Box.

5. About you.
The teaching of singing

12. Do you read professional publications (books, journals, magazines, articles) on the teaching of singing?

Yes
No
Not applicable

13. Have you completed professional development courses or workshops that focus on the teaching of singing?

Yes
No
Not applicable

5. What is your highest level of educational qualification in music or music education?

Tick as many as apply to you

6. Professional knowledge, Part 1

Working with Secondary School Voices
1.2. Please describe how school leadership views aspects of your teaching have been implemented in helping you teach English to secondary school children.

1.3. How confident are you in handling the following aspects of the teaching of English?

225
22. Please write any further thoughts, comments or ideas that you believe have not been covered in this survey.

23. What do you think constitutes best practice in teaching English to secondary school students?

24. What resources would help secondary school teachers teach English more effectively?

25. In what ways could the training of teachers who work with secondary school students be improved over time?

26. In what ways has your approach to working with adolescent voices developed over time?

27. Describe any strategies, ideas or approaches you use that are successful.
27. Please enter your contact details below:

- Name
- Email
- Phone
- Address
- City
- State
- Zip
- Country

Further Information

Any other relevant information you wish to share related to your experience

Why Participate?

Please share any other feedback you may have on the survey and your thoughts on how the experience could be improved.

Thank you for your time and assistance with this survey.

Working with Secondary School Voices
Appendix E: Interview Protocol

Voice Pedagogy in Australian Secondary Schools

Expert Interview Questions

1. Can you describe your general approach to the teaching of singing?

2. When it comes to the teaching of singing, little is known about the path from novice to master teacher. What was your path like and how do you think one becomes a great teacher of singing?

3. What professional knowledge and skills do you think a teacher of singing should possess?

4. If a teacher is working with Secondary School or adolescent singers, should they have additional or different knowledge?

5. Are there particular methods or approaches to singing or vocal exercises that you consider valuable for teaching singing to secondary school students?

6. What resources do you think would help teachers work with High School singers?

7. In what areas, do you see a need for better information or resources?

8. What are your thoughts about the current status of singing in secondary schools?

9. How could the training of teachers who work with secondary school students be improved?

10. I am putting together a professional development course for high school teachers. What advice could you offer and what do you think should be included in this course?

11. Are there other issues that you feel are important that have not been raised so far?
Appendix F: Professional Development Course Materials

The attached disc contains a copy in PDF form of the 60-page professional development course booklet and support materials supplied to participants (see Chapter 5).


and Guiding the Professional Development of Teachers. Boston, MA: Allyn and Bacon.


Courses of Study Forms I to IV. (1968). Melbourne: Victorian Universities and Schools Examination Board.


250


