THE ROLE OF PERFORMANCE IN AURAL HARMONY

Discovering, classifying, and evaluating pedagogical approaches

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This dissertation is entirely my own original work.

Thomas Laue

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Abstract

Harmony is a fundamental topic that pervades much of tertiary-level aural training. Many activities in aural harmony that are described in the literature, however, represent idiosyncratic prescriptions of set exercises (e.g., harmonic dictation). No researcher has previously attempted to systematically compare a broad range of pedagogical approaches in aural harmony. Furthermore, despite the critical role of performance in music education, there is little understanding of how and why students engage in performance and other actions during aural harmony activities.

The primary aim of this dissertation is to investigate the multitude of pedagogical approaches within the subject of aural harmony. This is achieved through the discovery, classification, and evaluation of pedagogical approaches as revealed through class observations and discussions with teachers at ten tertiary institutions in four countries (Japan, the US, Sweden, and Norway).

Through an extensive examination of this data, I identify 89 aural harmony activities (Chapter 2). My analysis of these activities results in the creation of a classification system (Chapter 3). There are four categories in this classification system. Each category represents a type of action sequence, which in turn represents one action leading to another action. The four categories thus indicate fundamentally different learning outcomes. I classify each of the 89 collected activities under one or more categories, which enables me to systematically compare the pedagogical approaches within each of the four categories of activities (Chapters 4–6).

The secondary aim of this dissertation is to report my experiences of applying the insight and knowledge gained from the above analyses to my own teaching within an Australian tertiary music institution (Chapter 7). Following an explanation of my particular educational context, I describe the process of devising, developing, and implementing five activities. Of these activities, one uniquely enables students to simulate performance actions through gestures. I evaluate these activities based on student feedback as well as my self-reflection.

This research has resulted in detailed descriptions of a considerable range of aural harmony activities (Appendix A). My analyses of these activities reveal a range of pedagogical approaches that can maximise our students' acquisition of aural skills. I argue that while student performance is valuable in much of aural training, there are alternative means of engaging students that can also result in favourable learning experiences. This dissertation concludes with a consideration of the applicability of two of the activities presented in Chapter 7, as well as the classification system proposed in Chapter 3, across other areas of aural skills pedagogy.

Chapter 1

Introduction

To have a method for comparing and contrasting teaching approaches, to have a frame of reference for measuring one's own favored system against others, to develop a steady personal credo, yet remain flexible and receptive to new or auxiliary ideas, is to take the beginning steps in teaching music theory with impact and finesse.

(Rogers, 2004, p. 30)

1.1   Background

The abundance of research literature, textbooks, and more recently multimedia and online teaching

materials collectively demonstrate the incredible diversity of teaching methods within the field of

aural training.[1] Most teachers will agree that this subject forms a crucial component of education

for any aspiring musician. On the other hand, their opinions on the precise content, weighting,

and pedagogical approaches[2] within this subject will likely be as diverse as their motivation for

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[1]   Aural training is defined as the formalised study of aural skills. Variant terms and synonyms in common use in English-speaking countries include 'ear training' (Fry & Spencer, 2008; Benward & Kolosick, 2005; Rogers, 2004, p. 100), 'aural skills training' (Scandrett, 2005; Sheldon, 1998), and 'aural skills pedagogy' (e.g., Klonoski, 2000); in the US it is commonly referred to as 'ear training and sight singing', which distinguishes between the two complementary disciplines in aural training (e.g., Karpinski, 2006; Lieberman, 1959). Aural training usually takes place within a specific classroom setting, although it can also take place within other learning contexts involving musical sounds, such as classes dealing with specific aspects of music theory. For the purposes of this study, references to aural training relate to the subject as applied within tertiary music institutions, unless otherwise specified.

[2]   For the purposes of this research, the term 'pedagogical approach' (or 'approach') denotes the synthesis of any number of teaching methods, strategies, or activities that pertain to students' achievement of specified learning outcomes. As I explicate throughout this dissertation, a pedagogical approach encompasses not only the conceiving and

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engaging with and studying music in the first place. Amidst this range of thinking are a number of established methods of aural training that are often associated with a specific pedagogue or figure (e.g., Kodály). However, at most tertiary music institutions,[3] where there are no established affiliations with a particular method, teachers have a lot of freedom in selecting or creating appropriate activities for their aural training classes. In either case, teachers endeavour to make the most efficient use of available resources to help their students acquire skills that are not only relevant to their course of study, but necessary for them to be keenly expressive and sensitive within their chosen art form. As Rogers (2004) declares in this chapter's opening epigraph, distinguished teaching within this field demands a philosophical approach to the selection of the most effective method of teaching for a particular purpose.[4] The increasingly diverse backgrounds of music students in recent times (Lebler, Burt-Perkins, & Carey, 2009) further necessitate the need for a range of approaches in the teaching of this subject.

Of the various 'topics' within aural training, harmony is perhaps one of the most ubiquitous. Aural harmony[5] is relevant to a wide range of activities in aural training; virtually any interaction with music (or musical fragments or exercises) conceived in tonality embraces harmonic concepts. At the most elementary level, students typically learn about chords as discrete, separate entities. It can also be mentioned in passing during other activities, such as sight-singing. The study of chord progressions is prevalent in most curricula, with harmonic dictation traditionally fulfilling a significant function in both learning and assessment. Despite the prevalence of harmony-related work in aural training, there are very few studies that investigate and compare various existing teaching approaches or activities within the field of aural harmony. Rather, teaching approaches and materials are often promoted by their authors as being the best or most effective. When writers compare teaching approaches, they tend to do so for the purposes of uncompromisingly defending

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planning of one's teaching, but also broadly covers any considerations or deviations that occur during the process of teaching. The pedagogical approaches discussed in this research relate to the field of aural training, unless otherwise specified.

[3]   The phrase 'tertiary music institutions' (or 'tertiary institutions') refers to any "post-secondary music schools, academies, colleges, conservatories and university music departments offering a degree, diploma or certificate in music or music education" (Bartle, 1996).

[4]   See also Jorgensen, 2003. Outside of the field of music education, the theorising of music itself can similarly be approached in philosophical terms (cf. Clifton, 1969).

[5]   In this dissertation, I use the term 'aural harmony' to denote the study of tonal harmony within a classroom setting that focuses on the development of aural skills. There is no term in common usage that denotes this particular aspect of aural training, although others have used similar terms to mean much the same thing. van Zuilenburg (1975) refers to "aural training with a view to harmony" (p. 27), while Karpinski (2000) talks about "harmonic thinking" (p. 180). A treatise entitled *Aural harmony* (Robinson, 1918) approaches the study of harmony "through the ear" (p. v), thereby embodying the same concept. I have specifically chosen the term 'aural harmony' to situate the present research on the study of *harmony* within the context of tertiary-level *aural* training. 'Harmonic thinking', on the other hand, should in fact occur under a variety of circumstances (whether it happens while audiating an upcoming performance or reading a musical score for the first time) and not be limited to aural training.

a particular method or system without thoroughly investigating other alternatives.[6] Many such 'comparative' studies, particularly those that almost exclusively employ quantitative research and testing methods, lack comprehensiveness (they often compare a single 'novel' approach with one other inferior method) and their conclusions are virtually always founded on an incredible set of assumptions.[7]

Many musicians believe that performance and music-making activities should naturally be central to music curricula, including aural training. Activities in aural harmony often involve performance (i.e., singing or playing an instrument). Some of these activities are presented in specialised textbooks (e.g., Shumway, 1980; Warburton, 1979; Bartle et al., 1978; Read, 1941; Alchin, 1921; Robinson, 1918), while others are specifically or anecdotally described in pedagogical and research literature (e.g., Johansson, 2004; van Zuilenburg, 1975). While these sources provide a starting point for research within this field, they only offer a glimpse of the existing teaching approaches and activities that are currently used by thousands of teachers at institutions around the world. Existing publications on aural training tend to provide plenty of practise materials and exercises. However, they generally do not present a comprehensive range of solutions to address specific difficulties that students commonly encounter in aural training. After all, no single textbook can sufficiently present all the materials and methods required for effective learning in aural training (Alldahl, 1974, p. 122). Nevertheless, there is certainly a lack of inquiry into the *diversity* amongst existing pedagogical approaches, broadly within the field of aural training as well as those specifically relevant to harmony.

Therefore, the primary aim of this dissertation is to investigate the multitude of pedagogical approaches within the subject of aural harmony, with an emphasis on the role of performance. This investigation is largely based upon the analysis of 89 different aural harmony activities, which I collected through in-class observations and discussions with teachers at ten tertiary institutions in four countries.[8] Following the documentation and subsequent analysis of these activities, I will categorise these activities using a newly developed classification system based on student actions. This classification system enables the direct comparisons of the various pedagogical approaches

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[6] Notwithstanding this generalisation, there are certainly others who have systematically processed a multitude of existing teaching approaches before arriving at their conclusions. For an example of such an inquiry on the topic of pitch solmisation, see Smith (1991). This particular article instigated an extended debate on the subject (Houlahan & Tacka, 1992; Smith, 1992; Houlahan & Tacka, 1994; Smith, 1994), revealing the sort of stubborn conviction towards one's own approach that is not uncommon within the field of aural skills pedagogy.

[7] For examples, see Thom, 1989; Thomas, 1983; Thackray, 1973.

[8] These collected activities are documented in detail in Appendix A. I will also summarise these activities on a per-institution basis in Chapter 2.

amongst collected activities that share similar pedagogical outcomes.

In addition to the core analysis component, the secondary aim of this dissertation is to report my experiences of applying the insight and knowledge gained from the aforementioned comparisons of pedagogical approaches to the teaching of aural harmony within a particular educational context. This investigation will illuminate some of the complex considerations involved in the balancing of intended learning outcomes with the needs and abilities of individual students within a class. I will examine this process within my particular educational context, concluding with the presentation of five unique activities that I created and implemented into my teaching.

1.1.1   Aural training

Aural training is typically treated as the formal study of aural skills[9] as manifested within tertiary music institutions around the world. Many teachers, however, are aware of the pervasive nature of acquiring aural skills—that it not only occurs in the aural training classroom but also in various other musical contexts (e.g., Øye, 2007). A number of studies illustrate the links between aural training and other facets of the music students' training and development, in areas ranging from performance pedagogy (Ilomäki, 2011) and broader issues like musicianship (Leong, 2003; Hannan, 2006) to music theory and analysis (Servias, 2010; Skifstad, 1997). Nevertheless, the prevailing paradigm in tertiary music education is to treat aural training as a distinct course of study.

Over the last five decades or so, there has been a gradual shift towards qualitative research on aural training. The earlier part of this period saw research that was predominantly based on quantitative methods. These studies often present and defend novel methods for undertaking dictation and sight-singing activities.[10] Due to the small-scale nature of statistical studies undertaken in controlled environments, the contributions of these studies to aural skills pedagogy has unfortunately been minimal (e.g., Covington & Lord, 1994; Butler & Lochstampfor, 1993, p. 6). More recently, there has been a welcome increase in both the quantity and quality of qualitative research in the field of music education (Flinders & Richardson, 2002, p. 1159). Many of these studies are directly relevant to the field of aural skills pedagogy (e.g., Thompson, 2003; Clarke,

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[9]   Aural skills are a set of skills relating to "two broad areas of musical behaviour", namely (1) listening skills and (2) reading and performing skills (Karpinski, 2000, p. 3).

[10]   Of these kinds of studies, a considerable portion were published in the form of doctoral dissertations (e.g., Gearing, 2008; Scandrett, 2005; D. L. Gordon, 1999; Brown, 1990; Murphy, 1989; Humphreys, 1984; Garton, 1981; Alvarez, 1980b; Daniels, 1964; Lustre, 1958).

2006; Buehrer, 2000). Naturally, the multifaceted nature of many of these qualitative studies necessitates their focus on discrete topics within aural skills pedagogy. Despite the diverseness of research in this area, the findings and conclusions of qualitative research provide answers that are often more relevant and applicable to aural training teachers as compared to the outcomes of quantitative studies (see Bresler & Stake, 1992).

Significant contributions to our understanding of aural training naturally come from the pedagogical writings of experienced and practising teachers of aural training. Their output has traditionally been in the form of textbooks, both for students and teachers. Apart from the teaching methods and exercises, their insight can be gleaned from the preface sections to these textbooks and teaching manuals (e.g., Alchin, 1921). Many such textbooks focus on a specific type of activity within aural training, such as dictation of pitched materials (Kraft, 1999), keyboard harmony (Frackenpohl, 1985; Shumway, 1980), rhythm reading (Palmqvist, 2004) and sight-singing (Edlund, 1974). Several authors have in the last few years published books that provide a comprehensive collection of materials and activities covering a range of topics rather than focusing on one (e.g., Karpinski, 2006; Phillips, Clendinning, & Marvin, 2005). Likewise, pedagogical writings on a broad range of issues concerning aural training have also become available in recent times (e.g., Blix & Bergby, 2007b; Rogers, 2004; Karpinski, 2000; Pratt, Henson, & Cargill, 1990). By providing a range of options and addressing issues that commonly occur in aural training classrooms, these latter sources illuminate the broader purposes and goals of aural training.

Despite these recent advances, there are few studies that compare pedagogical approaches across multiple institutions. Most of the studies and textbooks cited earlier focus on a single approach or philosophy rather than provide a comparison of several approaches. Some researchers have attempted to undertake such comparisons. For example, a US-based survey study compared music theory and aural training courses across 248 institutions (Nelson, 2002a). Although this study was the first of its kind, the results largely pertained to general details about course content requirements and provided no details about specific classroom activities or teaching approaches.[11] A more focused study undertaken by Vear (2005) compared the aural training curricula at seven Australian tertiary institutions. Her investigations reveal that there is no unified approach to aural training in Australia, paralleling the results of a recent country-wide review of school music education which found that there was "no coherent shared approach to music education across Australian States and Territories" (Pascoe et al., 2005, p. 119). In her research on music imagery,

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[11]   I return to this study and discuss its methodology in Chapter 7.

Bailes (2002) employed class observation as a data collection method at three institutions in the UK. By observing classes, the researcher was able to incorporate the students' viewpoints as well as comment on student-teacher interactions rather than report findings based entirely on the teachers' account and cursory descriptions of aural training activities. Apart from the studies cited here, there has been virtually no research to date that compares a range of pedagogical approaches to the teaching and learning of aural skills using class observations as a primary data source.

1.1.2 Harmony in aural training

A considerable portion of exercises in aural training relates to harmony in some way; for example, any exercise involving melodies potentially has relevance to harmonic concepts. Teachers have over the past few decades contributed a growing collection of aural harmony activities. Singing exercises are commonly alluded to, and there are many possible ways teachers can link sight-singing of tonal melodies (or improvised singing) with harmonic concepts (e.g., Rifkin & Urista, 2006, pp. 70–73; Rahn & McKay, 1988; Chittum, 1969). Other traditional and commonly mentioned activities include harmonic dictation exercises, singing arpeggiated chords (e.g., Marvin, 2007, pp. 23–24), playing chord progressions on keyboard instruments, and aural analysis of music recordings (with and without scores).[12] These aural harmony activities share one aspect in common: they encourage students to become aware of the harmony within the music that they listen to and perform.

The pedagogical literature commonly portrays the ability to aurally identify chords as one of the most problematic in aural training. This view is commonly expressed in terms of harmonic dictation, one of the more common aural harmony activities. Chittum suggests that "most ear training teachers would be willing to concede that harmonic dictation is more difficult for the average student than melodic dictation" (1969, p. 65). Rogers agrees, declaring that "no job in [aural training] is more difficult than taking harmonic dictation" (2004, p. 120). Many experienced teachers address this difficulty by prescribing specific approaches to the teaching of harmonic dictation (e.g., Rogers, 2004, pp. 120–126; Karpinski, 2000, pp. 117–127; Chittum, 1969). Their advice typically pertains to techniques on focusing on and identifying the bass line,[13] singing parts or arpeggiated chords (e.g., Karpinski, 2000, pp. 118–119; Marvin, 2007, p. 26; Brandman, 1986),

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[12] The use of music recordings is still relatively rare but interest is growing and some textbooks take advantage of advances in technology in recent times (e.g., Phillips et al., 2005). Some teachers recommend the use of a variety of repertoire types in aural analysis of chords (e.g., Harrington, 1991; Johansson, 2004).

[13] Much research has been conducted on directing students' attention to specific parts, in particular the bass line (see Paney, 2007; Beckett, 1997; Braham, 1997a; Alvarez, 1980a).

or more holistic approaches to chord listening.[14] Although these suggested solutions can lead to improved listening skills, they are generally relevant only to the specific exercise of harmonic dictation.

The common frustration amongst teachers (and students) with harmonic dictation is largely to do with the mental process of converting multi-part textures performed on a piano into notation and chord symbols. Traditionally, harmonic dictation activities begins with the *melodic* dictation of outer parts followed by working out of chords based on the identified information.[15] Some pedagogues have countered the established regime by recommending that dictation activities not be undertaken during class time, which should be used more effectively in other ways (Alldahl, 1974; Pratt et al., 1990). van Zuilenburg (1975) similarly believes that such work is more diagnostic than pedagogical in nature: "The dictation of chords must be regarded as a means to measure the student's aural progress. As a teaching method its value is probably overestimated [...]" (p. 25). This viewpoint, shared by a growing number of teachers, leads us to question why teaching materials and research in the field of aural skills pedagogy continue to place so much emphasis on this one kind of exercise. This tendency certainly suggests that a significant amount of classroom time is spent on harmonic dictation, although there are no empirical studies to date to confirm this.

Research on aural harmony activities mostly concerns the perceptual and cognitive aspects of aurally identifying chords rather than its pedagogy within classroom contexts.[16] Braham's (1997a) dissertation discusses the cognitive and general aural skills that relate to the aural identification of chords. Despite the detailed nature of this study, its reliance on students' scores in harmonic dictation, like so many similar studies on harmonic perception (e.g., Buttsworth, Fogarty, & Rorke, 1993; Anderson & Tunks, 1992; Garton, 1981), makes most of its findings relevant to that specific activity rather than to the broader pedagogical goals of aural harmony. Such studies provide further evidence that many teachers still consider harmonic dictation as an essential activity in aural harmony.

Much of our current research and pedagogical writings on aural training focus on a small sample of approaches or teaching methods at a time. The main problem with basing our understanding of aural harmony activities on these sources is that the activities are largely presented

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[14]   Cf. Gestalt listening in Karpinski, 2000, pp. 119–120; see also Rogers, 2004, pp. 122–123.

[15]   I discuss this specific phenomenon in much detail during the analysis section of this dissertation, in subsection 5.1.2. See also Karpinski, 2000, pp. 123–124; Rogers, 2004, pp. 121–122.

[16]   Apart from a handful of studies involving children (e.g., Costa-Giomi, 2003; Thom, 1989), most studies are set within the context of tertiary-level training, which is relevant to our current discussions.

from a single perspective—that of the teacher. Common in these descriptions of activities are the advantages of *one* particular approach without any detailed examination of other similar or competing approaches. While there is nothing inherently wrong with championing one's favoured method of teaching, such views are potentially biased if they are formed as a result of unfairly dismissing other competing approaches without appreciating their potential advantages. The risk here is that the advocated approach may not be appropriate for certain kinds of students or within particular of educational contexts. Perhaps the only way a teacher can fully understand a pedagogical approach is to apply it in one's teaching; however, it would be a waste of time if not impossible to indiscriminately try out every conceivable teaching method. Alternatively, a teacher can gain insight into other methods by directly observing another teacher present activities in their own way. Observations of activities from a third person's perspective not only reveal the complex interactions between students and teachers, but also represent experiential snapshots of these activities rather than an idealised portrayal of them in a written form (e.g., in textbooks).

1.1.3 Performance in aural harmony

The act of performance, whether on instruments or through singing, is common in aural training for a very good reason: it is perhaps the most direct way one can demonstrate virtually every kind of skill relevant to one's musicianship, and thus to aural training. In his formative book on the philosophical underpinnings of music, Elliot (1995) provides the following advice to music educators concerning the role of music making, or 'musicing':[17]

> Music making in the sense of singing and playing instruments lies at the heart of what music is and that music making is a matter of [musicianship, which] develops only through active music making in curricular situations that teachers deliberately design to approximate the salient conditions of genuine musical practices. [...] Inducting students into musical practices depends on selecting significant musical challenges that confront students with genuine musical problems to solve in context: in relation to the demands and traditions of carefully selected musical practices. By a musical challenge, I mean an authentic and engaging musical work (or project) to be performed (improvised, composed, arranged, or conducted). (p. 72)

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[17]   The meaning of this term is not to be confused with 'musicking' as defined by Small (1998), which encompasses *all* music-related activities such as composing, performing, and listening to music in any way.

Elliot also suggests that musicians (including students) "develop musicianship through performing, improvising, composing, arranging, and conducting" (p. 106).[18] In order to achieve this, aural training needs to be based on exercises that involve those types of activities. Yet a considerable proportion of the literature cited earlier investigates issues that concern students' non-performative cognitive and perceptual abilities (i.e., aural identification skills), rather than directly addressing their ability to represent their aural and musical understanding through performance or music-making.

Given that a large number of activities already involve some form of performance, Elliot's (1995) call for performance has significant implications for activities that do *not* emphasise performance, in particular harmonic dictation. In light of this, it is interesting how the pedagogy of aural skills appears to be stubbornly fixated on activities that do not engage students in performance. For instance, two of the four chapters on listening skills in Karpinski's (2000) seminal book on aural skills pedagogy specifically concern dictation activities (pp. 62–127). The proportion of pages dedicated to notation activities is perhaps reflective of the common practices in the field, at least in the US where the author's experiences are based in. In contrast, a comparable text written by teachers in Norway (Blix & Bergby, 2007b) dedicates no specific chapters on dictation of any sort—it is only very briefly discussed, for instance, under the topic of rhythm (Bergby, 2007b, pp. 102–106). The chapter on harmony barely mentions harmonic dictation; instead, it examines topics such as the objective of learning to identify chords by ear, chord function and analysis, and chord performance through the singing broken (arpeggiated) chords and improvisation (Reed, 2007). The considerable amount of research on dictation in many US-based studies suggests that much more emphasis is given to harmonic dictation in the US than in Norway.[19]

1.1.4 Research questions

The literature mentioned earlier in this chapter reveals the considerable *quantity* and *variety* of written descriptions of aural harmony activities scattered in all sorts of written materials, ranging from textbooks to research papers. The described activities virtually always represent either slight improvements of existing teaching methods *or* a completely novel teaching method. In both cases, the viewpoint is limited to the author's personal viewpoint and experience, which is informed

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[18] Rogers (2007), who similarly appreciates the interrelatedness of performance and listening, uses the term "activated musicianship" (p. 139) to portray the same meaning.

[19] As I explain later in this chapter, my data collection involved visiting institutions in both countries, which in turn enabled me to make some comparisons of notation-based activities in these regions (see section 5.1).

largely by teaching approaches that are documented in pedagogical and research literature. Only occasionally will the efforts of other teachers be mentioned. In other words, few teachers have attempted to undertake an exploratory approach, which seeks to *discover* teaching methods and activities that one may have never seen, heard of, or read about.

To my knowledge, no study has yet investigated the sheer variety of possible pedagogical approaches through a comparison of different teaching approaches as revealed through class observations. This pursuit is commonly referred to as peer observation Willerman, McNeely, and Koffman (1991), an activity that is more common in pre-tertiary education than in tertiary-level education. No doubt some aural training teachers participate in this sort of activity at some stage, whether as an observer or as the one being observed. Both critiquing and being critiqued can constructively inform teaching practices in any field of education. The observation of others' teaching as a research methodology, however, is uncommon, especially in aural training.[20]

Returning to the primary and secondary aims of this dissertation as outlined at the start of this chapter, and in the spirit of discovery, I will address the following research questions:

(1) What kind of actions do students engage in while undertaking aural harmony activities?

(2) What effective pedagogical approaches can we identify through a systematic method of evaluating comparable activities?

(3) How do we apply our appreciation of effective pedagogical approaches in the creation and implementation of activities within particular educational contexts?

These are essentially the sorts of questions that we as teachers would ask upon deeply considering the *purpose* of the subject of aural harmony. Out of this realisation come our teaching methods and activities—the tools of our trade, so to speak. At many tertiary institutions, however, the pedagogical approaches are largely a consequence of the prevailing status quo. In such cases, they either adhere to a long-standing tradition established by an internationally-renowned pedagogue, or they are decided upon by the senior staff members in the music theory or aural training department. Textbooks also inform our teaching methods, as do our choices of musical literature and materials. However, as I have argued, documented descriptions or prescriptions of activities

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[20] In their book on peer observation, Willerman et al. (1991) presents the use of action research as a method of assessing teaching effectiveness. Although action research has become commonplace in recent times, peer observation is rarely the main source of data for such studies.

do not adequately represent a broad, unbiased appreciation of a wide range of existing teaching approaches. The only way for an individual teacher to arrive at an understanding of what teaching approaches exist is to observe and learn about them first-hand from the practicing professionals in the field.

1.2 Methodology

My research unfolded in three distinct stages, which I refer to throughout this dissertation as Study I, Study II, and Study III. Each of these studies represents a distinct milestone, not just towards addressing the research goals of this dissertation, but also in my experiences as an aural training teacher. Study I was conceived as a pilot study, and was undertaken using a predominantly quantitative research paradigm,[21] whereas the research methods in Study II and Study III were qualitative in nature. Due to these differences in the research scope and methodology, the focus in this dissertation will be on the research process and findings of Study II and Study III.[22] In the next two subsections, I describe the research methodology in each of these two studies.

1.2.1 Study II methodology

The first step in my quest to acquire an appreciation of pedagogical approaches in aural harmony activities was to select specific tertiary institutions for visiting and observing classes. I took an opportunistic approach to this selection process. Most institutions were selected with guidance and advice from my professional connections (e.g., supervisors and acquaintances at international conferences). Some opportunities were open due to the assistance of personal contacts. In addition, a number of institutions were selected based on textual descriptions of aural training courses or curricula that I found online.[23] After generating a shortlist of institutions for potential visits, I contacted administrative and teaching staff directly via email or telephone in order to establish their willingness to participate in my study.[24]

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[21] This was due to the influence of quantitative research studies that I was exposed to at the time (e.g., Braham, 1997a; Williams, 2004; Humphreys, 1984; Brown, 1990). I have presented findings of Study I at poster sessions at a national conference in the US (Lau, 2008a) and as a spoken paper at a student conference in the UK (Lau, 2008b).

[22] I will nevertheless reference specific activities that I created and implemented during Study I where relevant to the research questions (e.g., in subsection 7.2.1).

[23] In all cases, the webpages specifically mentioned the use of performance (particularly the use of instruments) during aural training classes (see section 2.1 and section 2.5 in Chapter 2).

[24] As this study involved observing other humans, it required ethical clearance from The Australian National University as the conferring institution. My submission was lodged in June 2008 and approval to proceed was gained within two weeks. In accordance with my submission, all references to names of institutions or individuals have been

One of the main goals of my study was to discover the breadth of approaches rather than investigate minute details about specific techniques. For this reason, the priority was on quantity—I endeavoured to visit as many different institutions and observe as many different teachers as possible, within the limits of time and budget. In the planning stages, I had confirmed visits to a total of eight institutions in the US, Sweden, and Norway. Closer to my trip, serendipitous events led to opportunities to visit two additional institutions (one in Japan[25] and another in the US), which I fully embraced!

Over the course of 20 non-continuous days (excluding travel days and weekends), I visited ten institutions in Japan, the US, Sweden, and Norway. Each visit ranged from one to four days. On certain days I visited two or more institutions (in the same city) to observe classes or carry out interviews, thus taking full advantage of the opportunities available to me. In total, the primary data collection comprised 134 events (defined as recorded instances of class observations, interviews, and discussions with teachers), which in total amounted to just over 88 hours of data (see Table 1.1). Although this represents a very substantial amount of data, the duration of time I spent at each institution was relatively short. For this reason, I make no attempt to generate "thick descriptions" (Cohen, Manion, & Morrison, 2000, p. 311) of the teaching environment. Instead, by observing more classes and interviewing as many different teachers as possible, I was able to discover a greater range of activities, many of which were identifiable after just one class observation or interview.[26] Throughout this dissertation, I refer to individual institutions by its alphabetical label as shown in Table 1.1 (e.g., 'Institution J'). I also make occasional references to specific events, which are numbered sequentially in the order of occurrence (e.g., 'Event 124').[27]

My approach to class observations and my interactions with my teachers (i.e., interviews and discussions) were predominantly unstructured, thereby "[letting] the elements of the situation speak for themselves" (Cohen, Manion, & Morrison, 2007, p. 398). During class observations, my attention was focused primarily on the interaction between the teacher and the student(s). I transcribed specific questions that teachers posed to their students, as well as any music that was sounded either by the teacher (e.g., playing sound recordings or performing on a piano) and

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removed.

[25] For details concerning the special situation of this particular visit, refer to section 2.1 on p. 30.

[26] It should be noted that in many cases, the collected activities in Study II were observed or described on more than one occasion. The resulting activity descriptions were thus derived from multiple data sources. For instance, J5 was observed during two classes (Events 120 & 128) and described on three separate occasions (Events 121, 129, & 133) (see full description of J5 on p. 332). These descriptions naturally represent a much more detailed account of the activity.

[27] See Table B.1 on p. 343 for a table listing all 134 events.

Institution		Number of Events				Duration of Events			
Label	Country (ISO code)	Obs.	Int.	Dis.	Total	Obs.	Int.	Dis.	Total
A	Japan (JP)	0	1	0	1		2h 11m	-	2h 11m
B	The USA (US)	13	2	13	28	11h 10m	2h 37m	3h 56m	17h 43m
C	The USA (US)	11	4	3	18	5h 18m	2h 6m	30m	7h 54m
D	The USA (US)	2	1	3	6	1h 55m	18m	38m	2h 51m
E	The USA (US)	12	2	6	20	11h 28m	1h 2m	26m	12h 56m
F	The USA (US)	6	4	1	11	4h 42m	3h 30m	10m	8h 22m
G	Sweden (SE)	3	1	2	6	2h 2m	1h 24m	25m	3h 51m
H	Sweden (SE)	9	3	6	18	8h 16m	3h 33m	2h 7m	13h 56m
I	Sweden (SE)	6	2	1	9	4h 40m	2h 21m	10m	7h 11m
J	Norway (NO)	7	1	9	17	7h 16m	59m	3h 1m	11h 16m
Study II Total:		69	21	44	134	56h 47m	20h 1m	11h 23m	88h 11m

Table 1.1 The number and duration of events at the ten visited institutions in Study II, listed by event type (Obs. = Class observations; Int. = Interviews with teachers; Dis. = Discussions with teachers). For a comprehensive list of all 134 Study II events, including relevant details on each event, see Table B.1 in Appendix A (p. 343).

students (e.g., on instruments or through singing). Discussions with teachers were undertaken informally, and were opportunities for me to clarify certain characteristics about the activities or the curriculum. Interviews in this study were discussions that were planned beforehand and took place in the absence of students. Like discussions, interviews were predominantly unstructured and were conducted informally.[28]

There was also a structured component (Cohen et al., 2007, pp. 398–399) in my observations. The following are some of the details I recorded in my 'coding sheet' (Silverman, 2006, pp. 88–93) for each event: (i) institution; (ii) location (e.g., room number); (iii) teacher(s) present; (iv) date, (starting) time, and duration of event, etc. If the observation was of a class (as opposed to an interview of discussion), I noted some additional details that were relevant, including the number of students in attendance. While much of this data was collected mainly for my own reference, it was also used later in the dissertation for making certain statistical comparisons between the various visited institutions (e.g., Figure 7.1 in section 7.1).

The teaching schedule, classroom locations, and specific courses were in many cases not made available to me until the day of my arrival. I was able to conduct interviews with teachers at all ten institutions, and observations at nine of the ten institutions.[29] When there were two or more

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[28] On some occasions during my interviews and discussions, teachers asked me to describe my field of research. In most cases, these teachers were simply curious about my intention to visit, while in other cases, they eagerly wanted to demonstrate specific types of activities were potentially relevant to my research (i.e., those relating to harmony). In both cases, I briefly responded by describing my research goals and summarised my findings in Study I, which I had completed just months prior to the visit.

[29] Observations were not possible at Institution A in Japan. I discuss reasons for and implications of this omission in section 2.1.

classes running during the same period of time, whether within the same institution or across multiple institutions within the same city, I prioritised classes taught by teachers I had not yet observed. In some cases, I chose to observe classes where the teacher was likely to present activities involving performance actions as revealed through printed materials (i.e., course outlines) or my prior discussions with individual teachers or staff members.

In five of the institutions that I visited, English was not the main language of instruction. Although I do not speak Japanese, Swedish, nor Norwegian fluently, I studied these languages prior to my visit and attained a basic ability to recognise relevant terms relating to music, chords, and harmony. In Japan, the interview was conducted in the presence of an interpreter. In the four Scandinavian institutions, I was able to observe and understand the activities with few difficulties, and all interviews and discussions were conducted in English. As was the case at the US institutions, I clarified any uncertainties about the observed activities directly with teachers immediately after the class. While I never requested for it, some teachers in Scandinavia chose to present their classes in English, which virtually all teachers and students in those countries were fluent in. Overall, the language barriers at the five institutions in Japan, Sweden, and Norway had minimal impact on the integrity of the data collection process.

Following the data collection, the first step in my analysis was to identify discrete activities. In most learning contexts, activities often blended seamlessly from one to the next. In fulfilling the research goal of comparing pedagogical approaches, I had to identify when exactly an activity ended and a new one commenced. In my analysis, I interpreted the changeover from one activity to the next (or the point at which an activity was repeated) as being marked by students undertaking a significantly different kind of exercise or action. For the purposes of this research, then, an 'activity' is defined as a specified sequence of actions that students undertake within the context of aural training. The process of identifying and describing each activity involved the systematic cross-referencing between the various data sources (including handwritten notes taken during class observations and interviews, typed-up notes in my travel journal, sound recordings, music transcriptions, photographs, email communications with teachers, online course materials, etc.).

The above process led to the identification of 89 activities, which I present in Chapter 2 and describe fully in Appendix A. I give each activity a unique label, comprising the institution label followed by a number (e.g., 'J8').[30] In order to compare such a considerable number and range

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[30]   The number itself has no particular significance other than revealing the order in which I collected an activity in relation to others at the same institution.

of activities, I had to further identify common features between these activities. This process involved identifying the *actions* that students commonly undertook during the activities. As I reveal in Chapter 3, there were seven basic types of actions, which were all 'sequenced' in a predetermined order. Based on this information, I devised a classification system based on the four main types of action sequences that students undertook in the collected aural harmony activities. After classifying each of the activities into one or more of the four categories, I was able to directly compare the pedagogical approaches of similar kinds of activities (Chapters 4–6).

Before I embarked on my fieldwork trip, there was no way to predict how much information on aural harmony activities one could gather in 20 days of class observations and discussions with teachers.[31] It only became evident during the early stages of analysis that the sheer amount of data collected during Study II revealed a very substantial number of contrasting pedagogical approaches. Some of the collected activities were quite similar to activities described in textbooks or pedagogical writings. Where there are strong resemblances between a Study II activity and a documented teaching approach or activity, I sometimes make direct comparisons between the two. However, the decision was made at an early stage of the research to focus mainly on the analysis of Study II activities.

To summarise, the data that I collected during Study II comprised 134 events (class observations, discussions with teachers, or interviews) at 10 tertiary institutions in Japan, the US, Sweden, and Norway. The collection process was largely unstructured and I took advantage of every opportunity to observe as many activities (and interview as many teachers) as possible while prioritising activities that I knew involved student performance.[32] The analysis of the collected data required a tedious examination of a variety of collected sources and revealed 89 different activities. I compared these activities based on the sequences of actions that each activity represented, which in turn led to a classification system of aural harmony activities. I then compared the different pedagogical approaches and techniques of similar kinds of activities, i.e., those that were classified under the same category.

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[31] To my knowledge, there are no recorded precedents of any similar kind of data collection in research studies on aural skills pedagogy.

[32] In a sense, my data collection method resembled the "intrinsic" and "instrumental" categories of case studies, as defined by Flinders and Richardson (2002). Flinders and Richardson explain that intrinsic case studies are undertaken "because the researcher has an intrinsic interest in a particular setting or teacher" (p. 1170); I adopted this approach because of my interest and focus on collecting activities that involved performance. The 'instrumental' type of case studies are those where "the particular case is less important than the insight it can provide into a specific issue of theory" (p. 1170). This type of case study is relevant to the other goal of Study II, which is to create a classification system of aural harmony activities that applies to a wide range of activity types.

1.2.2 Study III methodology

About a year after collecting data for Study II, I was given the opportunity to teach first-, second-, and third-year undergraduate aural training classes at a tertiary institution in Australia (I refer to this institution as 'the School'). By this time, I had completed most of the analyses of Study II activities. My analyses revealed a cornucopia of teaching approaches in aural harmony activities. More importantly, it revealed the effectiveness and appropriateness of certain kinds of teaching methods and activities for certain learning contexts and desired learning outcomes. The purpose of Study III, the third phase of my research, was to *apply* the invaluable knowledge and experience gained from the analyses and comparisons of teaching approaches revealed through Study II activities to a particular educational context—undergraduate aural training classes at the School. I report the findings of Study III in Chapter 7 of this dissertation.

As a practitioner and active participant within the research process, it was both appropriate and natural to employ an action research methodology (Mertler, 2006; Mills, 2003; Parsons & Brown, 2002; Kember, 2000). Whereas the data collected in Study II came from *external* sources (other teachers' teaching practices), in this study I wanted to reflect on the processes of my teaching and presentation of aural harmony activities. Mertler suggests that "The basic process of action research consists of the following four stages: planning, acting, developing, and reflecting" (2006, p. 19). Flinders and Richardson (2002) describe the application of action research within the field of music education:

> Action research in music teacher education includes studies in which teachers use their own classroom or rehearsal as a place to implement untried teaching strategies, solve specific teaching-related problems, or document their own reflections on what they do in the course of a school day. There is often an evaluative component to this type of work, with teachers documenting the changes resulting from the innovation. (p. 1171)

This method of research, which results in the creation and evaluation of novel teaching and learning approaches, has been successfully applied to music education research in recent times (e.g., Ilomäki, 2011; West, 2007).

The countless months of discovering and re-discovering of teaching approaches revealed through the 89 Study II activities no doubt had a significant impact on my teaching in Study III. Throughout Chapter 7, I indicate the many sources of inspiration and influence as a result of the

analyses in Study II. Another important aspect of Study III, and in aural skills pedagogy in general, is the tailoring of teaching methods to the needs and circumstances of the students. This involves acquiring an understanding of the desired learning outcomes, particularly those represented in the relevant curricula. My examination of these issues as relevant to my local context is presented in the first section of Chapter 7 (section 7.1).

The most significant outcome of Study III was the creation of two sets of aural harmony activities specifically intended for use in my particular teaching context. After presenting the rationale for developing the activities, I describe the two sets of activities in section 7.3 and section 7.4 respectively. In concluding the chapter, I reflect upon and evaluate the learning outcomes of the activities that I devised. My evaluations are mainly derived from my own teaching journals and materials, as well as my personal reflections. This is supplemented by several forms of student feedback, including questionnaires, in-class feedback, and generic student evaluation surveys. This contrasts with the dominant research paradigm, in which data collection leads in a linear fashion to discoveries and reflection. Study III was wholly undertaken in the spirit of action research. The outcomes of this study were the result of continual and systematic reflection on my teaching.

Dissertation outline

In this chapter, I have revealed the inadequacy of the current literature on aural training in the areas of harmony and performance. I presented the research aims of this dissertation, which can be summarised as the discovery, classification, and evaluation of pedagogical approaches in aural harmony. I described the research methodologies of Study II and Study III, which will directly address the three research questions outlined in subsection 1.1.4.

In Chapter 2, I present the 89 Study II activities that I collected through class observations, and discussions and interviews with teachers at the ten institutions in Japan, the US, Sweden, and Norway. The chapter is divided into ten sections, one for each institution. Each section comprises a summary of all the activities that I collected from the institution.[33] In order to easily reference these activities throughout the dissertation, I assign each activity with a unique label (e.g., 'G1'). I also provide a short descriptive title for each activity (e.g., 'Playing chord progressions on piano

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[33]   The full descriptions of all 89 Study II activities are presented in Appendix A. These activity descriptions are frequently referenced throughout this dissertation, particularly in Chapters 4–6. In the full activity descriptions, I present each activity in a step-by-step manner and provide illustrations where necessary. At the start of each activity description, I briefly summarise the activity and include relevant information about the data collection process, such as the specific type of class that the activity was observed in. See Appendix A (Appendix A) for more details.

or guitar').[34] For each activity, I codify the students' actions using symbols that are defined in the following chapter.

In Chapter 3, I describe the categorisation system that I developed in response to collecting, analysing, and describing the Study II activities. I define the seven basic student actions, and explain the concept of action sequences. The defined nature of action sequences gives rise to the four categories of action sequences. The proposed classification system thus enables me to classify all Study II activities.

The next three chapters (Chapters 4–6) collectively represent my comprehensive comparisons the pedagogical approaches between Study II activities that were similar in terms of student actions. In Chapter 4, I compare Category 1 activities, in which the main learning process involved performance in response to non-aural stimuli. In Chapter 5, I compare Category 2 activities, in which students developed aural identification skills without performance actions. In Chapter 6, I examine Category 3 and Category 4 activities, in which students' aural identification resulted in and led to performance actions.

In Chapter 7, I reflect upon my experiences in devising and implementing my own aural harmony activities as part of Study III. Following an explanation of my particular educational context, I recount the process of devising, developing, and implementing the two 'sets' of aural harmony activities during two discrete teaching periods between 2010 and 2011. I describe the five Study III activities in detail (the first three activities in the first activity set, and the last two activities in the second activity set), with numerous references to specific inspirational ideas and influences from the Study II data. I conclude the descriptions of each set of activities by evaluating the activities based on student feedback as well as my self-reflection.

In Chapter 8, I directly address the three research questions using findings and conclusions in Chapters 2–7. I discuss the wider implications of the research presented in this dissertation across the field of aural skills pedagogy, and suggest possible pathways for further research. Altogether, the chapters in this dissertation tell a story of my personal journey towards a more comprehensive and experiential appreciation of pedagogical approaches within the subject of aural harmony.

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[34]   In aural training, activities are rarely given a descriptive name or title other than generic phrases like 'harmonic dictation' or 'chord arpeggiation'. I conceived of and designated each descriptive title during the analysis and write-up stage. The teachers who presented the activities did not provide input into my titling of their activities.

Chapter 2

Eighty-nine activities from ten tertiary institutions

In this chapter, I summarise the 89 aural harmony activities collected from ten tertiary institutions in Japan, the US, Sweden, and Norway. The chapter is divided into ten sections, one for each institution. In each section, I present an overview of all the activities collected from the respective institution. I highlight some of the distinguishing features of individual activities, as part of a preliminary analysis preceding my systematic comparisons in Chapters 4–6. I also describe relevant details about the institution's curriculum and aural training program, and the specific data collection techniques that I adopted.

Each section contains a table listing all the activities at the institution. It reveals pertinent details about each activity: namely the activity label (as cited throughout this dissertation), a short descriptive title, the action sequences,[1] and the events where I collected my data.[2] Importantly, each table also includes page references to the fully detailed, step-by-step descriptions of each activity in Appendix A. While the action sequence coding and short descriptive title will allow a cursory understanding of an activity, in many cases it will be necessary for the reader to refer to the full description in order to fully appreciate the workings of an activity.

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[1]   I explain and define the codes represented under the 'Action sequence(s)' in Chapter 3. and the events at which I observed the activity or recorded a description of it through discussions with teachers

[2]   A list of all Study II events is provided in Table B.1 (p. 343).

The collection of Study II data was guided by the qualitative, empirical observations of the complex student-teacher interactions within the classes that I observed. I observed how teachers presented an activity (the sequencing of each 'step', the questions they asked, the materials they used), as well as the ways in which students responded. However, what interested me the most was the *purpose* of an activity—what learning outcomes it achieved. In some cases, the skills that students acquired were demonstrable (through the actions that they undertook), while in other cases, the pedagogical goals were more elusive and not directly observable. As the full descriptions in Appendix A reveal, I also noted in detail how students were engaged during the activities. In cases where the interaction was between one student and a teacher, I also observed what the other students were doing at the same time. In many cases, my observational records were further supplemented by teachers' descriptions of an activity. By judiciously combining these two sources, I present in this chapter (as well as in Appendix A) concepts and information that are relevant to the research aims outlined in Chapter 1.

2.1   Activities at Institution A

During my online search for relevant aural training programs and curricula, I came across a detailed description about a particular activity on Institution A's website. The site indicated that students at Institution A undertook "two- and four-part harmonic dictation activities through performances by instrumental students."[3] This description could be interpreted in two ways: (1) students *either* played instruments or undertook harmonic dictation of the performance, or (2) students undertook both tasks simultaneously. In the latter case, this activity would very much resemble the activity I created and implemented during Study I. I was very eager to find out whether the described activity was similar to my Study I activity. Initially, the visit was not planned due to budgeting constraints and language barriers. Luckily for me, the ICMPC[4] conference, which I was planning to attend, was held in Japan in the year 2008. With the generous support of various staff at Institution A, I was able to arrange a half-day visit.

The data collection procedures at Institution A were small-scale compared to that at the nine other institutions, where various observations, interviews, and discussions took place over at least two days. My visit unfortunately coincided with a teaching break in Japan, and so no classroom

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[3]   This is an English translation of the original sentence (in Japanese) found on the website. So as to maintain anonymity for the institution, I will not cite the original quotation here. The website was accessed in May 2008.

[4]   International Conference of Music Perception and Cognition.

observations were possible. Although this was undesirable, three of the institution's aural training teachers were more than willing to discuss their aural harmony activities at length during an interview (Event 1). An interpreter was present at the interview to translate between Japanese and English. Although data collected at Institution A was only described during that single interview, the amount of detail in the teachers' descriptions was comparable to class observations. The interview lasted over two hours, longer than any other interview conducted in Study II. Verbal descriptions were supplemented and clarified with various worksheets and textbooks, and the teachers occasionally described the activities by playing examples (e.g., chord progressions) on a piano.

Four aural harmony activities were described during the interview, two of which involved student performance (A1 & A2). These activities also involved the use of music excerpts, while A3 & A4 were based on composed or improvised exercises. Perhaps partly due to the large number of students per aural training classes (between 20–25), none of the collected activities involved student performance on their main instruments.

The teachers confirmed that A1, which was described on the website, involved instrumental performance during the dictation exercises. However, unlike the performance activity in Study I, students did not simultaneously perform while identifying chords. Instead, additional students outside the aural training class were brought in to perform the exercises.[5] The teachers explained that the purpose of A1 was to help students improve their ability to identify melodies played on instruments other than the piano. They believed that many students find it easier to identify pitches played on a piano rather than, say, brass instruments. A2 showed that aural training activities was a crucial element of their music and harmony analysis classes. It involved singing, piano performance, and some aural identification of chords. A3 & A4, although involving little or no performance, demonstrated how the teachers varied their teaching approaches depending on the level of their students' aural skills.

Table 2.1   Activities at Institution A

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
A1 Multi-part dictation from students' instrumental performance	$A \Rightarrow N_p$;	-	1	p. 246
A2 Harmonic analysis with singing and performance on piano	$R_c \Rightarrow Pv_p$ *or* Pi_c	-	1	p. 247

Continues onto next page ...

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[5]   These extra students entered the class to perform the excerpt only; they did not undertake the dictation exercise.

Table 2.1   Activities at Institution A (continued)

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
A3	Four-part harmonic dictation from piano	$A \Rightarrow N_c$	-	1	p. 248
A4	Identifying and comparing chords and cadences	$A \Rightarrow V$	-	1	p. 248

Table 2.1   List of all activities collected from Institution A.

2.2   Activities at Institution B

Aural training classes at Institution B were exclusively taught by teaching assistants ('TAs'), gradu-ate students working towards their postgraduate degrees. Two course coordinators supervised the aural training course at first- and second-year levels. These coordinators provided some guidance and materials to the TAs, including the curriculum outline, worksheets, homework tasks, etc. TAs met weekly with their coordinator to discuss their students' progress and other aspects relating to their teaching. The meetings were also opportunities for them to share new ideas, exercises, or relevant musical excerpts that exemplified a specific musical feature, such as chord type, cadence, rhythm, and form. While following a course outline, TAs had the freedom to present their classes in their preferred way.

Aural harmony activities in first- and second-year classes were very different. In first-year classes, activities more frequently involved recorded excerpts (e.g., B1). At the second-year level, most activities involved identifying chords performed on a piano during harmonic dictations or similar exercises (e.g., B4, B5, B8, & B9). Another interesting difference between the two year levels was in the use of keyboard harmony exercises. First-year students learnt to play chord pro-gressions on a keyboard while singing (B2), while second-year students did not undertake keyboard harmony activities as part of their aural training.

Performance actions were featured in only five of the nine collected activities (B2, B3, B4, B8, & B9). Students never brought their instruments to class. Apart from in the aforementioned keyboard harmony activity (B2), these activities involved singing during harmonic dictation (B8 & B9) or preparatory exercises that related to harmonic dictation (B4 & B5). Although the course

coordinators incidentally mentioned chord arpeggiation on one occasion, no such activities were observed or described in over 17 hours of data, including 13 class observations (totalling about 11 hours).

A theory teacher at Institution B described in detail two unconventional activities involving chord identification (B6 & B7). The theory teacher, while not an aural training teacher at Institution B, had previously taught aural training elsewhere within the US. Although these activities were not observed during undergraduate aural training classes, the teacher described and demonstrated them during music theory pedagogy classes (Event 19) and during an interview (Event 12). The theory pedagogy classes, which were attended by graduate students (including some TAs whose classes I observed), were opportunities for students to discussions issues relating to aural skills pedagogy.

Table 2.2   Activities at Institution B

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
B1	Bass line dictation from recording	$A \Rightarrow N_p$	2, 4, 6	-	p. 249
B2	Singing note sequences while playing chords on piano	$R_c \Rightarrow Pi_c + Pv_p$	2, 23, 25	18, 24	p. 250
B3	Singing melodies based on arpeggiated secondary dominants	$R_p \Rightarrow Pv_p$	8, 21, 22, 26	9, 28	p. 251
B4	Harmonic dictation: outer parts and chord labels	$A \Rightarrow N_c \ or \ Pv_p$	9, 21, 22, 26, 27	10	p. 252
B5	Identifying bass lines and chords	$A \Rightarrow N_c$	10	-	p. 253
B6	Learning new chords through expectation	$A \Rightarrow V$	-	12	p. 253
B7	Identifying chord functions in modulating progressions	$A \Rightarrow V$	19	12	p. 254
B8	Singing bass and soprano lines from chord labels	$R_c \Rightarrow Pv_p$	27	28	p. 256
B9	Identifying chords with given bass line	$R_p \Rightarrow Pv_p \ ;$ $A + R_p \Rightarrow N_c$	27	28	p. 257

Table 2.2   List of all activities collected from Institution B.

2.3 Activities at Institution C

One of the most interesting features of aural training at Institution C was the highly variable teaching approach used by each of the four teachers that I observed. While three of the teachers (who taught the compulsory aural training course) often used the same teaching materials, they presented them very differently. For example, only one particular teacher consistently included breathing exercises at the start of each class and occasionally explained to students the importance of proper singing technique (relating to posture, breathing, etc.). Another teacher consistently employed C2—a warm-up exercise—just before sight-singing exercises. Students even sang arpeggiated chords in four different ways depending on the teacher (see C4). This disparity of teaching approaches between teachers, while not entirely unexpected or unusual, was probably more pronounced at Institution C than at the nine other institutions.

Of the eleven activities at Institution C, nine involved performance actions. Most of these activities involved singing a part of a chord (C3, C6, C7, C8, C10, & C11) while three involved singing arpeggiated chords in various contexts (C1, C2, & C4). The majority of collected activities were based on exercises or composed examples used for the purposes of aural training only. Out of all collected activities, there were only three that used music excerpt or repertoire (C4, C8, & C9), although C8 was regularly practised. During one of the interviews (Event 43), one of the teachers told me that two years ago students were required to bring instruments into their aural training classes at Institution C. However, due to lack of class time, this practice was no longer feasible and since then students have not been required to bring instruments into class.

Table 2.3   Activities at Institution C

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
C1 Singing arpeggiated chords from chord labels and bass line	$R_c \Rightarrow Pv_c$	32	43	p. 257
C2 Singing warm-up arpeggiated cadence	$T \Rightarrow Pv_c$	32, 38, 42	-	p. 258
C3 Four-part singing and identifying cadences	$R_p \Rightarrow Pv_p$;	31, 32, 37, 42	-	p. 259
C4 Singing arpeggiated chords	R_c or $T \Rightarrow Pv_c$	33, 35, 44, 45, 46	34, 40	p. 260
C5 Body movements corresponding to chord functions	$A \Rightarrow G$	38	40	p. 262

Continues onto next page …

Table 2.3   Activities at Institution C (continued)

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
C6 Singing improvised melodies over given chord progressions	$A + R_c \Rightarrow Pv_p$	39	-	p. 263
C7 Harmonic dictation: outer parts and chord labels	$A \Rightarrow Pv_p$ *or* N_c	-	40, 47	p. 264
C8 Discussing chords and harmony during sight singing	$R_p \Rightarrow Pv_p \Rightarrow A \Rightarrow V$	42, 45, 46	-	p. 266
C9 Identifying chords in music excerpts	$A \Rightarrow V$ *or* N_c	-	43	p. 267
C10 Singing chord function names while listening to chord progressions	$A \Rightarrow Pv_p$	44	-	p. 267
C11 Singing intervals and chords in three parts	$T \Rightarrow Pv_p \Leftrightarrow A$	46	-	p. 268

Table 2.3   List of all activities collected from Institution C.

2.4   Activities at Institution D

Aural training at Institution D was partitioned into three main types of classes: ear training, dictation, and sight singing. Ear training classes were devoted to drills and small exercises taken from *Manual for Ear Training and Sight Singing* (Karpinski, 2006), dictation classes comprised largely dictation exercises (which were also taken from the aforementioned textbook), while sight singing classes dealt with the singing of prepared and unprepared melodies, including solmisation. Similar to the arrangement at Institution B, classes were exclusively taught by TAs who were graduate students undertaking postgraduate studies at the same institution. There was relatively little data collected from Institution D, with only two class observations (second-year classes) and one phone interview with the course coordinator. Apart from D1, which was a vague description of an exercise that was no longer taught, the remaining three activities were directly adapted from Karpinski's textbook. All four activities involved singing but not performance on instruments.

Second-year aural training classes at Institution D were divided into four ability levels. The streaming of classes was based on students' results in aural skills diagnostic tests. The two classes that I observed represented the lowest and highest groups; that is, students with the weakest and strongest (relatively speaking) aural skills ability. The lowest level class that I observed was an 'ear training' class, while the highest level class was a 'dictation' class. Although activities in both

classes were largely derived from the same textbook, the two classes were taught by two different TAs from very different backgrounds and experience levels.[6] The first teacher, who taught the ear training class at the lower level, was a graduate student who had been teaching since at least the year before (Event 48). The second teacher, who taught the higher-level dictation class, had four weeks' experience as an aural training teacher (Event 52).

Due to several reasons, it was not possible to include several exercises that were observed during class. Firstly, some of these activities were presented inconsistently and did not result in any positive sense of achievement upon its conclusion. Some of the exercises were either so difficult to understand or unintelligible to the students such that they could not complete them. Inconsistencies were observed in not only the teaching approaches used within an exercise, but also in the teaching materials and the application of those exercises by the two TAs. Perhaps the most disappointing problem was the fact that even though students evidently struggled on numerous occasions (to the extent that they expressed their frustration during class), TAs often did not help their students overcome those difficulties.[7] Consequently, only four activities could be properly analysed and presented as aural harmony activities for the purposes of this study.

Table 2.4   Activities at Institution D

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
D1	Identifying chords after singing activities	$Pv_p \Rightarrow A \Rightarrow V$	-	48	p. 269
D2	Harmonic dictation: identifying parts and chords	$A \Rightarrow N_c$ or Pv_p	49, 51	-	p. 270
D3	Singing a chord progression in three parts	$T \Rightarrow Pv_p$	51	-	p. 271
D4	Singing arpeggiated chords in isolation	$R_c \Rightarrow Pv_c$	51	-	p. 272

Table 2.4   List of all activities collected from Institution D.

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[6] This view was also supported by the views of one student who had studied with both teachers. This students described the contrast between the two teachers as well as the negative impact of changing from one teacher to the other on her aural training experiences (Event 50).

[7] The following is an account of one particular class that exemplifies this issue. During one class (Event 49), a student, upon listening to the teacher's lengthy explanation of chord inversions, raised her hand and admitted that she still could not aurally differentiate chords by their inversion. In response, the teacher asked the other seven students in the class whether they had similar difficulties. Five students raised their hands, which meant that 6 out of the 8 students in that class admitted experiencing difficulties recognising inverted chords by ear. Following this revelation, the teacher re-explained how one should identify the bass note and then the root note in working out the inversion of a chord. Immediately after this verbal explanation, and before students responded or practised this method, the teacher concluded with the following remarkable comment: "It's very slow and painful, to exercise that way. But, it will help you. Okay? All right, aural skills is not fun, very boring, and painful. Okay! Next [exercise]" (Event 49).

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2.5 Activities at Institution E

Out of the ten visited institutions, Institution E was the only 'contemporary music' school with a music curriculum that was based entirely on contemporary music, particularly jazz. Institution E offered two different aural training courses relevant to the present study. One of these courses was designed to bridge the gap between aural training and performance (on students' main instruments). Students brought their main instruments to these classes,[8] which involved a significant amount of time spent on performance-based activities. The other course was a concentrated study of contemporary and jazz harmonies through aural training and performance activities. The variety of aural training courses offered at Institution E reflected the fact that aural skills, in particular the ability to 'play by ear', is crucial in students pursuing careers in contemporary music and jazz performance.

The fifteen activities collected from Institution E represent the largest number (and perhaps variety) of activities collected from a single institution. This collection consisted of activities that are typically found in classically-oriented institutions as well as ones that are specifically intended for studying jazz chords and harmonies. For example, in E3 students aurally identified jazz chords (with complex upper structures such as thirteenths and elevenths) through performance, either on instruments or through singing. While effective for identifying complex jazz chords, this activity would not be as suitable for the study of simpler diatonic chords (namely triads and seventh chords), which is what many classically-oriented aural training curricula focus on. E7 was a similar activity intended specifically for keyboardists learning to play complex chords by ear.

In addition to these two jazz-specific and instrument-based activities, many of the other collected activities involved singing either one or more parts (e.g., the bass line or guide-tones) within chord progressions (E1, E5, E6, E9, E11, E12, & E14), or singing arpeggiated chords (E8, E9, E13, & E15). There were also several more 'traditional' harmonic dictation activities, in which students identified and notated chord progressions played on a piano (E2, E4, & E10). The chord progressions used in these dictation activities included both quasi-classical and jazz-based harmonic vocabulary, and were usually composed for the activity rather than based on jazz repertoire.

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[8]   Keyboardists obviously did not need to bring in their instruments; classes were held in rooms equipped with enough electric keyboards for everyone, including the teacher.

Table 2.5   Activities at Institution E

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
E1 Singing root motion in circle-of-fifths chord progression	$R_p \Rightarrow Pv_p$	55, 61	-	p. 273
E2 Harmonic dictation: identifying chord labels	$A \Rightarrow N_c$ or Pv_p	56	-	p. 274
E3 Identifying chords through performing tetrachords and improvisation	$A \Rightarrow P_c$ or V	56, 60, 66	59	p. 275
E4 Harmonic dictation: chord labels from bass line and chord quality	$A (+ R_p) \Rightarrow N_c$	57, 68	-	p. 278
E5 Singing two guide-tone lines in chord progressions	$A \Rightarrow Pv_p$	61	-	p. 280
E6 Singing bass lines while listening to recordings	$A \Rightarrow Pv_p$	61	-	p. 281
E7 Identifying and playing triads on keyboard instruments	$A \Rightarrow Pi_c$	66	-	p. 282
E8 Identifying chords and singing arpeggiated chords	$A \Rightarrow Pv_p$ or Pv_c or V ; $T \Rightarrow Pv_p$ or Pv_c	68	-	p. 283
E9 Singing bass lines and arpeggiated chords while listening to recordings	$A \Rightarrow Pv_p$ or Pv_c or V ; $T \Rightarrow Pv_p$	68	-	p. 285
E10 Harmonic dictation: bass line, guide-tones, and chord labels	$A \Rightarrow N_c$ or Pv_p	68	-	p. 287
E11 Singing and resolving a diminished seventh chord in four parts	$T \Rightarrow Pv_p \Rightarrow A \Rightarrow Pv_p$	69	-	p. 288
E12 Singing four-part exercises and discussing chords	$R_p \Rightarrow Pv_p$	58, 69	-	p. 289
E13 Singing bass lines and arpeggiated chords	$T \Rightarrow Pv_c$	72	-	p. 290
E14 Singing arpeggiated chords and guide-tones from chord labels	$R_c \Rightarrow Pv_p$ or Pv_c ; $R_p \Rightarrow Pv_p$	72	73	p. 292
E15 Singing seventh chords by stacking thirds	$R_c \Rightarrow Pv_c$	72	-	p. 293

Table 2.5   List of all activities collected from Institution E.

2.6   Activities at Institution F

Institution F was distinctly separated into two streams: classical and jazz. There was a clear divide between the two streams in terms of aural training classes. Depending on their specialisation, students typically undertook classes in either the classical or jazz stream. Apart from one class observed in the jazz part of Institution F (Event 75), all class observations were of aural training classes in the classical stream. F3 & F4 were only undertaken by students studying in the jazz department of Institution F, while the other five activities observed (F1, F2, F5, F6, & F7) were

undertaken by students in the 'classical' department. The two departments shared little in common in terms of curricula, teaching staff, and learning materials.

Within the classical stream of Institution F were two separate courses relating to aural training: a solfège course, which focused on melodic exercises such as sight singing and melodic dictation, and a course on harmony and form. Both courses showcased activities that were relevant to this study, including activities involving identifying chords from chord progressions played on piano (F1 & F2) and in recordings (F6). Keyboard harmony activities were part of the aural training curriculum within the classical stream (see F5), which, unlike all other activities at Institution F, were supervised by a TA.

Interviews and discussions with several teachers at Institution F revealed an interesting shift in students' use of instruments within aural training classes over the last few decades. During an extended interview (Event 77), one teacher revealed that in the '70s and '80s one of the teachers regularly required students to bring instruments to his theory and aural training classes at Institution F. At the time of my visit, at least one teacher similarly required students to regularly bring their main instruments to theory (but not aural training) classes. However, at a separate interview, another aural training teacher expressed his lacked of enthusiasm for students' use of instruments in aural training classes. This teacher "gave up" after trying it for a few years, citing issues with class organisation when students brought instruments into the class, and even suggested that it was "not [the aural training teacher's] job to make this connection between practice and [theory]" (Event 82). Nevertheless, activities involving performance on keyboard instruments were noted in two of the seven collected activities (F4 & F5), while three other activities involved singing outer parts of chords progressions (F2) or arpeggiated chords (F3 & F7).

Table 2.6   Activities at Institution F

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
F1	Identifying and comparing chords and cadences	$A \Rightarrow V$	74	-	p. 294
F2	Harmonic dictation: outer parts and chord labels	$A \Rightarrow N_c$ or Pv_p	74, 79	-	p. 295
F3	Identifying chords and transcription from piano and recordings	$A \Rightarrow N_c$ or Pv_c	75	76	p. 296
F4	Associating chords with memorised chord progressions	$T \Rightarrow Pi_c$	-	76	p. 297

Table 2.6   Activities at Institution F (continued)

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
F5 Playing chords progressions on keyboard with given chord labels	$R_c \Rightarrow Pi_c$	78	82	p. 298
F6 Identifying cadences from recordings	$A \Rightarrow V$	81	-	p. 298
F7 Singing arpeggiated chord sequences and outer parts	$R_c \Rightarrow Pv_c$; $A \Rightarrow Pv_p$	84	-	p. 299

Table 2.6   List of all activities collected from Institution F.

2.7   Activities at Institution G

Unlike the other visited institutions where the majority of students were studying to attain undergraduate degrees in performance, composition, or musicology, Institution G's curriculum was based on music education. Students enrolled in the program were studying to become music teachers, and most arrived with prior music teaching experiences. One staff member at Institution G suggested that due to the less formalised structure of education and diversity of student age, skills, and interest, when compared to most other tertiary institutions, many of their students come from a background of learning music by ear rather than from musical scores (Event 87). This view was not reflected in the collected activities; unlike the many activities at Institution E that involved performing chords following aural identification, no similar activities were observed at Institution G. Overall, despite the focus of the curriculum at Institution G on music pedagogy, the activities observed and described were largely consistent with those observed at other visited institutions, particularly the three other institutions within Scandinavia.

Although none of the activities collected from Institution G involved performing chords by ear, performance actions were prevalent. Five of the seven collected activities involved some form of performance action, either by singing (G2, G4, & G5), playing instruments (G1), or both actions simultaneously (G3). The two remaining activities included a transcription activity that was exclusively set as homework rather than undertaken during class (G6), and another activity involving verbal responses only (G7). G1, G2, & G3 were presented as a series of related activities during one class (Event 85), and students were encouraged to undertake them in that order. During an interview (Event 87), the teachers singled out students' singing of arpeggiated chords

(e.g., G2 & G4) as one of the two most emphasised aural harmony activities at Institution G. The second main activity was transcribing chords from CDs (G6).

Table 2.7   Activities at Institution G

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
G1	Playing chord progressions on piano or guitar	$R_c \Rightarrow Pi_c$	85	87	p. 300
G2	Singing arpeggiated chords	R_c *or* $T \Rightarrow Pv_c$	85, 86	-	p. 301
G3	Singing melodic lines while playing chords on piano	$R_c \Rightarrow Pi_c + Pv_p$	85	-	p. 302
G4	Singing bass lines of chord progressions	$A \Rightarrow Pv_p$	86	-	p. 303
G5	Identifying chords by singing bass lines	$A \Rightarrow Pv_p$ *or* V	86, 89	-	p. 303
G6	Harmonic dictation from CD recordings	$A \Rightarrow N_c$	-	87	p. 304
G7	Identifying types of seventh chords	$A \Rightarrow V$	-	90	p. 305

Table 2.7   List of all activities collected from Institution G.

2.8   Activities at Institution H

The teachers at Institution H frequently adapted both classroom and assigned homework activities depending on the specific music excerpt being studied. This was true for all topics discussed within aural training, not just aural harmony activities. This approach contrasts with the way aural harmony activities were presented at most other institutions, where activities generally followed a prescribed procedure or sequence of steps. Furthermore, the teachers often applied two or more activities to the study of an excerpt,[9] again basing such decisions on whether an activity was suited to presenting a particular excerpt. Some of the activities were thus derived from a compilation of similar or virtually identical exercises that were observed or described in various classes (i.e., learning contexts).

A unifying feature of all eight activities collected from Institution H was the fundamental role of music excerpts, which were referred to as *musikcitat* in Swedish. These excerpts were often used in its original format, such as through performing or analysing the music presented in full scores or

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[9]   For example, in one class (Event 92), students undertook H2 & H3 while studying Bach chorale, while H1 had been assigned for homework and was based on the same excerpt. In another class (Event 93), students undertook H3 & H4 during class and were assigned to practise at home and present H5 during their subsequent class, again using the same excerpt.

in commercial sound recordings. In this way, the aural training activities (harmony or otherwise) were somewhat adapted to match the particular excerpt, rather than the other way around. In some activities (e.g., H4 & H6, it was necessary to make arrangements or simplified scores rather than use the original score. In these instances, the music was still always based on a specific musical work. In addition, at the conclusion of these activities, students often listened to a CD recording of the original excerpt, thereby elucidating the connection between the arranged or simplified version and the musical work in its original (performed) format.

With the exception of H1, which was a homework task, all activities at Institution H involved and heavily relied on performance actions. Students in some class were required to bring their main instruments to classes to play either melodies or chords on them, from notation and by ear. When students didn't bring their instruments, they sometimes performed on a keyboard instrument, either individually (H5 & H6) or as an ensemble performing simultaneously (H4). All activities involved singing in some from—even H6, which was not mainly a singing activity, occasionally included it when the teacher asked the student to sing arpeggiated chords rather than play them on a piano (i.e., by adapting H7 into the activity).

Table 2.8   Activities at Institution H

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
H1	Dictation exercises from CD recordings	$A \Rightarrow N_c$ *or* V	92, 93, 105	-	p. 305
H2	Discussing cadences and chords while singing through excerpts	$R_c \Rightarrow Pv_p$	92, 94	-	p. 306
H3	Singing arpeggiated chords from music or chord labels	$R_c \Rightarrow Pv_c$	92, 93, 95, 97, 105	106	p. 307
H4	Performing chords in four parts while identifying chords	$R_p \Rightarrow P_p \Rightarrow A \Rightarrow P_c$ *or* V	93	87, 95, 106	p. 309
H5	Singing melodies while playing chords on piano	$R_c \Rightarrow Pi_c + Pv_p$	-	93	p. 310
H6	Performing excerpts on piano by ear through guided repetition	$A + R_p \Rightarrow Pi_c$	95	106, 108	p. 311
H7	Identifying chords through performing arpeggiated chords	$A \, (+ R_p) \Rightarrow P_c$	97, 99	-	p. 313
H8	Identifying chords by singing guide-tones while listening	$A \Rightarrow Pv_p$	102, 104	-	p. 314

Table 2.8   List of all activities collected from Institution H.

2.9   Activities at Institution I

The number of activities collected from Institution I was considerable if taking into account the fact that given that the school had only one aural training teacher and that I only managed to observe six classes.[10] The variety of activities was so great that of the thirteen collected activities, only I1, I3, & I4 were observed in more than one class; the rest were observed only once. Not surprisingly, many observed classes included a variety of aural harmony activities, with up to five different aural harmony activities undertaken during an hour-long class (Event 114). The emphasis on harmony was evident at every observed class. Although this may be partly due to my presence, it was nevertheless an illuminating and almost exhaustive experience to observe so many different activities.

Apart from I8 & I9, which were dictation-type exercises, every collected activity involved some form of performance. Of the eleven activities that incorporated performance, many involved singing (I2, I4, I7, I10, & I11) or playing instruments (I1, I2, I4, I5, I6, I12, & I13), while one required students to do both simultaneously (I3). Several of the activities involving instrumental performance required students to bring their main instruments into class. There were three activities that involved some form of improvisation and creative music making within the activity (I5, I12, & I13). The teacher also frequently improvised during many of the observed classes, usually while accompanying students in their improvisations or in order to demonstrate chord types or cadences in common chord progressions. There were two activities that involved gestures or body movements (I7 & I11), although body movements in the latter activity were in response to directions from the teacher, not aural identification—a distinctive exercise that was not observed or described at other institutions.

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[10]   Twelve of the thirteen activities collected from Institution I were directly observed during classes; only one of the activities was described by the teacher (I8).

Table 2.9   Activities at Institution I

Activity label and short descriptive title	Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
I1 Identifying and discussing chord progressions in repertoire	$R_c \Rightarrow Pi_c$; $A \Rightarrow V$	109, 114	-	p. 316
I2 Discussing different harmonisations of melodies	$R_p \Rightarrow Pv_p$; $R_c \Rightarrow P_p$; $A \Rightarrow N_c \, or \, V$	109	-	p. 317
I3 Singing arpeggiated chords	$R_c \Rightarrow [Pi_c \, or \, Pi_p]$ $+ Pv_c$	109, 110, 114	-	p. 318
I4 Identifying, singing, and playing arpeggiated chords	$A \Rightarrow P_c$	110, 115	-	p. 319
I5 Performing counter-melodies in chord progressions	$A + R_c \Rightarrow Pi_p$	110	111	p. 320
I6 Multi-part performance while labelling chord types	$T \Rightarrow Pi_p \Rightarrow A \Rightarrow V$	112	111	p. 320
I7 Identifying chord changes and responding through gestures	$A \Rightarrow G \, (+ Pv_p)$	114	111	p. 321
I8 Step-by-step dictation: identifying chords by type	$A \Rightarrow N_c$	-	111	p. 322
I9 Identifying chords and chord progressions from piano	$A \Rightarrow N_c$	112	-	p. 323
I10 Identifying chords while singing accompanied melodies	$R_p \Rightarrow Pv_p$; $A + R_p \Rightarrow V$	114	-	p. 324
I11 Singing arpeggiated chords with body movements	$T \Rightarrow Pv_p \, or \, Pv_c$	114	-	p. 324
I12 Playing harmonic accompaniments from chord labels	$R_c \Rightarrow Pi_c$	116	-	p. 326
I13 Harmonising looped chord progressions	$A \Rightarrow Pi_p \, or \, Pi_c$	115	-	p. 327

Table 2.9   List of all activities collected from Institution I.

2.10   Activities at Institution J

Similar to the three other Scandinavian institutions, performance actions were commonly featured in aural harmony activities at Institution J; all eleven collected activities involved performance actions. Students' performance actions were mainly in response to aural identification (J1, J2, J3, J8, & J10), while sometimes they were in response to reading a given part (J11) or chords (J4, J5, & J6). (Interestingly, students sang arpeggiated chords (J4) in three completely different ways depending on the teacher presenting the activity.) Other times, students performed in response to

teacher directions (J7, J9, & J10). J7 was an improvisation exercise that required students to modulate from one key to another. J10 was a particularly challenging activity that required students to simultaneously play or sing a part while identifying another person's part, followed by playing the identified part.

Excerpts formed the basis of many activities. Two activities involved extensive use of commercial sound recordings (J1 & J2). Excerpts were simplified and arranged for the purposes of student performance in two other activities (J8 & J11). Students sang arpeggiated chords from both excerpts and composed exercises (J4). J7, J9, & J10 involved teacher-directed performance actions and involved neither excerpts nor composed exercises. In J3, J5, & J6, students sometimes worked with chords or chord progressions that were composed specifically for aural training purposes. However, in some classes, these three activities also involved working with excerpts or arrangements of excerpts.

In addition to the activities undertaken during aural training classes, one teacher explained that certain ensemble and orchestral rehearsals sometimes incorporated aspects of aural training. These classes presented opportunities to merge aural training into common music-making contexts, while also providing opportunities for conducting students to practice their skills with live student ensembles. Discussions and exercises relating to aural skills, including aural harmony activities, usually occurred when there was sufficient time available to split the ensemble into several groups, whereby several teachers individually tutored each group. I observed one conducting class where there were several staff members present—including one aural training teacher (Event 132). Unfortunately, on that occasion the teacher did not find opportunities to comment specifically on issues relating to harmony. Consequently, this activity is not described below due to insufficient data.

Table 2.10   Activities at Institution J

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
J1	Identifying bass lines and chords from recordings	$A \Rightarrow Pv_p$ or V	119, 122, 131	-	p. 328
J2	Singing arpeggiated chords from recordings	$A (+ R_p) \Rightarrow Pv_c$	119, 122	-	p. 329
J3	Identifying bass lines and chords from piano	$A \Rightarrow Pv_p$ or Pv_c or V	119, 120, 128	129	p. 329
J4	Singing arpeggiated chords from chord labels	$R_c \Rightarrow Pv_c$	120, 122, 131	-	p. 331

Table 2.10   Activities at Institution J (continued)

Activity label and short descriptive title		Action sequence(s)	Observed (Events)	Described (Events)	Details (cf.)
J5	Singing chord progressions in multiple parts from chord labels	$A + R_c \Rightarrow Pv_p$	120, 128	121, 129, 133	p. 332
J6	Performing chord progressions on piano with given chord labels	$R_c \Rightarrow Pi_c$	-	120	p. 334
J7	Improvising melodies in modulating passages	$T \Rightarrow Pv_c$	122	-	p. 334
J8	Identifying and performing outer parts and chords	$A (+ R_p) \Rightarrow [P_p$ $or\ P_c] + G$	123	125	p. 335
J9	Performing melodies and voice-leading in chord progressions	$T \Rightarrow P_p$	123	125, 126	p. 338
J10	Performing chords in parts while identifying notes in other parts	$T \Rightarrow P_p \Leftrightarrow A$	-	125, 126, 133	p. 339
J11	Singing four-part exercises while identifying chords	$R_p \Rightarrow P_p \Rightarrow A \Rightarrow V$ $or\ N_c$	131	130, 133	p. 340

Table 2.10   List of all activities collected from Institution J.

Summary

In this chapter, I have summarised the 89 activities that I collected through class observations and discussions with teachers at ten tertiary institutions in four countries. Some of these activities can be directly traced to an established tradition (e.g., harmonic dictation exercises like B4 & C7). Indeed, some of the activities were presented directly from aural training textbooks (e.g., at Institution D). Yet many of the activities were so distinctive that, to the best of my knowledge, they have not even been vaguely alluded to in pedagogical and research literature, let alone described in detail, until now.[11] Even in the more common types of activities, such as 'sight-singing', my class observations have revealed a considerable range of teaching techniques that encouraged students to appreciate different aspects of harmony-related concepts.[12] If spending only 20 days at ten institutions can reveal 89 distinct aural harmony activities, one may ponder how many we might discover if it were possible to compile activities from the more than 3,000 institutions[13] around the world! Nevertheless, the activities presented in this chapter (and in Appendix A) perhaps constitute the most comprehensive collection of documented aural harmony activities to date.

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[11]   The full descriptions of these activities can be found in Appendix A.

[12]   Although I have alluded to some of these features in this chapter, further examples of this can be gleaned from the full descriptions of Study II activities in Appendix A.

[13]   This figure is based on the work of Bartle (1996).

The interactions between students and teachers within a classroom environment are highly dynamic and vary considerably from one moment to the next. The teachers in Study II no doubt modified their activities from time to time (e.g., the method of presentation, the content and musical materials, and the sequencing of steps or multiple activities) in order to arrive at a teaching method that suited the particular learning situation at the time. The data collected in Study II does not in any comprehensive way reveal a particular teacher's activities, approaches, or philosophies. Rather, and as I have mentioned earlier in this dissertation, it represents valuable experiential snapshots of specific pedagogical approaches that the teacher employed at one particular occasion.

Concerning the first research question outlined in subsection 1.1.4, I have produced fully detailed descriptions of each activity, which reveal the interactions between students and teachers (and thus the students' actions) in a step-by-step manner (presented in Appendix A).[14] The detailed descriptions not only enable us to appreciate the range of actions that students undertook in aural harmony activities, but they also reveal that the actions serve different pedagogical purposes depending on the context of that action. Take performance as an example. In Study II activities, students performed music (i.e., sang or played an instrument) in response to various other actions, such as reading music notation (e.g., B3 & H5), reading chord labels (e.g., E14 & I2), and aurally identifying elements of music that the students listened to (e.g., C7 & E3). Although all these activities involved performance in some way, they did not result in similar pedagogical outcomes. The pedagogical purpose of undertaking one action, in other words, is partly determined by the actions that immediately precede or follow.

In order for us to appreciate the pedagogical outcomes of these activities, and thereby address the second research question, we need to categorise activities based on the kinds of skills that students learnt in these activities. To this end, I have devised a method of classifying activities based on the *sequencing* of student actions. I developed this classification system while examining Study II data for the purposes of writing up the full activity descriptions (Appendix A) and summarising the activities at each institution (presented in this chapter).[15] In the next chapter (Chapter 3), I describe my classification system by defining and describing the student actions,

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[14]   In many cases, these descriptions are detailed enough to allow one to visualise the teaching situation within the classes that I observed, thus potentially leading to teachers incorporating new pedagogical approaches into their existing repertoire of activities and teaching methods.

[15]   I should mention that the 'final' classification system presented in this dissertation was the result of numerous revisions. I made significant changes to the classification system until I had fully examined every one of the 89 Study II activities. See Chapter 3 for further details about the process and rationale of developing the classification system.

action sequences, and categories of aural harmony activities as revealed through Study II activities. Then in Chapters 4–6, I extensively compare the pedagogical approaches of similar kinds of activities, as indicated by their categories.

Chapter 3

A classification system for aural harmony activities

I present in this chapter a unique method of classifying aural harmony activities based on the actions that students undertook in Study II activities. The development of this classification system did not occur separately from the identification of activities in Study II data. That is, the classification system did not arise out of the full descriptions of the 89 Study II activities. As I progressed with the writing up of the full descriptions of Study II activities (see Appendix A), I gradually began to notice several patterns in the way students participated in these activities. This understanding did not immediately result in a satisfactory method of comparing activities; rather, the classification system I propose in this chapter was the final result after several modifications and refinements. The final version described here adequately accounts for all the Study II aural harmony activities.

Consistent with the student-oriented focus of my analysis of Study II activities, the proposed classification system is based upon actions that students undertake during aural harmony activities. In the first section of this chapter (section 3.1), I explore existing methods of classifying activities in aural training in both research and pedagogical literature, and show that these methods do not facilitate a comprehensive and systematic comparison of Study II activities. I then proceed to present the fundamental feature of my proposed classification system: student actions (section 3.2). I identify and define the seven basic actions, and explain the symbols that I use to represent these actions. I also explain the distinction between the various action subtypes, which

indicate more specific details about the action. Second, I explain how actions are combined to form *action sequences*, which can then be used to codify[1] either an entire activity or a specific step or exercise within an activity. Finally, I present the four categories of action sequences. These categories represent groups of sequences that promote similar kinds of musicianship skills in students.

3.1   Comparing aural harmony activities

While there are numerous books on aural training that describe aural harmony activities, there are no defined methods for comparing activities. Many activities are described in aural training textbooks, which are typically authored by practicing teachers. Such books essentially summarise their authors' recommendations in the form of set sequences of exercises, often based on personal experiences over many years of teaching. It is not surprising, then, that even though these textbooks typically present numerous exercises or questions, they tend to concentrate on a single underlying approach—that of the textbook's author.[2] This trend of describing individual approaches in academic texts is not surprising if one considers the assumed function of textbooks, which is to propose a consistent approach to aural training, one that is applied throughout one year if not the entire undergraduate aural training curriculum. Other texts adopt a more open stance by describing various approaches and activities rather than only one or two specific types of exercises (e.g., Karpinski, 2000; Pratt et al., 1990). However, even these more generalised books on aural training shy away from a methodical comparison of contrasting activities, opting instead to describe activities or activity types in a discrete manner.

Similarly, within the relevant research literature, a significant proportion of studies investigates or compares only a small number of teaching approaches or activities. Some researchers gauge the effectiveness of one or two aural harmony activities based on quantitative measurements such as change scores between students' pre- and post-tests (e.g., Watts, 1998; Brown, 1990; Weale, 1986; Alvarez, 1980b). Portillo (2006) compares two contrasting learning approaches that are described in textbooks, although she focuses specifically on post-tonal harmonic dictation, which

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[1]   In this dissertation, the transitive verb 'to code' denotes the process of determining the action sequences exhibited within an activity and, consequently, assigning the activity to one or more categories.

[2]   It should be noted that while many textbook authors advise their readers to make small changes to the proposed activities as necessary, these minor variations do not represent significantly different activities or approaches. These minor changes include, for example, the choice of a specific solmisation system and the reordering or skipping of chapters or exercises. Of course, even if teachers were not advised of such liberties, they already hold the licence to make changes to pedagogical materials to suit their preferences and specific teaching needs.

is a relatively uncommon activity.[3] Other studies propose and assess an entire aural training course that include some harmony-related exercises, and which are based on one underlying approach (Servias, 2010; Brent, 2008). None of these studies describe a systematic method suitable for comparing the large and varied collection of aural harmony activities presented in Chapter 2.

Bradshaw (1980) briefly describes one of few documented methods of categorising student activities "in the study of music" (p. 114). Although this system is not specifically applicable to aural harmony activities, many of the mentioned activities (e.g., improvisation, ear training, and dictation) fit within the definition of aural harmony activities. Bradshaw essentially suggests that students respond in three different ways to three different types of stimuli, where both the stimuli and responses are denoted with the terms 'words', 'notes', and 'sounds'.[4] For example, when students produce 'words' in response to hearing 'sounds', he suggests that possible activities include "criticism, appreciation, or aural analysis" (p. 114). Using the three stimuli and response types, Bradshaw outlines the nine possible permutations of stimulus-response sequences and gives similar examples of 'activities' wherein such sequences are used.

Although Bradshaw's (1980) system may be useful for summarising student activities in music theory classes, its framework does not satisfy the needs of coding the collected aural harmony activities. Importantly, his system only describes situations in which students make a single response to a single stimulus. However, many of the activities I collected in Study II describe learning contexts where students dealt with two or more related stimuli simultaneously. For example, it was quite common for students to read notation while aurally identifying chords (e.g., B9, H6, & I5).

Moreover, there were several collected activities in which students' 'responses' were converted into 'stimuli', and in some cases this stimulus-response sequence was looped ad infinitum (under the direction of the teacher). For example, students in H4 read music notation and responded by singing or playing on their instruments, which in turn became the stimulus when they aurally analysed the resultant chords. Similarly, in J10, students continuously alternated between aurally identifying notes that *other* students were performing, and performing those notes once identified. The purpose of 'sounds' in J10 thus alternated repeatedly between 'stimulus' and 'response'. Considering the complex nature of the collected activities, classifying activities as one of only nine

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[3]   Harmonic dictation of post-tonal music represents a highly specialised kind of activity, one that is mainly relevant to the study of twentieth-century music (see Friedmann, 1990). The rarity of this kind of exercise is demonstrated by its absence in Study II.

[4]   Gauldin (1974) suggests a similar method of categorisation, although it pertains to aural identification skills only (p. 76).

possible stimulus-response sequences would be seriously inadequate.

The accuracy of any devised classificatory system of activities can be due to the variety and scope of activities that are known to exist. In suggesting that activities within the study of music revolve around three ways of responding to three types of stimuli, did Bradshaw (1980) consider his own teaching experiences, textbooks and educational materials, class observations, or conversations with other teachers? Contrary to this view that students may only respond to stimuli in three ways, several collected aural harmony activities demonstrated that students could also effectively respond through gestures (C5, I7, & J8). Gestures were also a crucial feature in two other activities, where teachers used gestures to indicate directions to students (I6 & J10). Prior to visiting the ten institutions, I had no experiences in undertaking or teaching activities wherein students made gestures in response to their aural identification. It was therefore only as a consequence of collecting Study II data that I learnt of how teachers could, simply by observing their students' gestures, efficiently assess their students' ability to recognise chords and chord progression.

The omission of gestures in Bradshaw's (1980) system is not a significant flaw in itself—indeed, virtually all other stimuli and responses within the collected activities could quite easily be described as words, notes, and sounds. However, it does highlight two important methodological issues concerning the formulation of a classificatory system for aural harmony activities. First, and as a matter of common sense, the greater the number and variety of activities available at one's disposal, the greater the potential to devise a system that is broadly encompassing and representative. Second, one can discover considerably more activities (and teaching approaches) through class observations and communications with other teachers in unfamiliar contexts than through reviewing the literature and reflecting on one's own teaching practices.

Finally, the three response and stimuli types proposed by Bradshaw (1980) are defined too broadly for it to be useful in the analysis and comparison of the 89 collected activities. In particular, there was a high degree of variation in the specific *kinds* of sounds and notes that were involved. In terms of treating 'notes' as a stimulus (i.e., reading), some activities involved reading full scores (e.g., C3 & E12) while others involved reading a single part (e.g., H7 & J11). At least two activities involved reading special music notation or nomenclature from worksheets that teachers created especially for the activity (H6 & J11). The collected activities also exhibited various ways of treating 'notes' as a response, including for instance notating specific parts (A1), labelling chords (G6 & H1), and both tasks combined (B4 & E10). In terms of responding with 'sounds'

(i.e., performance), various activities had students singing, playing keyboard instruments (sometimes while singing), and playing instruments that they had brought to class. Even the *content* of the performance was considerably varied, ranging from singing one part of chord progressions (e.g., B4 & D2) to arpeggiating entire chords (e.g., H3 & J4). All these interesting features would be lost in a simple classification system that does not differentiate beyond three types of stimuli and responses.

With no existing classification system that was suitable for analysing and comparing the collected aural harmony activities, it was necessary to devise one. The proposed classification was the product of the analyses of Study II data over an extended period of time. During this process, I continuous revised and compared the classification system against the collected data to ensure that each of the 89 collected activities was accounted for. These revisions largely involved clarifying and redefining the terms and symbols that are used in the classification system. In turn, any changes to the classification system resulted in the re-coding of relevant activities. This cyclical process continued until a satisfactory level of congruence was achieved between the collected data and the classification system. Congruence was indicated by the ability of the classification system to account for every significant action that was relevant to students' undertaking of an aural harmony activity. Below, I present and define the classification system for aural harmony activities in terms of the actions that students undertake (*actions*), the logical and possible sequencing of those actions (*action sequences*), and the four distinct categories of action sequences (*categories*).

3.2 Actions

Unlike human cognitive processes and perceptual (e.g., aural) senses, students' actions are readily describable and observable. During classroom observations in Study II, it was possible to note and record exactly what students *did* while undertaking aural harmony activities. Similarly, teachers in interviews and discussions very often described and clarified the activities not in terms of what *they* did, but rather what the *students* were expected to do. In both types of data, then, student actions represented one of the most commonly referenced elements of aural harmony activities. Codifying activities in terms of student actions was therefore the most logical and simple choice. In the proposed classification system, and from this point onwards, the term 'action' denotes the various defined actions that students engage in while undertaking aural harmony activities.

There are seven basic actions in the proposed classification system, and each action is represented by a unique symbol. These actions and symbols are:

- Performance (**P**);
- Aural identification (**A**);
- Reading (**R**);
- Teacher instruction (**T**);
- Notation (**N**);
- Verbal response (**V**); and
- Gesture (**G**).

Of these seven basic actions, three of these (**P**, **R**, and **N**) are further differentiated into various subtypes of actions. This distinction indicates whether the action focuses on a *chord* or a specific *part* of a chord. Actions that focus on parts and chords are indicated with a subscript letter 'p' and 'c', respectively. The reading action, for example, is differentiated into part reading (R_p) and chord reading (R_c). In order to distinguish between instrumental performance and singing—which are treated differently within the context of aural training[5]—I also differentiate between student performance on an *instrument* (**Pi**) and student performance through *singing* (**Pv**). I will now define in more detail each of the seven basic actions, and, for the **P**, **R**, and **N** actions, I will also elucidate the reasons for distinguishing between their respective action subtypes.

3.2.1 Performance (P)

The performance (**P**) action is defined as students' performance (i.e., production) of pitched sounds. As the detailed descriptions of the Study II activities illustrate (see Appendix A), these activities exhibited a great range of performance actions, from singing parts and arpeggiated chords, to playing chords on keyboard instruments. Due to my focus on this particular action in this dissertation, it was necessary that I clearly distinguished between these different forms of performance. As I mentioned earlier, the **P** action is therefore subdivided in two different ways. These two subdivisions give rise to four more specific action subtypes, as represented in Figure 3.1.

The first distinction is between two *mediums* of student performance actions: performance

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[5]   See, for example, Karpinski's (2000) distinction between singing back (p. 101) and playing back on an instrument (pp. 129–130) within the context of dictation exercises. Also, apart from a concluding exposition into the "transferal to instruments" (pp. 191–193), Karpinski assumes that within the context of aural training, sight reading is an activity conducted primarily through singing, not on instruments.
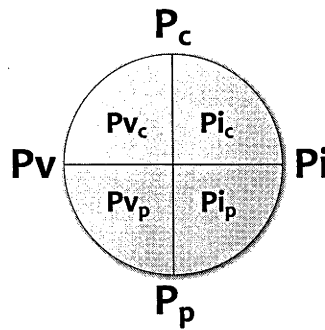
Figure 3.1 The performance action and its two subdivisions: by medium (main instrument vs. voice) on the horizontal axis (**Pi** and **Pv**) and by mode (part vs. chord) on the vertical axis (P_p and P_c). The symbols in the circle represent the four resultant subtypes of the basic **P** action.

through vocal performance (**Pv**) and performance through playing an instrument (**Pi**). In the collected activities, singing and playing instruments were treated very differently. Not surprisingly, at least one aural harmony activity at each of the ten institutions involved singing. Singing was required in several types of activities, including harmonic dictation (e.g., D2), sight-singing (e.g., C8), as well as performing arpeggiated chords (e.g., J4). In comparison, it was rare for students to play instruments in aural harmony activities. When students performed on instruments, it was most commonly on a piano or keyboard instrument (e.g., in keyboard harmony classes). The rarity of using instruments, particularly at institutions in the US, was most likely due to logistical issues of having students bring instruments to aural training classes.[6] Nevertheless, playing instruments as opposed to singing had important implications on students' aural identification, as demonstrated in E3 & H7. Instruments enabled students to identify exact note names and chord labels, whereas this was not as straightforward with singing. Another feature of instrumental performance that teachers took advantage of was how, unlike singing, students could speak and respond verbally while playing instruments (e.g., I6).[7]

The other distinction is between 'part performance' (P_p) and 'chord performance' (P_c). This subdivision distinguishes between activities wherein students performed parts or melodies (e.g., B4, H4, & I5) and activities wherein students performed chords in their entirety (e.g., F5, G2, & H6). In many activities, however, students performed both parts and chords, usually starting with a simpler task (i.e., performing a part) before proceeding to a more complex task (i.e., performing chords) (e.g., E13 & J8). In such activities, part performance represented one or more intermediate

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[6] See sections 2.3 (p. 34) and 2.6 (p. 38) in Chapter 2.

[7] Of course, speaking while simultaneously playing an instrument is only feasible on instruments other than woodwind and brass.

steps that preceded the final and more challenging task of chord performance. In order to clearly differentiate between 'part' and 'chord' in terms of the final outcome of the activity, P_p is defined as students' performance of parts *without* chord performance, whereas P_c is defined as students' performance of chords *with or without* part performance. Consequently, every performance action must be either P_p or P_c.

As shown in Figure 3.1, the two subdivisions result in four specific action subtypes. These action subtypes describe both the medium in which the performance took place (sung or performed on instruments) as well as the mode of performance in terms of 'part' versus 'chord'. For instance, Pi_c denotes students' performance of full chords, whether arpeggiated or in block form, on an instrument. When a Study II activity exhibited performance actions that were specific in terms of both medium and type, I coded them using the four action subtypes. However, in some activities, students could undertake the performance task either on an instrument or through singing (e.g., J10). When coding these activities, I used the symbols P_p or P_c, both of which do not distinguish between the two performance media. On the other hand, it is not possible to leave out the 'part' or 'chord' designation by coding activities with either Pi or Pv. This is because, as explained earlier, P_p and P_c are mutually exclusive—the performed material must be either 'part' or 'chord'. In summary, there is a total of six kinds of P actions that can be used in coding the collected activities: P_p, P_c, Pi_p, Pi_c, Pv_p, and Pv_c.

3.2.2 Aural identification (A)

The aural identification (**A**) action denotes situations where students listen to music or other pitched stimuli (i.e., a chord or chord progression) and attempt to identify the chords or parts of the chords. This was one of the most common actions that students undertook as part of the collected activities. The music that students listened to, however, was considerably diverse. In some activities, students listened to CD recordings; in others, the teacher played chord progressions on a piano (i.e., harmonic dictations). Some activities involved a combination of both listening to CD recordings and music sounded on a piano (e.g., H6). In many cases, the music that students listened to was variable even within the same activity. For example, in some dictation exercises, teachers played the outer parts separately (or more loudly) in addition to the chord progression (e.g., E4). These variations make it impractical to differentiate between 'part' and 'chord' as in the case of the **P** action. Similarly, distinguishing between listening to music played on a piano

or through recordings would unnecessarily complicate the coding process, particularly when both types were used. Therefore, unlike the **P** action, I do not further differentiate the **A** action into subtypes.

While aural identification by definition does not require students to conduct any action in response (e.g., one can aurally identify chords in silence), all occurrences of the **A** action in the collected activities were followed by another action. The actions that students undertook in response to their aural identification indicate the type of analytical thinking that was required. This in turn hints at the content of the music that students listened to. For example, if a student performed a part ($\mathbf{P_p}$) in response to listening to an aural stimulus, his or her aural attention was focused on a specific part. The aural stimulus could in this case contain either chords or an unaccompanied part. If, on the other hand, an **A** action led to chord performance on a piano (e.g., in H6), the music that students listened to must have contained chords. Therefore, although I do not distinguish between 'part' and 'chord' within the **A** action, one can nevertheless appreciate the nature of students' aural identification within an activity by considering the action that follows immediately after in the activity's coded action sequence.[8]

3.2.3 Reading (R)

Not surprisingly, the reading (**R**) action was featured in many of the collected activities. Both the content and purpose of the **R** action were highly diverse, again making it necessary to further differentiate between more specific subtypes of the reading action. In one of my earlier versions of the classification system, I differentiated the **R** action by the type of nomenclature that students read, such as music notation, chord labels, and solmisation labels. Although this distinction is straightforward, it was not very useful to distinguish, for instance, between reading a notated melody and reading a series of scale degree numbers, because in both cases the action was essentially the same.[9] Furthermore, the music notation that students read ranged from the bass line of a chord sequence (e.g., B9) and four-part scores (e.g., E12) to a combination of notated melodies and chord labels (e.g., H3). While these three examples may all be described as reading music notation, they provided students with different amounts of information, which in turn demonstrates a significant

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[8]   I explain and define the concept of action sequences in section 3.3 (p. 63).

[9]   That is not to say that reading music notation and scale degree numbers give students the same kind of information. Music notation is key-specific while scale degree numbers represent note functions in any key. Rather, I argue that these two examples essentially provide students with the same kind of information: that of a melodic part. For this reason, distinguishing between kinds of nomenclature would be irrelevant for the purposes of the present study.

contrast in terms of the pedagogical intention of the reading task.

Alternatively, the **R** action can be differentiated into two subtypes based on the *information* contained within the materials that students read. In this case, the first subtype would indicate situations where students read one or more *parts* of a chord—that is, the notation or symbols provided students with some information about the chords, but not enough to deduce their exact types, functions, or labels. The second type would then indicate reading nomenclature that revealed the precise *chord* types, functions, or labels. Of the two approaches to subdividing the **R** action, this latter distinction between the 'part' and 'chord' modes of reading is more desirable. Differentiating by the *type* of content students read is reliant on predefined systems of nomenclature, whereas the distinction between the 'part' and 'chord' is a conceptual one. The most significant benefit of this conceptual distinction is that it can be consistently applied to other actions (i.e., **P** and **N**) that similarly need to be distinguished by subtypes. Applying the same conceptual subtypes to the other actions serves to simplify and unify the classification system.

Therefore, like the basic **P** and **N** actions, **R** is further differentiated into two types: 'part reading' (**R$_p$**) and 'chord reading' (**R$_c$**) for the purposes of coding activities. Similar to the concept behind **P$_p$**, **R$_p$** is defined as reading music notation or symbols that provide partial, incomplete information about the chords. The **R$_p$** action occurred, for example, in activities where students performed from a given part or melody (e.g., C8). It also occurred during activities wherein students read incomplete scores (H6) or non-standard notation (J11) that similarly provided students with visual clues about the chords or harmony without revealing the details. **R$_c$**, like **P$_c$**, denotes instances where students read music notation or labels that enable them to identify the *chords*. Reading the complete notation enabled students to perform chords (e.g., H3), a part (e.g., E14), or in some instances both simultaneously (e.g., B2).

3.2.4   Teacher instruction (T)

In addition to undertaking **P** following students' aural identification (**A**) and reading (**R**), students were sometimes instructed by their teachers through various means without listening to or reading music. For example, one teacher indicated to students how to perform various changing chords through gestures (e.g., I6). Other teachers gave verbal directions to students, who then interpreted these instructions and consequently performed the notes or chords (e.g., C11 & I11). In some activities, teachers also got students to perform from memory—not music they had just heard

during class, but music that students had committed to their long-term memory. This included performing memorised chord sequences (C2) and music excerpts that contained specific chord types (F4). In all the above examples, the students' performance actions were not primarily the result of **A** or **R**, but rather they were undertaken in response to some form of instruction provided by the teacher. The 'Teacher instruction' (**T**) action, then, is defined as students' interpretation of instructions or directions from a teacher for the purposes of undertaking a **P** action, where such instructions either eliminate the need for both **R** and **A** or otherwise exert a significant influence on the performed outcome.

This broad and exclusive definition of the **T** action warrants further explanation. In many of the Study II activities, it was both common and natural for students to interpret various kinds of information when performing. Teachers often changed from one mode of instruction to another within a short space of time, depending on the context and the required performance task. For example, in C11, students performed in response to their teacher's verbal instructions. In order to successfully perform their parts, students relied heavily on their theoretical understanding of intervals and chord types. However, by occasionally *singing* the instructions in a particular way, the teacher encouraged students to also listen (i.e., undertake **A**) in order to perform the correct notes. Despite the commonality of combining and alternating between various 'pre-performance' actions, it is helpful to identify the most significant action (or actions) that led to the performance action for the purposes of coding Study II activities. Doing so distinguishes between a performance action (for example, sung arpeggiated chords) that was the primarily the result of theoretical constructions (e.g., E15), reading notation or symbols (e.g., D4 & J4), and aural identification (e.g., E3).

T is therefore conceived as an action for coding activities wherein **P** was undertaken mainly in response to a teacher's instructions rather than **R** or **A**. However, as mentioned earlier, **R**, **A**, and **T** are not mutually exclusive as instigators of **P**. For this reason, coding an activity with **R** or **A** does *not* imply that students did not receive any instructions from their teacher; it only suggests that students were mainly focused on reading music notation or aural identification (or both[10]). Conversely, the **T** action does not indicate that a performance action did not involve any reading or aural identification.

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[10]   The simultaneity of two or more actions will be elaborated in the next section, section 3.3, on p. 63.

3.2.5 Notation (N)

The notation (**N**) action is used to describe students' notation of music or other types of nomenclature in response to some form of aural identification (**A**). This was quite frequently encountered, particularly in the US, and often in harmonic dictation activities (e.g., A3 & D2). There were some activities in which students only notated specific parts without labelling chords (e.g., A1), and others where students identified and wrote chord labels (e.g., I8). These two kinds of notation bear resemblances with the distinction between 'part' and 'chord' in reading actions presented earlier.[11] Consistent with the subdivision between 'part' and 'chord' in the **R** and **P** actions, the **N** action similarly has two subtypes: part notation (**N_p**) and chord notation (**N_c**).

The **N_p** action indicates notating one or more parts in the absence of identifying and writing chord labels. This action indicates that students are focused mainly on aurally identifying specific notes within the chord, rather than on the chord in its entirety. The **N_c** action denotes notating one or more chords in the form of chord labels, in addition to other written responses that may lead students towards this outcome. This action therefore implies that students need to appreciate the chord as a whole rather than only the individual notes that it comprises.[12] Generally, the **N_p** action is used to code melodic or multi-part dictation activities (e.g., A1) whereas the **N_c** action is used for coding harmonic dictation activities where the final goal is to label chords.

In many instances where **N_c** occurred, students first identified and notated one or more parts of a chord progression before proceeding to identifying and writing the chord labels. That is, students first undertook **N_p** and, using the knowledge gained, undertook **N_c**. Rogers (2004, pp. 120–122) and Karpinski (2000, p. 118) both describe this sort of exercise as melodic dictation followed by theoretical analysis rather than real harmonic dictation. Even though there is clearly a difference between the notation of chords following aural identification versus a theoretical analysis of notated parts, it would be very difficult, if not impossible, to accurately distinguish the two types of identification in the Study I activities. It would require students to provide constant feedback of their current state of thought, or even require the use of functional magnetic resonance imaging. In addition to the fact that these two methodologies were logistically impossible considering the large sample size of ten institutions, understanding the psychological and cognitive processes that distinguish the two actions goes far beyond the scope of this study. Therefore, I decided that it was

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[11]   Cf. subsection 3.2.3 on p. 57.

[12]   The various implications of **N_c** and **N_p** in the collected activities are considered in detail in section 5.1 (p. 111).

sufficient to code the activities based on the final outcome of the action. Where the final outcome was chord labels, I coded the activity with N_c; otherwise, when students only wrote one or more parts, I coded the activity with N_p.

3.2.6 Verbal response (V)

Naturally, verbal discussions amongst teachers and students, especially in the form of questions and responses, were a frequent occurrence in a significant portion of the observed classroom activities. Questions and answers were particularly common in activities where students listened to—and aurally identified—chords or chord progressions (i.e., activities involving the **A** action). In these types of activities, teachers typically asked students to describe what they just heard. Depending on the question or task, students' answers ranged from identifying specific attributes, such as the bass notes of a chord progression, through to more general remarks concerning chords, form, or other topics relating to harmony. Such verbal responses either represented the only means of demonstrating their aural identification (e.g., F1), or it was employed in addition to non-verbal actions such as **P** (e.g., E9). In virtually every activity that involved aural identification (**A**), students verbally conveyed what they identified at some point.

Due to the commonality of students' verbal responses in these activities, it would be excessive to define an action that indicates any instance of students' responding through words. Doing so would fail to distinguish between activities that *emphasised* verbal responses and activities where students primarily conveyed their understanding through non-verbal actions such as **N** and **P**. On the other hand, it was rare for students to respond verbally without any non-verbal action. In order to make the coding process efficient and meaningful, I decided that it would be best to define an action between these two extremes. Thus, for the purposes of this study, the verbal response (**V**) action specifically denotes instances wherein students, upon aural identification (**A**), verbally describe some aspect of the chords, and where such responses constitute a crucial feature of an activity.

The above definition of **V** needs further clarification. Consider the following examples. B4 was a harmonic dictation activity in which the main purpose was to teach students to notate the outer parts and label chords upon hearing chord progressions played on a piano. However, the teacher occasionally asked students to describe what they had written, usually after students had individually attempted to notate their answers in silence. In this case, speech was used as a means

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to clarify their written answers. This activity was therefore *not* coded with the **V** action. Now consider J1. In this activity, students listened to excerpt recordings and, in response, sang the bass line and identified chord labels. Here, the step of verbally labelling the chords was both the last and most important. This activity was thus coded with the **V** action. Restricting the definition of the **V** action in this way enables us to compare activities in which students' verbal responses were emphasised.

3.2.7 Gesture (G)

As mentioned above in section 3.1, students in three collected activities made gestures to convey their aural identification (**A**) of chords. The gesture (**G**) action is defined as controlled movements of either a part or the whole of a student's body in response to their aural identification (**A**). Such kinæsthetic actions, although relatively rare, nonetheless represent a distinct method of representing one's aural identification. Depending on the activity, students' gestures conveyed varying amounts of detail. In C5 & I7, students gestured to represent changes in chord function. In J8, however, students used gestures to represent the relative pitch height of the outer parts of a chord progression.

In practice, students' gestures were not always based on their aural identification. First, in some activities students gestured in response to instructions from teachers. In I11, the teacher announced the scale degree numbers of bass notes while students made stepping movements back and forth based on those instructions. While such activities certainly relate to aural harmony, they do not fit the definition of the **G** action. Second, even in C5, I7, & J8 wherein students were instructed to gesture depending on what they heard, it was theoretically possible for students to gesture based on other means. While observing C5, an activity in which students simultaneously moved their bodies in response to chord changes, I noticed that many students appeared to rely heavily on what they *saw* rather than what they heard.[13] In J8, students' gestures were occasionally the result of students' reading of notation on a worksheet rather than their aural identification. Nevertheless, the principal *aim* of all three activities was to encourage students to gesture in response to what they aurally identified.

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[13] While this can never be proven, I deduced this based on the fact that, while observing the class, I noticed that students who gestured incorrectly were often seated beside each other and within visible range. Additionally, when a student seated near the front corrected his or her incorrect gesture, those seated behind who initially made the same incorrect gesture often corrected themselves moments later.

3.3 Action sequences

Actions, when considered in isolation, only represent what students do at a particular step of an activity. Without ordering or sequencing these actions, they in themselves do not represent the thought and action processes (i.e., aural skills) that students practice and develop through their undertaking of aural harmony activities. In the Study II activities, when students listened to music and attempted to aurally identify chords or parts of chords (**A**), they *always* represented their cognition by performing another action—namely **P**, **N**, **V**, or **G**. It was through the resultant action(s) (performing, notating, verbally responding, or gesturing) that teachers were able to confirm that their students had properly understood the concepts or mastered the relevant skills. Students in Study II were never instructed to listen to some music and identify chords or parts of chords without undertaking any of these four actions in response. I therefore coded Study II activities not with individual actions, but with sequences of two or more actions, or *action sequences*.

An action sequence (or 'sequence' for short) is a combination and specific ordering of actions, which represents the pedagogical succession of actions that students undertake during aural harmony activities. In its most basic form, an action sequence denotes one action *leading to* another. The arrow symbol ($\Rightarrow$) indicates the direction in which one action leads to the next. Consider, for instance, the **A** $\Rightarrow$ **N$_c$** sequence. I used this sequence to code any activity where students aurally identified chords or parts of chords, followed by their notation of chord labels (e.g., A3, B5, & G6). Another common sequence was **R$_c$** $\Rightarrow$ **Pv$_c$**. Here, students read music notation or symbols that indicated specific chords or chord progressions and, in response, sang (i.e., arpeggiated) those chords (e.g., C1 & J4).

The above examples illustrate the most basic form of action sequences comprising the minimum number of actions: two. However, not all Study II activities were coded so straightforwardly. In several activities, one action led to another, which then led to another, and so forth. For instance, C8 was coded with the sequence **R$_p$** $\Rightarrow$ **Pv$_p$** $\Rightarrow$ **A** $\Rightarrow$ **V**. This sequence essentially summarises the steps that students undertook. First, students read (**R$_p$**) and sang (**Pv$_p$**) a given melody. As they sang the melody, they listened to—and aurally identified—the chords that the teacher played on a piano as a harmonic accompaniment (**A**). Finally, students verbally described the chords that the teacher played (**V**). In some other cases, I used two or three unconnected

sequences to code a single activity. In coding I2, for example, it was necessary to apply three different sequences to cover every type of action sequence that students undertook. When two or more separate sequences were coded for a single activity, each sequence indicates a specific step or mini-exercise within that activity. For two of the Study II activities (C11 & J10), I used double-sided arrows ($\Leftrightarrow$) between the **P** and **A** to indicate the equivalent of '**P** $\Rightarrow$ **A** $\Rightarrow$ **P** $\Rightarrow$ **A** $\Rightarrow$ …', thereby indicating that the chain of actions continued ad infinitum until the teacher decided to end the activity.[14]

In addition to actions and arrows, I also used two other symbols for constructing slightly more complex sequences. The first is the '+' symbol. This symbol, when placed between two actions, denotes two actions that students undertake *simultaneously*. H6, coded with $\textbf{A} + \textbf{R}_\textbf{p} \Rightarrow \textbf{Pi}_\textbf{c}$, is a good example. Students in this activity aurally identified musical excerpts (including the chords) while simultaneously reading from a special worksheet that provided partial information. In response to their listening and reading, the student performed the excerpt (including chords) on a piano. The student's reading and aural identification were intended to occur simultaneously such that both actions reinforced each other as they combined to form in the student's mind an aural assimilation of the excerpt. The second symbol is the word '*or*', which, when placed between two actions, indicate actions that represent alternative actions or approaches. It also enables the contraction of multiple similar sequences into one. For example, in J3, I coded the activity with the sequence $\textbf{A} \Rightarrow \textbf{Pv}_\textbf{p}$ *or* $\textbf{Pv}_\textbf{c}$ *or* **V** rather than with three separate sequences, each starting with '$\textbf{A} \Rightarrow$'.

Lastly, I used two types of brackets in action sequences. Parentheses indicate actions that are infrequently or optionally featured in activities. For instance, in H7—which was coded with $\textbf{A} (+ \textbf{R}_\textbf{p}) \Rightarrow \textbf{P}_\textbf{c}$—students occasionally read a part or melody while listening to and arpeggiating chords; reading the part was treated as an additional aid that was not always necessary. Finally, square brackets were used in the same way as parentheses are used in mathematical formulæ to indicate the order of operations. That is, the content of the square brackets is to be considered *before* the actions and symbols outside the brackets. For instance, the coded sequence for I3 ($\textbf{R}_\textbf{c} \Rightarrow [\textbf{Pi}_\textbf{c}$ *or* $\textbf{Pi}_\textbf{p}] + \textbf{Pv}_\textbf{c}$) indicates two sequences that took place separately at various stages of the activity: $\textbf{R}_\textbf{c} \Rightarrow \textbf{Pi}_\textbf{c} + \textbf{Pv}_\textbf{c}$ and $\textbf{R}_\textbf{c} \Rightarrow \textbf{Pi}_\textbf{p} + \textbf{Pv}_\textbf{c}$.

Despite the implied meaning of the '$\Rightarrow$' symbol used in action sequences, the ordering of

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[14]   See section 6.3 (p. 158).

action sequences does not necessarily match the *temporal* succession of actions within an activity. Consider, for instance, H4, which is coded with the following sequence: $R_p \Rightarrow P_p \Rightarrow A \Rightarrow P_c$ *or* V. This long sequence may appear to have four steps, but in fact some of these actions occurred virtually at the same time, while other actions took more time to complete. The first segment, $R_p \Rightarrow P_p$, represents a student's performance of a melody or part (on an instrument or through singing) upon reading it. In practice, there were in fact at least two possible approaches: they could sight-read their parts (i.e., simultaneously read and perform) or they could first memorise their part before performing it. Similarly, in the next segment of the sequence, $P_p \Rightarrow A$, aural identification occurred either simultaneously with or subsequently after their performance. Action sequences thus represent the flow of concepts from one action through to the next, from the student's perspective.

In constructing action sequences, both the definitions of actions and the specific focus on aural harmony activities limit the kinds of sequences that are possible and relevant to this study. In this regard, there are some interesting parallels between the proposed classification system and Bradshaw's (1980) system, which I expounded and critiqued earlier.[15] Of the seven basic actions, only **A** and **P** function as either 'stimulus' or 'response' according to Bradshaw's meaning of the words. That is, students' aural identification and performance actions can be placed at either the start or end of any action sequence. **A** and **P** also correspond, in terms of Bradshaw's 'type' of stimulus/response, to the "sound" category; both actions deal with the creation and manipulation of sounds (as opposed to 'words' or 'notes'). The **R** and **T** actions function only as stimuli, while the **N**, **V**, and **G** are responses only.

There are seven basic sequences for the coding of the Study II activities, as represented in Figure 3.2 by the arrows. While this diagram represents the most common kinds of sequences, there is one particular phenomenon that is not represented: the simultaneity of **A** and **R** (i.e., 'A + R'). In activities that exhibited this combination of actions, the emphasis was always on the aural identification rather than the reading action (cf. B9, E4, & J8). Because the main action (or purpose) in these activities was **A**, sequences that began with **A + R** function like an **A** action on its own, and was thus followed by either **P**, **N**, **V**, or **G**.

Because action sequences are constructed for the purposes of coding and comparing aural harmony activities (as opposed to other aural training and music theory activities), certain sequences

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[15] Cf. section 3.1 on p. 50.
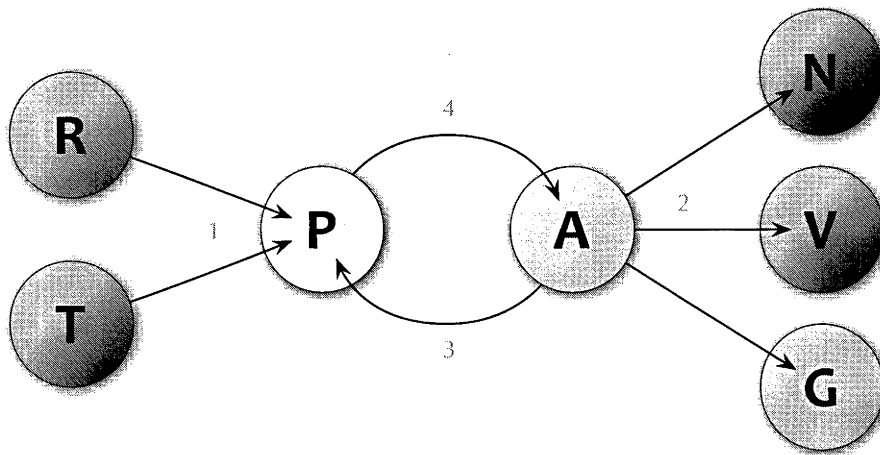
Figure 3.2 A schematic diagram of the classification system for aural harmony activities. Each circle represents one of the seven actions that students perform while undertaking aural harmony activities: Reading (**R**), Teacher instruction (**T**), Performance (**P**), Aural identification (**A**), Notation (**N**), Verbal response (**V**), and Gesture (**G**). Arrows denote the sequence in which actions may occur. Numbers 1 to 4 denote the four categories of action sequences.

were considered extraneous. For instance, assuming some changes are made to certain definitions of actions, the sequence $R_c \Rightarrow V$ might describe a harmonic analysis exercise using orchestral scores, for instance.[16] However, such a sequence would not satisfy the definition of *aural harmony activities* because the sequence does not contain either aural identification (**A**) or performance (**P**). In summary, only sequences represented in Figure 3.2, with the exception of '**A** + **R**'-type sequences described earlier, were used in the coding of the Study II activities.

3.4 Categories of action sequences

Once I coded all Study II activities with one or more action sequences, I then determined which categories these activities belonged to. The method of classification is based on the logical (as well as visual) division of the action sequences shown in Figure 3.2. The four categories are:

- Category 1 (**R** *or* **T** $\Rightarrow$ **P**)
- Category 2 (**A** $\Rightarrow$ **N** *or* **V** *or* **G**)
- Category 3 (**A** $\Rightarrow$ **P**)
- Category 4 (**P** $\Rightarrow$ **A**)

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[16] This sequence is in fact invalid under the specific definitions of the **R** and **V** actions established earlier in section 3.2 on p. 53. I.e., the **V** action must occur in response to **A**.

The identification of aural harmony activities as distinctly separated exercises facilitates their description and analysis. However, this distinction is dependent on the scope and definition of what is meant by an 'activity'. While some activities in Study II comprised a consistent sequence of steps presented almost identically at every lesson (e.g., most harmonic dictation exercises), the presentation of other activities were highly flexible and did not appear to be restricted to the same sequence of steps each time. In the latter type of activities, students often undertook a variety of short exercises that related to a fundamental concept or aural skill. These activities nevertheless exhibited a clear pedagogical purpose or learning outcome. In this way, the categorisation of an activity reveals the kinds of skills that students develop in that activity.

The classification system is not mutually exclusive; each activity can be classified into one or more categories. For instance, because F2 is coded as $A \Rightarrow N_c$ *or* Pv_p, it is classified under both Category 2 and Category 3. The main reasons for the non-mutually exclusive nature of the classification system are due to the diverse nature of the 89 collected activities as well as the level of detail of the collected data for each activity. Some activities were relatively more complex (for instance, they involved various sequences and variations that teachers applied or suggested), while other activities involved only one basic task (that was coded with a single, simple sequence) that was intended to be essentially repeated with different materials.

Given the significant variety of activities that I was able to collect from the 10 institutions in Study II, we can potentially use this information to broadly assess the prevalence of specific types (i.e., categories and subcategories) of activities across the field of aural skills pedagogy. However, there are two reasons why we cannot accurately quantify this data and rigorously analyse it using statistical methods. Firstly, Study II data is qualitative in nature. The data reveals pedagogical approaches that individual teachers deemed appropriate at the time, within their specific teaching contexts. Secondly, in some cases an activity was classified under two or more categories. A quantitative comparison of Study II data for the purposes of determining the prevalence of an activity type is therefore not going to produce a representative picture of teaching and learning methods in aural harmony. For these reasons, I will mainly focus my analyses in the following three chapters on comparing the similarities and differences between teaching and learning approaches, both within each category (or subcategory) as well as across categories.

Occasionally, some numerical comparisons can highlight interesting and relevant trends, particularly at the macro level. For example, comparing activities between individual institutions is

unlikely to be representative due to the opportunistic nature of the data collection and the relatively few activities collected from certain institutions. On the other hand, by combining the activities within a whole region (i.e., in American and Scandinavian institutions[17]), comparisons of activities across different categories or subcategories are more likely to be meaningful.
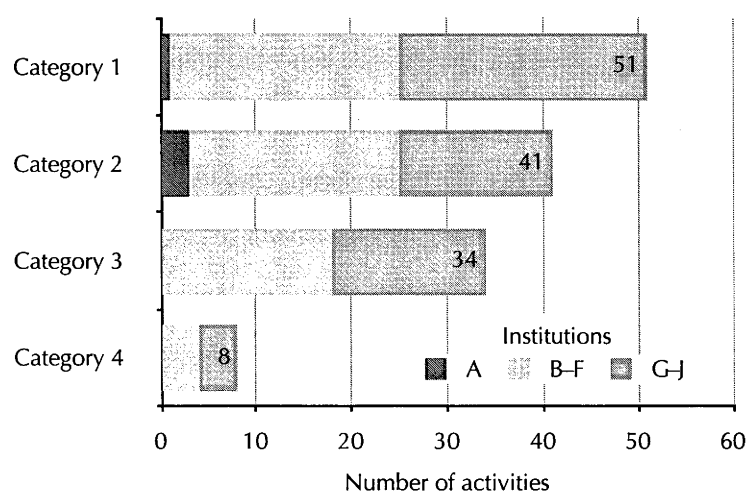
Figure 3.3 Total number of Study II activities in each category, subdivided by activities from institutions in Japan (A), the US (B–F), and Scandinavia (G–J)

As the graph in Figure 3.3 illustrates, Category 1 was the most prevalent of the four categories, accounting for 51 of the 89 Study II activities.[18] Categories 2 and 3 were also quite common, with 41 and 34 activities, respectively. Category 4 activities were comparatively rare, with only 8 activities. A visual comparison between activities collected from US and Scandinavian institutions indicates that the ratios between the four categories are very similar.[19] However, if one inspects the graph more carefully, one may note that there was a slightly higher proportion of Category 2 activities in the US than in Scandinavia. This suggests that on the whole, teachers in the US tended to employ more Category 2 activities than teachers in Scandinavia. As I mentioned earlier, numerical comparisons in this study should be interpreted with some caution. This graph nevertheless reveals a clear trend in terms of the relative commonality of activities in the four categories.

[17] The number of activities observed in the US and Scandinavian countries were equal, although there were only four activities collected from the sole Japanese institution, Institution A. For this reason, the most useful comparisons by region is between American (i.e., Institutions B–F) and Scandinavian (Institutions G–J) institutions.

[18] The reader is reminded that some of the Study II activities were coded with two or more sequences. For this reason, even though the graph in Figure 3.3 represents all 89 Study II activities, adding up the number of activities in each of the four categories does not result in 89.

[19] I omit the activities collected from Institution A (i.e., Japan) in my comparisons because of the relatively insignificant number of activities.

3.4.1 Category 1: Reading or Teacher instruction leading to Performance (R *or* T ⇒ P)
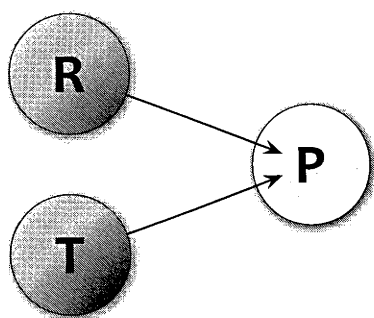
Figure 3.4   Category 1

Activities in Category 1 involve interpreting either visual or verbal stimuli in the form of reading music or responding to teacher instructions (**R** *or* **T**) for the purpose of undertaking a performance action (**P**). The performance action can be any of the various subtypes.[20] Examples of activities within this category include sight- or prepared-singing exercises (e.g., B3), improvisation exercises (e.g., C6 & J7), and chord arpeggiation (e.g., E7 & E8).

As Figure 3.5 illustrates, the majority of Category 1 activities commenced with an **R** action rather than **T**. The commonality of **R** ⇒ **P** activities is unsurprising given the emphasis on the development of music reading skills in much pedagogical literature (e.g., Karpinski, 2000). On the other hand, there are relatively fewer documented activities or teaching methods that involve student performance in response to teachers' spoken instructions (coded as **T** ⇒ **P**). There are only a handful of resources describing activities of this type (e.g., Pratt et al., 1990; Alldahl, 1974). The 16 **T** ⇒ **P** activities collected as part of Study II thus represents a collection of idiosyncratic activities developed and refined by the teachers themselves.
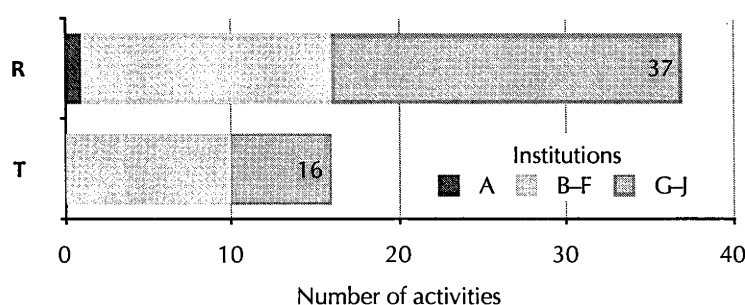
Figure 3.5   Number of Category 1 activities starting with Reading (**R**) or Teacher instruction (**T**) actions, subdivided by activities from institutions in Japan (A), the US (B–F), and Scandinavia (G–J)

Of the 51 Study II activities classified within Category 1, 14 additionally involved aural identification as part of the **R** *or* **T** ⇒ **P** action sequence. In other words, these activities were coded

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20   Cf. subsection 3.2.1 on p. 54.

with action sequences that also included the **A** action. Of the 14 activities, 7 were coded as **A** + **R** $\Rightarrow$ **P**, and 7 others were coded as $\mathbf{R_p}$ *or* **T** $\Rightarrow$ $\mathbf{P_p}$ $\Rightarrow$ **A**. Although these 14 activities included a **R** *or* **T** $\Rightarrow$ **P** component, due to the additional **A** action the nature of the activity were significantly different compared to other Category 1 activities.

In the first type of activity (**A** + **R** $\Rightarrow$ **P**), students not only read a part, but also listened to musical materials (e.g., a chord progression). Students used both stimuli types to derive their final performance action. These activities are also part of Category 3. In the second type of activity ($\mathbf{R_p}$ *or* **T** $\Rightarrow$ $\mathbf{P_p}$ $\Rightarrow$ **A**), students performed one part each while simultaneously listening to—and aurally identifying—other parts or the resultant harmony. Unlike most other activities in Category 1, which have action sequences that *conclude* with the **P** action, the performance action in these activities immediately led to the **A** action. In both types of activities, then, the aural identification component typically became the main focus of the activities. In order to efficiently compare and group activities based on their pedagogical features, my analyses of Category 1 activities in Chapter 4 is largely based on activities that did *not* have an **A** action within the action sequence; these activities are analysed and compared later in Chapter 6, together with other Category 3 and Category 4 activities.

3.4.2 Category 2: Aural identification leading to non-Performance actions (A $\Rightarrow$ N *or* V *or* G)

The second category comprises three basic sequences that lead from the aural identification (**A**) action to either notation (**N**), verbal response (**V**), or gesture (**G**). Of the four actions that aural identification can lead to, three of them are represented in this category; the fourth action is performance (**P**). Activities where students undertook **P** in response to **A** are classified under Category 3. In Category 2 activities, students thus represented their aural identification through means *other than* performance. However, there were also many Study II activities where students also undertook performance actions within the same activity. For this reason, classifying an activity under
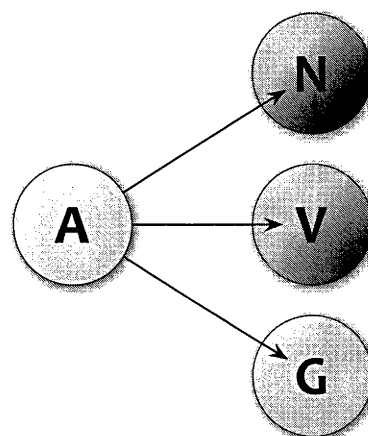
Figure 3.6   Category 2

Category 2 does not necessarily indicate that students did not also represent their aural identification through performance during the activity. Where students undertook both performance and non-performance actions, they are classified under both Category 2 and Category 3.

In activities that involved notation actions (e.g., dictation), teachers can specify the type of musical notation and level of detail required in a dictation task. Dictation is typically a one-way process, in which the teacher delivers an aural stimuli while students receive it aurally, followed by an attempt to notate it. This clearly-defined process makes it relatively easy to reveal the pedagogical purpose of an exercise. In comparison, verbal responses are used frequently as it usually takes place within the context of a discussion between the teacher and the student(s) in the class. While teachers can still ask students to focus on specific topics or aspects of a chord or chord progression, discussions give many opportunities to digress to other aspects of the music.

3.4.3   Category 3: Aural identification leading to Performance (A ⇒ P)

Category 3 comprises activities wherein students undertake a performance action in response to their aural identification. As with the performance actions in Category 1 activities, the performance actions in this category are similarly distinguished between singing (**Pv**) and playing a musical instrument (**Pi**), as well as between part performance (**P$_p$**) and chord perform-

Figure 3.7   Category 3

ance (**P$_c$**). (See Figure 3.1 on p. 55.) Part performance in a Category 3 activity suggests that students need only focus aurally on a specific part, while chord performance would require students to aurally identify—as well as perform—chords in their entirety.

3.4.4   Category 4: Performance leading to Aural identification (P ⇒ A)
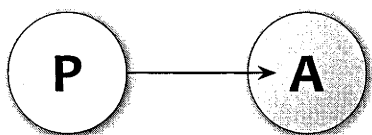
Figure 3.8   Category 4

Activities in the fourth and final category require students to undertake aural identification (**A**) in response to their own performance (**P**). In other words, these activities enable students to *contribute* to their listening experience through music-making. Although activities in both Category 3 and Category 4 feature the same actions, **A** and **P**, the reversed ordering of these two actions reveals the two completely different modes of student activity that the

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two categories represent. In Study II, Category 3 activities usually provided students with little or no control over the music that they listened to because the main task was to demonstrate aural understanding of music that was predetermined or 'given' as is. In contrast, the music that students listened to during Category 4 activities was always influenced in some way by their own performance. This made the listening experience in these activities more dynamic and unpredictable, but it also gave performance actions a more significant role than in Category 3 activities.

The paucity of Category 4 activities in Study II (only 8 out of the 89 collected activities were classified into this category) is perhaps due to the challenging nature of the $P \Rightarrow A$ action sequence, which essentially involved actively listening to music while *simultaneously* performing. This feat is only possible if a student is able to mentally 'record' and analyse music while engaged in singing or playing a musical instrument. In comparison, students in Category 3 activities undertook aural identification and performance separately, which meant that they had some time to recall or even discuss features of the music that they listened to before performing in response. The demanding nature of many activities in Category 4 meant that teachers usually employed them when working with students with high proficiency in both performance and aural skills (see section 6.2).

Despite the contrasting level of difficulty between activities in Category 3 and those in Category 4, these activities collectively focus on the only two actions that involve direct manipulation of sound—that is, through performance and aural identification. In addition, whereas activities in Category 1 and Category 2 often involved performance and aural identification in isolation, activities in Category 3 and Category 4 directly *linked* these two important actions into the one sequence. The critical role of these two actions, then, is represented by their central location within the schematic diagram of the proposed classification system of aural harmony, as shown in Figure 3.2 (p. 66).

Summary

In this chapter, I have proposed a novel classification system of aural harmony activities based on the sequence of student actions as revealed in the 89 Study II activities. Creating this classification system was necessary due to the fact that there was no existing method of analysing and comparing pedagogical approaches in aural harmony activities. In examining and defining the seven basic actions that students undertook in Study II activities, I have identified the fundamental ordering of these actions and have shown that they can be differentiated into four categories of aural harmony

activities.

The four categories represent four broad areas of skill development in the aural training classroom. In Category 1 activities, students learn to perform in response to reading notation or interpreting instructions from teachers. In Category 2 activities, students develop their aural identification skills by representing their understanding through notation, verbal descriptions, or gestures. In Category 3 activities, students represent their aural identification through perform-ance. And in Category 4 activities, students undertake aural identification following performance actions. Despite the clear distinctions among the four categories, it is important to remember that an activity can be classified under two or more categories, thereby engaging students in greater variety of actions in close succession. Although classifying one activity under multiple categories drastically complicates the coding process, it is the only way to accurately represent the incredible diversity of teaching approaches exhibited in the Study II activities.

The proposed classification system was the result of my analysis of the 89 Study II activities. Given the considerable amount of data collected in Study II, it is likely that this system can be used to classify virtually all aural harmony activities that exist today. However, the classification system may not account for every conceivable and existing type of aural harmony activity. Other activities that one can discover (e.g., through further class observations, one's own teaching, textbooks, and pedagogical literature) may reveal additional types of student actions, action sequences, and thus categories of these action sequences.[21] Combining such knowledge with the current system can one day result in an even more comprehensive method of categorising these activities. Despite its limitations, the proposed classification system serves its primary purpose of enabling the systematic comparison of pedagogical approaches across comparable Study II activities.

In the next three chapters, I use the proposed classification system to further analyse Study II activities. In chapters 4 and 5, I examine Category 1 and Category 2 activities, respectively. In Chapter 6, I combine the discussions of activities in both Category 3 and Category 4. This or-ganisation reflects the distinct nature of the performance (**P**) and aural identification (**A**) actions, which can follow each other, to and fro.[22] Collectively, these three chapters represent a compre-hensive investigation of the various pedagogical approaches exhibited within the four categories of Study II activities.

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[21] I return to this point in Chapter 7, where I describe an activity (T4) that does not fit within the proposed classi-fication system.

[22] The extreme (although rare) example of this results in activities whereby these two actions are alternated ad infin-itum (cf. C11, E11, H4, & J11).

Chapter 4

Category 1 activities: Performance without aural identification

Category 1 activities were the most prevalent of the four categories based on the data collected in Study II. This type of activity is common not just in aural harmony, but in aural training in general. Activities of this sort include sight-singing, part-singing, performing rhythms or singing arpeggiated chords from music notation—basically any exercise in which students read symbols (R) or interpret instructions from teachers (T) for the purposes of undertaking a performance (P) action. There were in total 51 Study II activities classified under Category 1, as shown in Figure 3.3 (p. 68).

In order to effectively compare and discuss the pertinent features of such a large number of activities, it is necessary to further identify common kinds of activities within Category 1. To achieve this, I distinguished between four non-mutually exclusive subcategories of Category 1.[1] The first subcategory comprises activities with sequences that conclude with part performance (P_p); these activities are coded as R or T $\Rightarrow$ P_p. The second subcategory comprises activities with sequences that conclude with the singing of arpeggiated chords (Pv_c); these activities are coded as R or T $\Rightarrow$ Pv_c. The third subcategory comprises activities with sequences that conclude with instrumental chord performance (Pi_c); these are coded as R or T $\Rightarrow$ Pi_c. There were 20, 15, and 11 activities within the first, second, and third subcategories, respectively.

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[1]   For the same reasons an activity can be coded into more than one category, an activity can also be classified under more than one of the aforementioned subcategories. An example of this can be seen in I3, wherein, students undertook Pi_p, Pv_c, as well as Pi_c, and is therefore classified under all three subcategories described below.

The fourth and final subcategory comprises 14 Category 1 activities that, in addition to the basic **R** *or* **T** ⇒ **P**, involved aural identification prior to the performance action. Activities within this subcategory are coded as **A** + **R** ⇒ **P**. As mentioned earlier in Chapter 3, this kind of activity ultimately encourages students to focus on aural identification rather than the skill of reading symbols or interpreting teacher directions (cf. subsection 3.4.1). For this reason, I discuss these activities in more detail later in Chapter 6 along with other Category 3 and Category 4 activities. In the following three sections of the present chapter, I shall analyse and compare Category 1 activities in the first three subcategories only.

4.1   Performance of part (R *or* T ⇒ P$_p$)

The first subcategory of Category 1 comprises activities that concluded with a part performance (**P$_p$**) action. Activities in this subcategory are coded as **R** *or* **T** ⇒ **P$_p$**. Of the 20 activities within this subcategory, the part performance in 17 activities was undertaken vocally (**Pv$_p$**) as opposed to instrumentally. Of the remaining three activities, two (I2 & J9) involved either instrumental or vocal part performance, while one (I3) involved instrumental part performance only. This statistic supports the common association between aural training and singing, as opposed to performing using instruments; indeed, most teachers would generically label many of these activities as 'sight-singing' exercises (e.g., B3 & C3).

There are four main themes relevant to the discussion of activities within the **P$_p$** subcategory. I present these themes under four subsections, below. In the first two subsections, I analyse sight-singing activities that involved reading (1) music notation and (2) chord labels. While activities under both headings are commonly considered one type of activity, there are significantly different skills involved in reading music notation versus chord labels, which ultimately change the amount of emphasis on harmony-related concepts as opposed to basic music reading skills. In these two subsections, the part performance action was generally the main goal of the activity. In the third subsection, I analyse activities where the part performance action marked the *beginning* of a learning process rather than the end of it. Performance in these instances was used as a way to prepare students in a subsequent but separate aural identification (**A**) task, as indicated by a separate action sequence commencing with an **A** action. Finally, in the fourth subsection, I discuss the role of repertoire (i.e., existing music excerpts) in all 20 **R** *or* **T** ⇒ **P$_p$** activities by assessing the prevalence of their use and discussing the potential benefits and drawbacks when their use is applied to the

various types of activities in this subcategory.

4.1.1 Reading music notation in part performance activities

There were nine activities that involved singing a part in response to reading music notation (A2, B2, B3, C3, E1, E12, E14, G3, & H5), and one activity involving instrumental part performance (I3).[2] As mentioned earlier in this chapter, many of these activities would generally labelled as 'sight-singing' exercises, and were intended to develop students' reading and singing skills. Other activities, such as A2 & I2, emphasised more theoretical and holistic aspects of the music, rather than the performance action itself. Of the nine aforementioned activities, two involved reading a single notated part and singing it in unison (B3 & E1), four involved singing a notated part from multi-part scores (A2, C3, E12, & E14), and three involved singing a notated part while simultaneously performing chords on an instrument (B2, G3, & H5).

Part-singing using single-part notation

The two activities that involved reading and singing single-line melodies (B3 & E1) illustrate very different learning outcomes resulting from the activity's focus on a specific aspect of musicianship. A key feature of B3 was the series of melodies composed by one of the teaching assistants at Institution B. The melodies start and conclude with the same notes, differing only in between where a different scale tone is temporarily 'tonicised' with an arpeggiated secondary dominant chord. Unfortunately, the teachers who presented the activity never explicitly explained this crucial feature to the students. Instead, the teachers spent most of the activity time correcting errors in students' singing, usually one note or bar at a time. Placing further emphasis on the melody rather than the harmony, the melodies were consistently sung without harmonic support (i.e., without any accompaniment). The lack of both the discussions of, and the *listening* to, the harmony implied by the melody made B3 into a monophonic sight-singing exercise. These teaching approaches resulted in many lost opportunities for students to aurally appreciate the harmony and chords while singing, thereby missing the original intention of the teacher who composed the exercises.

Although E1 similarly involved students' unaccompanied singing of a notated part, the teacher

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[2]   I3 is not discussed in detail within this section because it was principally a chord arpeggiation activity; the instrumental part performance component was insignificant. For an analysis of the chord arpeggiation features of this and other similar activities, see section 4.2 (p. 89). The instrumental *chord* performance component of I3 is discussed in section 4.3 (p. 97).

put extra effort to engage students aurally and theoretically. For example, in Event 61 the teacher strategically undertook E1 immediately after a dictation test, in which the same circle-of-fifths chord progression was heard. This meant that students had a fresh aural memory of the chord progression before they were asked to sing the notated bass line. The teacher further stimulated students' thinking by subsequently asking them to describe the chord quality (as major or minor) for each of the sung bass notes. This step encouraged students to actively auralise (i.e., silently recall) the quality of each chord. This clever plan of using a performance task to reinforce an earlier listening task made the singing component more relevant to students when compared to the singing task in B3, which was focused only on correctly singing the notated part. E1 thus functioned as an effective revision of harmonic concepts.

Part-singing using multi-part notation

In five other activities (A2, C3, E12, E14, & H2), students sang a part while reading multi-part or full scores rather than a single-line melody. Although using multi-part scores gives students the *potential* to appreciate and learn about harmonies and chords, it would be presumptuous to believe that such learning occurs automatically. Karpinski supports such a view, suggesting that in most aural skills textbooks, "even when multiple-part singing is included, [students] are required to attend to only one part at a time" (2000, p. 217). However, through their own individual methods, teachers in the four activities demonstrated how it was possible to encourage students to appreciate more than just their own part even when the performance task was restricted to part-singing. In the following analysis, I show how teachers used various kinds of techniques to encourage harmonic and multi-part reading, thinking, and listening within learning contexts that involved part-singing.

On the surface, E12 appears to be a typical four-part sight-singing activity; however, what makes it interesting and worthy of closer examination is the fact that there were two very different approaches resulting from the contrasting teaching styles of two teachers at Institution E (Events 58 & 69). Both teachers commenced the activity by first getting students to sing the chorale in four parts.[3] After this first step, their approaches diverged.[4] By comparing these two teachers' approaches, I show how small differences within a basic type of activity can drastically

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[3]   Interestingly, the two teachers presented the same four-part chorale exercise within their respective classes (in Events 58 & 69). This of course further highlights the differences between their approaches.

[4]   For details, refer to the full activity description on p. 289.

alter students' potential to learn about harmony, both theoretically and aurally.

In Event 58, the focus was on the skill of visually working out chord labels from the given notation. Once students had sung through the chorale, the teacher performed the chorale on a keyboard and paused on each chord. Students had to identify and utter the correct chord label as the teacher sustained each chord.[5] There were essentially three ways of working out the chord labels: (1) aural identification; (2) visual identification using the four-part score; or (3) a combination of both aural and visual information. Because the teacher's performance was continuously interrupted by students' verbal responses, the performed chord progression lacked momentum and harmonic rhythm. This made it very difficult to relate the *aural* experience of one chord to another, such as the tonic. Given the difficulty of identifying chords by ear within this particular context, it is very likely that students in Event 58 relied mostly—if not entirely—on the notated score.[6] This approach made the listening component optional or complementary by allowing students to easily identify chords using the score alone.

In comparison, the teacher in Event 69 not only placed more emphasis on listening, but also encouraged students to do so while simultaneously performing (i.e., singing). There were two elements in this approach that contributed to the emphasis on listening. First, the teacher verbally described the chords to the students, rather than have students work out the chords from their scores. Second, students actively participated by singing their part and listened to the resultant chord that they themselves created. These two elements occurred simultaneously, such that students listened to the teacher's descriptions of each chord while singing at the same time.

Compared to the first approach (Event 58), the latter one (Event 69) encouraged students to listen more critically and to apply those skills within learning contexts that were more challenging and stimulating. Although students in both classes were not required to listen to the music with a discerning ear, it was the approach that determined whether students used their ears or not. The class in Event 58 never discussed how the chords *sounded* like and there was neither expectation nor incentive to use their ears. Students worked individually in identifying each chord from their scores. The approach in Event 69 was completely different and involved more performance and listening. The teacher encouraged students to listen by telling them what they should listen

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[5]   It should be noted that in the case of Event 58, not all students were required to participate. Although the teacher asked the class as a whole to complete the task, the teacher was not troubled by the fact that only a couple of the 18 students in attendance actually responded. In other words, most of the students were silent.

[6]   This is supported by my observations during the class: almost every student was looking at their scores, which would not have been necessary if students were identifying chords solely by ear.

for. The listening, which although optional, led students to begin multitasking—that is, to listen critically while singing at the same time. The experience of singing in itself engendered a sense of working together with other students to create a performance outcome, while multitasking developed performance skills that are particularly relevant to performance students.

Another sight-singing activity, C3, illustrated a creative way of encouraging multi-part thinking during part-singing exercises.[7] In this activity, students all sang a designated part and, without interrupting the flow of the music, *switched* to a different part at the end of each phrase. The instructions to switch parts were given by the teacher, who simply called out the part name (e.g., "bass!") moments before the start of each phrase. The main difficulty for students was finding the new part, the starting note, adjusting to any clef changes, and mastering octave transpositions (as necessary) without stopping.[8] However, it proved to be an achievable task, perhaps partly due to the fact that the whole class worked together as one big team by singing in unison. To further make the exercise a musically satisfying experience for everyone, the teacher accompanied the students by expertly playing the three remaining parts on a piano throughout the chorale. While it is impossible to physically sing more than one part at the same time, the exercise in C3 offers a successful way of getting students to experience multi-part music as a whole.

In describing a very similar activity using orchestral scores, Karpinski (2000) describes an activity similar to C3, but using orchestral scores. In that activity, students are asked to sing and follow the melody through the most appropriate instrumental parts without interrupting the rhythm. He suggests that "Although the reader is still attending to only one line at a time, this kind of activity does acclimate the eye toward scanning a score for important details and segmenting it into multiple layers of activity" (2000, p. 219). While C3 achieved a similar outcome with four-part chorale scores, there are two important differences. First, while Karpinski's activity involved singing *prominent* parts, C3 involved any part, including inner voices. Second, in Karpinski's activity students are told in advance which parts to sing, whereas in C3 students were not advised until shortly before each 'switch'. This made students anticipate and prepare for every switch, which further heightened their awareness of other parts. It also forced them to strictly follow a given tempo despite any challenges and uncertainties—an important skill for any performing

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7   This approach was part of an optional exercise within C3. This exercise was present in one out of the four observed instances of C3 (Event 31). For a general overview of C3, refer to the description on p. 259.

8   Given the difficulty of this task, if students struggle to switch properly despite being familiar with performing each part individually, one possible solution is to take a short pause at the start of each phrase to give students some moment to find their first note. However, such a step was not necessary for the students in C3. Students who did miss the first note after a switch were able to quickly recover and find their position in the music.

musician.

Unlike both C3 & E12, the singing component of E14 was optional and occurred *after* theoretical discussions about the harmony. A significant proportion of time spent during E14 was dedicated to the step-by-step construction of four guide-tone lines following a given series of chord symbols. Students identified four solfège syllables for every chord, while the teacher wrote them up. Afterwards, students worked out how to link the notes between adjacent chords to form the guide-tone lines. Only after identifying the parts in this way were students instructed to sing the four parts simultaneously. However, in Event 72, this final and concluding step of singing (and thus listening) was skipped due to lack of time. Although students arpeggiated a portion of the chord progression earlier in the activity, in Event 72, even this task was not completed from start to finish due to unresolved difficulties.[9] Notwithstanding issues of time management, the learning experience in E14 was conducted mainly through theoretical exercises, rather than through opportunities to appreciate the chord progression through sounds (i.e., performing and listening).

In contrast to E14, the part-singing component of A2 & H2 complemented students' holistic study of musical repertoire. The fundamental purpose of these two activities was to help students develop an *understanding* of repertoire through different kinds of exercises, including part-singing. This learning goal is not evident in many other activities in this category. For example, in four-part singing exercises like C3 & E12, the goal was to develop sight-singing skills, rather than to learn about the repertoire *through* singing it. Also in E14, students spent more time on analysing the theoretical aspects of writing out a guide-tone line, rather than on performing, listening, and discussing the original jazz work from which the chord progression was derived. The emphasis on a general understanding of the music, as opposed to specific theoretical concepts or singing skills, necessarily meant that in A2 & H2 less time was spent specifically on part-singing exercises. This performance component was nevertheless relevant to the success of these activities by ultimately contributing to the students' appreciation of those specific pieces of music.

Part-singing with instrumental chord performance

Another way teachers encouraged students to learn about harmony was to include instrumental chord performance. There were three such activities wherein students performed chords on an

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[9] Cf. step 2 in the full description of E14 (p. 292).

instrument while simultaneously singing a part (B2, G3, & H5). The music that students performed in these three activities often contained a repetitive component. For example, in B2 & G3, a specific chord progression was repeated many times during each exercise. Likewise, in H5, the melody was repeated throughout the excerpt. The simplicity and predictability of these exercises compensated for the inherent challenge of multitasking. This was particularly important because not all students undertaking these activities had prior experience with playing chords and chord progressions on keyboard instruments. Because these activities emphasised the chord performance component rather than the singing, I revisit them in more detail later in this chapter.[10]

Of the three 'play-and-sing' activities, B2 & G3 were both very similar to exercises mentioned or featured in several aural training textbooks (e.g., Shumway, 1980; Frackenpohl, 1985). In both activities, students performed chords and sang short, cadential phrases that were composed specifically for teaching purposes. Chord changes usually occurred on each consecutive beat, and involved no rhythmic subdivisions, keeping the harmonic rhythm simple and steady. Each chord change was accompanied by the singing of either the same note or with a different note approached in stepwise motion, depending on whether it harmonised with the new chord. These activities represented a basic, practical introduction or reinforcement of voice-leading 'rules' and techniques.

H5 was less about the rules and more about the music. Rather than perform chord progressions in monotonous rhythms, students in H5 performed a simplified orchestral reduction on the piano while singing a relatively simple tune (in the case of Event 93). This enabled students to focus more on the more complex keyboard skills. The effectiveness of this activity can be attributed to the use of music excerpts, but more importantly, it was also due to the *sequencing* of the activity. Specifically, in Event 93, H5 occurred after students became very acquainted with the music through various other activities, including performing through other parts and identifying chords by ear (cf. H4). Thus, the singing and piano playing in H5 represented the final and concluding step of an extensive study of a given musical excerpt.

4.1.2 Reading chord labels in part performance activities

While most part performance activities involved reading music notation, a small number of activities required students to read and interpret chord labels. There were only three such activities: B8, E14, & I2. It was much more common for students to perform *chords*, whether vocally or

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[10]   See section 4.3 on p. 97.

instrumentally, in response to reading chord labels. One reason for this may be due to the nature of chord labels, which denote the 'vertical' properties of harmonies rather than linear movements between chords. Chord labels tell readers about chords, not parts. Part performance was therefore much more common in activities where students used scores with parts shown in standard notation (e.g., C3 & E12). The main challenge of B8, E14, & I2, then, was the process of converting chord labels first into a series of notes—a part—before representing it through performance.

The ability to correctly decipher the notation was therefore crucial for the successful completion of the performance task. In B8, the teacher facilitated this step by engaging the class in discussions before performing anything. During the discussions, students were encouraged to describe the outer (bass and soprano) parts that would match particular chord sequences. Once several options had been discussed, the teacher instructed students to sing either of the two parts. The teacher's assistance ensured that the step was basically broken into two smaller steps: a discussion of all possibilities, followed by the performance of a part as specified by the teacher. In other words, students never had to spontaneously interpret the symbols through performance.

Students in E14 & I2 were, on the other hand, required to spontaneously perform a part. In both activities, students performed the bass line. In E14, students read jazz chord symbols, which essentially contain the bass notes (represented by their note letter names). For example, the chord labels E♭–E♭/D reveal the notes in the bass line (E♭–D). Singing the bass line was therefore very straightforward, and was intended to briefly prepare students for a subsequent task, which was to sing arpeggiated chords.[11] In I2, chords were given as roman numerals (e.g., 'iii'). Although a bit more effort was required (to determine the exact note one should play on the instrument), it was still not a difficult task. By focusing on the bass line—the only 'part' that is predetermined in chord labels—these activities ensured that students could interpret chord labels spontaneously without significant trouble.

Finally, there were three other activities that involved performing a part in response to reading chord labels *and* aural identification (C6, I5, & J5); these activities are coded as $\mathbf{A} + \mathbf{R_c} \Rightarrow \mathbf{P_p}$. Incorporating the $\mathbf{A}$ action into the basic $\mathbf{R_c} \Rightarrow \mathbf{P_p}$ sequence alters the activity quite significantly. The main difference is that in such activities, students were generally encouraged to take a more intuitive approach (e.g., through improvisation, as in C6) rather than one that is more calculated or based on theoretical concepts (e.g., the working out and singing of the bass line in B8 without

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[11]   The chord arpeggiation component of E14 is discussed in detail later this chapter, in section 4.2 on p. 89.

also *listening* to chords). Due to these marked differences between **A** + **R$_c$** $\Rightarrow$ **P$_p$** and **R$_c$** $\Rightarrow$ **P$_p$** activities, I analyse and present the former type of activity later, in Chapter 6.[12]

4.1.3   Part performance in preparation for Aural identification

The Category 1 activities mentioned up to this point in this section (4) do not have additional action sequences that contain the aural identification (**A**) action. In other words, there was no direct link between the reading–performing task and an aural identification task within most of these activities. There were, however, three activities where such a link not only existed but also constituted an essential feature (B9, I2, & I10). The following discussions centre on the role of part performance within these activities. My analyses of the aural identification aspects of these activities will be presented in the following chapter (Chapter 5).

The common purpose of part performance in all three activities was the familiarisation of the part being performed. In B9, the task for students was to aurally identify the chords within short chord sequences, with a given bass line. The teacher assisted the students in this task in two ways. First, the teacher led discussions on possible harmonisations of the given bass line. This narrowed down the possibilities, enabling students to focus on specific chords. Next, before hearing the chord sequence, students sang the bass line. No specific reasons were given for the singing, but presumably it was an opportunity to familiarise and internalise the sound of it before hearing the whole harmony. However, because students sang without harmonic accompaniment, the teacher only ensured that students were prepared for the bass line; the chords were still a 'surprise' when they finally listened to it in order to identify the chord labels.

The purposes of the performance task in I2 & I10 were similar to that in B9, but there were some notable differences. Firstly, students in I2 & I10 sang the *melody* first (in I2, they performed part of the bass line as well). The melody itself was presented in a musically complete manner, meaning that it had a clear meter, some rhythmic interest, contained clear phrases, etc. This was unlike the materials in B9, which were dry and intended for exercise purposes only—there was neither meter nor any rhythmic value other than crotchets. Secondly, and more importantly, students in I2 & I10 *always* performed their parts with harmonic accompaniment provided by the teacher. The accompaniment completed the experience and further prepared students for the aural identification task that followed.

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[12]   The three activities are described in further detail in section 6.1 (p. 138).

Just like in B9, students' aural identification of chords in I2 & I10 occurred *after* the part performance task. However, because their part performance was accompanied, they were already aurally exposed to the sounds of the harmonies during that time. For that reason, some students in I10, for example, were able to identify a few chords after only performing their part once. However, they did not continue to perform any part during subsequent listenings. Most chords were identified during those listening sessions, rather than after the initial part performance. This demonstrates that these two activities were not intended to help students acquire the skill of aurally identifying chords *in direct response to* their own performance; rather, part performance was a means of acquainting students with the music. In summary, the role of part performance in B9, I2, & I10 was to familiarise students with the material and thus *prepare* them for the aural identification task. This kind of activity is therefore distinct from other activities wherein students' performance actions led to the sounding of music, which in turn acted as a stimulus for their aural identification.[13]

4.1.4   Teacher instruction in part performance activities

The activities covered thus far in this section have involved part performance in response to reading ($R \Rightarrow P_p$). In addition to these, there were a number of activities that involved part performance in response to the spontaneous interpreting of teachers' verbal instructions (D3, E8, E9, I11, & J9). Interestingly, and despite these activities being taught at four different institutions, many of these activities share a number of common features. In D3 & E9, for example, students were divided into three groups, whereby each group sang a different note and performed together as an ensemble. Despite such remarkable similarities, each teacher uniquely applied their activities within a variety of learning contexts and performance mediums.

In E8 & I11, students received verbal instructions and sang a part in response. In E8, students first established the root note (in their minds) upon hearing a seventh chord that the teacher played on a piano.[14] With the root established as a reference point, the teacher then specified the tension tone (e.g., ♭13) that students had to sing. To further challenge students, the teacher changed the

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[13]   Such activities are not discussed in this chapter because they constitute Category 4; they are presented later in section 6.2 (p. 154).

[14]   Despite the fact that students had to aurally identified chord roots before singing, the identified root was not the note that they had to sing. As explained in the full activity description in Appendix A on p. 283, the note that students sang in E8 did not constitute the chord that they listened to. Rather, the initial root-identifying task was a reference point for the subsequent singing task. As such, it is analogous to how teachers typically perform a perfect cadence to establish the tonic prior to sight-singing exercises. E8 is thus coded as $A \Rightarrow Pv_p$ rather than $T \Rightarrow Pv_p$.

root of the reference chord for each students as they took turns to undertake the exercise. This trained students to do two things: (1) quickly infer the root of a chord upon hearing a seventh chord; and (2) sing tension tones upon inferring the chord root. Both of these skills are particularly essential within jazz and contemporary music performance contexts.

While E8 trained student to sing tension tones (usually found in the upper voices of a chord), in I11 students sang the bass line. Overall, I11 was much more straightforward in comparison with E8. First, students sang the bass line within a single tonality, which eliminated the need to frequently re-establish the tonic. Second, students simply had to translate the teacher's instructions—numbers between 1 and 7 representing scale degrees—into the corresponding bass notes, rather than identify it by ear. There were, however, some challenges in this activity. Students had to coordinate their body movements, by stepping forwards and backwards, while singing at the same time. Students also had to respond in time to match the given meter (each chord occupied four beats of a $\frac{4}{4}$ bar). Following this part-performance in I11, students sang arpeggiated chords from the bass up. The part-performance component was therefore a stepping stone towards the more complex chord arpeggiation exercise.

As mentioned earlier, D3 & E9 involved singing in three-part harmony. In D3, students sang a short chord sequence (V^{6-5}_{4-3}) to briefly illustrate the concept of cadential six-four chords. Students sang the chords in block form much like the aforementioned multi-part singing exercises that involved reading music notation (e.g., C3 & E12). In that regard, E9 was quite different. Rather than singing chords in block form, groups of students were assigned either the root, third, or fifth of each chord. Each group then staggered their entries, starting from the lowest note, thus creating the effect of an upward arpeggiation.[15] This naturally led to the subsequent chord arpeggiation exercises, which students performed with the same chord progression (derived from the same excerpt); this sequencing of part-performance followed by arpeggiated chord singing is very much like that in I11. While students in both D3 & E9 experienced performing a single part while learning about and hearing chord progressions, E9 was comparatively more substantial and well integrated with exercises that followed immediately before and after.

J9 in many ways represents a synthesis of the most effective techniques found in the four other $\mathbf{T} \Rightarrow \mathbf{Pv_p}$ activities. Here, students performed one part together as a class, just like in E8 & I11; however, unlike those activities, students experienced performing all possible parts, not just one of

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[15]   For an illustrated explanation of this exercise, refer to the full description of E9 on p. 285.

them. Similar to E9, J9 was an exercise that the teacher used to demonstrate a chord progression found within an excerpt; in fact, the teacher presented J9 only because a student asked about a chord found in J8 (Event 123). Most important of all, J9 managed to avoid the "you perform *this* note" approach found in many of the aforementioned activities; with the teacher's guidance and support, students worked out the exact notes to perform by themselves using a combination of their aural (or more specifically, 'inner hearing') skills and their theoretical understanding of chord progressions and voice leading. Challenging the students further, the teacher asked them to sing each note on chord-degree number solmisation,[16] which students performed with little difficulty. The fact that students in J9 completed these rather complicated exercises with little difficulty was as much a testament to their musicianship skills as it was to the teaching methods employed at Institution J.

While virtually all teachers agree that reading skills represent one of several crucial components of aural skills (e.g., Karpinski, 2000), far fewer would rate just as highly the benefits of teaching students to interpret verbal or other non-visual instructions for performance purposes. This is demonstrated by the fact that a much smaller proportion of part performance activities mentioned in this chapter involved **T** (5) as opposed to **R** (15). Indeed, the five **T** $\Rightarrow$ **P$_p$** activities revealed some inherent drawbacks of using **T** as a stimulus for part performance. Perhaps the biggest challenge was the extra concentration demanded of both teachers and students in effectively communicating the required performance task.[17]There were, on the other hand, many more examples where these activities blended seamlessly with other exercises within the particular teaching environment (e.g., E9, I11, & J9). The question to ask is this: under what circumstances do employing teacher instructions (as opposed to reading) for part performance purposes lead to beneficial learning outcomes?

While no conclusive answers can be drawn using the available repertoire of activities, we can identify some pertinent observations. Firstly, it appears that by removing the reading aspect, students generally had more capacity to focus on their listening. This was particularly evident when students performed different parts as a class; with no score to look (or stare) at, students could think carefully about their function within the ensemble. The essential idea of increased aural

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[16]   These numbers represent the interval above the *chord root*, as opposed to scale degree numbers, which represent the interval above the *tonic*. As an example, "five" represented the fifth above a chord's root, not $\hat{5}$. For a more detailed exposition of this type of solmisation, refer to the full description of J9 on p. 338.

[17]   This issue was particularly obvious in D3, in which students stumbled more than once due to ineffective communication (see the full description of the activity on p. 271).

awareness in the absence of reading is also compatible with the considerable amount of pedagogical literature that reiterates the importance of 'sound before symbol' (e.g., E. E. Gordon, 2007). Secondly, these activities represented a range of flexible approaches to tackling complex theoretical concepts discussed within other exercises or activities. It is impossible (or at best, inefficient) for a teacher to write out or notate specific exercises for students to perform during class time. On the other hand, instructing students to undertake the performance saved considerable time when used as brief, demonstrative exercises (e.g., J9). It was also effectively used as a stepping stone towards more complex tasks (e.g., E9 & I11). In summary, then, the key to maximising the effectiveness of the $T \Rightarrow P_p$ sequence is to employ it only when this approach can succinctly illustrate an aural or theoretical concept, one that relates to teaching materials or exercises that immediately precede or follow.

4.1.5 The purpose of part performance

Whereas activities presented in other parts of this study share a similar pedagogical outcome[18] the 20 Category 1 activities presented in this section represent an incredibly diverse collection of approaches, both in terms of the student actions involved as well as the educational setting within which they were presented. The contrasting learning goals in these activities make it impossible to directly compare them individually. Nevertheless, we can identify certain trends that emerged from the above analysis, particularly in relation to the purpose of undertaking performance actions within these activities.

One recurrent theme in the preceding discussions was the distinction between activities that were primarily intended to teach assessable 'skills' through intensive and often repetitive exercises, as opposed to activities that fostered the development of a more generalised 'understanding' of music repertoire. Within this context, there are two basic understandings of the concept of 'skills'. Firstly, it refers to Karpinski's (2000) 'reading and performing skills'. This kind of skill was the main goal in many activities, particularly those generally referred to as sight-singing exercises (e.g., B3 & G3). Secondly, it includes the theoretical skills involved in specialised topics within music theory, such as harmony or voice leading (e.g., D3). Activities that focused on skills tended to involve less work on its application in musical works, even when the materials were derived from an excerpt (E14 exemplifies this paradox).

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[18]   For instance, the activities analysed in section 4.2 all teach students the skill of singing arpeggiated chords, even though the exact method and application differ depending on the class.

Then there were activities in which there was less emphasis on 'skills' and more on a broad understanding (or appreciation) of music, particularly through the study of specific music excerpts. Singing skills was an important component of these activities, but it was never practised to the exclusion of other relevant exercises and discussions. E9 & H2 both exemplify this philosophical approach of acquiring musical understanding through various exercises (including part performance). This approach can also be manifested simply as music analysis with the addition of some singing, as was the case in A2. And in some activities, part performance served to prepare students before an aural identification task (e.g., B9 & I10). However, just as part performance was not the only means towards the final goal of appreciating a piece of music, the topic of harmony was only one of many that students learnt about in these activities. One way of focusing discussions on the harmony is, of course, to have students perform *chords* rather than parts. In the next two sections, I examine Category 1 activities where students performed chords ($\mathbf{P_c}$) through singing (section 4.2) and playing instruments (section 4.3).

4.2 Performance of chord through singing (R *or* T $\Rightarrow$ Pv$_c$)

Twenty-five of the collected Study II activities involved performing chords in response to **R** or **T**; these activities are coded as **R** *or* **T** $\Rightarrow$ **P$_c$**. Out of these, 15 involved singing arpeggiated chords (**Pv$_c$**), while 11 involved performing chords on musical instruments (**Pi$_c$**).[19] The chord arpeggiation activities[20] differed from part-performance activities in that the final action was chord performance. Performing chords encourages a conceptual appreciation of chords and harmony, whereas part performance activities often involves a literal translation of symbols into their equivalent single-note sounds. In other words, chord arpeggiation activities often (although not always) requires an extra step of converting symbols into specific types of constructed chords, before its performance. The extra step develops more theoretical concepts of chords and harmony than literally interpreting music notation. In this section, I will compare the 15 activities in which students sang arpeggiated chords in response to reading or interpreting teacher instructions (i.e., activities coded as **R** *or* **T** $\Rightarrow$ **Pv$_c$**).[21]

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[19]   One of the activities, I3, is counted twice. This is because students in that activity performed chords through both singing chord arpeggiations and performing block chords on an instrument.

[20]   The phrase 'chord arpeggiation activity', when used within Chapter 4, refers specifically to activities wherein students perform arpeggiated chords (**P$_c$**) in response to either reading (**R$_c$**) or teacher instructions (**T**). These activities are thus coded as **R$_c$** *or* **T** $\Rightarrow$ **P$_c$**. This term does *not* pertain to activities where students arpeggiate chords in response to aural identification (i.e., activities coded as **A** $\Rightarrow$ **P$_c$**); those activities are featured later in section 6.1 on p. 138.

[21]   It is technically possible to arpeggiate chords on instruments. However, all instances of chord arpeggiation in Category 1 activities involved vocal rather than instrumental performance. This suggests that teachers prefer to

Singing arpeggiated (or broken) chords was one of the most direct ways in which students realised chords in their entirety without an instrument. There were fifteen very different activities that involved some form of chord arpeggiation. Chord arpeggiation activities were collected from eight of the ten visited institutions (none were collected from Institutions A & B). Most of these activities were unique approaches taught by individual teachers, although three of the activities (C4, G2, & J4) represent a compilation of several different approaches to arpeggiating chords at a single institution. I distinguish these activities in terms of four features: (1) stimulus type, (2) arpeggiation pattern, (3) harmonic rhythm, and (4) relevance to repertoire.

4.2.1   Stimulus types in chord arpeggiation activities

In most chord arpeggiation activities, students read chord labels (C1, C4, D4, E14, G2, H3, & J4). Chord labels were written in several forms that students recognised, including roman numerals, jazz chord symbols, and functional chord symbols. In C1, the teacher notated the bass line beneath the chord labels. Including the bass line was not necessary, but it simplified the task by clearly showing the starting note of each arpeggiated chord. In F7, H3, & I3, music notation was the stimulus for students' chord arpeggiation. In F7 & I3, students read arpeggios that were written out; students simply arpeggiated chords by literally singing the notation. This was not the case in H3, which used music excerpts rather than written-out chord arpeggiations. In order to arpeggiate the chords, then, students had to read multi-part scores (e.g., orchestral and ensemble works), arpeggiating only after analysing the chords.

Apart from reading chord labels or notation, students also received directions from teachers when arpeggiating chords in eight activities (C2, C4, E8, E13, E15, G2, I11, & J7). In three of these activities, teachers listed individual note names using solfège syllables, which students interpreted and sang in response (C4, E8, & E13). Like F7 & I3 (mentioned above), students interpreted individual notes for the purposes of constructing arpeggiated chords. C4, E8, & E13 were therefore much more straightforward compared to activities that involved analysing chord labels or music scores. Importantly, students undertaking these activities did *not* have to be aware of any chords or harmony. In other words, it was possible for students to treat it as a *melodic* singing exercise without once considering the fact that it was an arpeggiated *chord*. This was especially true in E13, where the arpeggiated chord progressions were often interrupted with chromatic neighbour

engage students more directly (through their own 'built-in instrument') when it comes to realisation of chords in arpeggiated form. Interestingly, though, chord arpeggiation on instruments ocrcurred in several Category 3 activities.

notes. Such activities put more focus on singing melodies than on students' awareness of the chords and progressions.

Teachers also directed students through means other than providing individual solfège syllables. In C4 & G2, teachers orally described the chord labels that students were to arpeggiate. Obviously, *being told* what chord labels to perform is practically no different *reading* the same labels The main difference in these two activities, however, was that students had to first memorise each chord label that the teachers described. Such an approach was similarly applied in C2. But whereas the chords in C4 & G2 varied from one exercise to another, C2 involved arpeggiating the same chord sequence every time: I–V^7–I. Students were used to this activity as it was frequently called for just before sight-singing activities, as a means of establishing the tonality. It was not necessary for students to read the chord symbols; students only needed to hear the tonic note or chord.

I11 was an unusual chord arpeggiation activity. In addition to singing arpeggiated chords, students stood up and walked backwards and forwards relative to the movement of the bass note. Since all arpeggiated chords in I11 were triads in root position, the teacher needed to only say a scale degree number for students to know what chord to sing (e.g., "four" was the subdominant chord). Changes to this number was crucial to making the correct stepping gestures. Going from "four" to "five", for instance, involved one step forward, while the reverse order required a step backward.[22] There was one other activity that involved singing arpeggiated chords while gesturing (J8), but I11 was the only activity where students gestured *and* sang arpeggiated chords in response to either **R$_c$** or **T**.

In J7, rather than being told what chords to perform, students improvised a melody using a given theme with the goal of modulating from the tonic to a given key (e.g., the dominant).[23] Unlike almost any other activity, students here were given the freedom to improvise anything they wished. While students did not have to arpeggiate chords, the themes that students improvised on were frequently based on arpeggiated chords. In addition, students often performed arpeggiated chords as a preliminary warm-up exercise before commencing their improvisation (cf. C2). This activity, which was observed in class for second-year jazz students, represents one of few collected

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[22]   The main exceptions were when the step was very large. For example, students went from "one" to "six" by making a small step backward (i.e., from $\hat{8}$ down to $\hat{6}$) rather than a large step forward. Of course, this natural tendency to choose the smallest possible stepping distance resulted in a smoother bass line. This feature was also reflected in the bass line that students sang, which generally moved in the same direction as the physical steps.

[23]   See Johansen (2007) for other ideas on how to incorporate improvisation exercises into aural training.

activities that featured student improvisation.

To summarise, students sang arpeggiated chords in response to four different types of stimuli: (1) chord labels ($\mathbf{R_c}$), (2) music notation ($\mathbf{R_c}$), (3) solfège syllables ($\mathbf{T}$), and (4) other teacher instructions ($\mathbf{T}$). These different stimuli encouraged students to acquire different kinds of aural skills. When reading chord labels, students developed the ability to quickly identify all the constituent notes, and in particular, the bass note (when arpeggiating from the bass up). Similar analytical skills were involved in activities where chord labels were conveyed verbally by the teacher. Perhaps the most demanding of all activities were those where students arpeggiated chords in response to reading music notation in the form of full scores and music excerpts (e.g., H3). At the other end of the spectrum, activities where students responded on a note-by-note basis required the least amount of harmonic thinking. Although students *could* choose to think in terms of chords when being instructed note-by-note how to arpeggiate, in many instances it was much simpler to treat the sequences of solfège syllables (C4, E8, & E13), intervals (E15), or musical notes (F7 & I3) as *melodies* or individual notes rather than arpeggiated *chords*. These activities thus encouraged students to think and act in terms of intervals and melodies rather than chords and chord progressions.

4.2.2 Chord arpeggiation patterns

In all fifteen chord arpeggiation activities, students arpeggiated up from the bass note. Commencing arpeggiations from the bass note should be no surprise considering the importance of bass notes in learning about chords and harmony from a theoretical perspective. Interestingly, there were variations in how to progress from one arpeggiated chord to the next. The arpeggiation pattern in most activities involved singing up from the bass note to the last original note, and then arpeggiating back down to the same starting note (C1, C2, C4, E13, E14, I11, & J4). This was the one and only pattern described by Karpinski (2000) on pp. 180–181. In some activities, students arpeggiated in one direction and without repeating any chord note for each arpeggiation (C4, D4, E8, E15, F7, G2, & I3). With no repeated notes, these activities were the most efficient way to arpeggiate. However, in these activities students only arpeggiated individual, unrelated chords rather than complete chord progressions (except for F7 & G2).

Another popular approach was to eliminate the second downward arpeggiation, skipping directly from the top note of a chord to its bass note (G2, H3, & J4). This approach was more efficient

than singing two arpeggios for each chord, which in the process involved repeating the inner notes of chords. For instance, arpeggiating a seventh chord in root position with one arpeggio up and returning to the starting bass note rather than two arpeggios (up and down) saved students from repeating the third and fifth of the chord. Returning to the bass note (and thus repeating it) meant that every chord change was considered in terms of bass line movement, rather than skips from the top note of one chord to the bass note of the next chord.[24] In addition, G2 & H3 involved arpeggiating *down* from a melody note. This unusual approach to chord arpeggiation did not represent the *opposite* of arpeggiating from bass notes up. Rather, it encouraged awareness of chord tones without focusing attention on bass notes all the time. In H3, this approach enabled students to arpeggiate (and thus think about) chords while singing a melody, thereby effectively combining melodic and harmonic thinking into the one activity.

4.2.3 Harmonic rhythm and relevance to repertoire

Not all chord arpeggiation activities were performed rhythmically, whether to a regular pulse or beat or to the harmonic rhythm of a music excerpt. Only C1, C2, C4, G2, I11, J4, & J7 exhibited this feature. C1, C2, & C4 were presented by one particular teacher at Institution C. In these activities, chord progressions were arpeggiated in ¾ with one chord per bar. Each chord was arpeggiated both up and down during the first two beats, with the second arpeggio ending on the bass note on the third beat. Although similar to the pattern shown in 'Example 7.9' in Karpinski (2000, p. 180), students in those three activities arpeggiated seventh chords more quickly to fit the two extra notes into the two beats, thereby changing the rhythmic pattern from subdivisions of two to three (i.e., triplets). As I11 only involved arpeggiating triads, it used the rhythm as described by Karpinski, but in C time. The extra beat gave students two beats to sustain the bass note, during which time they interpreted the teacher's indication of what chord to next perform. In G2 & J4, students arpeggiated chords with varying speed and rhythm without interrupting the harmonic rhythm and continuity of the given music excerpt.[25] This flexibility not only related chord arpeggiation exercises to real music, it also served to challenge the common misbelief that one chord always occupies the duration of one bar.

Most chord arpeggiation activities were not explicitly related to music repertoire. Only five out

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[24] See also Figure A.10 in E9 (p. 286) in which the teacher repeated the bass note to illustrate the step-wise bass line motion from V to IV.

[25] This approach is comparable to certain **A ⇒ Pv$_c$** activities, such as E9, wherein students arpeggiated chords in time with music excerpts that they *listened* to.

of the fifteen chord arpeggiation activities involved the use of music excerpts (C4, E14, G2, H3, & J4). The chord progressions in C4, E14, & J4 were represented by both chord labels and music notation. Students usually focused on reading the chord labels while arpeggiating, but having the notation available meant that the teacher could direct the students' attention to the original source of the chords (i.e., the music itself) during the activity. In G2, students arpeggiated chords while simultaneously listening to the teacher perform a song that the students knew well. Apart from the one occasion (Event 86) on which this excerpt was used, however, most of the time students arpeggiated chords from notated chord progressions that were not derived from excerpts. The arpeggiated chords that students sang in H3, on the other hand, were *always* derived from the music literature. It was not that the arpeggiation approach in H3 inherently required the use of excerpts; it was the fact that the *teachers* at Institution H were generally disapproving of using non-excerpt materials in H3 (and, for that matter, in virtually all aural harmony activities).

Only two activities involved the use of music excerpts *and* also maintained the actual harmonic rhythm of the excerpt during students' chord arpeggiations (G2 & J4).[26] These two activities epitomise the ultimate relevant aural training activity. Yet it did not necessarily mean that it was the most difficult to perform. The ease with which students arpeggiated a piece of music in G2 is a testament to the fact that, given the right conditions, chord arpeggiation can be readily applied to any existing piece of music. In the case of G2, the teacher chose a piece that not only featured three most basic chords (T, S, and D), but one that students knew so well that they hardly needed guidance other than the teacher's performance of the piece. In J4, when the chords in the jazz piece changed too quickly for students to arpeggiate accurately, the teacher simply slowed down the tempo while maintaining the excerpt's harmonic rhythm. Both activities thus successfully integrated chord arpeggiation exercises into a harmonically-authentic study and performance of music excerpts.

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[26] The keen reader will note that the arpeggiation exercises in C4 were cited as both being performed with a regular harmonic pulse *and* involving the use of music repertoire. However, these two features were observed on separate occasions as presented by different teachers. Students in Event 46 arpeggiated chords to a regular beat while students in Events 33 & 35 arpeggiated chords derived from music excerpts. Such is the drawback of combining within one activity description two or more opposing teaching approaches based on the fact that they shared the same basic features (e.g., singing arpeggiated chords) and were observed at the same institution. For further details, see the full activity description on p. 260.

4.2.4 Effective chord arpeggiation activities

Having considered the four features of chord arpeggiation activities, one might ponder the question of what attributes make a chord arpeggiation activity pedagogically effective. To answer this question, one must first ask: What is the *purpose* of undertaking such activities? Karpinski (2000) suggests that chord arpeggiation activities "[serve] to link the eye, the ear, and the mind in a deeper and more sophisticated understanding and fluency in music" (p. 181). One teacher at Institution H, in describing H3, alluded to an inner awareness of harmony as the final outcome:

> "It's a kind of analysis in order to ... sing and use your inner hearing to hear the chords [...]. And when this goes very fast ... you can sing [a] melody and hear the chords at the same time. That's the long term target [...] of this exercise." (Event 95)

Both viewpoints refer to the development of increased awareness of harmony while reading, performing, listening to, or thinking about music. Hence, perhaps the effectiveness of an chord arpeggiation activity is best determined by its ability to help students become spontaneously aware of chords and harmony within musical contexts.

It would be ambitious to expect every student to attain a fluent awareness of harmony in *every* possible musical context. Students have differing needs in terms of aural skills, both while studying and in their future careers. For instance, the skills required in the rapid analysis *and* realisation of chords in the form of music notation (i.e., full scores) are not typically expected of undergraduate music students, unless their desired profession demands such abilities (e.g., composers and pianists). Perhaps for this reason, most chord arpeggiation activities did not involve analysing music scores. This demanding skill was mostly observed at Institution H, where students quite often reading multi-part scores (in H3).[27] Not surprisingly, arpeggiating from full scores was more frequently used in aural training classes specifically for students studying conducting and composition.

At the other end of the basic–advanced continuum, perhaps the most straightforward chord arpeggiation activities were those where students were directed in their arpeggiations on a note-by-note basis (e.g., E15, F7, & I3). The fact that this type of arpeggiation involved the spontaneous

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[27] As explained in the activity description, H3 was undertaken as part of (or following) virtually any other aural harmony activity at Institution H (cf. p. 307). For example, in the final step of H1 (p. 306), students undertook H2 & H3 using the same excerpt.

singing of note sequences, either while reading or being directed by a teacher, makes them comparable to sight-singing exercises. These activities are common perhaps because students could do well in them without necessarily understanding the chords and harmonies that they performed. Herein lies the problem: these activities do not encourage students to *independently* think about chords and harmony. The focus in many such activities was students' accurate intonation of individual notes, with harmonic awareness relegated to a secondary role. While these types of arpeggiation exercises represent a safe, incremental step towards getting students to *begin* thinking about harmony through singing, it is only the first step.

In order for a chord arpeggiation activity "to ingrain the sounds of chords in the ears and mind, [and] reinforce the links between symbology and sound," (Karpinski, 2000, p. 181), students must eventually learn to arpeggiate directly from chord labels or music notation. Not only is interpreting chord labels more efficient than thinking and arpeggiating in terms of note sequences, it also has direct relevance to other situations where students encounter chord labels (e.g., when studying theory, harmony, and composition). Therefore, once students are familiar with a specific arpeggiation pattern and become fluent in reading chord labels, there are fewer reasons to continue encouraging melodic and intervallic thinking (e.g., E15) rather than harmonic thinking. In terms of difficulty, arpeggiating from chord labels is perhaps a good compromise between the most complex (multi-part score-reading) and basic (note-by-note singing) types of reading. The same kind of harmonic thinking is also rehearsed when students interpret chord labels that teachers utter (e.g., C4).

Finally, in order for chord arpeggiation activities to be relevant to real-life musical contexts, they should be coupled with some form of study of music repertoire. The five activities that involved the use of music excerpts were generally more challenging than activities that were purely exercise-based. The extra stimulation due to encountering new or unfamiliar chords, harmonic rhythms, and other musical features, was never too demanding for the students. Anecdotally, students seemed to have more fun and instinctively knew what to do when they arpeggiated a piece of music (e.g., J4 & G2) rather than non-functional chord sequences (e.g., D4). The relevance of chord arpeggiation to the repertoire was further enhanced when students heard the music in its original form before or after arpeggiating (e.g., H3), or when the arpeggiation adhered to the original harmonic rhythm (e.g., J4). When students neither heard the music in its proper form or deviated from the excerpt's harmonic rhythm, as in E14, the connection between the exercise

and the music was obscured. The relevance of chord arpeggiation activities to real music is therefore maximised when their association is demonstrated through the listening and performance of excerpts that are authentic and relevant to students' musical experiences.

4.3   Performance of chord through playing instruments (R *or* T $\Rightarrow$ Pi$_c^\bullet$)

There were 11 Category 1 activities that involved performance on keyboard instruments such as the piano and electric keyboard (A2, B2, F4, F5, G1, G3, H5, I1, I3, I12, & J6). Considering the prevalence of documented pedagogical methods that combine keyboard exercises with the study of harmony (e.g., Weekes, 2007; Shumway, 1980), the consistent focus on keyboard skills in these activities was expected. However, it is interesting that none of these activities incorporated chord performance on *other*, non-keyboard instruments. (The only exception was G1, where students could alternatively play on a guitar, another polyphonic instrument.) In addition, the chords that students performed were almost always harmonically-sounded (as a block chord) rather than arpeggiated.[28] Although these activities took advantage of one of the most useful features of polyphonic instruments—the ability to produce chords harmonically—the imposed limitations on both performance medium and performance method resulted in less variation between activities when compared to activities in the two aforementioned subcategories.

The choice to use keyboard instruments rather than students' main instruments in these activities was also partly a matter of convenience. Several teachers in the US alluded to wasted class time due to students having to set up and pack away their instruments (e.g., at Institution C (Event 43) and Institution F (Event 82)). For this reason, most students in the US did not bring their own instruments to aural training classes.[29] As a result, the only opportunity for students to perform chords on instruments was to use instruments that were already set up in the classroom—i.e., electric keyboards or pianos. In Scandinavia, on the other hand, it was not uncommon for students to bring their instruments into class. However, such instruments were more commonly used for part performance (e.g., I5, I6, & J11) rather than chord performance. Overall, then, there was

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[28]   This observation was limited to Category 1 activities. Several activities from Category 3, for instance, involved arpeggiated chords on monophonic instruments (e.g., H7 & J8). In addition, Category 1 activities that involved performing excerpts (e.g., A2 & H5) were not limited in this way by virtue of the heterogeneousness of musical textures and keyboard technique in such music.

[29]   There was one exception: there was a special aural training course at Institution E that required students to bring their instruments to every class. Activities in this course include E3 & E7.

a trend across all ten institutions towards using keyboard instruments for non-arpeggiated chord performance, while chord arpeggiation was generally treated as a *sung* exercise.[30]

In my analysis of activities in this subcategory, I focus on three key features of the activities that directly influenced the pedagogical outcomes. The first feature is the *stimulus* that instigated students' performance actions (i.e., reading music notation, reading chord labels, or receiving other instructions from their teacher). The second feature is the specific performance actions that students undertook. Of particular relevance to this feature are certain activities that involved singing while simultaneously performing chords on an instrument. In particular, I compare activities that involved singing while simultaneously performing chords on an instrument. The third feature is the type of materials used in these activities, which was generally polarised between block-chord performing exercises and literally performing music excerpts. I discuss these three features in the following subsections.

4.3.1 Stimulus types in instrumental chord performance activities

In most instrumental chord performance activities (apart from F4, G1, & J6), students performed chords on a keyboard instrument while reading music notation. Unlike chord labels, music notation represents the exact pitches and rhythms of each note. Despite the logical nature of performing from notation, it was in fact far from straightforward for many of the students who did not have piano as their main instrument. While these students were generally fluent in reading notated melodies, reading and performing chords on a keyboard instrument often required persistent practice. Apart from G3, in which students could choose to play a guitar instead, keyboard instruments were ubiquitous in all instrumental chord performance activities.

To assist students in developing the relevant keyboard skills, a number of activities presented chord progressions in its bare-minimum form. That is, the exercises typically comprised short, rhythmically-simple successions of chords—each comprising four notes—presented in a homophonic texture. The progressions almost always started and ended on tonic. After learning the most basic chord functions at the outset (i.e., I, IV, and V), students progressively acquired a growing repertoire of new chords, including seventh chords, inversions, and secondary dominants. Compared to music excerpts, the exercise-like chord progressions in these activities were thus relatively simple and predictable. This enabled students to focus more on one of the core outcomes of these

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[30]   Refer to the chord arpeggiation activities presented earlier in this chapter, in section 4.2.

exercises: the ability to perform chord progression correctly, i.e., as notated. B2, F5, G1, & G3 exemplify this sequenced approach to keyboard harmony, an approach that also forms the basis of many existing textbooks and methods on keyboard harmony.

An important goal in these keyboard exercises was the development of a certain level of *fluency* when performing the given chord progressions—that is, to perform them with minimal pauses or interruptions. Most students were able to work out how to play each chord separately, simply by identifying and learning to play the four constituent notes. However, being able to play each chord as a separate unit does not automatically mean they were able to perform multiple chords in succession without interrupting the pulse or harmonic rhythm. This meant that a considerable portion of these activities was spent on developing the necessary performance skills, i.e., keyboard technique. The focus on technique was particularly evident in F5, in which the teacher went around to individual students to advise them of alternate fingerings or hand positions (Event 78). With so many students having difficulty with getting the notes right, the class effectively became a group piano lesson. The lack of time meant that there was virtually no time to convey the theory or rationale behind the progressions. Likewise, the students did not ask, only accepting the activity as a skills task. Although the observation and data collected was by no means conclusive, it suggests that the assessment criteria was likely based upon the student's ability to correctly perform the notated progression, rather than their true appreciation of the meaning or function of those chord progressions.

When professional pianists perform tonal chord progressions, whether while reading complex orchestral scores or a short chorale within a piano sonata, they conceive them in terms of functional and familiar sequences marked by clear cadential patterns. At the very least, they consider each chord as a single unit, which is then combined with other chord units to form a progression. With a significant proportion of class time spent on playing the right notes at the right time, this broad harmonic thinking was unfortunately lacking in activities like B2 & F5. On the other hand, teachers in G1 & G3 spent valuable class time helping students to appreciate the chord progressions both aurally and theoretically. Of course, this was at the expense of students practising their keyboard skills. But this was a more efficient option, because students' proficiency in keyboard skills within a class was usually diverse. Although this approach may not be feasible if many students struggle with playing the keyboard by themselves, activities that did not clearly convey the musical meaning behind the chord progressions were merely piano exercises (or lessons) rather than opportunities to appreciate harmony.

One way of encouraging harmonic thinking in keyboard harmony activities was to avoid using a notational system that permits a literal, note-by-note interpretation of chords. In G1, I12, & J6, students read chord labels (specifically, functional chord symbols like T, S, and D) instead of music notation. By having students interpret chord labels, they were effectively forced to think of chords as single, complete units. Similarly, combining several chord labels into a progression clarified the relationships between different chords, which ultimately encouraged functional thinking. Not having the notation meant that students had to perform more based on their instincts and with some experimentation, particularly when transposing chord progressions to different keys (without writing it out). For students with limited skills in either keyboard performance or music theory, as mentioned earlier, additional assistance was necessary, particularly in the early stages. In most activities, assistance was provided in the form of handouts (which explained the chord labels and their functions) as well as demonstrations during class time (e.g., G1). With students that possessed more keyboard skills and theoretical understanding of harmony, for example with the church musicians (organists) in J6, such support was not as necessary.

Five of the 11 instrumental chord performance activities utilised music excerpts as the stimulus for chord performance (A2, F4, I1, I12, & H5). Compared to the aforementioned activities that used simplified exercise materials, notated excerpts were generally more difficult to perform by virtue of the complex rhythms, counter-melodies, and multiple textures in the music. These activities were thus only feasible for students that possessed relatively advanced keyboard skills. In other words, teachers only employed these activities in classes where the students were either proficient pianists (e.g., A2) or had the ability to learn how to perform the chords by themselves (e.g., H5). Students either performed the excerpt individually (e.g., I1, I12, & F4) or collectively as a class—often, one student played the chords on a piano while others sang the melody (A2 & H5). The outcome of these activities, and one of the most important features of instrumental chord performance activities that involved excerpts, was the experience and sheer enjoyment of making and discussing music. Moreover, the diversity of music and discussion topics is not comparable to the repetitive and dry keyboard exercises mentioned earlier.

The use of excerpts was particularly interesting in two activities, in which students were asked to find excerpts that demonstrated specific chord types (F4) or chord sequences (I1). This approach reflected the notion that students have much to gain by associating specific harmonic features with music that they are personally familiar with. Students in I1 were asked to bring into class excerpts

(e.g., scores or lead sheets) that contained specific chord sequences, which they (optionally) performed on a piano during class time. Discussions of these individual excerpts were used as an introduction before proceeding to other exercises that exemplified the same chord sequence. F4 furthered the approach by requiring students to *memorise* excerpts that contained specific chord types. As the teacher explained, the idea behind this approach was so that students would "know the chord because they know some piece that has the chord within it" (Event 76).[31]

For jazz musicians, such as those who undertook F4, learning new techniques through memorisation and association is a routine skill. The ability to memorise chords, chord sequences, and other musical features, as well as the ability to demonstrate and manipulate (i.e., perform) those features, form the basis of their creative output. On the other hand, in traditional or 'classically-oriented' aural training settings, it is unusual for students to be expected to demonstrate their understanding of specific chords or chord sequences (or any other musical feature) by citing (let alone performing) an excerpt from any musical repertory. I1 & F4 demonstrate some significant benefits of this approach. A key advantage of this approach is that students develop a personalised appreciation of harmony. The process of finding excerpts that demonstrate specific chords or chord sequences is an intensively educational and eye-opening experience in itself—any teacher who has seriously undertaken this task for teaching purposes would agree with this! Handing the task over to students gives them the opportunity to do the learning and exploring. Students may also engage more in class discussions when they can personally relate to the excerpt through their own 'experience' of it. The potential for open-ended discussions in this kind of learning approach almost makes it the antithesis of the aforementioned rule- and skills-based keyboard harmony activities (e.g., B2 & F5).

4.3.2 Performance on keyboard instruments while singing

As mentioned previously in sections 4.1 and 4.2, there were four activities in which students performed vocally while simultaneously playing chords on an instrument (B2, G3, H5, & I3); these activities are coded as $R_c \Rightarrow Pi_c + Pv$. In three of these activities, students sang a part (Pv_p) while playing short chord sequences (B2 & G3) or music excerpts (H5) on an instrument. And in I3, students performed single chords on a piano while arpeggiating them vocally (Pv_c). The majority of Category 1 activities involved *either* singing *or* playing an instrument, while these four

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[31] For the full quotation of the teacher's rationale behind the activity, refer to the activity description on p. 297.

activities involved undertaking both simultaneously.

Apart from these four Category 1 activities, no other Study II activity required students to simultaneously undertake two distinct performance actions. This is interesting given that it is conceivably possible for a Category 3 activity to involve two simultaneous performance actions. For instance, a hypothetical Category 3 activity could, say, involve listening to a short musical extract and, in response, playing the bass line on an instrument while also singing the melody. (Such an activity would be coded as $A \Rightarrow Pi_p + Pv_p$.) The absence of activities with such a coding was probably due in part to the demanding nature of such an exercise. Most students would find performing in response to aural identification to be more challenging than performing in response to reading music notation. Combining aural identification with two simultaneous performance actions—a skill that requires much practice in itself—would thus push many students to their limits. In terms of the performance component, then, B2, G3, H5, & I3 were probably four of the most challenging Study II activities.

Both B2 & G3 involved performing short chord sequences while singing a simple sequence of notes, and were similar in many ways. In both activities, the sung part progressed in stepwise motion and the chord sequences were limited to about three or four chords. All chords were in block form, and performed in keyboard style—i.e., with one and three notes in the left and right hands, respectively. Each chord was always accompanied with exactly one note, which harmonised with the prevailing chord. Rhythm was relatively unimportant in both activities, and was often unspecified in the notation or symbols; it was generally assumed that each chord was to be performed with the same duration, apart from the final chord, which usually had a longer note value. This kind of simplification of chord sequences bears much resemblance to many common part-writing and dictation exercises, which typically exhibit similar restrictions to the rhythms, voice leading, and passing tones permitted or used in chord progressions. The pedagogical reasoning for simplifying or limiting variety in the non-harmonic features is to encourage students to focus on the harmony-specific concepts. In the case of B2 & G3, these restrictions also made it easier for students to focus on acquiring the relevant performance skills.

Some small differences in the performance components of B2 & G3 reveal the divergent student learning outcomes of these two activities. For each exercise in B2, students repeatedly played a specific chord sequence while singing a given list of note sequences that commonly accompanied those sequences. For instance, while repeatedly performing a I–V–I sequence, students sang note

sequences like $\hat{3}$–$\hat{2}$–$\hat{1}$, $\hat{1}$–$\hat{2}$–$\hat{1}$, $\hat{3}$–$\hat{2}$–$\hat{3}$, etc., one after another. This repetition encouraged students to internalise the association between specific note sequences and chord sequences. Teachers at Institution B often referred to these associations in certain dictation activities (e.g., B4 & B5).

While in B2 students practised all possible stepwise note sequences, in G3 the emphasis was achieving the smoothest possible voice leading, both in the sung part and in the chord sequences. Each time the chord changed, students were advised to sing the same note whenever possible. Unlike the approach in B2, the note sequences that students performed in G3 were not all listed in advance; they had to work it out themselves. Students performed each chord sequence three times, starting on a different sung note each time ($\hat{1}$, $\hat{3}$, and then $\hat{5}$, i.e., the notes of the tonic chord). Whereas students in B2 learnt only one set of hand positions for each chord sequence before repeating it over and over, students in G3 adjusted their right-hand position so that the highest note matched the sung part. In comparison with B2, the pedagogical purpose of G3 was less concerned with the literal interpretation of a given, notated part, and more focused on the voice-leading component, which was emphasised through both the vocal and instrumental performance actions.

Of the four $\mathbf{R_c} \Rightarrow \mathbf{Pi_c} + \mathbf{Pv}$ activities, only H5 involved performing from music excerpts. Unlike B2 & G3, where students sang theoretically-derived note sequences while repeatedly playing a particular chord sequence, in H5 chord progressions and sung melodies were determined by the music itself. During class, teachers often discussed with students the harmonic and melodic features of the excerpts. For example, in Event 93, the teacher alluded to the various chords Bizet used to harmonise the *ostinato* clarinet figure (E♭–G–F–E♭), which students sang.[32] Students were then asked to sing this *ostinato* figure while performing the remaining parts (i.e., an orchestral reduction). At the end of the activity, the teacher often played a CD recording of the excerpt, allowing more discussions concerning nuances such as intonation, instrumentation, etc. Students in H5 were therefore able to experience both listening to and performing 'real' music.

Instrumental chord performance was a significant outcome of B2, G3, & H5, but it was only a supporting feature in I3, which was essentially a sight-singing activity. In I3, students learnt to recognise notated arpeggios and rapidly interpret them through singing. At first, students performed the full chord that represented the arpeggiated pattern, before singing the notes. Gradually,

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[32]   The excerpt was taken from the *Andante molto* section of George Bizet's *L'Arlésienne* (*The Girl from Arles*), Suite No. 1: I. Prélude.

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students played only one note (either the root or the first note) before singing the arpeggiated pattern. This process helped students to progressively reduce their reliance on hearing the performed chords. In doing so, students trained themselves to sing (and thus hear in silence) the arpeggiated pattern with just one reference note. The purpose of playing chords in this activity was thus to provide harmonic support for the sight-singing component, rather than developing it into a skill. Indeed, compared to B2, G3, & H5, the chord performance component in I3 was the simplest as it only involved playing one chord at a time.

In terms of the singing component, students in all four activities sang the 'top-most' part comprising notes that either represent the main melody or otherwise the most prominent part. That is, the sung part was never an inner-part, counter-melody, or the bass line. In discussing aural skills development in performing pianists, one teacher suggests that "singing the more aurally insecure left hand of a piano part while playing the more melodic right hand would also guarantee a thorough aural knowledge of the music" (Bailes, 2009, pp. 53–54). Exercises such as these help students develop an awareness of the other parts of the music that harmonically support the main melody. However, given that many of the students undertaking Study II activities did not have keyboard as their main instrument, such an exercise would challenge many students within the context of aural training. Most students would find it much easier to perform the top-most part rather than a counter-melody or bass line.

At this point, we can identify two main reasons for using instruments in the four aforementioned chord performance activities. The first and most essential reason for employing instrumental chord performance is to assist the students' development of sight-singing skills. This outcomes can be seen in all four activities, but it is particularly evident and systematically applied in I3. The second intention is to simultaneously develop singing skills, keyboard skills, and harmonic concepts (e.g., in B2, G3, & H5).

However, we can identify an even more important pedagogical feature in the three activities of the latter type. Despite sharing the same action sequence ($\mathbf{R_c} \Rightarrow \mathbf{Pi_c} + \mathbf{Pv_p}$) these activities in fact illustrate two very different pedagogical approaches, which in turn leads to two highly contrasting learning experiences. The focus in B2 & G3 was on the development of abstract conceptual (harmonic) *knowledge* and multitasking (performance) *skills.* but not applied to real music. In contrast, the use of excerpts in H5, combined with the teacher's method of engaging each student (through singing and performing) in an uninterrupted format, contributed to a learning

experience that was considerably more fun and musically authentic. The learning outcome of this type of multitasking performance activity is the result of the *experience* that students get. Whether students undertake an exercise to learn abstract skills, or they acquire similar skills by performing music, rests on the pedagogical approach used.

4.3.3   Composed exercises versus music excerpts

Of the eleven R_c *or* $T \Rightarrow Pi_c$ activities, six (B2, F5, G1, G3, I3, & J6) did not involve music excerpts or repertoire; the remaining five involved performing exercises that were created specifically for aural training purposes (A2, F4, H5, I1, & I12). Activities that did not involve repertoire generally emphasised the acquisition of keyboard skills. Students in these activities learnt a single method or technique of chord performance, which was then applied to progressively more complex chords and chord progressions. The five activities that *did* involve repertoire, on the other hand, encouraged students to *apply* their performance skills in more varied and complex musical contexts. While keyboard skills were also vital in these activities, the use of excerpts generally freed students from learning a specific performance technique or genre of chord progressions.

Unlike most other Study II activities, H5 was not a regular keyboard exercise that students undertook on a weekly basis. Instead, and as explained in the activity's full description,[33] the teacher assigned this activity in the particular observed class (Event 93) only because it was suited for the given excerpt. H5 was, in other words, only one of many different activities that teachers employed throughout their semester-long study. This approach to excerpts was quite unique to the aural training curriculum at Institution H.

The flexibility afforded to activities that revolve around music excerpts arguably has significant benefits that outweigh the less favourable outcomes. The most obvious drawback is that, compared to teaching methods that sequence exercises very gradually from simple to complex, changing activities for each excerpt might appear to be more haphazard in its progression towards more complex skills and concepts. This is expected given that most masterpieces were not composed for systematic study. There is necessarily some variability in complexity of specific features within different excerpts. For example, a Bizet symphonic suite might suit an instrumental chord performance and singing activity like H5, while the study of a Bartók string quartet excerpt might

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focus on rhythmic performance in complex time signatures. Even if a teacher attempts to gradually pace one particular topic (e.g., chords) sequentially, it would be very challenging to maintain that same pace for other topics (e.g., rhythm). As such, this approach requires the teacher to take extra care not to overwhelm students with too much new information.

Despite the issue of pacing the study of particular music features, this lack of artificial graduation from simple to complex resembles the way in which students learn new repertoire on their main instrument. In this way, repertoire-based activities like H5 develop reading and performing skills that are directly relevant to students' instrumental studies. For this approach to work smoothly within the available class time, students need to have a very good foundation in reading and keyboard skills. This was not an issue at Institution H, as most of the students there had a footing in those areas. In situations where students have less experience playing the piano at the outset, teachers can choose simpler excerpts to match their abilities. Alternatively, teachers can create simplified keyboard arrangements that maintain the important features of the music (e.g., chords, harmonic rhythm, melodies), so that students can still relate them to the original composition.

This distinction in flexibility between H5 and the other three $R_c \Rightarrow Pi_c + Pv$ activities (B2, G3, & I3) highlights a significant difference in philosophical approach at a curriculum level. B2, G3, & I3 all represent regular exercises that students were expected to undertake regularly to develop the specific kinds of performance skills. The fact that H5 was not rehearsed on a regular basis demonstrates one thing in particular: teachers prioritised a variety of exercises and approaches to studying music excerpts over polishing a smaller selection of skill sets.

Students sang melodies and performed chords in all three activities. However, H5 was distinguished by the fact that the parameters of the performance task were dictated by the particular music excerpt being studied. Unlike B2 & G3, where students performed chords according to a specific method (e.g., always singing one note for each chord), students in H5 learnt to perform music excerpts directly from music scores. The harmonic concepts that these activities focused on were also different. The exercises in B2 & G3 often involved performing chords in response to reading and interpreting chord labels. On the other hand, the objective in H5 was mainly to play and sing through the excerpts without necessarily studying each chord that was encountered. The harmony-related aspects of the music excerpts were discussed during the activity through the aural (from sound recordings) and visual (using the score) analyses of the music. While both approaches

encouraged harmonic understanding, H5 enabled students to develop a broader and more varied appreciation of harmony as represented within the music literature.

The use of repertoire as opposed to composed exercises demand different skills from students while also providing different learning experiences and outcomes, as mentioned earlier (subsection 4.3.2). Both B2 & G3 were intended for music students with *any* amount of initial keyboard skills. For this reason, these activities were carefully sequenced so that students began with short chord progressions with the most basic chords, before slowly progressing to new and increasingly complex chords and cadences types. To further simplify the activity, the chords in the exercises were generally performed as one chord per beat (or two), where the melody note (which students sang) changed only when the chords changed. Reducing chord progressions to its bare minimum, like in theory classes, helped students to focus on the chords and harmony without distraction. In contrast, distraction and variety was encouraged in H5. Students in H5 possessed more than a basic level of aural skills *and* keyboard skills (even though many of them were not studying piano as a major instrument). Having these fundamental skills meant that they could, with a little practice, perform excerpts without difficulty. The additional features in the music excerpts (counter-melodies, complex rhythms, varied harmonic rhythms, etc.), rather than being a burden for these students, provided a catalyst for further discussions on such topics as the harmonic vocabulary of specific composers, periods, and genres.

In many cases, particularly when working with students with little or no experience in keyboard harmony, it makes sense that they first learn to perform simple, unadorned chord progressions. Where the goal is to attain the most basic keyboard skills, practising with composed exercises of graduated complexity is a sensible and common approach. Performing from full scores or unsimplified music excerpts, as in F4, H5, & I1, requires prior experience in playing keyboard instruments. However, once students attain fundamental score reading and keyboard performance skills, there are few reasons to exclude the use of music repertoire. As H5 demonstrates, it is not too much to expect students with advanced aural skills—even if they do not specialise in keyboard performance—to perform multi-part scores of music excerpts while also singing a melody at the same time. Again, the basic skills must be gradually developed first. Ultimately, teachers need to question whether the goal of R_c *or* $T \Rightarrow Pi_c$ activities is for students to acquire the skill of performing predictable, mono-rhythmic chord progression exercises, or to develop a broader understanding of chords and harmony as experienced and represented in the music repertory.

4.3.4 Learning outcomes of instrumental performance activities

Given the inherent versatility of performance actions on keyboard instruments (in particular the ability to produce multiple notes at once), activities in this subcategory demanded a considerable range of skills. The performance tasks as seen in Study II activities ranged from generally repetitive and predictable and almost robotic performances of short chord sequences (e.g., B2) to the more nuanced reproduction of music excerpts that incorporated salient musical features such as dynamics and phrasing (e.g., A2 & H5). The more repetitive, exercise-like activities were generally intended for students with relatively little experience in keyboard performance. These activities therefore involved performing basic chord progressions and emphasised proper keyboard technique. The more complex activities were usually set for students who were more familiar with playing keyboard instruments. Similar to the sung chord arpeggiation activities mentioned in the previous section, students interpreted music notation as well as chord symbols, depending on the activity. In addition, at least one activity involved some form of performance from memory (F4).

Unlike performing chords through singing, students did not have to arpeggiate the chords when performing on keyboard instruments (or guitar). Interestingly, none of the eleven R_c *or* T $\Rightarrow$ Pi_c activities involved performing arpeggiated chords, even though it is technically possible to do so. Chords were always performed harmonically, either as block chords or as part of a performance of music excerpts. Consequently, chords performance on instruments in response to R or T was never undertaken using melodic instruments, which would have required arpeggiation. In other words, chord arpeggiation was generally restricted for singing purposes only. Most teachers would agree that one of the key advantages of undertaking keyboard harmony activities is that it enables students to "actively [participate] on two levels—as performer and listener, originator and evaluator" (Shumway, 1970, p. ix). Although chords can be performed on any instrument, keyboard instruments facilitate the performance of chords in a way that can also be literally 'seen' (as fingers over individual key levers). It was therefore not surprising that when students performed chords using instruments, keyboard instruments (i.e., piano or electric keyboards) were by far the most common choice.

Summary

In the foregoing analysis of Category 1 activities, I have compared activities in which students performed parts, sang arpeggiated chords, and performed chords on instruments. Of these three types of activities, the part performance activities were the most straightforward, as it involved performing (usually singing) one note at a time. The simplicity of this action sequence made it an ideal choice for fulfilling a range of functions in the aural training classroom. A large variety of methods for singing arpeggiated chords were present in Study II activities. These activities aimed to develop in students an appreciation of the vertical structures of chords by creating (i.e., singing) the constituent notes one at a time. Students developed various reading skills (depending on the stimuli), and teachers presented different types of arpeggiation patterns to suit the particular needs of an activity. By using instruments, students were no longer limited to their own voice and, where keyboard instruments were used, they could produce chords harmonically rather than melodically. And by referring to the music literature in both chord arpeggiation and instrumental chord performance activities, teachers made those skills relevant to real music.

In terms of performance medium, a much larger proportion of Category 1 activities involved singing. Where instruments were part of a Category 1 activity, it was almost always used for chord performance (11 activities) rather than part performance (I3 only). The rarity of instrumental part performance (Pi_p) was most probably due to the fact that the skills involved in performing a part (e.g., a melody or individual notes) in response to reading or teacher instructions are generally considered developed within instrumental lessons rather than aural training classes. On the other hand, as I will reveal later in Chapter 6, Pi_p was more frequently found in Category 3 and Category 4 activities, when students' performance actions were directly linked to their aural identification.[34] In Category 1 activities, however, performance was usually undertaken vocally rather than instrumentally.

In the next chapter, I will compare Category 2 activities. The pedagogical purpose of activities in Category 2 contrasts with those in Category 1 in two ways. First, the focus is on aural identification (**A**). Second, this is done in the absence of performance (**P**) actions. In the next chapter, I will return to the discussion of performance actions in activities that involved the combination of both **P** and **A**, which are classified under Categories 3 and 4.

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[34]   See Chapter 6 (p. 137).

Chapter 5

Category 2 activities: Aural identification without performance

Category 2 represents the second most common category in Study II data, following closely behind Category 1. Activities in this category are very different from those in Category 1, as is visually represented by fact that the two categories are disconnected in the schematic diagram of the classification system (see Figure 3.2 on p. 66). Both activities in Category 1 and Category 3 have as the basis of their action sequences the use of musical sounds. In the case of Category 1, these sounds are performed or created from non-sound sources. Here in Category 2 activities, the focus shifts to the aural identification of musical sounds.

Category 2 activities can be separated into three subtypes based on the action following the aural identification (**A**) action. These ending actions are notation (**N**), verbal response (**V**), and gestures (**G**). The majority of Category 2 activities (22) involved verbal responses, almost as many involved notation (20), while relatively few activities involved gestures (3). In this chapter, I compare the pedagogical approaches of aural identification activities across activities within these three subtypes of Category 2 activities.

5.1 Notation (A $\Rightarrow$ N)

Based on the commonality of dictation activities within both research and pedagogical literature,

it is not surprising that $A \Rightarrow N$ activities were well represented in Study II data. I collected notation activities from all but two of the four institutions in Scandinavia (H and J). Several teachers at both schools expressed their reasons for not regularly (or ever) including dictation exercises in their aural training classes, although one of the teachers at Institution J was particularly vocal about her disapproval of dictation exercises. This particular teacher, citing her own experiences as well as that of other aural training teachers, suggested that students' progress in aural training is negatively influenced by dictation and other forms of testing (Event 124). This opinion was shared amongst the other teachers at Institution J. For this reason, students undertook a minimal amount of dictation exercises during class. In place of dictation, students were assigned transcription exercises using CDs and other sources. The teacher at Institution J also expressed strong views against piano-based dictation tasks due to the limited opportunities for instrumentalists, such as violinists, to apply those skills. Teachers at the three other Scandinavian institutions (Institutions H, G, & I) also held similar views, and, as was the case at Institution J, it was more common for students to undertake transcription at home rather than to undertake dictation exercises during class.

While one can approach the analysis of the 21 activities that involved the $A \Rightarrow N$ sequence in various ways, the following analysis is based on considerations of the factors that relate directly to students' ability to aurally identify chords. In the following discussions, the activities are first grouped into one of two types based on whether or not notating chord labels was part of the activity ($A \Rightarrow N_c$). Activities that did not involve chord identification have the $A \Rightarrow N_p$ sequence. Of the activities that *did* involve notating chord labels, my analysis further distinguishes between activities wherein teachers encouraged students to derive chord labels from one or more notes (parts) of the chord and activities that encouraged chord identification through "Gestalt listening" (Karpinski, 2000, p. 119). Hence, the following discussion is divided into three parts that represent these three contrasting approaches to activities involving notation. They are presented below under the following headings: Notation of one or more parts without chord labels ($A \Rightarrow N_p$), Notation of chord labels through part identification and analysis ($A \Rightarrow N_c$), and Notation of chord labels through chord identification ($A \Rightarrow N_c$).

5.1.1 Notation of one or more parts without chord labels ($A \Rightarrow N_p$)

It was relatively uncommon for aural harmony activities to engage students in identifying and notating parts of a chord *without* subsequent chord analysis, whether aural or theoretical. As

students did not identify and label chord labels, these activities could not be described as 'harmonic dictation', even though in one sense students were only one step away from identifying chords. In other words, these activities focused on the student's ability to discern the building blocks of tonal harmony, individual parts, not on the final outcome—or chords—that result from the combination of notes.

There were three such activities observed (A1, A3, & B1). A1 involved 3- or 4-part dictation exercises using a small instrumental ensemble comprised of students. After the students had written down the parts, the teacher and students could then discuss the chords within the music. In B1, students notated the bass line of a recorded excerpt as a homework task. Curiously, unlike the other activities described below, this activity did not require chord identification following the identification and notation of the bass line.

Interestingly, A3 used keyboard-style chord progressions as the stimuli rather than chorale-style voice spacing. Although this performance style was observed in some of the other twenty A ⇒ N activities, what was unusual about this activity was that students were required to notate all (four) notes sounded exactly as performed in keyboard-style (i.e., three notes in the right hand and one note in the left). While some four-part dictation exercises required students to write all four parts, they were always performed in chorale-style. In no other observed activity were students required to identify and precisely notate each note of a chord progression performed in keyboard-style harmony.

The requirement in A3 to identify every note performed in a keyboard-style chord progression has several implications. Firstly, while chorale-style chord progressions generally follow the conventions and restrictions of vocal part-writing, the same progressions when performed in keyboard-style do not usually have the same restrictions. As a result, in A3, students would rely less on music theory when identifying each individual part, and more on their knowledge of possible hand positions on a piano. Secondly, students would also need to listen very keenly to discern each note that was played on the piano. Another factor that makes this type of dictation exercise more complicated than chorale-style dictation is that the three notes of the right hand are often spaced more closely, which can make it more difficult to differentiate the exact notes. Perhaps not surprisingly, this activity was specifically intended for students with relatively advanced aural skills (Event 1).

Despite the lack of chord notation, the four above activities were considered to be aural harmony activities due to the presence of discussions relating to chords. However, these activities

focused students on part identification rather than chord identification. Indeed, as Karpinski (2000, p. 118) suggests, these activities could be more accurately described as part writing (or even melodic dictation) rather than harmonic dictation.

5.1.2 Notation of chord labels through part identification and analysis (A ⇒ N_c)

As mentioned earlier, one way in which activities involved notation of chord labels was to focus on the analysis of one or more parts (commonly the bass and soprano parts), which then led to the identification and notation of chord labels.[1] There were eight activities that exhibited this approach. Five of these activities involved deriving chord labels from two or more parts, while three activities involved deriving chord labels from just the bass part. Seven of the eight activities required students to identify chords as well as notate one or more parts *prior to* their identification and notation of chord labels. Only one activity did not require part identification because it was provided to the students.

Five activities involved the notation of either the outer parts (soprano and bass) or the bass part and inner parts, before proceeding to chord identification (B4, D2, C7, E10, & F2). On many occasions during classes that included this activity type, teachers suggested that notating any other parts (usually the alto and tenor parts) was optional.[2] This variety of harmonic dictation was only observed at institutions in the US. This demonstrates the strong and consistent emphasis institutions in the US place on this type of harmonic dictation. This presents a stark contrast to the apparent absence of such kinds of approaches to dictation in Scandinavian institutions.

With the exception of E10, these five activities were virtually identical at every institution in the US. Teachers presenting B4, D2, & F2 strongly encouraged students to use theoretical knowledge, based on the identified bass and soprano notes at a given location in the chord progression, to identify the chord labels. While I did not observe C7, the description given suggested it was virtually identical to B4. Similarly, the highly structured sequence of steps in E10 encouraged students to derive chord labels based on pre-identified and notated parts, starting first with the bass line, followed by other parts (either the soprano line or two 'guide tones' lines). Even though students wrote chord labels, these activities could essentially be described as A ⇒ N_p (that is, part

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[1]   For an explanation of the action sequence used despite chord identification occurring after part identification, refer to subsection 3.2.5 on p. 60.

[2]   Sometimes, students were offered with the benefit of extra 'points' upon assessment. Most students did not perform the extra step, although I did noticed that some students attempted to write out all four parts.

writing) that concluded with a harmonic analysis exercise.

Three activities encouraged students to derive chord labels based on a bass line only (B5, B9, & E4). B5 & E4 encouraged students to first notate the bass line, either as scale degree numbers (B5) or in standard notation (E4). Compared to the notation activities that required notation of two or more parts, which enabled analysis of the chord based on theoretical knowledge, in B5 the teacher placed a stronger emphasis on identifying chord labels based on the *sound quality* of the chord, by frequently asking students to describe it (i.e., major or minor) as a preliminary step towards identifying the chord label. Students were thus able to identify chord labels even though the exact constituent pitches were not known (or at least not notated). In E4, however, the teacher provided students with the soprano part before the bass line was identified and notated by the students. The teacher encouraged students to derive chord labels using both the soprano part and their notated bass line. In that sense, E4 resembled the four activities described earlier, even though students only identified and notated the bass part. E4 can therefore be considered a simplified version of two-part melodic dictation followed by harmonic analysis where one part was provided. These two activities were essentially melodic dictation of the bass line[3] followed by harmonic analysis.

In B9, students were encouraged to first work out the chords that were likely to result from a bass line, which was *given* rather than aurally identified. In a sense, this made the activity resemble a music theory class on four-part harmony or harmonisation, in which students typically attempt to 'correctly' harmonise a given melody or bass line. In reality, this activity was essentially identical in procedure to B5 & E4, with the only difference being that it did not emphasis melodic dictation of the bass line. By providing the bass line, the teacher encouraged students to focus less on their *aural* ability to identify chords than on their theoretical ability in working out chords. Figuring out chord labels based on given bass lines as an exercise was also observed at some other institutions, although in those instances there was insufficient data for coding as an activity. At Institution E, one teacher described this figuring out of chord labels as "conditions for a given bass line" (Event 55). The following instructions given by the teacher articulates the philosophy behind this approach:

> "I can't emphasize enough—so much of this work is about the brain. It's not just pure listening. The brain is really going to help organize all of our options." (Event 55)

In seven of the eight activities described above (with the exception of B9), students first identified and notated one or more parts prior to writing chord labels. If one views harmony and chord

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[3]   See Karpinski (2000, p. 121)

progressions to be the result of four simultaneous melodic lines, undertaking part identification before chord identification makes sense pedagogically—dictation exercises would be based on the way harmony works. Moreover, students' ears would be led from simple (melody) to complex (harmony), and they might be encouraged to view harmonic dictation as an extension of melodic dictation (Rogers, 2004, p. 121).

However, this emphasis on beginning harmonic dictation with part identification and notation may negatively affect students' aural identification of chords. By constantly practising harmonic listening through visually analysing known parts, students might not be as encouraged to improve their ability to aurally recognise chords and chord progressions. Karpinski suggests that this type of activity "is not really harmonic dictation but rather a series of melodic dictations that result in a renotation of the passage, after which not harmonic *listening* but harmonic *looking* takes place" (2000, p. 118). Rogers also concurs with this view, suggesting that that four-part dictation is "more a matter of common-sense voice leading than actual hearing (especially on the piano)" (2004, p. 126).[4] Harmonic dictation undertaken using such an approach therefore focuses on the theoretical aspects of chords and harmony at the expense of developing students' ability to aurally identify *chords*.

In Study II activities where students notated parts prior to chord labels, typically only the outer parts were required, with four-part dictation being optional. In a discussion with graduate students studying music theory pedagogy, one teacher at Institution B described harmonic *looking* as a "pet peeve":

> "[Some]times harmonic dictation turns into something else, when people are able to write the outer voices, [...] and then suddenly it's no longer harmonic dictation—it's, (speaks in different tone, as a student) oh, I can figure that out. I see scale degree three in the bass, I see 1̂ [in the soprano]. That must be I⁶. You know, and you'll move on to the next. And it becomes [...] puzzle solving you know, I have enough information that I can make pretty good guesses at everything [...] you're giving too much information or allowing people to write their own crutches. It's better than you giving it to them. But you're no longer really practising the same listening skills." (Event 19)

In the above quotation, the phrase "It's better than you giving it to them" refers to the fact that students can still learn something if they identify the two outer parts by themselves. It is very interesting, then, that one of the activities I collected from the same institution (B9) engaged

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4   See also Chittum (1969).

students in precisely the opposite manner, by providing students with the bass part at the start of the activity. In doing so, students in B9 could again resort to theoretical analysis rather than focus solely on their aural identification skills.

This problem of *harmonic looking* is somewhat related to another common phenomenon in aural training, one that concerns students with absolute pitch (AP). According to Marvin (1995), these students exhibit the same tendency to analyse notes in order to derive chord labels, only that they commonly do this to the extent that they cannot label chords without reference to identified pitches.[5] She writes:

> "If we ask AP students to listen to a harmonic progression and write Roman numerals only—without benefit of staff paper—they are often completely unable to do this, because they have not been trained to hear harmonic function. These students tend to transcribe letter names as quickly as possible, then return to their transcriptions and analyze for Roman numeral function." (pp. 54–55, as cited in Karpinski, 2000, p. 58–59)

This phenomenon is one that I have personally witnessed on many occasions when teaching students that likely possessed AP. This tendency affected some AP students' ability to describe chord labels upon hearing them (as opposed to writing them down), and was particularly pronounced when the tonality had many sharps or flats (e.g., D♭ major). Assuming that analysing notes to derive chord labels becomes more difficult when there are more sharps or flats present in a given key,[6] these observations concur with Marvin's point of view. Thus, when students *without* AP are encouraged to write down parts and analyse them in order to identify chord labels, they are effectively being encouraged to undertake harmonic dictation in the same way that some AP students do. This approach brings along some similar problems that AP students experience, such as an inability to identify chords without first notating parts.

In none of these eight activities, which encouraged 'harmonic looking' (as Karpinski (2000, p. 118) calls it), did teachers use musical examples that were derived from the repertoire or music excerpts. Instead, the chord progressions found in these activities were predominantly snippets or exercises that were either composed by a staff member at the institution or taken directly from aural

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[5] Karpinski (2000) also recognises that this tendency does not promote a solid understanding of the meaning of tonal music in students with AP. Such tendencies amounting to "identifying a series of unrelated pitches does not promote the understanding of this meaning" (p. 58).

[6] This assumption is based on prior research that shows that persons with AP tend to identify pitches more quickly and accurately when the pitches correspond to the white keys on a piano, as opposed to black keys (Takeuchi & Hulse, 1991; Miyazaki, 1990, 1989). Of course, factors other than the physical colour piano keys come into play; see Marvin and Brinkman (2000) for some findings using similar experiments.

training textbooks. In contrast, most of the activities described below (in subsection 5.1.3), which focused more on directly identifying chords than on deriving chord labels from parts, were based on music excerpts from established repertoire, such as directly from CDs or arranged exercises based on the repertoire. Although any activity involving notation has the potential to emphasise music repertoire, it appears that teachers tend to employ composed exercises for part identification and notation.

In activities that required notation of part before notation of chord, the students' written answers were typically assessed and treated as a gauge of their aural skills ability. This sharply contrasts with the type of activities that focused more on identifying chords and labelling. Those activities commonly involved in-class discussions on a wide range of topics, not only on harmony. Also, the students' answers (chord labels) were rarely subjected to subsequent assessment that resulted in the prescription of a 'grade' based on the correctness of said answers, which was observed or implied in most activities focused on notation of parts.

5.1.3 Notation of chord labels through chord identification (A $\Rightarrow$ N$_c$)

In this third type of notation activity, students were encouraged to approach both aural identification and notation through a Gestalt recognition of chords types, qualities, and progressions. That is, unlike the activities mentioned above, the following eleven activities did *not* emphasise melodic dictation (part identification). Of the ten activities that fall into this category, three were transcription exercises based on music excerpt recordings (F3, G6, & H1), five engaged students in frequent discussions of the chord labels with notation being either optional or informal in nature (C9, I2, I9, J3, & J11), and two activities did not share these attributes and are thus presented last (E2 & I8).

There were three activities that involved transcription[7] exercises, where students notated chord symbols directly from sound recordings (F3, G6, & H1). Unlike the dictation exercises described above, which were largely contrived chord progressions played on a piano repeatedly, all three activities were regularly assigned as homework exercises that students could undertake at their

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[7]   My use of the term "transcription" as an aural training exercise largely corresponds with Karpinski's (2000, p. 128) explanation and differentiation between transcription and dictation exercises.

own pace.[8] Although they were homework tasks, at least two of the three activities were confirmed to have also been practised and discussed during class time (F3 & H1). Three of the four visited Scandinavian institutions (Institutions H, G, & J[9]) had activities where students undertook transcription exercises for homework. While some institutions in the US described some form of transcription, usually involving melodic dictation, rhythmic dictation, and metrical identification, I collected information on transcription exercises involving chord identification at only one out of five visited institutions in the US (Institution F). It therefore suggests that this type of activity may be more common in Scandinavian institutions than in US institutions.

In addition to the assigned homework tasks, students discussed the assignment or the repertoire further during class in both F3 & H1.[10] The assigned exercises were sometimes partially undertaken during class so that students could practise their skills during class. In both these activities, class discussions also promoted further appreciation of the music excerpt, repertoire, and other features of the music. This broadening of the discussions beyond harmony, chords, and chord labels was contrasted significantly to most of the dictation exercises that involved part identification; not a surprise considering that most chord progressions featured in those exercises were not taken from an established repertoire of music.

Five activities involved notating chords directly as a result of aural identification, but usually as an optional or complementary action. These activities were in many ways similar to the three activities described above. For example, students were not assessed on their ability to correctly identify chords in these five activities. This was particularly true in I9, where the teacher revealed the answers (i.e., chord labels) shortly after (or in some instances simultaneously with) the sounding of the chord labels. Indeed, although the activity was referred to as a "mini-test", students were not tested but instead given an opportunity to learn and, in a sense, to test *themselves* rather than to *be* tested. In C9, I2, & J11, students were more engaged in various verbal discussions (**V**) or performance (**P**) actions than in notation. Notation was only observed (or explained to me) as

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8   Interestingly, Martínez, Malbrán, and Shifres (1999) found that sounding a chord sequence more times did not in itself lead to better accuracy in students' ability to aurally identify those sequences. This finding suggests that in dictation exercises, students should focus less on how many times they hear a chord progression, and more on their approach to the listening task.

9   It was evident that transcription exercises involving harmony were commonly set as homework exercises, based on discussions with teachers at Institution J and reading textbooks and worksheets that I had access to during my visit. However, not enough information was collected in order for the transcription exercises to be presented as a discrete aural harmony activity within Chapter 4.

10   I could not confirm whether G6 also included activities during class to complement the homework tasks. However, it is likely that the main task was undertaken at home, with class time (if any) used for discussions about the transcription process and experience.

an alternative or additional action that complemented the students' aural training. Finally, rather than the teacher writing down the chord labels, students in J3 notated chord labels in response to a heard chord progression for the purposes of subsequently undertaking other activities that required them to read chord labels (e.g., J5).

In E2 & I8, students also labelled chords in response to aural identification. However, they were not of the same categories or types as those described earlier. E2 included part identification, but students were not encouraged to identify parts first followed by theoretical deduction of the parts to derive chord labels.[11] Despite the fact that part identification frequently appeared to reduce the emphasis on chord identification, including part identification in an activity did not always lead to this result. E2 was such an activity. The way in which teachers maintained an emphasis on chord identification was ultimately a commonsensical solution to the problem. Rather than encouraging students to first notate these parts, the teacher in E2 asked students to only *sing* the bass line once they had heard the progression numerous times. In addition, rather than interrupt the chord progression with minute-long silences, the teacher performed the progression numerous times in one go, looping and varying the music in a way that altered slightly the linear progression of both outer and inner parts. The effect this type of presentation has is that students, rather than focusing on outer parts, become truly aurally immersed in the way in which the chord progression 'works'. During my observation (Event 56), students had no difficulty identifying chord labels despite not first identifying outer parts.

It is possible that there were other reasons that contributed to the workability of E2 despite the fact that students did not derive chord labels from parts. For example, the class in which I observed this activity comprised students who were relatively advanced in their aural training compared to their peers, being placed in the most advanced class out of the four levels. Additionally, students at Institution E may have been more familiar with recognising chords and chord progressions within jazz and popular music idioms because of the curriculum of the music program at that school. Nevertheless, the activity still demonstrates that it is possible to engage students in harmonic dictation exercises that do not emphasise part identification.

I8 introduced a structured approach to identifying chord functions, differentiating it from any other described activity. Like E2, students listened to the chord progression numerous times with minimal interruptions. However, rather than identifying all the chords sequentially from start to

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[11]   For discussions on this type of activity, see 'Notation of chord labels through part identification and analysis (**A** ⇒ **N**$_c$)' on p. 114.

finish, the teacher asked students to first listen out for all instances of the tonic chord. Students then wrote chord labels inside boxes placed above a given melody. The same process was repeated for other chord types and qualities as they listened to the same chord progression over several goes. The teacher who described this activity suggested that this approach enables students to focus on one chord at a time. In this way, a student might approach this exercise by auralising the tonic chord, and, while listening the music, simply mark down wherever it occurs in the progression.

Notation in aural harmony activities

The above analyses of the 21 activities involving the **A** ⇒ **N** sequence demonstrates the variety of ways in which notation was employed at the eight institutions I visited in Study II. In particular, it clearly illustrates two contrasting approaches to undertaking notation activities. These two approaches usually encourage either chord identification (which is based on aural identification) or the deriving of chord labels based on reading and analysing a given part.

This balancing of chord analysis versus *aural* chord identification is however not limited to notation exercises. Whether the final student response is notated (**N**), verbally described (**V**), or otherwise conveyed, any activity can encourage students to identify chords through theoretical analysis of provided part(s) rather than by the sound of the chord. However, activities that involved the **A** ⇒ **N** sequence illustrated the diametrically opposed nature of the two types of approaches to identifying chord labels. It was mainly in dictation exercises that many teachers in Study II keenly encouraged (or required) students to identify and notate parts before deriving chord progressions.

An alternative to this either-or approach to identifying chord labels is to find a common ground between the two extremes. This was hinted in several Study II activities. In I8, for instance, students were provided with the melody but not the bass line. While there was some discussion of the bass line as part of the activity, the emphasis was mainly on chord recognition without awareness of the bass line to the point where students had to notate it. Providing the melody, too, gave teachers the potential to discuss with students what chords could possibly harmonise the melody note *without* necessarily focusing on the theoretical aspect of the chord.

It should be emphasised that not requiring students to notate one or more parts when listening to chord progressions and notating chord labels does *not* result in a complete lack of awareness of the outer parts. Firstly, students necessarily acquaint themselves with the bass line of a chord progression and use that information to help them derive chord labels. The melody line is easiest

to recognise and students can undertake the activity as a melodic dictation (a separate activity) if that is the purpose of the activity. The difference between the two approaches may appear to be slight and not differentiable without effort. However, after continuous exposure to one approach, students will probably believe that it is the only practical way to analyse chords when listening to music.

Karpinski argues that Gestalt listening, or recognising chords as they are, is not something one can be trained to do directly:

> "In the absence of other listening strategies, [students] can be taught no concrete means for recognizing a "new" chord as a Gestalt. Instead, we might think of Gestalt listening as a by-product or result of other techniques. After weeks, months, or even years of repeatedly recognizing and labelling particular chords, those chords can become instantly recognizable" (2000, p. 119).

Such a view suggests that teachers should aim to equip their students with specific listening techniques and simply wait until students miraculously develop Gestalt listening skills. However, one may wonder why students cannot directly acquire these skills by focusing *less* on developing specific listening strategies. In fact, there were many cases in Study II activities where teachers adopted such an approach (e.g., C9, F3, H1, & J11). Of course, students will probably rely somewhat on specific strategies that they have previously acquired. Nevertheless, it is highly conceivable that they can learn to recognise the chords by Gestalt through listening more frequently and through trial and error. The kinds of techniques common in dictation exercises, such as first identifying the outer parts, certainly make the task much more predictable and thus easier. But in many contexts outside of the aural training classroom, these strategies cannot be directly applied. It is therefore crucial that students, from the earliest days of their tertiary education, are given many opportunities to simply recognise chords (i.e., chord functions) without necessarily emphasising specific listening strategies that may be effective only in certain situations.

Ultimately, the inclusion of part identification in any harmonic dictation (or chord identification) activity will always potentially encourage students to listen only to individual parts rather than the chord quality. However, it is possible for students to undertake chord identification without part identification, and it is through such an approach that students are more likely to recognise chords when listening to excerpts and real music.

5.2 Verbal response (A ⇒ V)

Verbal responses were frequently observed,[12] with about the same number of occurrences as **A** ⇒ **N**. As one of the most direct forms of communication between students and teachers when dealing with aural identification, it should be no surprise that verbal discussions was common and that it occurred in place of, or as an alternative to, other methods of responding to aural identification (such as **N**).

The **A** ⇒ **V** sequence occurred in activities in three distinct learning contexts. In the first type of learning context, which was the most commonly observed, students responded to heard chords or chord progressions by describing and discussing the features, parts, or chord labels using words. In this type of activity, the music that students listened to and analysed aurally was either performed by the teacher or played from a sound recording. In the second type of learning context, other actions (**N** or **P**) were also emphasised as part of the activity. With this type of activity, these other response types were either complemented or substituted with verbal responses to aural identification, giving an alternative means of conveying their understanding about heard chords and harmony. In the third type, aural identification and subsequent verbal responses were preceded by performance actions (undertaken by students). This type of sequence was particularly interesting and relevant to this research because of the involvement of performance actions prior to aural identification.[13] Here, students either played an instrument or sang parts of a multi-part exercise, which as a class resulted in the sounding of chords or chord progressions. This chord progression, which the students created themselves, was then analysed aurally by the students, who finally responded through verbal descriptions; alternatively, students also responded through performance or notation in two activities. These three types of activities that were based on the **A** ⇒ **V** sequence are presented below under the following headings: Aural identification leading to Verbal response only (**A** ⇒ **V**), Supplementary verbal responses following aural identification (**A** ⇒ **V** *or* **N** *or* **P**), and Verbal responses following aural identification of student performance (**P** ⇒ **A** ⇒ **V**).

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[12] The reader should be reminded that although virtually all classroom activities observed included verbal discussions of some sort, the verbal response (**V**) action has a discrete meaning for the purposes of this research. The definition and the rationale behind it are detailed in subsection 3.2.6 on p. 61.

[13] This category of action sequence, **P** ⇒ **A**, is analysed later in this chapter; see Performance leading to Aural identification on p. 154.

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5.2.1 Aural identification leading to Verbal response only (A ⇒ V)

There were seven activities that involved students' verbal responses to chords or chord progressions within music that was presented to them (A4, B6, B7, F1, F6, G7, & I1). As mentioned earlier, verbal responses occur in virtually any educational context, including within aural training activities. It was therefore not surprising that many activities fit into this category. In a sense, the **A** ⇒ **V** sequence *on its own* is quite a generic and simple type of activity within the aural training classroom, just as **A** ⇒ **N$_c$** quite plainly describes harmonic dictation. One difference between the two, though, is that activities with the **A** ⇒ **V** sequence tend to be more focused on the *discussion* of concepts, rather than on students' self-conducted notation or writing down of these concepts. Both types of responses, however, necessitate the conversion of sounds that are heard, through aural identification, into musical symbology.

Chord identification includes both aural identification of individual chords or multiple chords within a progression. Of the seven **A** ⇒ **V** activities, only G7 focused on aural identification of individual chords. In that activity, students were required to identify the type of seventh chord played on a piano. In terms of activities involving aural identification, regardless of the response (e.g., verbal or notation) it was relatively uncommon for activities to focus on aural identification of individual chords as opposed to chords within chord progressions.[14]

Apart from G7, the remaining six **A** ⇒ **V** activities shared a similar pedagogical purposes with the notation activities (**A** ⇒ **N**) described previously—namely, the aural identification of chords within the context of chord progressions. There were, however, several interesting and striking differences between these six **A** ⇒ **V** activities and **A** ⇒ **N** activities in general. In particular, **A** ⇒ **V** activities, when compared to **A** ⇒ **N** tended to encourage students to focus on *smaller* amounts of information (i.e., chords) at a time, while overall progressing through *more* musical materials and examples.

A ⇒ **N** activities generally consisted of set chord progressions that students had to identify and notate. In almost all instances of harmonic dictation, students had to identify and notate all chords in a chord progression, usually up to about eight chords in length. Students were rarely expected to be able to identify and notate all chords after hearing it only once, and so the progressions was usually played several times, with pauses in between. Since there was usually limited class time

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[14] Indeed, G5 & G6 at the same institution involved aural identification of chords within chord progressions.

devoted to harmonic dictation (as other topics had to be covered in the same hour or so), there was usually only time for one or two chord progressions.

Many **A** ⇒ **V** activities, which required students to only respond verbally, eliminated these problems. Instead of identifying (almost) every chord within a chord progression, students when responding verbally were generally expected to only identify chords at specific, relevant portions of the chord progression. Dealing with smaller amounts of information potentially enabled students to focus more on the specific chords or chord sequences they were working on. This, in turn, often meant that students didn't need to repeatedly listen to the musical stimuli—usually, once was enough. With less time spent on a specific concept, more material (chord progressions or excerpts) was generally presented to and discussed with students than in many **A** ⇒ **N** activities.

The efficiency of the two types of activities can be illustrated by comparing two activities that supposedly hone the skill of aural chord identification. In B7, which was coded as **A** ⇒ **V**, the teacher was able to improvise a chord progression containing about 64 chords (including pauses) in one and a half minutes (see Figure A.3 on p. 255). During this time, students were asked to describe chord labels or functions on seven occasions (when the teacher paused on a chord).[15] Compare this to B4 in Event 21, a harmonic dictation exercise (**A** ⇒ **N**$_c$) observed at the same institution. In this activity, the chord progression consisted of seven chords. Students notated outer parts and wrote chord labels for each chord. It took 17 minutes and 50 seconds to complete the activity, with most of the time being spent in silence, during which students notated parts and chord labels. These two very different activities had students identify[16] seven chords, but B4 took more than eleven times longer. Certainly, the two activities differed also in other areas that should not be ignored. For example, students practised music notation skills in B4, which B7 didn't at all address. Students also undertook melodic dictation of outer parts in B4. However, B4, which the teachers referred to as "harmonic dictation", purported to be an activity that trains students to identify chords by ear. This goal was the same for B7. Considering just the time spent, if one had to select one of the two activities to efficiently address that pedagogical outcome, B7 is clearly a better choice.

It should be emphasised that focusing on smaller amounts of information is not inherently impossible with harmonic dictation. Of course, teachers can similarly focus students onto a small

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[15]   For further details on how this activity was presented, see Event 19.
[16]   Unlike B7, B4 encouraged students to analyse outer parts rather than aurally identify chord labels by their sound quality. This problem was discussed earlier: see subsection 5.1.2 on p. 114.

number of chords when undertaking harmonic dictations. However, in most of the **A** ⇒ **N** activities that involved notating chord labels, teachers did not limit the number of chords students had to identify and label.[17] Supporting this view is the observation that aural training workbooks also tend to require identification of all chords within a chord progression (e.g., Karpinski, 2006).[18] Moreover, regardless of the length of chord progressions, students were generally able to respond faster when asked to describe it upon hearing than when asked to write it down, especially when notation of musical notes was involved. This, of course, is not surprising. Considering both the issue of harmonic dictation where part identification was involved, and the efficiency of the activity type, **A** ⇒ **V** activities were generally better at improving students' aural identification skills than **A** ⇒ **N** activities.

Out of these eight activities, two (B6 & B7) are worthy of further explication. Without debasing the benefits of verbal interaction between students and teachers within aural harmony activities, most **A** ⇒ **V** activities, as observed during Study II, tended to be highly predictable in that it was conducive to becoming a type of prepared guessing game, wherein teachers, who knew all the answers (chord labels), posed leading and hint-filled questions to students, luring them closer to giving the right responses. The format of these types of exercises, as represented by the six other **A** ⇒ **V** activities) were generally similar: teachers played harmonic progressions on a piano or played a sound recording, and then asked students to describe aspects of a chord or cadence. B6 & B7 did not originate from this regime. A feature that these two activities shared, apart from the fact that they were presented by the same teacher at Institution B, was the unconventional focus on the listener's perspective in a predictive or proactive way.

Unlike the chord progressions students listened to in the six other **A** ⇒ **V** activities, students undertaking B6 heard *incomplete* chord progressions. Rather than asking students to identify chords that were played, this activity encouraged students to rely on their inherent sense of tonal harmony to discover new chords and their usage in chord progressions. The activity also encouraged students to go further than discussing the chord *sequences* by highlighting the implications of the metrical placement of chords within a bar. In comparison, most other **A** ⇒ **V** activities required students to simply describe chords based on piecing together known information, such as pitches of the bass line and chord quality (i.e., major or minor), leading to the deciphering

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[17]   For instance, A3, B4, C7, F2, E4, & E10 all involved identifying and labelling all chords (usually at least seven) within a chord progression.

[18]   This observation is not to be mistaken as a claim that the majority of harmonic dictation in textbooks are presented with this instruction. There is nevertheless evidence to suggest that harmonic dictation as an exercise has generally been assumed to involve identification of most if not all chords of a given chord progression.

of chord labels. In these types of exercises, students were encouraged to identify specific chord tones rather than gain a sense of *how* the chord is commonly used in real musical compositions. Even though B6 was not observed in a classroom context, the teacher's descriptions sufficiently differentiated this unique activity from **A** ⇒ **V** activities.

In addition to the aforementioned benefits over traditional harmonic dictation described earlier, B7 was also unique in the way it engaged students throughout the activity. Rather than use set exercises that were pre-determined before class, here the teacher improvised[19] a continuous chord progression,[20] and, by pausing and sustaining certain chords on several chords, selected which chords students were to focus on. These paused chords were then identified by students by harmonic function (i.e., tonic, pre-dominant, or dominant). By modulating frequently to various keys,[21] the teacher encouraged students, particularly those with absolute pitch, to listen out for the *function* of the chord rather than work out the chord label based on known parameters such as the pitches in the outer voices. Despite the frequent modulations, students in the theory pedagogy class were generally able to identify the chord functions when asked to do so, suggesting therefore that identifying chords was not necessarily more difficult than in traditional harmonic dictation. By combining this modulation with a learning format that required spoken rather than notated responses, this activity, as the teacher suggested during Event 19, practically addressed the problem of 'harmonic *looking*' discussed earlier in this chapter.[22]

5.2.2   Supplementary verbal responses following aural identification (A ⇒ V *or* N *or* P)

Six activities (C9, G5, H1, I2, J1, & J3) involved verbal responses that occurred in tandem or in place of two other actions: notation or performance. These activities were thus coded as either **A** ⇒ **V** *or* **N** or **A** ⇒ **V** *or* **P** (except J3, which involved three actions (**V**, **N**, and **P**) following aural identification (**A**). Compared to the seven activities described in the previous section, which involved **A** ⇒ **V** only, these seven activities added some interest and variety to established exercises.

There were four activities coded as **A** ⇒ **V** *or* **N** (C9, H1, I2, & J3).[23] All four activities were

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[19]   Although it is possible that the chord progression was memorised rather than improvised, the nature of the performance suggested it was likely the latter. In any case, the progression of 62 chords was performed without the aid of notation.

[20]   The performed chord progression is shown in Figure A.3 on p. 255.

[21]   The teacher modulated to four keys in the observed exercise (Event 19): C, F, B♭, and A♭.

[22]   See section 'Notation of chord labels through part identification and analysis (**A** ⇒ **N**$_c$)' on p. 114.

[23]   These activities have already been mentioned previously in this chapter within the discussion of **A** ⇒ **N** activities,

focused more on the verbal responses, with notation only supplementing the students' descriptions and responses of aurally identified chords. In H1, the notation of specific elements (including chord labels) within repertoire recordings was completed at home prior to class. This ensured that students were somewhat acquainted with the music by the time the students worked on the excerpt during class. The questions asked during class were not necessarily the same as the homework notation tasks, so that class time was not merely a chance to check through the answers.

I2 & C9 similarly required students to notate chords first before describing them verbally, although both actions took place during class time. Notation in I2, unlike traditional dictation exercises, was optional; it only served as an intermediate step between aural identification and their verbal explanation of the chord. Because C9 was only described during an interview and not directly observed, it was not clear what weighting was placed upon notation and verbal responses. The descriptions that the teacher conveyed suggested that verbal responses were similarly emphasised over students' notation. In J3, students notated chords while listening to exercises that were played to them, but the notation was not assessed. Rather, students read the notated chord labels during other activities that followed (J4 & J5). Since the teacher could have notated the chords *for* the students rather than have them notate it themselves, notation was not a crucial task; again, it was through verbal responses that the teacher assessed students' correct aural identification of the heard chords.

Overall, then, activities involving both verbal responses and notation tended to emphasise the former, with the latter only fulfilling a supplementary role. Consequently, these activities were not generally assessable during class (as was the case with the four described above); they were purely opportunities for students and teachers to discuss chords and harmony. These exercises also tended to involve musical excerpts rather than contrived, composed exercises for the purposes of dictation. Collectively, these features can be clearly differentiated from the typical dictation exercise where students' written notation forms the principal means of assessment, and where there are minimal occurrences of students speaking (which would undesirably 'reveal' the answers to other students).

Three activities are coded as **A** $\Rightarrow$ **V** *or* **P** (G5, J1, & J3), in which students' aural identification led to either performance or verbal responses. Interestingly, in all three activities, the performance action was specifically **Pv_p**—that is, students were asked to sing a part, which, in all observed instances, was the bass. Moreover, students were often encouraged to *first* identify the bass line by

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on p. 111.

singing it, before they were asked to verbally describe the bass line or chord symbols. This was the case whether the chord progression was from a recording (J1) or a composed progression played on a piano (G5 & J3).

The astute reader may suggest that since the performance actions often preceded verbal responses, the action sequence for these activities should be $A \Rightarrow Pv_p \Rightarrow V$ instead of $A \Rightarrow Pv_p$ *or* V. However, such a sequence would suggest that it was entirely through the singing of the bass part that students identified the chords, which was highly unlikely. Firstly, singing the bass line alone does not necessarily reveal the actual notes, as students may incorrectly assign their sung notes to other note names. This may partly be why in some classes (e.g., Event 86 and 89) students who were unable to correctly sing the bass line (often singing the top melody part instead) were nevertheless correct in identifying the respective chord labels—and vice versa. Secondly, and assuming that a student correctly identifies all bass notes, identifying chord labels obviously requires listening to the chord progression in its entirety. Thus, despite the fact that the three aforementioned activities often involved singing of the bass line prior to verbal labelling of chords, $A \Rightarrow Pv_p \Rightarrow V$ as an action sequence would be misleading. By the same token, singing of a part during a dictation exercise can only be assumed to reinforce or aid the students' identification of the individual notes of that part.

In summary, students' verbal responses to aural identification, when accompanied with either notation or performance actions (or both) were not very different to $A \Rightarrow V$ activities. The notation or performance actions supplemented the students' verbal responses, often occurring before students were asked to respond verbally, allowing students to interpret the answers in music notation or through attempting to sing the bass line of a chord progression, before describing specific chord labels.

A benefit of employing performance rather than notation in activities that were predominantly $A \Rightarrow V$ in nature was that teachers could more quickly assess students' identification of chords. In the $A \Rightarrow V$ *or* N activities described above, like with most dictation exercises, students privately notated chord labels with pen and paper. Unless a teacher walks around the classroom monitoring each student's answer, a time-consuming duty even with only four or five students in a class, student feedback will always be delayed if not omitted from the activity. A teacher's assessment of each students' progress would be delayed until the moment a student shares the answer, or after class if the papers are collected and marked after class as was often the case. Performance actions,

on the other hand, could be immediately assessed by the teacher upon hearing the notes sung by the students. It was not surprising, then, that performance actions were emphasised more in **A** $\Rightarrow$ **V** *or* **P** activities than on the notation actions in **A** $\Rightarrow$ **V** *or* **N** activities.

5.2.3 Verbal responses following aural identification of student performance (P $\Rightarrow$ A $\Rightarrow$ V)

In six activities (C8, D1, H4, I6, I10, & J11), the **A** $\Rightarrow$ **V** sequence occurred *following* a performance action. That is, in some learning contexts students, during and after undertaking a performance action, identified the chord or chords that occurred as a result of their performance, which they subsequently responded to verbally. This was quite different to the other **A** $\Rightarrow$ **V** activities because here, students were actively engaged in creating the music that they had to identify. Obviously, the these activities did not merely require students to describe what they just played. Rather, students described verbally some aspect of the music that they did *not* perform. For instance, in H4 & J11, four students (or groups of students) performed one part each, but they were then required to identify the chords that resulted from their performance. The basic action sequence in these activities is **P** $\Rightarrow$ **A** $\Rightarrow$ **V**.[24]

Of these six activities, four of them (C8, D1, I6, & I10) required students to only describe chords. This was perhaps the most straightforward type of activity requiring only one performance action within the activity: the action that precedes aural identification (represented by **P** $\Rightarrow$ **A**). C8 & I10 were both similar: students sang melodies while the teacher accompanied with specific types of chords, and after singing the melodies, students were asked to recall the chords that were played while they were singing. Unlike the **A** $\Rightarrow$ **V** activities described earlier in the section 'Aural identification leading to Verbal response only (**A** $\Rightarrow$ **V**)', in which students generally identified chords that were played *to* them, students in these two activities were engaged in performance actions. These activities encouraged students to become keenly aware of the chords while singing, rather than making aural identification an activity that occurs in silence. In order to counter the difficulties of requiring students to both sing and aurally analyse simultaneously, teachers typically asked students to focus on only a small duration (e.g., a few bars) of the chord progression rather than list all the chords that were played.

D1, which was described by the teacher but not observed, similarly involved aural analysis

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[24]   Activities with the **P** $\Rightarrow$ **A** sequence is discussed in detail later in a section dedicated to it (see p. 138).

during singing activities. However, the singing occurred in a separate class relating to the students' performance major, such as choir or other performance situations (which the teacher attended). The teacher then quizzed students about the chords that were used in those pieces. A benefit of this approach was that it made use of the students' performance repertoire, potentially making the activity more relevant to them. The obvious problem is significant, though, and has to do with memory. The time difference between the students' performance and the aural training class could be a matter of hours or days in some instances. The success of the activity therefore relied heavily on the students' ability to memorise and recall (i.e., auralise) the *harmonies* that occurred during specific parts of their performance that the teacher referred back to. Of course, this problem could be alleviated if the teacher helped students recall the harmony by playing them on a piano, although the teacher did not specifically describe this step.

There were some **P** ⇒ **A** ⇒ **V** activities that did not restrict students' responses to verbalisations alone. In the two activities, H4 & J11, students responded either verbally or through another action. In H4, students could perform the chord (usually by arpeggiating it on a melodic instrument or by singing it) in order to demonstrate their ability to hear the chord tones. Subsequent to playing the arpeggiation, students would usually be asked to describe the chord by its functional label. In J11, students could respond either verbally or through notation. However, discussions with teachers at Institution J revealed that dictation was not commonly practised during their classes, suggesting that notation was only an alternative way of approaching this activity (J11), and that its focus remained on responding verbally through discussions and descriptions.

5.3   Gesture (A ⇒ G)

Whereas dictation and notation skills are common topics within the field of aural skills pedagogy, it is interesting that there are few publications on aural skills pedagogy that specifically address the approach to aural identification of chords (or parts of chords) through gestures or body movements. Most books do not specifically address gestures or body movements as part of aural training (e.g., Karpinski, 2000). It is thus unsurprising that the **A** ⇒ **G** sequence was rare in comparison with the other sequences involving aural identification (i.e., **A** ⇒ **N** *or* **V** *or* **P**). There were only three activities in which students demonstrated their aural analysis of harmony through gestures: C5,

I7, & J8.[25]

These three **A** ⇒ **G** activities were otherwise quite dissimilar to one another. In C5, students responded to chords by collectively swaying their upper bodies in three different directions while seated at their desks. Each direction represented a specific chord function (T, S, or D). The teacher observed the students' movements and assessed whether they were responding correctly while simultaneously improvising a chord progression at the piano. In I7, rather than swaying their whole body students pointed at three areas that represented the three primary chord functions. These areas were either written down on a piece of paper in front of each student, or the teacher drew the chord labels on a blackboard and one student was invited to the front of the class to indicate the chords, as the music was played. The gestures in this activity, compared to C5, were smaller and thus not as easy to differentiate. That is, the small gesture of simply pointing to an area at a desk meant that the teacher in I7 was less able to observe both the reaction time and the accuracy of students' gestures in response to their aural identification. The teacher in C5 was therefore in a better position to respond quickly to the students' responses.

Regardless of whether teachers were able to immediately respond to their students' gestures in these activities, an important benefit of the gesture action was that it allowed teachers to simultaneously assess multiple students' aural identification skills during a music-listening task. This represents a significant improvement over activities coded with the **A** ⇒ **V** sequence, which is generally practical only when teachers interact with one student at a time. Contrariwise, students' gestures were not necessarily representative of their true ability to aurally identify chords or parts in these three activities. In C5, for instance, some students appeared to be copying other students' gestures instead of responding directly to the music—a very natural response if a student realises that everyone else in the class had gestured in a completely different way![26] Teachers can however alleviate the potential for such 'plagiarism', if desired, by simply asking students to close their eyes, as was done in J8. Overall, this technique of revealing ones' recognition of chords and parts achieved a greater level of student engagement (through simultaneous student participation and participation throughout a listening task) when compared to similar Category 2 activities. Combined with the benefits of instant feedback from the teacher's perspective, responding to aural

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[25]   One other activity, I11, involved other kinds of body movements; however, those movements were in response to the teacher's instructions rather than aural identification. In one class at Institution B (Event 21), students were occasionally asked to raise their hands when they heard particular chords in a recorded excerpt. The exercise was only briefly observed and was presented somewhat inconsistently during the one and only observation; for these reasons it is not described as an aural harmony activity for the purposes of Study II.

[26]   See the full description of C5 in Appendix A (p. 262).

identification through gestures is arguably more pedagogically effective than through either **N** or **V**.

Rather than using gestures to represent specific chord functions, students in J8 used their two hands to indicate the approximate pitch height of the outer voices in a chord progression. The teacher presenting the activity demonstrated awareness of the complexity of moving both hands in this manner by progressing gradually from one-hand movements representing only one of the two outer parts, to two-hand movements representing both parts. While gesturing, students simultaneously sang the outer parts or arpeggiation of the chord, while the teacher played and sustained each chord for a duration suitable for the students to complete the task. Thus in addition to the novel use of gestures to represent the approximate pitch height of the outer parts, J8 was unique in that students simultaneously performed (i.e., arpeggiated) those chords. Furthermore, in order to reduce distractions (e.g., by their peers' movements) and focus more attentively on the sounds, students undertook this activity with eyes closed—another special feature of this activity. This feature allowed students more time to internalise the chord progression's outer voices both aurally and physically (via hand motions) before having to perform the notes precisely. This method of engaging students through gestures, perhaps if simplified to involve gesturing only one part at a time, can potentially help students who experience difficulties with part performance in response to aural identification.[27]

The only other activity that had students engaged in both gesturing and performance was I11. In that activity, students gestured in response to chord changes while simultaneously singing arpeggiated chords. However, rather than respond to their aurally identification of the chords, students in this activity were directed by the teacher, who announced the chord to gesture and arpeggiate. It is therefore not comparable to J8 and other $A \Rightarrow G$ activities, but is more similar to $R_c \Rightarrow P_c$ activities such as the "chord-arpeggiating activity" described by Karpinski (2000, pp. 180–181).

Using this specific gesturing technique in J8, teachers can potentially solve two common issues when students sing (in unison) during aural training classes. The first common difficulty is assessing students individually when everyone sings the same part at the same time. Although this approach saves time and may even reduce anxiety, some students will inevitably imitate or 'copy' the others—or worse, they may merely open their mouth without making any sounds! Either way, such participation is unlikely to help students internalise the part, which is often the goal of

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[27] An additional benefit of using this gesturing method is that it allows the teacher to observe students on an individual basis even as they all participate at the same time.

singing it in the first place. By having students gesture the outer parts with eyes closed in J8, the teacher in that activity could be certain that students worked individually. A very significant benefit of this approach, from the teacher's perspective, is that it provides feedback to the teacher on an individual basis. Of course, using gestures to approximate pitch height does not replace singing skills. Nevertheless, gesturing as a class—rather than singing as a class—ensures every student's participation, not just those eager and confident enough to sing alone.

Even though I was only able to collect three different **A** ⇒ **G** activities in Study II, they reveal some benefits and drawbacks of using sound recordings of repertoire as the aural stimuli as compared to chords played on a piano. In C5, students listened to chords that were improvised and performed by the teacher. Due to the awareness of students' responses as described above, the teacher was able to repeat a specific sequence of chords upon noticing that some students gestured incorrectly. By repeating that chord sequence, students who got it wrong the first time were given an immediate opportunity to respond with the correct gesture. This flexibility was limited significantly in I7, which incorporated extensive use of sound recordings. Without a simple way to repeat a specific portion of the recording (when it's played from internet streaming sites or CD recordings, as was the case during observation), when students gestured incorrectly they had to keep going. While maintaining continuity and coherence in the listening experience itself, this approach gave students fewer opportunities to correct their mistakes. Although the teacher occasionally used the piano to clarify chord progressions, this was done only when necessary and during these brief occurrences students were not asked to gesture in response.

J8 exemplified an approach that capitalised on the benefits of using both music recordings and piano-based listening. Rather than use recordings during class, students were assigned to listen to the excerpt *before* class (i.e., as homework). This familiarisation process was likely to have been a crucial factor in the efficiency with which the activity proceeded during Event 123. In class, the teacher played the same chords as found in the recording, but on a piano and at a slow and managed tempo. By playing chords on the piano, the teacher easily adjusted the amount of time spent on each chord. Through monitoring students' ability to proceed with the activity, the teacher could speed up, slow down, or even pause as necessary. Students were thus able to work at a pace suitable to their needs while also exposed to excerpt recordings of orchestral instruments and timbres.

When multiple students simultaneously participate in an **A** ⇒ **G** activity, as was the case in all three activities, there is a high likelihood that students also respond to their peers' gestures rather

than purely based on the aural stimuli. While such behaviour may be condemned as 'cheating' in dictation activities, it was not perceived as a problem in any of the observed activities involving gestures. Partly why this was not an issue was that all three **A** ⇒ **G** activities were not assessed through scores or points. Even in I7, where students were occasionally asked to undertake the activity alone in front of the class, the teacher did not assess the students directly at the time. The learning experience was generally participatory rather than based on the accuracy or correctness of the gestures. It is possible that for the students who struggle more with aural identification, gesturing as a class with peers gave them more confidence to participate. Considered in this way, **A** ⇒ **G** activities promoted an active engagement in aural identification tasks, which is difficult to achieve in more traditional exercises like harmonic dictation.

Summary

In the foregoing analysis of Category 2 activities, I have evaluated all Study II activities wherein students' aural identification led to notation exercises, verbal responses, or gestures (**A** ⇒ **N** *or* **V** *or* **G**). Study II activities involving notation (i.e., dictation) reveal a multitude of pedagogical approaches along a continuum of complexity, ranging from basic part identification (subsection 5.1.1) to the direct (i.e., Gestalt) identification of chords (subsection 5.1.3). Between these two extremes, and commonly observed at US institutions, is the approach of identifying chords by first identifying parts and applying theoretical knowledge, or 'harmonic looking' (subsection 5.1.2). While this middle-ground approach may appear to be a necessary intermediate step towards Gestalt identification, its usefulness is limited to chord identification during harmonic dictations or in other music that comprise block chords with one soprano and bass note per chord. Even in harmonic dictation, students may learn not to listen to the quality of chords but instead to identify and notate the outer parts before proceeding to work out the chords. As the Study II activities demonstrate, teachers in Scandinavia largely avoid this method in their pedagogy, and instead opt to combine part identification directly with Gestalt identification by focusing on the *function* of chords.

The **A** ⇒ **V** sequence was almost as prevalent as **A** ⇒ **N**. However, only a portion of these activities were focused specifically on verbal responses without the inclusion of other actions; most of the activities included either notation or performance actions in addition to verbal responses. Responding verbally was not particularly special *per se* as an action within the context of virtually any classroom, with the exception of a handful of activities that were quite distinct and not

previously documented.

The approach of using student gestures in aural identification activities is a refreshing alternative to traditional learning activities. Like verbal responses and performance, but *unlike* notation, using gestures as a method of response gives teachers immediate feedback of the student's mind.[28] A significant advantage of gestures over verbal responses, however, is that it does not interrupt the music itself. By responding with gestures, students are able to demonstrate their aural understanding while simultaneously listening to chords within a progression. The three Study II activities in which students gestured in response to aural identification represent a valuable contribution to the field of aural skills pedagogy.

In this chapter, my analysis pertained to Category 1 activities in which students performed music in response to non-music stimuli. In this chapter, my evaluation of Category 2 activities revealed an abundance of ways students represented their aural identification through means other than performing. In the next chapter, I conclude this series of analyses of Study II activities by comparing Category 3 and Category 4 activities, which involved responding to music through performance ($A \Rightarrow P$), or vice versa ($P \Rightarrow A$)—or, in some cases, a combination of both ($A \Leftrightarrow P$).

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[28] Teachers can only directly observe what students notate if (1) teachers walk around the classroom to read individual responses; (2) an individual student (or two) notate their responses at the front of the classroom (i.e., on a whiteboard); or (3) teachers use technology to constantly monitor each students' notation. All these methods have serious drawbacks, and few teachers in Study II used any of these methods other than the first option of looking over students' shoulders to see what they had notated. Even then, teachers rarely had the time to do this for each student.

Chapter 6

Category 3 & Category 4 activities: Performance combined with aural identification

In this chapter, I compare Study II activities in Category 3 and Category 4. These activities are coded with both performance (**P**) and aural identification (**A**) actions within the same sequence, meaning that students directly related the listening to and creation of musical sounds. This contrasts with the purpose and goals of activities in Category 1 and Category 2, where the focus was on only one of these two tasks at any given point in time.

I begin by comparing the pedagogical approaches of Category 3 activities, where students undertook a performance action in response to their aural identification (section 6.1). My comparisons are based on four features of activities in this category: the aural stimuli (subsection 6.1.1), part performance (subsection 6.1.2), chord performance (subsection 6.1.3), and the role of reading actions in Category 3 activities (subsection 6.1.4). In my analysis of Category 4 activities, I distinguish between activities that developed a general awareness while performing (subsection 6.2.1), those that involved part identification (subsection 6.2.2), and those that involved chord identification (subsection 6.2.3). Finally, I discuss the pedagogical purpose and outcomes of activities that are classified under both Category 3 and Category 4 (section 6.3).

6.1 Aural identification leading to Performance (A ⇒ P)

In Category 3 activities, students aurally identified a musical stimuli and, in response, performed either parts or chords. When the performance action occurs on an instrument, it is commonly referred to as 'playing by ear', and, particularly in non-classical contexts, often involves a certain degree of improvisation. In most pedagogical literature on more conventional aural training, however, it is assumed that the goal is for students to *literally* reproduce the aural stimuli. Pratt and Henson, for example, call this kind of exercise "dictation approached through using instruments" (1987, p. 117). Karpinski (2000) uses the term "instrumental playback" to denote a listener's response to aural stimuli "not with notation but rather by repeating the musical stimulus on an instrument" (p. 129). His discussion of this approach is brief—filling fewer than two pages—and focuses on how instrumental playback is more applicable to melodic rather than rhythmic recognition.[1] The small proportion of Category 3 activities in Study II that specifically call for instrumental performance (5) as opposed to vocal performance (27) reflect this general aversion to the use of instruments in Category 3 activities.[2]

Over a third of Study II activities were coded with the **A** ⇒ **P** sequence (34 out of 89 activities). To effectively compare these activities, it was necessary to further subcategorise these activities based on the subtype of the performance action. There are two basic ways of comparing based on performance subtypes. The first method is to compare activities based on the *content* of what students actually performed, that is, by comparing part performance (P_p) and chord performance (P_c) activities. This distinction reveals precisely what students had to focus their attention on (e.g., the bass part, multiple parts, or Gestalt recognition of chords). The alternative is to compare the performance *medium* through which students performed, i.e., singing (**Pv**) versus playing instruments (**Pi**). Although this latter comparison may lead to some interesting conclusions, I will distinguish between part performance and chord performance in the following analysis of Category 3 activities.

Another relevant topic of discussion concerning Category 3 activities is the music materials that students listened to during the aural identification task. I have previously evaluated the benefits

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[1]   His premise for this view is that while "playing back a melody on an instrument requires a complete spectrum of skills in the pitch domain [...]. No rhythmic understanding and no equivalent to notation are necessary to repeat rhythms on an instrument" (p. 130).

[2]   There were seven other activities wherein both methods of performance (instrumental or vocal) were used depending on the context. Even if we take these activities out of consideration, there are still far fewer cases of instrumental performance than vocal performance in Category 3 activities.

and drawbacks of various aural stimulus types in Category 2 activities (subsections 4.2.1 and 4.3.1). Likewise, in the following subsection, I will compare the various aural stimulus types in Category 3 activities. Lastly, I will evaluate the 14 Study II activities that are coded as **A** + **R** ⇒ **P**.[3]

6.1.1 Aural stimuli in Category 3 activities

In every Category 3 activity, students listened to one or more chords—an aural stimulus—prior to undertaking a performance action in response. There were three main types of aural stimuli: (1) teacher performance, (2) excerpt recordings, and (3) student performance. The first stimulus type, teacher performance, involved teachers performing chords or chord progressions on a piano or keyboard instrument.[4] The second stimulus type involved listening to and identifying parts or chords directly from sound recordings. The third type of stimuli, student performance, required students to listen attentively to the resultant sounds of their own performance while they performed as members of a student ensemble. Compared to the other stimulus types, this third type was the most demanding as it required the students to be actively engaged in some sort of performance while simultaneously undertaking aural identification. Because these activities are also classified under Category 4, I will refer back to them later in section 6.3 (p. 158). As I explain below, the choice of which type of aural stimulus, and especially the juxtaposing of two or more different kinds of stimulus types, resulted in significantly different ramifications for the learning process of the activity.

Teacher performance as aural stimulus

The commonality of teacher performance (on keyboard instruments) as a stimulus type was probably due to the flexibility this method provided, especially when compared to the two other stimulus types. A common example of this was the way some teachers frequently performed certain parts louder in order to draw the students' attention to those parts (e.g., B4, C7, & E2). Other teachers provided even more assistance by performing individual parts in isolation (e.g., D2).[5]

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[3] I alluded to these activities in both the introduction to Chapter 4 and in subsection 3.4.1.

[4] There were a very small number of exceptions to this general observation. For instance, the teacher in E6 *sang* the parts rather than playing it on an instrument. I describe the unique combination of aural stimulus types within E6 in more detail later in this section.

[5] Rogers (2004, pp. 120–121) argues for more cohesion between melodic and harmonic dictation. This viewpoint does not pertain strictly to dictation alone, and applies to aural identification skills in general. Nevertheless, Rogers does not advise teachers to perform parts in isolation for students during exercises involving listening to harmony or multi-part textures.

Another significant benefit of teacher performance was that teachers could effortlessly control the tempo of the sounds that students listened to. Teachers often performed chords or chord progressions slowly when they could feel that students needed more time to aurally identify certain features. Performing chords on a piano meant that it was even possible to sustain a chord indefinitely, while simultaneously talking about it to students (e.g., A4). In comparison, slowing the tempo or sustaining (pausing) sounds while playing back excerpt recordings is generally not practical in the aural training. Setting it up is probably not impossible, but would require training in using special electronic equipment or computer software, largely because pitch needs to be kept constant to retain the same sense of tonic at any tempo.

The length of the aural stimulus varied greatly between different Category 3 activities. While in some activities students aurally identified individual chords or short sequences of chords (e.g., E7, F7, & I4), most activities were part of dictation exercises and thus involved listening to longer chord progressions, often with at least eight different chords (e.g., B4, D2, & E2). As activities like F3 & E7 illustrate, when students worked with a smaller number of chords, they generally had more time to focus on more than just one part (or note) at a time. Thus, in general, when an activity involved listening to individual chords or short chord sequences, the required performance response was to perform *chords* (i.e., such activities tend to be coded as $A \Rightarrow P_c$).

Conversely, in activities where students worked with longer chord progressions, they usually performed a part in response (i.e., activities coded as $A \Rightarrow P_p$). This was particularly true for many of the dictation exercises that also involved a performance component, in which students were frequently asked to sing the soprano and bass parts only. There were probably at least two reasons for this. First, it would take considerably more concentration (memory) and time to reproduce a long sequence of chords, particularly if asked to (vocally) arpeggiate many chords. In contrast, singing a part only required students to memorise that part and took no more time than the time taken to listen to the stimulus. Second, within the context of dictation exercises, which encourage students to work individually towards the correct 'answer' rather than as a class, asking students to perform chords in response to what they heard would arguably be considered 'unfair'. This is due to the potential for a student to improve their written responses by listening to others perform the chord, particularly if the response was arpeggiated (i.e., vocally).[6] Requiring only part performance

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[6]   Although there is no conclusive proof that this was the reason dictation exercises never involved the $A \Rightarrow P_c$ sequence, there is anecdotal evidence supporting such a view. Some teachers were very conscious of the potential for students to 'cheat' when undertaking *part* performance during dictation exercises. For example, in the case of B4, some teachers specifically instructed students *not* to sing the soprano or bass part with syllables as doing so would give away the answers to everyone. This rule was not consistently applied throughout the institution, however, as

rather than chord performance is therefore a much more reasonable and practical activity when dealing with longer chord progressions. Similarly, in activities that involved improvisation (e.g., C6 & E3), students were only expected to improvise a *part* over a chord progression, not whole chords. In summary, then, the longer the aural stimuli within an activity, the more likely it is for students to appreciate the *linear* features (e.g., voice-leading) of harmony through performance actions.

The desired performance outcome in almost all Category 3 activities was for students to be able to perform parts of chords following their aural identification of an aural stimuli. There was one activity that differed from this normal procedure: rather than performing what was heard, in E8, each student had to perform a note that was *not* actually heard. In order to achieve this, the student had to first aurally identify the chord that they heard, and importantly, identify the root note internally (i.e., without reproducing it through performance). Following this, the student was asked to sing a specific 'tension' tone, such as a ♭9. In addition to singing the tension tone, the student was sometimes asked to resolve this note, demonstrating their awareness of proper voice leading. All in all, this activity trained students to respond not merely by reproducing notes or chords that they heard, but adding to that chord in a calculated manner. This kind of activity represents one of most demanding kind of $A \Rightarrow P_p$ activity.

Relevant to our investigation of aural stimulus types in Category 3 activities is the students' ability to memorise and recall the stimulus; i.e., their short-term memory. Apart from activities that involved imitation immediately after hearing something (e.g., C11, mentioned above), students generally had to memorise what they aurally identified before performing it back. E5 & J5 are examples of activities that involved a major memorisation component. In both activities, teachers asked students to sing one part from their *aural memory* of a chord progression, which they heard and discussed moments earlier in a different activity. Because the students had memorised the chord progression in a previous activity, the teacher did not need to perform the chord progression. Students could directly perform their part based on that aural memory, with minimal support.

Teachers in these two activities supported students in different ways. In E5, students initially sang their parts while the teacher accompanied on a piano, before asking students to sing without accompaniment and with eyes closed. Students were therefore able to rely on the teacher's playing

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some teachers did not have a problem with students singing with syllables (i.e., on scale-degree numbers). See the full activity description on p. 252.

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initially, before they had to sing it *a cappella*. Interestingly, the teacher in J5 reversed this process by first asking students to sing their parts *without* accompaniment, but only with knowledge of the chord labels. With only given chord labels and their aural memory of the chord progression to rely on, students in this activity undertook a considerably more demanding task than those in E5. The teacher only accompanied the students' singing in the final step. These two contrasting approaches demonstrate how the order of presentation of the aural stimuli, no matter what type, has significant implications on the learning outcomes of the activity.

The task assigned to students in most Category 3 activities was to accurately perform notes or chords present within the aural stimuli. Teachers could simply assess students' aural abilities based on the proportion of 'correctly' performed notes. There were, however, some activities that encouraged learning from a different angle—through improvisation. In activities like I5 & C6, students did not have to play or sing exactly what they heard in the chord progressions; they were encouraged to deviate from this and be original. Of course, improvisation within this context was still limited to the chord progression, which students had to recognise and base their improvisations upon. Compared to the more common type of Category 3 activity, it is more difficult for teachers to assess the extent to which students recognised and internalised the chords. The experience of this type of activity, however, resulted in a very musically satisfying performance that both students and teacher seemed to enjoy.

E8 is another example of a Category 3 activity where students performed notes that were not present within the actual aural stimuli itself. The first task in this activity was to aurally identify a seventh chord that the teacher sounded on a keyboard. Students then had to sing specified tension tones, such as a ♭13 or ♭9. In order to sing the correct note, students had to first aurally identify the root (i.e., bass note) of the sounded chord. While in most other Category 3 activities students were asked to sing the bass note, here students immediately applied this information in order to sing another note, one that did not exist in the aural stimuli, thus skipping the first step entirely. This relativel advanced skill was relevant to the performance students at Institution E, where the curriculum focused on popular music and jazz genres.

Excerpt recordings as aural stimulus

As with Category 1 and Category 2 activities,[7] using excerpt recordings as a stimuli in Category 3 activities enabled learning that was much more relevant, and even fun,compared to hearing the teacher play chords repetitively on a mono-timbre instrument like the piano. At the same time, the additional complexity in musical textures, timbres, and generally faster tempi, made the task of aural identification more difficult. As previously mentioned, some teachers in activities like E6 performed by singing together with the playback of recordings in order to help students identify specific parts. Most teachers played excerpts several times in a row at the start, giving students the opportunity to internalise the music, before they were asked to perform chords or—more commonly—a specific part.

In some activities, students listened to excerpt recordings for homework prior to class (e.g., F3 & J8). This approach was particularly effective when the assigned listenings were immediately relevant to the exercises that students subsequently undertook during class time. One reason for its effectiveness was because students reviewed the materials during more than one occasion (in fact at least twice: one or more times at home, plus once during class). This compares favourably to activities where students see an excerpt for the first time during class and are immediately expected to identify parts and chords during that session. Since the students in F3 & J8 were acquainted with the music, there was no need to spend valuable class time familiarising students with the excerpt (by playing it back several times, etc.). This approach not only made the aural identification easier, but it also made the activity more relevant to the students. In other words, this approach maximises both aforementioned benefits of teacher performance (i.e., control over tempo and emphasis of individual parts) as well as the relevancy of studying real pieces of music.

Although in most Category 3 activities the aural stimulus was exclusively teacher performance on a keyboard instrument, some teachers effectively combined two or more different stimulus types within the same activity. In E6, the teacher combined the use of excerpt recordings with her own singing. By singing the bass part along with the recording, the teacher effectively highlighted that part, even though it was sung an octave or two higher than in the recording. Essentially, this technique served the same purpose as the aforementioned approach of playing (on a keyboard instrument) one part louder than the others—it provided assistance for students in focusing their attention on to a specific part. The teacher also sang the bass part together with students, for

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[7]   For examples, refer to subsections 4.2.3, 4.3.3, and 5.2.1.

instance when they were asked to sing it from memory. By singing together with the students, the teacher was simultaneously reassuring students that they were singing the correct notes, while also helping those who had not yet memorised the part well enough to recall the part.

There are several advantages for the teacher to sing a part rather than play it on a piano. First, as E6 demonstrated, it is more convenient as it means the teacher does not need to be situated behind a piano (and unable to see the class); the teacher can walk back and forth, and pay more attention to how students are performing during an activity. Second, because students respond also by singing, it is natural for the teacher to use the same performance medium and thus blend in with the whole class, rather than introduce a percussive timbre. Third, although this was not an issue with E6, recordings can often be tuned at a slightly different frequency to that of the piano in the classroom. In such instances, singing represents the only solution if unpleasant dissonances between the recording and pre-tuned instruments (i.e., the piano) are to be avoided. As a result, a teacher can successfully blend the flexibility of her own voice with the huge range of musical repertoire available on recorded media.

H6 demonstrates an effective method of combining two aural stimulus types—teacher performance and sound recordings—within the same activity. Unlike E6, in which the teacher and students interacted musically through *singing*, the teacher and the student in H6 performed on a piano (one each) throughout the activity.[8] Working at a piano permitted both the teacher and student to perform a much greater range of musical features that were exhibited in the sound recording of the chosen excerpt. Whereas singing in E6 restricted the performance action to only one part at a time, the student in H6 could represent his or her aural understanding to a much finer detail by being able to perform multiple parts simultaneously.

In order not to overwhelm the student with the various elements of the music that were to be aurally identified, the teacher in H6 played back (either through the recording or on the piano) a small fragment of the music at a time. To further support the student's realisation of the musical recording in full, the student had access to a special worksheet. This worksheet was an incomplete score that provided hints about the general structure of the music, while not revealing the crucial elements that the student was to aurally identify.[9] As the activity progressed, the teacher carefully controlled the progress from small fragments to larger ones, until eventually the student was able to

[8] This activity was exclusively undertaken on a one-to-one basis. Refer to the full activity description on p. 311 for details.

[9] Details about the reading component of Category 3 activities such as H6 are discussed later in subsection 6.1.4 (p. 151).

play back the entire excerpt from start to finish, using only his or her memory and the worksheet. To develop students' transposition skills, the teacher often asked for a performance of the same excerpt in a different key. This demanding activity succeeded in fully utilising a student's capacity in both keyboard and aural identification skills while fully immersed in the aural and performative experiences of an extended music excerpt.[10]

6.1.2 Aural identification leading to part performance ($A \Rightarrow P_p$)

In the vast majority of Category 3 activities (26 out of 34), students undertook *part* (as opposed to *chord*) performance in response to their aural identification (i.e., $A \Rightarrow P_p$). Of these 26 activities, there were three distinct types of actions that students undertook. In the first and most common type (with 19 activities), students collectively identified a part and performed it in response. In the second type, two or more groups of students simultaneously performed a single part each, creating a multi-part texture; this was essentially an extension of the first type of activity. In the third type, students' aural identification of harmonies and chords resulted in a performed part that was not necessarily sounded in the aural stimulus itself; in other words, it involved student improvisation. This kind of activity was rare, with only three such cases observed in Study II. In the vast majority of activities (22 in total), students performed parts through singing (Pv_p), although there were 2 activities (at Institution I) where students exclusively performed on instruments. In two other activities (at Institution J), students undertook *either* vocal or instrumental part-performance following their aural identification.

Collectively performing the same part

Compared to the other actions that students commonly undertake in response to aural identification (namely notation, verbal description, and gestures), performance is perhaps the most natural response for a musician—or, for that matter, for laypersons in general. Both notating music and describing it verbally require a theoretical understanding of music (i.e., there is a conceptual translation process involved in representing music that is heard in written or verbal forms). Imitating a part through performance, on the other hand, is an intuitive response, particularly when executed

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[10]   The typical duration of this activity ranged from 20 minutes up to one hour. Although this may see like a long duration for a single activity, the complex nature of the aural identification and performance tasks often required at least 30 minutes to complete satisfactory. The student-to-teacher interactions during the activity also included the analysis of the sound recording itself, instrumentation, describing the chord types, historical features, analysis of the lyrics (where applicable), etc. Refer to the full description of H6 in Appendix A (section A.8) for further details.

vocally as was the case in most activities in this category. There were six Study II activities in which the main response to aural identification was to perform a part (E6, F7, C10, G4, H8, & J10).

Although the performance action alone can reveal whether students were able to reproduce the aural stimulus, in most activities students also demonstrated their aural comprehension through other means. The action that most commonly occurred in tandem with part performance was notation (i.e., activities coded as $\mathbf{A} \Rightarrow \mathbf{P_p}$ *or* $\mathbf{N}$).[11] There were six dictation exercises where students were also asked to sing a part during the activity (B4, C7, D2, E2, E10, & F2). A common approach, as demonstrated in B4, C7, D2, E10, & F2, was to have students sing a part shortly before notating it. In these activities, performance was used as a means of identifying individual notes (in these cases for the purposes of notating it). An additional benefit of having students sing it back was that teachers could gauge the proportion of students who had correctly internalised the part. It was less common for teachers to ask students to sing the part *after* they had finished the notation task, although this approach was used in D2 & E2. By the time the answers were written, it was likely that students had sung the part not only from their aural memory, but also while reading their own notation. Although singing in this way would not strictly be coded as $\mathbf{A} \Rightarrow \mathbf{Pv_p}$, the intention of this step was to give students an extra opportunity to check their written answers.

In most of the 16 activities, students undertook part performance in unison (i.e., a class) rather than in small groups or individually. This approach particularly benefited students who had difficulty identifying a part aurally. For these students, listening to others sing the part potentially made it easier to follow that part aurally, especially when it was outside their vocal range. This was perhaps why these activities commonly featured the singing of the *bass* part (e.g., E6 & G4), which had to be sung one or more octaves higher than the original. The performance action thus served to encourage students to develop the ability to aurally identify a specific part within a harmonic texture.

On several occasions during my class observations in Study II, I noticed that when students were asked to sing a part, not all students participated (sang) in the same way. It was quite obvious that some students were following or 'copying' the singing of their peers, relying more on what others sang rather than on the original aural stimulus that they had listened to.[12] When this

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[11]   Apart from dictation exercises, part performance actions also accompanied actions such as verbal responses and gestures. There were three Study II activities of this sort (G5, I7, & J1).

[12]   This phenomenon of students imitating other others' singing was in fact encouraged by two teachers at Institution C (cf. C4 andC10 as presented by the teacher in Events 33 & 35). In both activities, the students' singing was

happened, the singing was usually not rhythmically precise because some notes lagged behind by an almost imperceptible delay. This situation became obvious when students seated close together produced the same incorrect notes because they were 'led' by one or two students who loudly sang those notes in the first place. It is undeniable that students can still learn much when relying on others in this way, the most apparent advantage being the higher level of participation than when compared to singing alone or in small groups. In other words, singing collectively makes better use of class time. Nevertheless, the fact that I observed this in a number of Category 3 activities demonstrates that if students don't have some opportunities to sing alone or in small-group settings, they can develop a tendency to become reliant on others rather than improve their aural identification skills independently.[13]

There were six activities in which different students or groups of students simultaneously performed two or more parts in response to their aural identification (C11, E5, E9, E11, J5, & J8). As I mentioned at the start of this section, this approach was essentially an extension of the part performance activities mentioned above. Performing in parts as opposed to only one part in unison produced a more interesting and varied musical result. Obviously, asking students to identify and perform in multiple parts presents more challenges than working with a single part; for this reason, this approach was sometimes employed only after students had successfully identified and performed individual parts (e.g., in E9 & J8).

Performing non-identified notes and improvisation

There were 10 other Category 3 activities that expanded upon the idea of performing a part beyond simply identifying a part and then performing it. The most basic extension of this basic approach was to have students perform two or more different parts *simultaneously*. Six Study II activities match this description (C11, E5, E9, E11, J5, & J8). Rather than have everyone perform the same part, as was the case in the 16 activities mentioned above, students in these activities were split up into two or more groups, each performing a different part. In order to perform multiple parts simultaneously, the teacher had to first divide the class into two or more groups. By dividing

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undeniably a result of following what the teachers sang. This approach to singing was not likely to result in students learning the skills of singing *independently*, whether involving reading skills (C4) or aural identification skills (C10).

[13] This also affects the learning process in Category 1 activities in a similar way. However, from my observations, teachers were more likely to assess students on an individual basis, by asking them to individually perform (usually sing) a part from the notation. In Category 3 activities, students were almost always singing together as a class. This was perhaps because students generally have more difficulties performing by ear compared to performing from notation.

the class into smaller groups, students were encouraged to be more responsible for singing than compared to when every student in the class sang together in unison. This approach thus reduced the likelihood of non-participation in the performance actions, as described above.

Having students sing multiple parts was particularly common when students listened to chord progressions (as opposed to isolated chords). The exercises used in E9 & J8 were largely taken from music repertoire. In both activities, part singing was assigned as a first step in the listening task, eventually leading to the singing of arpeggiated chords played either on a CD recording (E9) or performed by the teacher on a piano (J8). The intermediate step in both activities was slightly different although the pedagogical outcomes were virtually the same. In (E9), students were divided into three groups; each group was assigned either the root, third, or fifth of a triad. In J8, after singing the lower and top parts of a chord progression, each student sang *both* parts, for each chord, bringing them closer to the arpeggiation step. E9 taught students how to cooperatively arpeggiate chords, while J8 emphasised autonomy over the process.

E5 & J9 were two other activities where students performed different parts simultaneously, this time with a particular focus on voice-leading. The cycle of fifths progressions used in E5 was appropriate for the students studying at Institution E, who specialised in the performance of jazz and pop music. Because of the predictable nature of the part, however, it was largely a theoretical exercise rather than one that demanded careful listening. In comparison, the chord progression in J9 was less predictable although still following the rules of functional harmony. Here, students performed their parts based on the aural experience of the chord, by 'finding' and singing the nearest chord tone at each chord change. Thus, students in E5 learnt a chord sequence that is idiomatic across various music genres, while students in J9 developed skills relevant to the rapid recognition and performance of voice leading parts.

It is interesting and perhaps not coincidental that these two pairs of activities, E5 & J9 and E9 & J8, which exhibited very similar pedagogical approaches in terms of part performance, were both collected from the two same institutions (Institutions E and J). All four activities were relatively challenging, involving various listening and performance tasks that were not generally expected of students in most other Study II activities. The rhythmic skills required in E9, for instance, was far from basic and required careful coordination. Neither were the performance skills required in J8, which involved arpeggiating chords used in an excerpt of Bartók's *Concerto for Orchestra*. It is heartwarming to observe that these teachers employed activities that developed more advanced

and relevant aural skills in their students, who were evidently very capable of coping with the extra challenge.

In three other activities, students *improvised* a part in response to their aural identification (C6, I5, & I13). The two teachers at their respective institutions approached improvisation very differently. In C6, students improvised individually over a very short chord sequence. Because the teacher provided a notated, melodic contour, most students did not elaborate much on the given notation and were often influenced by the performances of their peers. In comparison, the performances in I5 & I13 were a very lively and creative affair. In addition to using performances rather than singing, students improvised *together* rather than individually. In I5, one student improvised while the rest of the class played specific two-note figures over the C–F–D^7–C chord progression, which the teacher accompanied; in I13, students all improvised whatever they liked over a looped chord progression. Perhaps because of the collaborative nature of I5 & I13, the musical experience felt more authentic and natural, and students were more daring to improvise something new. The intention behind C6 was probably the same, but the anxiety caused by exposing students individually in performance tasks made it less effective as a learning experience.

Finally, in E8, E11, & C11, students performed notes that were *not* actually sounded in the musical stimulus. E8 involved singing a chord tone that was not part of the chord that was sounded. Undertaking this singing task required that students first identify the chord type and the root of the chord. The sung note was then created by performing a note that was a specific interval in relation to a specific chord note. Students learnt to perform a $\flat\hat{9}$, for instance, by singing a semitone above the root note, while $\flat\hat{13}$ was approached by singing a semitone above the fifth. By not requiring students to sing the root first, students learnt to *apply* their aural identification skills in ways other than directly performing it, which was the preferred approach in most other Category 3 activities. C11 & E11 similarly involved this task, but these were also Category 4 activities, meaning that the students' performance actions led to aural identification; I shall return to these two Category 4 activities later in this chapter, in section 6.2.

6.1.3   Aural identification leading to chord performance (A ⇒ P$_c$)

As I mentioned earlier, a small proportion of Category 3 activities involved chord performance in response to aural identification (i.e., **A** ⇒ **P$_c$**). In these activities, students performed *chords*—that is, two or more notes of a chord—as a result of their aural identification, rather than a part or

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note of a chord. Of the 34 Category 3 activities, only 13 involved chord performance, of which 5 also included part performance (i.e., coded as $A \Rightarrow P_p$ *or* P_c). That is, only 8 Category 3 activities involved chord performance without part performance, compared to 16 activities that involved part performance only. The relatively few number of activities requiring students to perform chords in response to listening to an aural stimulus was probably due to the fact that it is inherently more challenging. This tendency was seen earlier in my analysis of Category 1 activities (Chapter 4), but for most students the task is considerably more challenging when aural identification is involved.

The more challenging nature of $A \Rightarrow P_c$ was likely the reason why in five Study II activities students undertook part performance *before* chord performance actions (E8, E9, I13, J3, & J8). In these activities, students often sang back individual notes of the chords first before arpeggiating them. This process is particularly obvious in activities like E9, J3, & J8, which both involved singing back parts (especially the bass line) before arpeggiating chords. Very often too, in activities like E9 & J3, students described the chords verbally after performing parts and chords, although the verbal response was not always required or important (e.g., I13). As was the case in the 16 part-performance activities, the chord performance action was used as the principal means of identifying chords, often before students revealed the appreciation of the chord verbally or through other means.

Although it was quite rare, there was one activity in which students performed chords *after* they had been able to identify and describe the chord verbally (E8). Students in this activity were able to identify chords very rapidly, within seconds after hearing it played on a piano. Because of this, it was probably that students identified chords through Gestalt listening.[14] This meant that in E8, the performance action allowed students with acute listening skills to practise reproducing the chords through their voices.

Part performance was not the only way in which teachers simplified the $A \Rightarrow P_c$ sequence, as the eight other chord performance activities demonstrated (E3, E7, F3, H4, H6, H7, I4, & J2). In one approach, the teacher named the chord but did not reveal the notes that were sounded (I4). Students imitated this vocally before attempting to play it on their instruments. Having students arpeggiate together as a class was another effective method of supporting students with weaker aural or performance skills. This was more effective when students attempted the performance action using the same rhythmic pattern (e.g., E3) than when students experimented separately (e.g., E7),

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14   For more on this approach, see Karpinski, 2000, p. 119.

which, not surprisingly, resulted in a more cacophonous performance. In H6, H7, & J2, students read notation in conjunction with their listening action. The reading actions in H6 & H7, in particular, represent an important feature that simplified the performance tasks considerably.

6.1.4   Reading actions in Category 3 activities (A + R ⇒ P)

There were seven Category 3 activities in which students read a part in addition to listening to an aural stimulus (C6, H6, H7, I5, J2, J5, & J8). These activities are coded as **A + R ⇒ P**. In these activities, students aurally identified parts or chords (**A**) while simultaneously reading music notation or symbols (**R**), which together led to their performance of a part of chord (**P_p** or **P_c**). These activities involved interpreting *two* types of stimuli (visual and aural) rather than only one or the other. It thus combined elements of Category 1 and Category 3 into a single activity. As I mentioned earlier in Chapter 4, the pedagogical purpose of all seven activities was to develop aural identification skills. In other words, the reading component existed to support the aural identification, rather than the other way around. These activities were far more commonly employed in Sweden and Norway (where there were three instances of such activities in each country) than in the US (where there was only one such activity).

Despite sharing the same basic action sequence, each of these seven activities applied the **A**, **R**, and **P** actions in different ways. In three of the activities (C6, I5, & J5), students read chords chord labels (**R_c**) and performed in parts in response (**P_p**). In the other four activities (H6, H7, J2, & J8), students did the opposite; they read parts (**R_p**) and performed chords in response (**P_c**). These two groups of activities correspond with the two distinct kinds of aural identification tasks: (1) part identification (and performance) within chord progressions, and (2) chord identification (leading to performance).

Because students in C6, I5, & J5 read chord labels (**R_c**), they had sufficient information to perform chords in response (e.g., by arpeggiating them), as was done in **A ⇒ P_c** activities (e.g., J8 & H7). However, rather than having students perform chords, these activities combined the reading action with the **A** action and involved part performance. Interestingly, all three activities involved a certain amount of freedom in the performance task in the sense that there was more than one 'correct' note to perform at any given time, as long as it harmonised with the prevailing harmony. Improvisation was particularly featured in J6 & I5, in which students took turns to play anything they liked over a looped chord progression. This approach differed from most other

Category 3 activities, in which teachers judged the students' performed notes as either correct or incorrect.

In H6, H7, J2, & J8, students read parts (R_p) and the focus was on *chord* identification and performance (P_c). Like the other $A \Rightarrow P_c$ activities, the main goal in these four activities was to develop the ability to aurally identify and perform every note within each chord. Therefore, the reading component served to assist students through the aural identification process, rather than become the focus of the activity. These four activities demonstrate four distinct ways of incorporating reading actions into $A \Rightarrow P_c$ activities. In H6, for example, students were given the starting notes from which they performed each arpeggiation. Apart from this starting note, students had to rely on their ears to work out and perform each chord. By making the reading action optional in both J2 & J8, students had to internalise the sound of each chord as well as the starting note of each arpeggiation. As was the case in the three $A + R_c \Rightarrow P_p$ activities, the reading component was in most cases an optional feature of an activity.

However, as the aural identification task became more demanding, the provision of a part for students to refer to visually became more important. This was exemplified by perhaps the most challenging activity out of the four mentioned here, H6. As I described earlier, students in H6 aurally identified extended music excerpts (from sound recordings and the teacher's performance on the piano) and played it on a piano with the help of systematic guidance from the teacher. To further assist with this complex task, students were provided with a worksheet created especially for this activity. The worksheet contained certain elements in notated form (e.g., notated rhythms, pitches) but in an incomplete form (e.g., without accidentals, missing parts, missing instrument-ation, etc.).[15] These worksheets were a very crucial element of this activity, without which most students would struggle considerably with the performance task and the activity would become very inefficient. Although creating such worksheets requires considerable advance planning, the benefit of this approach was that students developed advanced reading, aural, and performance (keyboard) skills.

To summarise, incorporating reading actions into Category 3 activities in most cases did not change the focus of these activities, which was the development of aural identification skills. There was a tendency to include *chord* reading actions in $A \Rightarrow P_p$ activities, where the focus was often on voice leading and improvisation. Providing chord labels in these activities did not alter the

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[15]   For more details on the worksheets used in this activity, see the full description of H6 in Appendix A (p. 311).

learning benefits of part performance. The opposite phenomenon was observed in $\mathbf{A} \Rightarrow \mathbf{P_c}$ activities, where teachers provided students with *parts* that assisted the chord identification task. In this situation, reading chord labels would give away the 'answers', and so to retain the focus on chord identification teachers only provided a part or a worksheet with incomplete notation. The addition of reading actions thus extended and enhanced Category 3 activities, and developed in students more advanced skills, such as the ability to simultaneously listen, read, and perform.

Summary of Category 3 activities

Category 3 activities can be distinguished between those that focused on part performance and those that involved chord performance. This distinction is between the two subtypes of performance actions in turn reveals the musical features that students aurally identified. However, as was the case with Category 1 activities, this did not mean that activities of the part performance sort focused only on identifying individual notes within a chord. Improvisation exercises, for examples, encouraged both linear and harmonic thinking. Similarly, activities that focused on chord performance often included part performance that involved voice leading or identification of the bass line, usually as a preliminary step. The 34 Category 3 activities presented in this chapter has revealed a considerable range of applications and approaches to the basic $\mathbf{A} \Rightarrow \mathbf{P}$ sequence.

Biggs (2003) argues that "students can be required to do more than just listen and take notes, but to do things that directly address what we want them to learn" (p. 81). The part-performance activities in Category 3 exemplify this philosophy of engaging students through multiple sensory modes, as applied within the context of aural training. If the desired learning outcome is the ability to aurally discern, describe, and manipulate a part, being able to perform is one of the most direct ways of engaging students in that process. Incorporating a reading action, as discussed in subsection 6.1.4, simultaneously developed another important skill.

Performance in Study II activities thus served two main pedagogical functions. The first and most obvious function was that it encouraged student to learn aural concepts in a participatory, active learning environment. The second purpose was to provide a feedback mechanism, both for teachers and students, to assess the accuracy of the students' aural identification. Students self-assessed their own performance while performing, by matching what they performed with the music that they heard (or had just heard). Teachers could similarly judge almost immediately how precisely students had internalised the musical stimulus, whether it was a bass part in a dictation

exercise or an entire chord progression of an 16-bar excerpt. From the teacher's perspective, hearing students perform what they had aurally identified has the benefit of being immediate as well as detailed in a way that notation and verbal responses can never match. In summary, the performance actions in Category 3 activities enables a more immediate, musical, and precise assessment of students' aural abilities than compared to the three other actions following aural identification in Category 2 activities.

6.2 Performance leading to Aural identification ($P_p \Rightarrow A$)

In Category 4 activities, students undertook aural identification immediately after or in direct response to their performance actions. Aural identification is not necessary in cases where students are aware of a chord and are able to perform it. The performance action preceding aural identification in Category 4 activities was therefore always *part* performance, and are coded as $P_p \Rightarrow A$. In total, there were only 8 Study II activities (9% of the 89 in total) in this category, compared to 51, 41, and 34 activities in Category 1, Category 2, and Category 3, respectively. The rarity of this action sequence, as I elaborate later in this section, is largely due to the relatively uncommon and demanding nature of identifying parts or chords by ear in response to (and often *simultaneously* while) undertaking a performance action.

Despite the uniqueness of all eight Category 4 activities, many shared similar or identical pedagogical approaches. I distinguish between three main types of activities based on the main features of these activities of general awareness during performance (subsection 6.2.1), part identification (subsection 6.2.2), and chord identification (subsection 6.2.3).

6.2.1 General aural awareness

There were two Category 4 activities in which students were encouraged (but not required) to identify chords immediately following their singing of a part (C8 & D1). C8 was essentially a traditional sight-singing exercise, except that the teacher asked students to describe the chords and cadences immediately after singing. This strategy of asking students to describe chords soon after (i.e., in response to) hearing and performing them encouraged students to become more aware of the harmonic features of the chorale. It also forced students to recall (using their aural memory) the sound of the chord at a specific moment in time. Although this approach gradually

encouraged students to become more aware of chords while undertaking sight-singing exercises, it was much more effective when students were sufficiently familiar with the music *before* considering the harmony and chords within it. For this reason, the relevance of the chords usually became more apparent when, after identifying and discussing those chords, students sang through the chorale once again, as was often done in C8.

When teachers applied this technique (of asking students to identify chords) during four-part singing exercises where students read from four-part scores, as was the case in C8, it was plausible that students analysed their scores rather than rely on their memory of how it sounded like.[16] Despite the fact that students could 'cheat' and avoid identifying the chords by ear, the purpose of this question was to gain awareness rather than develop an ability to precisely label the chords just by hearing it. A similar approach was used in D1, although the teacher in that activity asked students to recall the chords that they performed *prior to* their aural training class. Students in D1 thus made use of their long term memory and did not apply their harmonic understanding in practise during class (by performing the piece), unlike the combining of harmonic thinking directly with a part performance exercise like C8. C8 is therefore much more effective in making the connection between performance and harmonic thinking, in comparison with D1.

6.2.2   Part identification

In most Category 4 activities, students were sometimes asked to aurally identify more basic attributes, such as specific parts, before working out the exact chord label. In two activities (H4 & J11), teachers sometimes encouraged students to identify a specific part (e.g., the bass note) or observe its voice leading. This is indeed comparable to the progression from parts (simple) to chords (complex) that were identified in many harmonic dictation activities.[17] Unlike dictation, however, identifying and understanding part movement did not always result in chord identification. This was demonstrated in J11, where the teacher asked students to sing a part after they had already identified and discussed the chords in the chord progression. Identifying the part in this particular context was not so that students could work out the chords, but rather so that they could learn to associate that part with chords that they had already recognised by ear.

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[16]   In another activity, H2, students similarly had access to a full four-part score when the teacher asked them to describe a particular chord. Because it was more likely that students identified this chord from the notation rather than by ear, it is not considered to be a Category 4 activity. Classifying this activity under Category 4 would imply that students identified parts or chords *aurally* and immediately following their performance.

[17]   Cf. subsection 5.1.1 (p. 112) and subsection 5.1.2 (p. 114).

There was one activity in which students identified parts only (J10). While part identification is often considered to be more basic than chord identification within the context of dictation exercise, this activity was arguably much more challenging than most chord identification exercises. This was because unlike most aural identification activities where students passively listen to a stimuli several times beforehand, students only had one chance to identify the parts. Furthermore, this had to be done while simultaneously performing another note on one's instrument (or while singing). Like other activities presented by this particular teacher at Institution J, there was no other Study II activity that was in any way comparable. This highly advanced exercise developed a specific skill that is rarely part of an aural training curriculum—the acute awareness and ability to identify notes played by another performer while simultaneously performing.

6.2.3 Chord identification

Virtually all Category 4 activities required chord identification rather than part identification. This is likely due to the fact that students were already performing a part, which in some cases was the result of reading their notated part. However, the main reason why chord identification was so prevalent in Category 4 activities was because most activities of this sort were conceived as exercises that developed an aural sensitivity towards chords rather than parts, which most musicians naturally possess.

In C11, E11, & I6, students identified and responded to one chord at a time. E11 represented the simplest form of this sort of exercise: students simply sang a single, diminished seventh chord in four parts and then resolved it. The 'identification' of the chord was thus not done by labelling the chord, but by each student resolving their dissonant tone according to their aural instincts. A similar exercise was adopted in C11, whereby the response was to sing the interval or chord that the teacher requested. Unlike E11, however, this exercise did not end after resolving a single chord, and could continue for as long as the teacher liked. Combined with the ease of commencing this activity (which was done simply by providing a single note to the first group of students), C11 was a very efficient activity that combined theoretical concepts concerning chords, aural identification skills, and performance (in this case, singing skills). In contrast, E11 was more of a once-off demonstration of chord concepts.

The aural identification of individual chords involved the use of instruments in I6. In this activity, students performed a note each on their instrument in response to the teacher's hand

gestures. The aural identification task was to recognise the quality of seventh chords. Similar to C11 & E11, and unlike most dictation activities, I6 was not intended as a form of assessing student ability, but more as an opportunity to aurally *experience* different types of chords while performing simultaneously. This relaxed approach to teaching was evident from the way the teacher often provided the 'answers' to the students, particularly when students were somewhat uncertain.

In H4 & J11, students performed pre-arranged four-part chord progressions, identifying the chords immediately after performing it several times.[18] These two activities essentially imitated an ensemble performance experience. Each student was responsible for a single part, and performed it with other students in the ensemble. While performing, students had to focus their attention not on their performed part, but on the resulting chords. The functional chord progressions that students performed were derived from the musical repertoire; in both cases, students listened to the excerpt *after* they performed and identified the chords, to complete the exercise. This further enhanced the relevance of these activities to real ensemble performance contexts, in which students would benefit significantly by apply their harmonic thinking during their performance.

In order to encourage students to identify chords aurally, teachers in both activities had to discourage them from working out the chords using their performance scores (cf. 'harmonic looking' in subsection 5.1.2, and subsection 6.2.1 above). The approach in both activities was to provide students with specialised notation that made it impractical to work out the chords. The worksheets in H4 featured each of the four parts that students performed oriented along the four edges of a worksheet, such that only one part was easily readable at a given time. In J11, the worksheets revealed only the starting notes and subsequent intervals and rhythms of the chord progression, making it difficult to work out any of the chords in the progression, except for the first (tonic) chord. Both methods succeeded in terms of encouraging the development of listening skills rather than visual score analysis skills, although the use of music notation (e.g., H4) results in a more realistic experience than performing from a series of interval instructions represented in unconventional notation (e.g., J11).

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[18]   Both H4 & J11 bear a strong resemblance to the performance activity that I devised in Study I, in which students performed (sang or played on their main instruments) and aurally identified chord progressions arranged from music excerpts for four parts. (Lau, 2008a, 2008b). That an activity that I conceived and implemented without any external influences resembled in so many ways two activities that I observed—only months later—at Institutions H & J shows how one can potentially avoid 're-inventing the wheel' by observing classes presented by experts in the field.

6.3   Performance leading to and from Aural identification (A ⇔ P)

In four of the eight Category 4 activities (C11, E11, H4, & J10), students *also* responded to their aural identification by performing. In other words, these activities involved at least *two* occurrences of performance actions, both before and after the aural identification action, and were therefore classified under both Category 3 and Category 4. Since I have already described the **A ⇒ P** features in these activities earlier in this chapter (sections 6.1 and 6.2), in this section, I will focus on the shared and unique features of these four activities in particular.

There were two different 'types' of action sequences coded for these four activities. In the first type (E11 & H4), the aural identification action led to a performance action that concluded the sequence. These activities contained the basic **P ⇒ A ⇒ P** sequence. In the second type (C11 & J10), the aural identification action led to a performance action that in turn resulted in another aural identification action, thus alternating between **A** and **P** ad infinitum. These activities thus contained the **P ⇔ A** sequence, and were *cyclical* to the extent that the teacher could continue the exercise for as long as was required.

In relation to the first 'type', the aural identification action in E11 & H4 both involved recognising the chord *quality*. In H4, students generally responded by describing the chord verbally; response by performance was presented as an alternative. However, after performing the chord on the piano, students usually named the chord verbally, too. In E11, on the other hand, students did not identify or label the chord (as mentioned in subsection 6.2.3). Instead, they performed the resolution of a dissonant note (i.e., part) based on their aural intuition. In terms of what students identified, these two activities were very different. However, what makes them (as well as C11 & J10) unique amongst the 89 Study II activities is the way in which students' performance actions is both an instigator as well as a consequence of their aural identification. The engagement of performance actions in these two contrasting modes, all within the same action sequence, resulted in a learning approach that was even more immersed in musical sounds than the other activities in Category 3 and Category 4.

The cyclical nature of C11 & J10 further immersed students in musical sounds. Although teachers provided some instructions to students through spoken words, students ultimately responded to, and with, musical sounds through performance actions. There were no interruptions to this process until the teacher decided to conclude the exercise.

Both activities involved part performance throughout the activity. Although the action sequence in these two activities were virtually identical,[19] students engaged in two very different modes of listening due to the nature of what students aurally identified. In C11, students practised skills relating to the identification and creation of different *chord* qualities through performance. On the other hand, in J10, students learnt to aurally identify and perform a note (i.e., imitate a *part*) while performing at the same time. They also had to memorise the note that they had previously performed,[20] thereby developing short-term pitch-memory skills. The intense and repetitive nature of both activities demanded some of the most complex aural and performance skills. These activities were thus suited only for students with an advanced level of attainment in both skills.

Of these four activities, only one (H4) related directly to the study of music repertoire. The arrangements used in H4 enabled students to identify chords in excerpts through their own performance. The other three activities were drills that developed specific aural identification skills. There are many ways one can make these latter exercises more relevant to the music literature. Exercises like E11 can be used immediately before or after listening to excerpts that feature diminished seventh chords. An activity like J10 can be used to enable students to perform and explore the hocketing in the opening of the Finale in Tchaikovsky's 'Pathétique' *Symphony No. 6*. C11 could similarly be used to engage students in the performance and aural analysis of chord progressions that are derived from the music literature (e.g., the opening of the fourth movement of Debussy's *String Quartet*—for the most advanced and adventurous classes!). In this way, students not only improve their listening and performance skills, but they also acquire a meaningful appreciation of the music literature through aurally interactive and performative experiences.

Summary

In this chapter, I have compared the various Study II activities that were classified as Category 3 and Category 4. Although these activities were less commonly seen in Study II when compared to Category 1 and Category 2, they reveal unique methods of engaging students by directly combining listening skills (**A**) with performance skills (**P**). Despite the relatively few number of activities in these two categories, the activities still represent a substantial range of teaching approaches. I have shown how the kind of aural stimulus used in Category 3 activities can result in different

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[19] The only difference in coding was due to the fact that C11 was only undertaken through singing, whereas J10 was undertaken through either singing or on instruments.

[20] Cf. step $\boxed{5}$ in the full description of J10 (p. 339).

learning outcomes (subsection 6.1.1), and compared the various approaches based on whether the final performance action was of part (subsection 6.1.2) or chord (subsection 6.1.3). My analysis of Category 4 activities has identified several methods of encouraging students to listen attentively and analytically while simultaneously performing, at the basic (subsection 6.2.1), intermediate (subsection 6.2.2), and advanced levels (subsection 6.2.3). Lastly, I have presented the special features of the four activities categorised under both Categories 3 and 4 (section 6.3).

This concludes not only my analysis of Category 3 and Category 4 activities, but also my comparisons and evaluations of all Study II activities. Despite the dearth of detailed descriptions of aural harmony activities within pedagogical and research literature, Study II has shown us that direct observations in classrooms, supplemented with discussions with teachers, can provide much insight into our pedagogy. There is certainly no shortage of teaching approaches in aural harmony activities. As I explicate in the final chapter of this dissertation (cf. sections 8.2 and 8.3), there are two significant choices teachers make when deciding what activities to use in a class. The first choice is to decide which *categories* of activities to use, in what sequence, and most importantly, for what purposes. The second choice is the teaching approaches and methods, as relevant to the particular categories of activities. Such choices include, for example, the focusing on part or chords and the kinds of music materials used. I have investigated these and other relevant decisions in aural harmony activities across all four categories of activities. In the next chapter, I will present the process and findings of Study III, where I applied the findings of my analyses of Study II activities (Chapters 2–6, plus Appendix A) by devising and implementing aural harmony activities within a particular learning environment.

Chapter 7

Devising and evaluating new activities

In this chapter, I present my personal, reflective experiences of teaching aural harmony within a particular educational setting. Throughout this dissertation, I have referred to this action research project as Study III.[1] This study in fact represents two distinct periods during which I taught the subject. The first period of teaching was the first semester of 2010. The second period extended over both semesters in 2011. During each of these periods, I presented a different set of activities. Each activity set represents a specific teaching approach that suited the particular educational context at the time. As I explain below, I will present these two sets of activities separately in their chronological order.

My narrative of this two-year journey begins with an overview of the educational context at a specific Australian tertiary music institution (hereafter referred to as 'the School') where I taught the subject (section 7.1). First, I briefly describe some relevant background information about the aural training curriculum at the School, as well as my teaching role and purpose during the two periods in Study III (subsection 7.1.1). Next, I discuss the implications of class size and available class time for the presentation of aural harmony activities (subsection 7.1.2), with reference to relevant research literature as well as data that I collected during Study II. I also mention the established curriculum and activities at the School (subsection 7.1.3), which influenced the activities that I devised and implemented in my classes.

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[1]   As I briefly alluded to back in Chapter 1, I taught aural harmony during Study I and Study III, which occurred before and after Study II, respectively. In this chapter, I have decided to focus on the outcomes of my teaching during Study III. All references to my activities in this chapter refer to those in Study III, except where otherwise indicated.

Following this introduction, I describe in detail the complex but rewarding process of devising and implementing new activities for my students (section 7.2). First, I compare the benefits and drawbacks of incorporating activities that involve performance actions within my educational context (subsection 7.2.1). As a result, I present my approach of incorporating performance through chord arpeggiation (subsection 7.2.2).[2] I also explain why and how I maximised the connection between my aural harmony activities with music repertoire (subsection 7.2.3). To conclude, and in preparation for the next two sections, I précis the five Study III activities and explain why the changes to my teaching environment at the School necessitated a different approach, and thus the creation of two new activities (subsection 7.2.5)

In section 7.3, I present my first set of activities as applied during the first period of Study III. First, I describe in detail each of the three activities (T1, T2, & T3) that I created and implemented in my teaching (subsections 7.3.1, 7.3.2, and 7.3.3, respectively). These three activities maximised the opportunities for student performance actions and incorporated the use of music excerpts that were relevant to my students. I evaluate these activities through my self-reflection of the teaching, using a variety of data sources including my teaching log, materials, and student feedback through questionnaires (subsection 7.3.4).

In the final section, I present the second set of activities that I taught during the second period of Study III (section 7.4). I describe the two activities in this second set of activities, T4 & T5 (subsections 7.4.1 and 7.4.2, respectively). In these activity descriptions, I focus in particular on the visual and kinæsthetic means of engaging students, especially in T4. I argue that this approach of using represents a viable alternative to the use of performance actions within my particular educational context. Finally, I describe how I incorporated music excerpts into T4 & T5 (subsection 7.4.3).

7.1 The educational context

The development of an aural training (or music theory) course is ultimately a philosophical endeavour of synthesising and balancing contrasting approaches to the teaching and learning process (Rogers, 2004, pp. 29–30). Many considerations and issues that are relevant for an entire course

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[2] Within the section of chord arpeggiation, I present two different ways of arpeggiating chords that are applicable to specific kinds of activities; see p. 177 and p. 178.

are also applicable to specific activities within a course. For example, the balance between 'concepts vs. skills', one of four curricula-wide issues that Rogers describes (pp. 27–29), is particularly relevant to aural harmony activities. The vastness of the subject of harmony means it is possible in aural harmony activities to focus on—and even become encumbered by—the theoretical concepts at the expense of *applying* those concepts. Yet there is much potential, as many Study II activities demonstrate, for students to develop practical skills while simultaneously fostering students' theoretical understanding and intuition (E7, H8, & J7, for example, exemplify this 'practical' approach).

In this section, I describe the educational context within which I devised, developed, and presented aural harmony activities. This endeavour was as much a necessary part of my teaching as it was my direct and personal response to the discoveries and findings of Study II, as presented in the preceding chapters of this dissertation. In the following discussions, I will often include references to specific Study II activities as well as the findings of Study II as presented in the four previous chapters (Chapters 3–6). As advised at the end of Chapter 2, the full descriptions of each Study II activity referenced in this chapter can be located in Appendix A (p. 245).

7.1.1 Background

Upon commencing their studies at the School, all incoming students undertake an aural skills entrance test, which is designed to gauge the students' aural identification skills in the areas of rhythm and pitch (i.e., melody and harmony). Based on their scores, students are assigned to one of two 'levels'. Students in both levels are then further divided, again based on their scores, into smaller tutorial groups of between 8 to 13 students. In Study I and Study III, I taught students in select tutorials within the lower level only, which comprised students who had relatively weak aural skills (as tested) at the beginning of their studies.[3]

While creating and developing aural harmony activities during Study I and Study III, I was constantly cognisant of the limitations and restrictions at the institution at which I undertook my research. Some of these boundaries were pre-determined at the outset, while others I discovered during the teaching itself. It is beyond the scope of this chapter to delve into the details of these considerations. The necessary result of these limitations, however, was the process of achieving practical and effective solutions for effective student learning to take place (see Rogers, 2004,

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[3]   As I will explain later in this chapter, I also taught students at the advanced level during the first period of Study III.

pp. 169–177; Vear, 2005, p. 35). Therefore, before I discuss the process and rationale for developing activities at the School, I will first explain the process of understanding the situation and working within a set limit while concurrently considering solutions.

7.1.2 Class size and time

An important limitation of any learning environment is the class size, defined as the number of students within a given class (Ehrenberg, Brewer, Gamoran, & Willms, 2001, p. 2). In my own teaching experiences, the size of a class has a noticeable effect on the way I present an activity. Obviously, larger class sizes inevitably results in less time (on average) spent on individual students. On the other hand, larger classes may be useful or even necessary when conducting certain types of activities, such as those involving multi-part performance as seen in Study II activities like H4 & J11 (see also Blix & Bergby, 2007a, p. 45). The class size of a particular course varies considerably throughout the teaching period due to many possible reasons,[4] although it is obviously capped at the number of enrolled students.

While many education researchers employ statistical methods in order to establish the effects of class size on student performance, most of these studies lack external validity. The lack of external validity means that these studies cannot "be generalized to other populations, other times, and other scales of treatment" (Ehrenberg et al., 2001, p. 25). Most of these studies are not undertaken in tertiary institutions, and furthermore, there is a dearth of class size studies within the field of aural training, at any level.

The difficulties of quantitatively proving the effect of class sizes has not prevented some teachers from voicing their recommendations based on professional experience. A commonly held view is that smaller classes are desirable in aural training. This view is perhaps the result of the oft-described disparity in musicianship skills in a given cohort of music students. Quite obviously, the larger the class size, the more likely it is that students within a class bring with them different skills—and learning needs—compared to those of their peers. As Chrisman suggests, "Along with greater numbers of students come greater numbers of students with completely different backgrounds. [...] In a larger college the entire classroom structure must change, so that the teacher must cover the absolute basics for some students while keeping the more advanced students

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[4] Factors include, for example, "student mobility, student absences, truancy, or the presence of pull-out special education classes" (Ehrenberg et al., 2001, p. 2).

interested." (Chrisman, 1974, p. 95). This solution of incorporating both basic and advanced concepts within a single class, however, is probably the least problematic outcome of having large aural training classes. In aural training, such a compromise would potentially lead to an even greater disparity amongst students. It is perhaps for this reason that most aural training teachers hold the view that smaller numbers of students are likely to result in a better learning experience.

A small handful of studies mention the size of aural training classes in more detail. According to Blix and Bergby (2007a, pp. 44–45), teachers in Norway hold the view that aural training classes should ideally have around six students, although some classes can have up to eight or more students. These teachers believe that a class of around six students gives a learning environment that enables teachers to effectively follow-up the progress of individual students. In one survey study conducted in the US, Nelson (2002b) found that the average class sizes in each of the three subjects of aural skills, sight singing, and keyboard harmony, ranged from fewer than 10 to over 30. A relatively large proportion of aural skills and sight singing classes had approximately 15 students per class.[5] Despite the different methodologies and intentions of these two publications, these two sources suggests a marked difference in class sizes between Norway and the US.

The quantitative data that I collected during Study II, as represented in Figure 7.1, largely corroborates the class size recommendations and findings from the two aforementioned studies. Although my data is far from conclusive, it allows for an interesting comparison of class sizes between the five institutions in the US and the four in Scandinavia. In the US, for instance, we can see that the vast majority of aural training classes had at least 8 students in a class,[6] whereas this was the maximum class size in Scandinavian institutions. There were no one-on-one aural training sessions observed nor discussed by teachers in the US, although such classes were not uncommon in Scandinavia. The median class size across the five US institutions was 13, more than triple the median class size across the four Scandinavian institutions (4). Coincidentally, the minimum and maximum number of students observed in aural training classes in the US was also exactly triple

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[5] The study has serious methodological flaws, which Nelson admits in the introduction section. For example, respondent data for average class sizes is aggregated imprecisely with the labels "<10 students", "10 students", "12 students", "15 students", "20 students", "30 students", and ">30 students". These labels do not comprehensively account for all sizes, such as classes with an average of 11 students, but instead appear to be approximate ranges. This inaccuracy makes it impossible to ascertain an average class size across all respondents of that study. In addition, it is unclear whether the respondents of this survey (i.e., the teachers or course coordinators) understood the term 'class size' as the number of *enrolled* students or the actual numbers of students in class during a specific period, which, as mentioned earlier, is potentially smaller.

[6] As Figure 7.1 shows, there were four classes with fewer than 8 students. Three of the classes were Institution E and had 3 or 5 students, and the one class at Institution C had 5 students. These four classes were elective courses with a specialisation in a particular topic or skill (e.g., related to an instrument). Apart from these non-compulsory courses, all other aural training classes in the US had at least 8 students per class.
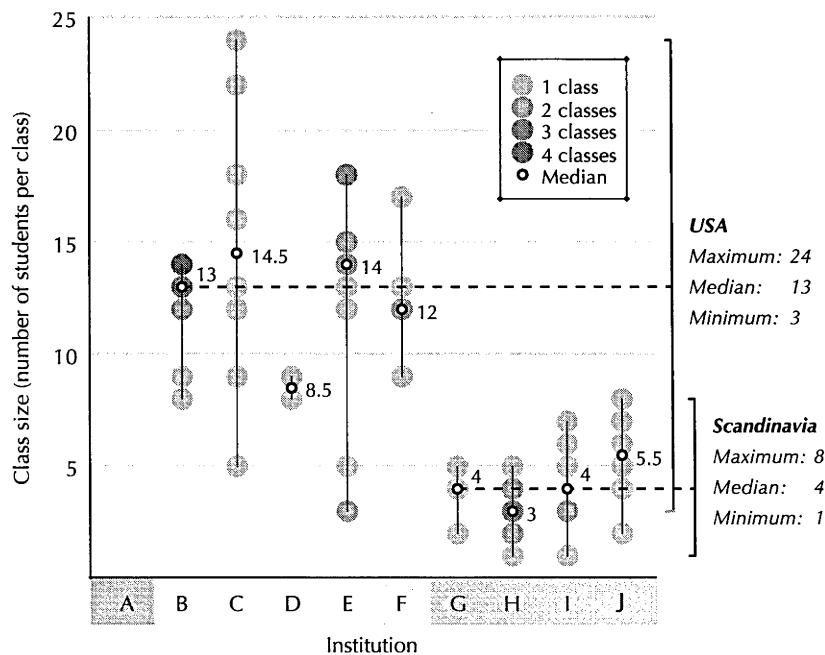
Figure 7.1 Aural training class sizes from 62 observed classes at nine tertiary music institutions in the US, Sweden, and Norway, using observational data in Study II. Sizes are based on actual attendance as observed, not enrolment figures. For instance, one particular class at Institution D (Event 49) had 11 enrolled students, although only 8 turned up; the class size was considered as 8. Classes other than undergraduate aural training (e.g., orchestral rehearsals, postgraduate music theory classes) are not included.

that of the same measures in Scandinavia.[7] It is also interesting to note that class sizes in the US institutions tended to vary quite considerably when compared to their Scandinavian counterparts. Although no generalisations should be made using these figures from Study II, there are clear differences in class size range and distribution between the two geographical regions.

Due to the need to cover various activities during the weekly tutorials (namely rhythm performance, sight-singing, and aural harmony), the aural harmony session was restricted to approximately 15 minutes. Upon commencing my teaching at the start of the semester, I realised that limiting my aural harmony activities to fit within a 15-minute timeframe proved to be an enormous challenge for several reasons. This was because I wanted to include both performance (i.e., on students' main instruments) and relate to excerpt materials as well. The majority of Study II

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[7]   The minimum class size in the US and Scandinavia was 3 and 1, respectively, while the maximum was 24 and 8, respectively. The *range* in observed class sizes is thus also greater in the US (21) than in Scandinavia (7) by a factor of 3.

activities that involved either performance actions or the use of music excerpts (or both) generally required much more time than exercises that did not have these features.[8] Performance-based activities that made extensive references to excerpt materials (e.g., H6 & I12) or presented students with a sequence of set exercises (e.g., E3 & E7), could take up to an hour to complete. Although there were many Study II activities that were completed under 15 minutes, these tended to be harmonic dictation (e.g., E4 & B4) or drill-like exercises (e.g., A4, B7, & I3) that did not include time for referencing excerpt materials or emphasise instrumental performance (e.g., through chord arpeggiation). Considering the educational (and research) imperative for my activities to incorporate performance actions as well as the use of excerpts, allowing only fifteen minutes each week proved to be an enormous challenge.

Compounding the issue of limited available time for my aural harmony activities was my lack of experience in classroom time management. I initially approached the challenge with much ambition, expecting my students to progress very smoothly through the activities that I had planned for the class. This was especially the case at the start of Study I, which was my first venture into the realms of developing and presenting novel aural harmony activities to a group of students. I very soon realised that rarely did the classes progress exactly as planned, particularly at the earlier stages when the activities were just as unfamiliar for my students as they were to myself! My solution was to allow the activities to use up approximately half the allocated time rather than all of it. These 'free' periods of time gave students the opportunity to ask questions and occasionally discuss slightly divergent aspects of the materials. Yet, to ensure that there would be something to do in case students do complete the activity very fast, it was equally important for the planned activities to be easily extendable, for example by analysing and discussing a particular aspect of an excerpt in more detail, or giving students the opportunity to complete activities individually rather than as a group. By planning in this way, the learning experience became much more relaxed, and as a teacher I felt a lot less restricted by time.

7.1.3 The established curriculum and session activity

Prior to the periods I undertook teaching at the School as part of Study I and Study III, the aural harmony 'session' in tutorials[9] consistently involved one specific aural harmony activity (hitherto

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8 This is based on observational notes only. Calculating and tabulating the exact durations of all observed harmony-related activities as a proportion of the available class time would require significant amounts of time and go far beyond the scope of the present dissertation.

9 The term 'session' refers to the period of time during each weekly tutorial that is specifically set aside for aural

referred to as 'the established activity'). The established activity has been a large part of my own education as a musician and aural training teacher, having undertook it as a student for two years during my undergraduate studies. Not only did I appreciate this activity from a student's perspective, but I also observed and presented this activity to students from first to third year levels since 2007. My extensive and broad experience with the established activity is not comparable to my knowledge and experience of the Study II activities, which I only acquired through observation and discussions with teachers. Prior to Study II, the established activity was ingrained in my thinking, and positively set the standard of what an ideal aural harmony activity should achieve.

The established activity is quite similar to one particular Study II activity—B7. In both activities, the teacher performed an improvised chord progression while students individually identified chords or chord functions. But whereas in B7 students only identified chords at particular points in time (when the teacher paused on a chord), in the established activity student verbally labelled every chord within the progression. The chord progression had to be performed relatively slowly to allow students extra time (if necessary) to identify each chord. The length of the chord progression ranged considerably depending on the time available, but there was usually time for chord progressions with 10 to 20 different chords.

A prominent pedagogical advantage the established activity is that the teacher could easily customise the difficulty level of the chord progression for each student on an individual basis. For example, when working with an advanced student, the teacher could improvise a chord progression with several complex chords that are not necessarily part of the curriculum or assessment, but which challenge the student to their limit. Meanwhile, the rest of the students in the class can observe and might learn something new. This method of presenting 'new' chords to students can also provide opportunities to clarify harmonic concepts with all students in a class. On the other hand, the teacher can also improvise a very simple chord progression for students that lack confidence in aural chord identification. The ability to rapidly adjust the difficulty level for each student represents a highly useful teaching technique, one that was not possible in many Study II activities where all student within a particular class were given more or less the same kind of exercise regardless of their strengths and weaknesses.

Despite the benefits of this personalised approach to acquiring chord identification skills, the

harmony activities, which are relevant to the current study.

established activity in itself does not involve student performance. Apart from an occasional exercise that is usually applied at the start of the semester,[10] students listen actively but respond passively, giving only a chord label without making any music themselves. There was also little referencing of the improvised chord progressions to specific music excerpts. Although there were occasional opportunities for the teacher to allude to specific musical works or idiomatic chord usages (e.g., cadential six-four chords prior to cadenzas), this was not a planned approach and rarely occurred during the semester.

In my informal discussions with a small proportion of students that regularly undertook the established activity, I noticed that these students could not clearly see the connection between learning to identify chords and other aspects of their musical training. A common theme was that even though they felt that the activity was fun and that it made it easy to identify chords within the context of the tutorial classes, they did not maintain those aural identification abilities in other music listening contexts. Such contexts included listening to music recordings or performances, as well as practising and performing musical works as part of their studies at the School. Furthermore, some students felt that the established activity seemed to be unrelated to the harmonic dictation exercises that they undertook during aural training lectures. This last point was quite surprising, given that in both contexts the chord progressions included the same types of chords and were even played on the same instrument (the piano). Although this was not a widespread concern, it was nevertheless apparent that some students were aware that they could not immediately apply the aural skills that they acquired during aural training to other musical contexts.

The students that I spoke with did not describe the cause of the above concerns. Upon my personal reflection, however, I realised that there was one particular feature of the chord progressions in the established activity that students rarely encountered in most other performance and listening contexts (including harmonic dictation). This feature was the absence of harmonic rhythm. In the established activity, the improvised chord progressions were mostly performed freely tempo-wise. The chords did not align with a stable beat. Although this feature gave time for students to focus on the quality of each chord, it did not directly teach students to recognise harmonic rhythm. In lectures, and in music of the common practice period, chord changes usually occur within a

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[10]   In this exercise, students sang and sustained the tonic note while the teacher performed a chord progression that ended on a dominant chord. It was intended to highlight the tension of the leading note that occurs within a dominant chord. This brief exercise bears some resemblance to Study II activities that involve singing guide tones, such as H8.

stable metrical framework, creating a predictable harmonic rhythm. A well-trained musician instinctively feels this harmonic rhythm and uses it to his or her advantage when identifying chords. Without such an intuition or theoretical appreciation, then, one is likely to find it more difficult to identify chords in many musical contexts.

When I was given the opportunity to oversee the activities as part of Study I and Study III, there were three priorities in my mind. First and foremost, and in accordance to the purpose of this research, my goal was to provide my students with opportunities to undertake performance actions in a variety of ways. In particular, I wanted to incorporate the use of instrumental performance for students that were majoring in an instrument at the School. My second aim was to relate harmonic concepts with specific musical excerpts at every possible opportunity. This was to ensure that my students would understand that the harmonic concepts are not abstract or theoretical rules, but in fact are derived from—and are best revealed through—existing musical works. Third, I wanted to give students the opportunity to be creative and explore harmony through their own terms, rather than through formulæ that are set by the teacher or even musical works. In this regard, I was very fortunate to have had the opportunity to observe other teachers present activities in Study II, which provided a significant boost of inspirational ideas.[11]

In the following section, I explain the process of devising and implementing activities that suited the needs of my students.

7.2 Developing aural harmony activities

7.2.1 Maximising Performance actions

The foremost goal that I had when developing Study III activities was to provide as many opportunities for performance actions as possible. As I mentioned earlier in section 7.1, the aural training curriculum at the School primarily focused on students' aural identification skills, or Category 2 activities. In other words, the aural harmony activities that students engaged in prior to Study I

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[11] I emphasise that these ideas were *adapted* to my own teaching in a way that was relevant to the needs of my students, rather than merely *copied*. Payne (2006) provides salient advice in this regard: "a teacher should always try to teach to his or her strengths and in a style of presentation that feels comfortable. While it may be tempting to try and replicate the teaching techniques of a master teacher you have observed, you may be less effective in the classroom or studio than you would, were you to select or devise particular techniques and approaches that resonate within you and cause your own creative juices to flow. That does not mean that you cannot benefit greatly from adopting new ideas from some of the fine teachers that are in the field today, but just to suggest that the more comfortable you are, the richer the experience will be for your students" (2006, p. 148).

and Study III rarely involved student performance. I therefore sought to create activities that are classified in the three other categories that do involve performance actions, namely Category 1, Category 3, and Category 4. Although this was my goal during both studies, the circumstances of my teaching differed significantly between Study I and Study III.

Study I was the first of the three studies and took place in Semester 1 in 2008. At that time, my experiences as an aural training teacher was much more limited than after Study II and Study III. Although I had observed and taught the aural training subject at the School since 2007, my experiences were largely limited to this particular institution. Somewhat compensating for my lack of experience 'in the field' was the knowledge that I gained from reading, both academic papers as well as textbooks in music theory and aural training. However, reflecting back at that period, I now fully appreciate that reading about different teaching approaches can in no way substitute the experience one can gain from observing firsthand how different teachers approach the subject.

Performance actions in Study I

I set out to devise activities with an emphasis on performance at a time when I had hardly any experience with such activities. At that time, Study II and Study III had not yet taken place, and I had not devised the categorisation system explicated in Chapter 3. Over a period of several months in late 2007, I devised from scratch an activity that emphasised performance actions, and which could be directly compared to an alternative approach that emphasised listening-only actions (Lau, 2008a, 2008b). Very briefly, in this activity, students learnt to identify and label chords while simultaneously performing a part in a four-part texture. The four-part chord progressions were either exercises that I composed or my arrangements of chord progressions from music excerpts. In addition to developing my students' aural identification skills, my reason for creating this activity was that it would encourage students to gain awareness and recognition of chord progressions during music making.

Implementing this activity proved to be much more challenging than I originally anticipated. This was partly due to my inexperience at the time. However, I subsequently realised that my Study I activity made considerable demands on my students, who were already generally weak in their aural abilities to begin with. Upon the completion of Study II, I was able to categorise my Study I activity. The action sequence was $R_p \Rightarrow P_p \Rightarrow A \Rightarrow P_c$ *or* V. This action sequence alone provides at least one reason why this activity was rather challenging: it simultaneously belongs to

all four categories!

I developed this activity with minimal external influences. At the time, I believed that it was a novel or at least very rare kind of activity. My observations during Study II revealed that this was not the case. Several teachers that I observed or spoke with revealed that they had devised very similar activities, which also required students to identify chords in chord progressions while performing a part through singing (J11 & C11) or on an instrument (H4 & I6). I noticed that despite the complexity of the action sequence, these activities were implemented successfully at their respective institutions. This made me question why many of my students found Study I activity to be so challenging.

Upon reflection, I realised that my activity was significant different to all the above Study II activities in one aspect in particular. This difference was that in my activity, students performed on different instruments, whereas most comparable Study II activities were restricted to instruments of similar or identical timbres. In H4, students only performed on one instrument (usually an electronic keyboard) while J11 was usually sung rather than performed on instruments. One exception was I6, in which students performed on different instruments. However, and importantly, students in I6 could quite easily identify chords using their theoretical knowledge in addition to aural identification. In my Study I activity, however, students had to mainly rely on aural identification. In summary, my Study I activity was challenging partly because I expected my students to be able to identify chords in non-standard ensembles comprising random combinations of instrumental timbres.

Performance actions in Study III

By the time I began my teaching during Study III, I had accumulated a wealth of activities from my analyses of Study II data. One very important lesson I had learnt from Study II (as well as Study I) was that Category 4 activities are inherently the most challenging of the four categories of activities. Although the difficulty level of an activity is not entirely based on the categories alone, this was the only category that required students to multitask two complex tasks simultaneously: they had to perform (from reading a score or following directions) while aurally identifying chords or parts. The complexity of these activities mean that it was generally only used with students with proficiency in performing (on instruments or singing) from music notation or following directions. At the School, I generally taught students with weak aural skills, those who achieved the lowest

scores in their aural skills entrance test.[12] Using Category 4 activities with these students was unfortunately not a practical solution. Therefore, in Study III, I avoided Category 4 activities, focusing instead on the performance actions within Category 1 and Category 3 activities.

I also realised from my study and analysis of Study II that activities can be simplified by breaking sequences into smaller sections. As I mentioned earlier, my Study I activity was so complex that it was classifiable into all four categories. Instead of creating very long action sequences, there were many Study II activities where teachers combined many smaller activities, each of which developed specific skills. In other words, each activity only covered one or two categories at most. This sequencing approach was particularly common at Institutions E & I. For example, E8 & E9 were two very similar activities that were employed one after another during the same class (Event 68); the main difference was the timbre of the musical stimuli. At Institution I, each class was packed with a variety of brief activities that all developed slightly different skills. I adopted a similar approach in Study III, and developed two sets of interconnected activities, each of which comprised two or three distinct activities.

In terms of ordering and linking the multiple activities, it made sense to begin each class with the most basic type of performance task: reading and performing skills. Category 1 activities are the most ideal type for developing those skills. So that the focus was more on chords rather than melodic parts, the final action in the action sequence needed to be **Pi$_c$**. To encourage students to become aware of chords more often during their practise and performance outside of the aural training classroom, most performance tasks were undertaken on their main instrument.[13] Most students at the School performed on non-harmonic instruments (or sang), and thus the only way to perform chords was to arpeggiate them.

As mentioned earlier, student assessment in the aural harmony component at the School was almost entirely based on the aural identification skills. Specifically, the assessment involved harmonic dictation exercises in which students identified and labelled chords in tonal chord progressions (i.e., Category 2).[14] In order to prepare students for this assessment, I had to ensure that the

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[12] During the first period of Study III (one semester), I also presented activities during the aural harmony session within first-year tutorials with students who achieved higher scores in the entrance test. However, this was a relatively short period compared to the whole of Study III (three semesters), during which I continuously taught students with weaker aural skills.

[13] Naturally, vocal students and students not undertaking a performance major undertook *vocal* performance, i.e., by singing.

[14] In the first period of Study III, I devised tests that aligned with the contents of my activities (namely T1, T2, & T3). These tests involved identifying chord functions in recorded music excerpts. Due to the focus in the present study on the teaching approaches, rather than methods of testing and assessment, the assessment method will not be

student activities were focused on aural identification skills.

As many of the Study II activities demonstrate, students can acquire aural identification skills either with or without performance actions. Those that include performance actions are classified as Category 2; those without are Category 3. Of these two types of activities, only in the latter one do students participate through music-making. It was common in Study II activities for students to undertake Category 3 immediately before Category 2 activities. This was commonly done by having students perform elements of what they heard in an excerpt or chord progression, and then verbally describing, labelling, or notating it (e.g., B4, E3, & G5). There are several benefits of this kind of approach. First, subsequent listenings to the aural stimuli occur in tandem with active music-making. Students would thus be much more stimulated than if asked to listen to a chord progression repeatedly without participating in the music-making process. Second, the $A \Rightarrow P$ sequence allows students to *experience* the harmony directly through performance. By comparison, asking students to label it verbally or through notation provides no direct experience or feedback. On the issue of feedback, a third benefit is that when students perform the aural stimuli with errors, it can provide a useful platform for discussions. It also provides clues to the teacher about where students might be experiencing difficulty—e.g., hearing the bass line, hearing an added sixth note, etc. This feedback is much more difficult to assess in Category 2 activities alone. In conclusion, there are many pedagogical benefits of Category 3 activities taking precedence over Category 2 activities, both in terms of ordering and the relative amount of time spent in each session.

Despite these benefits, for students who have had little or no previous training in performance (whether vocal or instrumental), performing an aural stimuli by ear can be a very difficult task. Unfortunately, many students at the School at the time of Study I and Study III were in this position. For such students, activities that require them to perform back chords in response to hearing it can potentially cause some difficulty and anxiety. A solution to this problem is to allow students to improvise rather than imitate exactly what they heard. Improvisation allows students to learn about harmony and chords through relatively unrestricted performance experiences.[15] Moreover, particularly for students with weaker performance skills, improvisation is an enjoyable way to incorporate music making sans the constant pressure to perform the 'correct' notes.[16]

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presented here.

[15] Covington (1997) makes a compelling argument for the inclusion of improvisation activities within the aural training curriculum. Several of the strategies and activities that she suggests relate directly to the development of aural identification skills.

[16] This viewpoint has not been researched specifically but is reinforced by the anecdotal and empirical observations of experienced teachers. Bradshaw (1980, p. 113–114), for instance, describes significant improvements to a student's

From my observations of several such activities in Study II (e.g., C6, E3, & I13), it was evident that these activities were popular not only with students who possessed weaker aural and performance skills. More advanced students seemed to enjoy the opportunity to express their creative impulses. Meanwhile, other students could take a less prominent role by playing fewer notes or less frequently. In other words, when students improvise, the boundaries are set by each individual student's technical skills rather than artificially by the teacher. These benefits of improvisation-based activities make them ideal as a stepping stone from Category 1 activities towards the acquisition of aural identification skills.

In Study II, most activities that included improvisation involved improvising a melodic part over a *given* chord sequence or progression (e.g., C6, E3, & I13). Improvising melodies to given chords may be appropriate for students who benefit from the ability to do so in performance contexts. But when the desired outcome is a deep-rooted understanding of harmony, it makes more sense to allow students to improvise chord progressions. According to E. E. Gordon (2003, pp. 12–13), improvisation is not worthwhile if it relies on memorisation and imitation, a phenomenon that was evident several activities (e.g., C6 & J7). Instead, he suggests that learning to improvise melodies or chords based on audiation—inner awareness of underlying chord sequences—is much more desirable.[17] While activities like E3 & I13 applied this approach to the improvisation of *melodies*, there were no instances in Study II of activities incorporating the improvisation of chord sequences.[18] I12 came close to achieving this; the activity involved performing creative accompaniments to given melodies. However, the process was still largely dictated by the original music, and chord choices were mostly suggested by the teacher.

Consequently, I developed two Study III activities that included an improvisational or creative element (T2 & T4). These two activities provided students with the freedom to experiment with the sequencing of chords, either with (T2) or without (T4) performance actions.[19] As I explain

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musical learning and participation as a result of improvisation activities. However, in order to create a suitable environment for improvisation, a teacher must fully appreciate—and enforce—the principle that "there is no *wrong* improvisation" (Covington, 1997, p. 61). See also, Bradshaw, 1980, p. 115. On the issue of the pressure of correct identification, Åkerberg and Bremberg (2000) alludes to the psychological stress students experience when they are expected to correctly identify chords by ear upon hearing them. In response, they recommend the use of excerpts and, citing research by colleagues in Gothenburg, recommend teaching within a relaxed environment that does not require students to explicitly identify chords (pp. 46–47).

[17] Liperote (2006) describes audiation exercises that involve the use of instruments; many of these activities would be classified as Category 3.

[18] This kind of activity is probably very rare within the field of aural training. Its rarity is also evident in the research literature. For instance, only a small fraction of the 39 'strategies' for incorporating improvisation into aural training activities that Covington (1997) lists involve improvising chords and harmonisations.

[19] The definition of a performance action has thus far been the creation of a musical note through an instrument or through singing. In T4, I enabled students to create—or improvise—chord progressions without instruments or

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later in this section, these activities encouraged the development of aural identification skills even though they both do not explicitly require such skills.

7.2.2 Rhythmic patterns for arpeggiating chords

The majority of students at the School performed on monophonic instruments, which they brought into each weekly session. As I presented earlier in Chapter 4 and Chapter 6, arpeggiating chords was the ideal method of performing chords in contexts where students sang or performed on monophonic instruments. For this reason, I extensively used chord arpeggiation exercises in Study III, specifically in T1, T2, & T3.

There were several different methods of arpeggiating chords described in Study II activities. One contrasting point between these methods was whether or not students arpeggiated using a rhythmic pattern. Usually, when students arpeggiated collectively as a group, they followed a consistent rhythmic pattern for all arpeggiations (e.g., C2 & E13). In some of these activities the pattern fit metrically into a specific time signature (e.g., $\frac{3}{4}$ in C2), while in other activities each note in the arpeggiation was held for the same duration. In yet other activities, students did not strictly adhere to a particular rhythm for arpeggiating chords. They used a basic pattern (with a common feature to extend the duration of the final note), but modified the exact rhythmic pattern in order to match the excerpt (E9, G2, & J4 are good examples of this approach).

The alternative method of arpeggiation was to use no rhythmic pattern at all, as was adopted institution-wide at Institution H (see H3 & H7). This approach is pedagogically ideal for one important reason: it caters for each student's individual need. Using this approach meant that students could take their time to 'find' each note, whether on their instrument or vocally, without being pressured to play the next note quickly. It was particularly effective in this regard in activities that involved aural identification, where skills varied considerably amongst students. However, this method was adopted only when students performed individually. It would be very difficult if not impossible to have multiple students arpeggiate simultaneously without indicating a clear beat or rhythm beforehand. Given that the classes at Institution H were relatively small, with no more than 5 students per class,[20] the teacher could afford to spend extra time with each student. Combined with the fact that a relatively larger proportion of class time was allocated to aural

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any singing involved. T4 is detailed later in this chapter, on p. 204.

[20] Cf. Figure 7.1 on p. 166.

harmony activities,[21] then, it is not surprising that this free-style arpeggiation method was used consistently across various activities at that institution. The very different learning environment at the School (8 to 13 students per class, and less time allocated for aural harmony activities) precluded the use of this arpeggiation method in Study III activities.

Another distinction in chord arpeggiation methods has to do with whether or not the performance was immediately undertaken in response to aural identification (i.e., in Category 3). In situations where students have internalised the sounds of the chords the moment they are asked to arpeggiate it, or if they know the exact notes that they should perform, it is ideal that students arpeggiate *on* the down beat of a metrical bar. This approach was relatively common in Study II activities. When students have to first identify chords aurally before arpeggiating them in response, it is usually not possible to immediately play them. Some teachers in Study II asked students to memorise a passage during the first few listenings, and then soon afterwards had students arpeggiate *with* the music (e.g., E6 & E9). Often the teacher assisted by also singing the arpeggiations with the class. In general, though, when the chord arpeggiation is in response to aural identification, it is crucial that students be given sufficient time to recognise the chord before they perform it.

Of the three Study III activities in the first set, two could be arpeggiated on the beat (T1 & T2). In both activities, students were given a brief period of time to prepare before they arpeggiated each chord. In T3, students arpeggiated in response to aural identification, and it was necessary to use a different rhythmic pattern for this purpose. In total, then, there were two different chord arpeggiation patterns. I illustrate the two arpeggiation patterns below.

Chord arpeggiation pattern in T1 & T2

The arpeggiation pattern that I decided to use in T1 & T2 was inspired by similar approaches used in several Study II activities. It is most similar to the approach found in I11.[22] The arpeggiation begins from the bass note on the first beat of a $\frac{4}{4}$ bar, arrives at the last unique chord note (i.e.,

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[21] This point is made based on the observations at Institution H during Study II, in comparison to classes at other institutions and at the School. However, there was no attempt to precisely calculate the exact proportion of time spent on aural harmony activities as opposed to other exercises in the aural training classes observed in Study II. Such a process would have complicated the data collection methods and analysis of Study II without directly addressing the research goals established in Chapter 1.

[22] I11 also involved stepping motions corresponding to the scale degrees of the bass notes. This worked well because students *sang* the arpeggiations; it would not be feasible to have students play certain instruments while stepping back and forth.

the 5th of a triad) on the second beat, and returns to the bass note on the third beat. Spacing out the chord tones evenly results in a chord that is arpeggiated with four quavers plus a minim for the bass note on the third beat. The method in I11, however, did not describe how students should arpeggiate chords other than triads. To enable students to arpeggiate chords with four tones, which were part of aural training curriculum at the School, I chose the approach used in C2, which was to speed up the arpeggiation a little in order to fit in two extra notes during the first two (crotchet) beats (see Figure A.4 on p. 259). Four-note chords are thus arpeggiated as two groups of quaver-triplets on the first two beats, followed by the bass note. By commencing and ending each arpeggiation on the bass note, students are more likely to become aware of the bass line movement. It is much more difficult to observe the bass line when using other arpeggiation patterns that end on another chord tone (e.g., E9).

In the I11 arpeggiation pattern, each chord was arpeggiated over four beats, while in C2 it was done over three. For my activities, I chose to allow students to arpeggiate over 4 beats rather than 3, for two reasons. First, it allows students more time to rest between each arpeggiated chord, which is particularly important for woodwind instruments. Second, and more importantly, I wanted to ensure that students had sufficient time to prepare the arpeggiation, particularly in T1 & T2. Although it is possible to arpeggiate over three beats, it was much more straightforward to have an even number of beats, particularly in T1 where I directed students by pointing to chord labels. With four beats in a bar, and the arpeggiation occurring during the first two beats, I pointed to the next chord on the third beat to allow students two beats to prepare for their next chord arpeggiation.[23]

Chord arpeggiation pattern in T3

While the above arpeggiation pattern worked well in T1 & T2, I had to use a different pattern for T3. The reason was that the chord arpeggiation in T3 was done in direct response to their aural identification of chords. Because of this, it was necessary to have enough time to aurally analyse each chord before commencing the arpeggiation. In Study II, chord arpeggiation was less frequently seen in activities classified under Category 3 than in activities classified under Category 1. In other words, the most common use of chord arpeggiation was in activities where students did not aurally identify chords.

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[23]   For a more detailed description of T1, refer to subsection 7.3.1 on p. 191.

The most similar activity was probably the 'tetracizing' method in E3. In this activity, the arpeggiation involved performing two tetrachords with one repeated central tone; thus there were at least seven unique tones to identify and perform per chord. Students used the same rhythm so that they could arpeggiate together as a class. This approach appeared to work extremely well for the purposes of identifying jazz modes and complex chord structures, with many added chord tones. Another activity where students arpeggiated as a group was J8; again, the arpeggiations followed a set rhythmic pattern so that—assuming students identified the chord correctly—they arpeggiated in unison. In J8, students commenced each arpeggiation on the first beat of each bar, the moment the teacher played each chord on the piano,[24] whereas in E3 students could listen to the chord for a short moment before they started to perform.

The alternative was to have students perform individually, which did not require following a set rhythm. As mentioned earlier, this approach was adopted successfully at Institution H. The approach allowed students to arpeggiate at a pace that was comfortable for them, which further encouraged them to use their ears and think about the chord rather than rush through it (see H4 & H7). Mainly due to the limited time, none of these approaches would suit my specific teaching environment. I therefore had to devise a second chord arpeggiation pattern for T3.

Consistent with the first arpeggiation pattern, in this second arpeggiation pattern each chord lasted for the full length of a $\frac{4}{4}$ bar. The chord arpeggiation did not commence on the first beat of each bar. Instead, students in T3 listened to the chord starting on the first beat of the bar for two full beats (at a slow tempo). They then arpeggiated starting on the third beat. Because there were only two beats left in the bar, students arpeggiated up from the bass note, but not down from it. The rhythm of the arpeggiation was three quaver-triplets (on the third beat) plus a quaver (on the fourth). This rhythm was used for both triads and four-note chords. When arpeggiating triads, the final note in each arpeggio doubled the bass because there were four notes in total.

7.2.3 Maximising use of excerpts

Citations from established musical repertoire were used in a variety of ways within the activities collected in Study II. Many of these techniques influenced the way I incorporated music excerpts into my aural harmony activities. Below, I present an overview of the various techniques used in

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[24] This was achievable partly because the students had listened to the piece and studied it prior to the class that I observed.

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Study II activities, followed by an explanation of how I implemented excerpts into activities in Study I and Study III.

Excerpts in Study II activities

Many Study II activities involved directly performing the repertoire through the development of sight-reading skills (e.g., C3), aural identification skills (e.g., E6), or both (e.g., H6). Sometimes, teachers made explicit references to repertoire (e.g., B8), while at other times students identified the connection between a concept and an excerpt by themselves (e.g., E8). Of all these approaches, perhaps the most common way of including excerpts was to listen to a recording of it. This usually occurred immediately before or after an aural identification exercise or a discussion—H2, H4, & H6 are perfect examples of this broad approach applied quite consistently within a single institution. In several Scandinavian institutions, students undertook the listening task prior to class time rather than during class, which was often a chance to review the concepts or undertake exercises based on the same materials (e.g., H1, G6, & J8). Teachers have a lot freedom in determining exactly how a musical excerpt can be implemented within their activities.

Throughout my observation of activities in Study II, I noticed a correlation between the direct referencing of excerpts within an activity and the level of student engagement. When students participated in activities that made references to music excerpts, they tended to appear more interested, inquisitive, and alert. This positive change in engagement levels was manifested, in practical terms, in the form of students asking more questions, responding more quickly or accurately when performing or singing, and interacting more frequently with their teacher (rather than more passive forms of observing and listening). These empirical observations back up what many teachers have expressed in one way or another[25]: that musical literature should be a prominent part of aural training.

An activity that makes no reference to repertoire can, at the most, help some students acquire aural skills and theoretical concepts that can still be applied *to* music excerpts at a later time. The least desirable outcome, however, is to make the activity feel completely irrelevant to any musical endeavour. Unfortunately, Study II revealed that many teachers still adopt such an approach in harmonic dictation activities, by playing chord progressions that have minimal similarities with

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[25] For example, see Wittlich and Humphries (1974); Bergsma (1955).

existing musical literature.[26] This can encourage students to learn a particular teacher's compositional idiom, rather than the normal procedures of a particular genre, style or period.

The contrived chord progression used in Event 57 exemplifies the type of materials that can make harmonic dictation completely irrelevant to students (see Figure A.9 on p. 278). The particular chord progression used in this class featured an idiosyncratic harmonisation of a repeated sequence of bass notes ($\hat{8}$–$\hat{7}$–$\hat{6}$–$\hat{5}$).[27] In addition to asking students to notate this chord progression, the teacher further de-emphasised the relationship between adjacent chords by asking students to identify each chord separately based on given parameters.[28] The opposite approach to harmonic dictation is to expose students to idiomatic, common chord progressions (e.g., H1 & F3), an approach that is much more likely to result in students acquiring relevant (rather than quantifiable and testable) aural skills.

In most activities that used music excerpts, teachers made explicit the connection between a specific harmony-related concept or aural skill and the excerpt. Many such activities involved reading full or part scores, or developing exercises around a sound recording of an excerpt. This was, however, not the only way excerpts were alluded to. On occasion, some activities gave students the *opportunity* to demonstrate their ability to relate theoretical and aural concepts to musical excerpts. E8 is a perfect example of this. In the particular class that I observed, one student asked whether a particular chord progression was present in a specific jazz melody; the teacher immediately acknowledged this observation in the affirmative, and performed a portion of the piece to demonstrate it to the whole class. This completely transformed the somewhat repetitive exercise (involving the identification of various isolated chords and singing tension tones) into a dynamic discussion and opportunity for a quick aural demonstration. It was perhaps the unexpected but relevant nature of the diversion that immediately caught the interest and attention of all the students.

Although this approach worked very well in one particular context at Institution E, it may not be desirable to rely on this approach alone. This teaching method requires the teacher to

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[26]   Of course, there were many Study II activities that involved dictation or transcription using sound recordings of the music literature (e.g., B1, F3, & H1). This approach is is also mentioned in the pedagogical literature, too (e.g., Dustman, 1951).

[27]   At one point in this progression, a iii^6 chord occurring on a weak beat is followed by vi^6 on the first beat of the next bar. Although one might suggest that there is no wrong way to harmonise a bass line, the fact that harmony textbooks (e.g., Aldwell & Schachter, 1989) don't mention such a chord sequence supports the view that it is rarely used in Western art music.

[28]   See the description of E4 on p. 278 for a step by step explanation of the harmonic dictation activity observed in Event 57.

possess exceptional keyboard skills in addition to having memorised a large enough compilation of repertoire. These skills cannot be hastily learnt in preparation for teaching an aural training course; it is accumulated over many years of teaching, self study, and exposure to musical repertoire. Furthermore, possessing the skills alone is insufficient; a teacher must be able to *apply* them deftly and at the appropriate moment during an activity. Therefore, in most cases, the most reliable method of encouraging students to see the connection between aural skills and musical repertoire is to directly engage students within that music within the activities.

Finally, an effective method of making excerpts more accessible to students is to simplify it by arranging it. The intention of this process is to remove all the unnecessary elements of an excerpt so that students can focus on specific features, such as the rhythm, pitches, chords, and instrumentation. This approach is exemplified in activities like H6 & J8. In the case of simplifying in order to focus on chords, an excerpt can be simplified significantly by removing the rhythm (e.g., H4). A drawback of such an approach is that it removes the harmonic rhythm, which is a vital aural clue when aurally identifying chords in music. Activities like J11 demonstrate that it is in fact possible to maintain harmonic rhythm during the simplification process. In any case, no matter *how* an excerpt is arranged or simplified, it is a very time-consuming process compared to relying on pre-composed exercises from a textbook. However, as I learnt through my own teaching experiences, if one wants to create an activity that develops aural skills and musical understanding in a way that relates to real music, then every moment of invested time is worth it.

Incorporating excerpts into Study I and Study III activities

Several aforementioned limitations in Study I and Study III worked against my desire to give my students plenty of opportunities to compare harmonic concepts with musical works. The most severe restriction was the duration of each session. With only 15 minutes for each weekly session, there were no opportunities to elaborate on many features or details relating to the excerpt or the chords. Ideally, multiple excerpts should be used as it can be more illustrative than only citing one. Several Study II activities used this approach (e.g., E6, F4, I1, & J8). However, it was just as common for a teacher to only mention one excerpt throughout an entire class (e.g., B8 & H6). Likewise, given the limited time available for aural harmony in classes at the School, the only reasonable option I had was to mention one excerpt per session.

Given the inexhaustible supply of music works, a significant challenge any teacher encounters

in creating their own activities is the selection process. A sensible and probably common approach is to select pieces that most efficiently demonstrates the particular concept being discussed in each session. There are also course requirements to consider, which prescribe certain skills that students should have developed upon completion of the course. At the School, the requirement was presented in terms of the types of chords that students should be able to recognise within a tonal chord progression. By the end of their first semester, for instance, first year students were expected to be able to aurally identify the three primary chord functions (T, S, D) in root position and first inversion, including $D^{\natural}_{4}$ and a few other subdominant-type chords. These pedagogical goals provided a rough framework for the selection of excerpts for use in my activities.

The music excerpts I used and referenced during Study I and Study III came from a wide range of sources as a result of a several influences. Initially, I commenced my search by listening to recordings of a range of repertoire (including compositions of all varieties of ensembles, solo piano, orchestral, etc.) and identifying those that could be used as a good example for demonstrating a particular chord or chord sequence. I made use of my audiation ability, by replaying chord sequences in my head while matching them to musical works that I was familiar with. But as I continued this exercise, I realised that there was a significant bias towards works that *I* was familiar with and that *I* felt to be relevant to the course. In other words, this approach of deciding what works to include did not directly take into account the students' learning needs and preferences.

The only solution to this dilemma was to incorporate compositions that students were familiar with. At the start of the semester in Study I, I asked students to provide me with a list of pieces that they had recently performed or were practising at that time. As much as was practically possible, I used these pieces in my own activities and replaced works that I had found by myself. Due to the limited number of classes per semester (13), as well as the suitability of the pieces that students enlisted (many of which did not demonstrate specific chords or chord progressions I needed to demonstrate in class), I was only able to include one (or occasionally two) pieces from most students who gave me a list. In at least one of the 13 classes during the semester, then, most students undertook aural harmony activities that referenced a musical work that they were personally familiar with.

After Study I was completed, I came up with an even better way for incorporating music excerpts that were relevant to students' studies. In Study III, I contacted colleagues at the School who were conducting or organising ensembles or orchestras that semester, and asked them to provide

me with a list of works they were rehearsing at the time. Because many students in my classes participated in these ensembles and orchestras, they all knew these pieces well and were working on it at the same time. Using these works in my own activities thus increased the likelihood that students would relate to the selected music excerpts.

As many Study II activities demonstrate, incorporating excerpts into an activity often increases the complexity of the activity. As a result, these activities generally require more time to complete. For example, activities that comprehensively presented an excerpt (e.g., H6) usually took an hour or so to complete. Such an activity was only possible when there was little time constraint. Having generous amounts of time not only meant that students gained aural and keyboard skills by the end of each class, but they also acquired some insight into a composer's musical style and compositional methods. The opposite situation, where there was a significant time constraint, generated the sorts of activities that only took 5 or so minutes to complete. Such activities usually involved repetitive drills that taught students skills, whether in performance or aural identification, without necessarily helping students realise the purpose and relevance of developing those skills. With only around 15 minutes to present aural harmony activities at each weekly class, the challenge I had in Study I and Study III was thus to effectively make use of excerpts without going into too much detail, which would require much more time.

Having limited time and incorporating excerpts into activities in aural training are two factors that clearly work against each other. But if it has be done, perhaps the most important concept is that of simplification. Some teachers simplified excerpts by directing their students' attention towards a specific part of a chord progression. This was particularly common when students listened to recordings; students were often asked to focus on and identify the bass line before proceeding to identifying other elements (e.g., E6, E9, & J4). Simplification can however be overdone, by making the excerpt completely unrecognisable due to simplification or other modification to the original work. From the students' perspective, an oversimplified excerpt or citation taken out of context has little meaning, and worse, appears to be a contrived attempt to prove a theoretical concept. Similarly, the benefits of using music excerpts is reduced to nothing if it is performed so poorly that it fails to engage students both musically and emotionally.[29] Referencing musical

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[29] This issue was particularly pronounced in activities like B1, where the teacher used a MIDI recording for dictation purposes. In this particular activity, not only was the music unfamiliar to the students, but the recording was of a combination of low-quality, digitally-synthesised instruments that struck each chord with the most monotonous phrasing, metrical, and dynamic variation possible. To use an 'excerpt' in this instance could not have been any more engaging and relevant than if the teacher had instead improvised a musically interesting chord progression, as was done by another teacher in B7.

repertoire in an activity thus requires a careful balance between simplification and the preservation of the authentic musical characteristics.

7.2.4 Visualising chords using diagrams

An important feature in the Study III activities was the visualisation of chords. Inspiration for this approach came from several classes observed in Study II. In virtually all Study II activities, teacher-to-student interaction while listening to chords occurred predominantly through speech (e.g., describing chords by its features, naming specific tones within chords). One exception was I7, which demonstrated an effective procedure for interaction whereby the student pointed (i.e., gestured) at chord labels. This approach worked well because there was minimal delay between the moment when the student pointed to a chord and when the class heard it. This direct linkage between the visual and aural senses is uncommon in aural harmony activities.

I was also influenced by a similar kind of interaction I observed in a few classes at Institution C, which were applied to sight-singing warm-up exercise. Here, the teacher, rather than the student, was doing the 'pointing'. As the teacher pointed to a list of scale degree numbers,[30] the students responded by simply singing each note.[31] I was especially impressed by two aspects of this exercise. The first aspect was the interaction between the teacher and the students in the class, which was fluid and highly efficient. The teacher progressed gradually from diatonic steps, through simple melodic sequences, to arpeggiated chord sequences (S–D–T sequence—although he did not explicitly say this to the students). The teacher chose sequence of notes with keen awareness of his students' singing abilities, and very gradually increased the complexity of the singing task. The second point that drew my attention was the simplicity and flexibility of the exercise, which made the progression from simple to complex possible in the first place. In comparison to most other sight-singing exercises, which are based on tediously repeated or sequenced melodic patterns, this exercise promoted much more interest (or at least alertness) in students.

Three Study III activities similarly enhanced student-teacher interaction through visualised chord labels. In T1, I pointed to chord labels while students responded by performing arpeggiated chords; this was inspired by the aforementioned sight-singing exercise at Institution C. In T4 &

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[30]   The scale degree numbers were arranged sequentially—e.g., from $\hat{1}$ to $\hat{10}$—and aligned in a straight line. The line was tilted slightly to approximate the pitch height like with music notation, such that the upper-right-most number represented the highest pitch.

[31]   There was a very slight delay between the moment the teacher pointed to a note (by physically touching his cane onto the blackboard) and when students sang that note—usually a quarter of a second or less.

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T5, students took the role of pointing and directed what I played on the keyboard, similar to I7. Neither of the two sources of inspiration, however, presented a systematic method for arranging the relative positions of chord labels on a two-dimensional surface (e.g., a classroom whiteboard). In I7 there were only three different chords, and there was no systematic method of presenting or ordering these chords. The arrangement of single notes in the sight-singing exercise at Institution C was self-explanatory for sight-singing purposes, but unfortunately it does not directly translate to chord labels. As there were no precedents for my particular use in my teaching, which needed to accommodate at least 10 different chords, I had to devise my own chord diagrams for the three aforementioned Study III activities.

$$\begin{array}{ccccccccc} & & & & D^6_4 & S_3 & & & \\ T & Sr & T_3 & S & D^7 & Tr & D^7_3 & T \\ \hat{1} & \hat{2} & \hat{3} & \hat{4} & \hat{5} & \hat{6} & \hat{7} & \hat{8} \end{array}$$
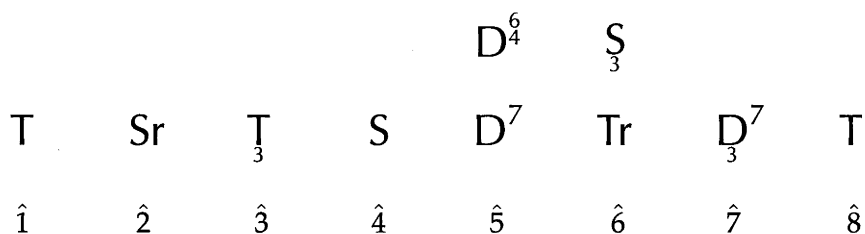
Figure 7.2 A chord diagram that I devised and used during Study III. These labels denote chords in major tonalities, and were used with first-year students in Semester 1.

$$\begin{array}{ccccccccc} & Dr^7_3 & Tr & S^6_5 & D^6_4 & S_3 & & & \\ T & D^7_5 & T_3 & S & D^7 & Tcr & D^7_3 & T \\ & & & DD^7_3 & & & & \\ \hat{1} & \hat{2} & \hat{3} & \hat{4}\ \sharp\hat{4} & \hat{5} & \flat\hat{6} & \hat{7} & \hat{8} \end{array}$$
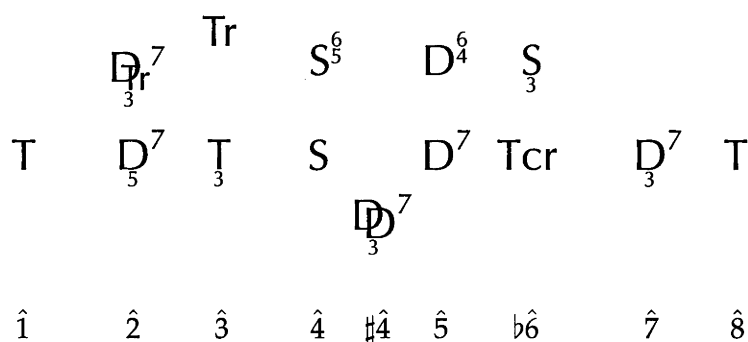
Figure 7.3 A chord diagram that I devised and used during Study III. These labels denote chords in minor tonalities, and were used with second-year students in Semester 1.

Following a few weeks of experimentation both before and during classes, I settled with a unique chord diagram (cf. Figure 7.2 and Figure 7.3). The fundamental structure of my diagram is defined by the scale degrees of the bass note listed along the bottom row, from $\hat{1}$ to $\hat{8}$. The chord labels are placed above these numbers. When I used the diagram in a given class, the diagram only included chords that were relevant to that particular group of students. In the first few introductory classes for first-year students, for instance, the diagram contained the bass notes plus

the three primary triads only. Additional chords were then appended progressively every one or two weeks. Where there was more than one chord above a bass note, I stacked the labels vertically above,[32] thus maintaining the emphasis on the bass note that supports the chord. The diagram can accommodate bass notes other than those in the diatonic scale (such as the $\sharp\hat{4}$ in Figure 7.3).

At one point during the early stages of creating the diagram, I considered an alternative layout whereby chords were arranged horizontally according to their function (e.g., T, S, D, Tr, etc.), and then inversions of those chords were listed above (e.g., "R" for root position, "1" for 1st inversion, and so on). Such a layout would emphasise the *function* of the chords regardless of the bass line, which may beneficially promote an approach to chord identification that is not reliant on recognising the bass note alone. A drawback is that the labels are not arranged by the bass note scale degree, making it quite complicated, both conceptually and as a stimulus for performing arpeggiated chords from the bass note up (i.e., in T1). In addition, it is far more common in most musical works for the bass line to progress in stepwise motion rather than to cycle through different inversions of the same chord. This was reflected in the kinds of chord progressions that students listened to and studied within the aural curriculum at the School.[33]

7.2.5 Synopsis of Study III activities

In total, I created and implemented five activities throughout Study III. Using the labelling convention established in Study II, I refer to these activities by its label: 'T' followed by a number, from 1 to 5.[34] I created and implemented these activities during two distinct periods of time. The first 'set' of activities, comprising T1, T2, & T3, were used during the first semester of 2010. The second set of activities, comprising T4 & T5, were created later and taught throughout the 2011 academic year. The ordering of these five activities is a significant feature of the overall pedagogical intent and design. For this reason, I will present the two activity sets separately. Before describing each activity in more detail, I will first provide two synopses, one for each of the two activity sets.

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[32] I generally placed the less common chords near the top, although there was no need to establish a strict rule. Due to the curriculum at the School, there were rarely more than three chords assigned to a single bass note scale degree number.

[33] See Figure 7.11 on p. 207 for an example of a chord progression that I might improvise for my students to identify in T5.

[34] 'T' is the first initial of my given name.

From performance to aural identification: T1, T2, & T3

The first set of Study III activities comprises T1, T2, & T3 presented sequentially in each session. The purpose of this first set of activities was to help students acquire the ability to aurally identify common chord functions within the context of a chord progression in music repertoire. Unlike the existing curriculum, where students identified chords in teacher-composed chord progressions played on a piano, these three activities were intended to help students identify chords within various kinds of musical settings, ranging from solo repertoire to orchestral works. In addition to creating and implementing these activities, I also developed the final assessment task for Study III, in which the students aurally identified and labelled specific chords from sound recordings of music excerpts.[35]

As mentioned earlier, the students were progressively introduced to a collection of chords each week. At the end of the semester, the students were assessed on their ability to aurally identify these chords in the aforementioned aural identification assessment task. The students were required to bring their instruments to each session. Vocal students and other students who did not undertake a performance major participated by singing; alternatively, some chose to play on the piano.[36]

In T1, the students collectively performed arpeggiated chords using the aforementioned rhythmic pattern[37] either on their instruments or by singing). I directed the students by pointing to individual chord labels on the whiteboard, thus creating chord progressions. After this activity, in T2, the students took turns to individually arpeggiated chords, this time with the freedom to choose any chord that they had just practised. I accompanied on the piano by harmonising each arpeggiation. The students were encouraged to listen to the preceding chord and consider an appropriate chord that could follow. These two activities prepared the students for the next activity (T3), in which the focus was shifted towards aural identification skills.

In T3, students learnt to identify chords in excerpts. They used the chord arpeggiation exercises in the two aforementioned activities as a means of identifying chords. At the outset, the students listened to an excerpt recording. After students had heard the recording a couple of times, I played for the students an arrangement of the excerpt on the piano. The arrangement comprised the excerpt's chords simplified as block chords, with a barebones outline of the original melody. I then

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[35] Consistent with the rest of the dissertation, I will focus on the activities without diverging towards assessment tasks and methods. In practice, the two aspects of the curriculum are of course inextricably linked.

[36] There were at least two pianos within each classroom, accommodating up to six students.

[37] Cf. p. 177 and Figure 7.4 on p. 192.

performed the same chords much slower, with one chord per bar, while the students took turns to individually identify and arpeggiate those chords following the other aforementioned arpeggiation method.[38] Once the students arpeggiated the chords correctly, I performed the arrangement once again while the same students—who had arpeggiated the chords—labelled the chords verbally. Finally, the class listened to the recording and identified the chords, writing down the chord labels on a provided worksheet.

To summarise, the pedagogical progression within this set of three activities was to start from performance skills and gradually incorporate and lead to the acquisition of aural identification skills. The performance and conceptual skills were first introduced in T1, which did not involve aural identification. T2 was presented as a variation of T1, but in fact introduced elements of aural identification. In T3, the students learnt to aurally identify chords within simplified excerpt arrangements of chord progressions, using the performance skills developed earlier (i.e., arpeggiation). Finally, they applied these aural skills within the context of excerpt recordings.

Improvisation and aural identification with gestures: T4 & T5

In the latter period of Study III, less than a year after devising and implementing the first set (T1, T2, & T3), significant changes to my teaching environment necessitated changes to the aural harmony activities. In response, I created a second set of Study III activities, which comprises two activities: T4 & T5. Before summarising these activities, I will briefly present the background and rationale for creating new activities rather than reusing the first activity set.

On the whole, student feedback for T1, T2, & T3 was positive and encouraging, which suggests that my students benefited from the application of their performance skills (through chord arpeggiation) to their listening skills.[39] The success of these activities was likely due to the fact that the students could appreciate the relevance of the activities in aural harmony with the musical repertoire that they were acquainted with. However, there were a small number of students who struggled with the chord arpeggiation exercises. Many factors contributed to this outcome, but in short it was largely due to the fact that a considerable number of my students were unable to properly undertake the performance (i.e., arpeggiation) tasks, particularly when it was done vocally. This was partly because some of these students did major in performance, which meant

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[38] Cf. p. 178.
[39] I discuss this aspect in more detail later, in subsection 7.3.4 on p. 200.

that they were not required to pass any performance auditions before commencing their studies.[40] In addition, unlike the previous year, the students that I taught in the latter period of Study III (i.e., in 2011) had much weaker aural skills at the outset.[41] Therefore, I decided that it would no longer be feasible to require all my students to arpeggiate chords as a means of developing aural identification skills. Because all three activities in the first activity set involved chord arpeggiation, new activities had to be created and implemented.

In addition to the performance-related issues, changes to the aural training curriculum necessitated further changes to the activities. As I mentioned earlier, I created the first activity set (T1, T2, & T3) in tandem with specific assessment tasks that were aligned with the activities. In 2011, the aural harmony assessments reverted back to the exclusive use of harmonic dictations of progressions composed for—and played on—a piano. This meant that the activities in the first set, which were intended to teach my students to identify chord progressions in excerpt recordings, would no longer be constructively aligned with the new assessment scheme. To summarise, there were two main outcomes that I had to achieve in the second set of activities: (1) not require the students to perform chord arpeggiation while maintain or increasing student engagement and interaction, and (2) reduce the emphasis on music excerpts in exercises while focusing on the development of the students' aural identification skills.

I achieved these two goals in the second activity set that I created for the 2011 academic year. In T4, the first activity in the second set, the students individually created chord sequences by pointing to chord symbols on a chord diagram (at the front of the class) while I performed them on the piano. Other the students observed and participated in discussions during and after the 'performance'. Even though the students did not literally perform the chord progressions, they had complete control over the direction of the music that I improvised in terms of the sequence of chords. In T5, the creative role was returned back to me as a teacher, while the students focused on their aural identification skills. In this activity, I improvised progressions while the students identified the chords by pointing to chord labels on the same chord diagram. In both activities,

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[40]   It should be also noted that students at the School do not need to pass any theory or aural skills tests prior to their enrolment in the music degree.

[41]   As mentioned earlier in this chapter, in the first period of Study III (in 2010), I presented T1, T2, & T3 to all students at the advanced and a portion of students at the basic level. However, I did not teach the students with the weakest aural skills (as determined by the aural entrance test), as these students were not in my tutorial groups. My students were generally quite capable of arpeggiating chords, whether on their instruments or through singing. However, in 2011, I taught *all* students at the basic level, including students with very weak aural skills. It therefore became apparent that these students that I taught during the latter period of Study III would have difficulties performing arpeggiated chords.

the students individually participated through an activity that was engaging and creative, even though performance actions were no longer a significant part of the curriculum. Also, in both activities, the focus was brought back to identifying chords as performed on a piano rather than directly from sound recordings. Nonetheless, both activities can be directly related to musical literature and sound recordings; I present some of my ideas for achieving this later in this chapter (subsection 7.4.3 on p. 208).

7.3 From performance to aural identification: T1, T2, & T3

At the School, the harmony component of the aural training curriculum was assessed in terms of the students' aural identification skills. Prior to Study I and Study III, the students did not undertake aural harmony activities that focused on performance actions; as mentioned earlier, the students mainly undertook $A \Rightarrow V$ activities during tutorials and $A \Rightarrow N_c$ during lectures. Since Study I and Study III began, performance actions and excerpts were used in the activities that I devised. However, the curriculum determined that the students still had to be assessed based on their aural identification skills in the harmony component. In other words, their performance ability was not assessed in a significant way (other than overall class participation marks). It was therefore essential that the ultimate aim of the activities that I developed was to improve the students' aural identification skills.

The first three activities that I developed, T1, T2, & T3, were implemented as a sequence of activities throughout Study III. The numbering indicates roughly the order in which I presented the activities during each class session. This sequence provided a consistent structure onto which I progressively applied new concepts and materials throughout the semester. In the subsections below, I describe these three activities in some detail using various musical examples.

7.3.1 T1: Arpeggiating chords in response to teacher directions

At each weekly session, the first activity that my students undertook was T1, a Category 1 activity (coded as $T \Rightarrow Pi_c$). The main purpose of this activity was to enable my students to arpeggiate various chords using a prescribed rhythmic figure.[42] Before commencing with the main activity, the students had to learn the basic rationale behind the chord arpeggiation pattern. Apart from

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[42] For a more detailed explanation of the rhythmic pattern, refer to p. 177.

Figure 7.4 Example of chord arpeggiations that the students performed in T1. The whole class performed the arpeggios while I pointed to chord labels within a chord diagram (e.g., Figure 7.2).

four-note chords (which required a different rhythm), all triads were arpeggiated in the same way, from the bass note up. The students practised this during the first few weeks by arpeggiating the three primary triads individually in various keys, both during class and for homework. Once my students were able to recognise the functional chord labels and arpeggiate directly from them, I progressed to the main activity, where the students observed and responded (through chord arpeggiation) as I pointed to various chord labels in the chord diagram (cf. Figure 7.2 and Figure 7.3 for examples of diagrams that I used by the end of first semester in first- and second-year, respectively). To prepare my students before this main activity, I established the tonality by advising them of the specified key and playing the tonic chord (or a simple cadence) on the piano. To encourage the development of transposition skills, I gradually introducing keys with progressively more sharps and flats throughout the semester.

I directed at the front of the classroom (by pointing to chords on the chord diagram) in such a way that my students had sufficient time to prepare for each chord arpeggiation. To achieve this in a consistent manner, I pointed at each successive chord label exactly two beats before the moment when the students began to arpeggiate it.[43] I also indicated the beat by bouncing my hand slightly, during the students' performance as well as before the start of each chord progression that they arpeggiated. I did not pre-compose the chord sequences; rather, I improvised them on the day with the aim of going through every chord in the chart at least once per session. Nevertheless, I adhered to the conventions of functional harmony, as exemplified in the music excerpts that were used in T3 and in the end-of-semester chord identification assessment. There was usually enough time at each session to go through two or three chord progressions.

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[43]   The easy pace at which my students performed the arpeggiations ($\quarternote$ = c. 80 in $\frac{4}{4}$) meant that, in practice, they had approximately one to two seconds' advance notice.

T1 was the first activity that I used in each session. The purpose of it was to familiarise my students with progressively more challenging chords that they would encounter in the subsequent activities (i.e., T2 & T3). As the harmony session was often the first activity in each tutorial that involved playing on instruments, this activity was also to allow students to set up and warm up their instruments or voices.[44]

To illustrate this, I will now refer to one particular class during the semester in which my students learnt to perform and identify the Tr chord (tonic relative, i.e., chord vi). In this class, I first briefly explained to my students the chord's function and common placement in chord sequences. I asked them to cite examples if they could think of any, and played a few examples of chord progressions with the Tr chord. Before performing the chord arpeggiations, I clarified the notes that they should perform when arpeggiating this chord, notating an example in C major to illustrate this. I then gave the students a key (say, B♭) and played a cadence on the piano to establish the key, mainly for singers (i.e., $T–S–D^7–T$). To commence the main activity, I conducted the students in by giving them two beats (as mentioned earlier), and pointed to one chord after another. Meanwhile, they arpeggiated those chords in the same order. I started and ended each chord progression on the tonic chord.[45]

7.3.2   T2: Improvising chord progressions through arpeggiation

After T1, my students practised arpeggiating the same chords through improvisation in T2, a Category 3 activity (coded as **A** $\Rightarrow$ **Pi$_c$**). This activity gave my students the opportunity to experiment and create their own chord sequences. Each student took turns to arpeggiate two chords each (within their vocal or instrumental range), while I accompanied on a piano (see Figure 7.5 for a hypothetical example of such a performance). The final chord progression that my students created was thus a collaborative effort of all the students and myself. Like in T1, I facilitated the activity by selecting a tonality and tempo, accompanying the performance, and indicating when the progression should stop—usually on a tonic chord and when every student had had a turn.

While it was *possible* for students in T2 to arpeggiate chords in any random order, this was not encouraged! Rather, I asked students to aurally identify the preceding chord and choose a *suitable*

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[44]   During Study I, I learnt that depending on the instrument, it can take up to two minutes to set up and warm up instruments.

[45]   Figure 7.4 shows the arpeggiations that students performed as I pointed to the following chords: $T–D^7–Tr–\underline{T}–S–D^6_4–D^7–T$.

Figure 7.5 An example of a collaborative improvisation and performance in T2. Each student individually performed two arpeggiated chords (i.e., two bars) before the next assigned student did the same, with no pauses or interruptions in between. The choice of chords was entirely up to each student. The accompaniment part (teacher) was also improvised on the spot, following the student's chosen chord.

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chord to follow, before arpeggiate it. The resulting chord progressions that students created always led to interesting discussions immediately after the performance. Take the following hypothetical situation. During the improvisation stage, one student arpeggiates a S chord followed by D^6_4. The next student then chooses to arpeggiate a T chord, rather than a D^7 chord, thus creating an unexpected sequence. At the end of the performance, I then ask students to describe the function of the D^6_4 chord, which reminds students of how it commonly resolves in tonal music.

It must be stressed that as a teacher, I was consciously aware of the negative effects of 'judging' the value of an improvisational choice with any form of negativity or disapproval (see, e.g., Covington, 1997, p. 61). However, the main purpose of the activity was to help students to recognise and aurally identify the sorts of chord sequences that they would likely encounter in music that they performed and listened to. Without criticising the unusual chord sequence, I referred back to it as a springboard for discussions and comments from other students. For example, I could start a conversation with students about the aural effect of such a chord sequence. Other times, I asked students to think of any specific musical works or genres where they might expect (or have heard) such a chord sequence (compare with step $\boxed{3}$ in E8, on p. 284). The final purpose of this activity was to freely allow students to experiment with the creation of their own chord progressions, while also reflecting on their choices. In this way, this activity heightened my students' appreciation of chord progressions by subtly shifting the focus from following teacher directions (in T1) to aural identification, which in turn prepared them for the next activity, T3.

7.3.3   T3: Identifying chords in excerpts through arpeggiation

After the improvisation exercises, the final activity in the set—T3—further developed students' aural identification skills (coded as **A** (+ **R$_p$**) $\Rightarrow$ **Pi$_c$** *or* **V**). The underlying philosophy behind this activity is that students learn to identify chords in music excerpts by first being able to arpeggiate those chords in response to listening to simplified arrangements. There were two main steps in this activity. First, students learnt to identify and arpeggiate chords in response to listening to various similar chord progressions, played on a piano. Once the first step was completed successfully, they applied those skills and knowledge by learning to identify the same chords and chord sequences but within the context of sound recordings of music excerpts. When combined together, these two exercises encouraged students to aurally associate the fundamental features of functional harmony with their actual use and implementation in real music.

Figure 7.6 Mozart Trio no. 3, K.496, II. Andante, bars 1–10 (from Mozart, 1879, p. 54).

Figure 7.7 A simplified arrangement of Mozart Trio no. 3, K.496, II. Andante, bars 5–10 (cf. Figure 7.6). Most chords and harmonic rhythm are maintained from the original.

The first part of T3 involved identifying and performing chords in response to listening to simple chord progressions of block chords. I advised students of the key, and played a chord progression several times, enough for students to aurally internalise the chord progression and identify the bass line. Afterwards, I performed the same progression while students individually identified and arpeggiated chords that I played, using a given arpeggiation pattern.[46] Like in T2, students took turns to individually arpeggiate two chords at a time, following a slow, steady beat. Usually students arpeggiated from the bass note up; alternatively, I provided the top note (notated on the whiteboard) and students arpeggiated down from that note.[47] Once students successfully performed the chords, they verbally labelled each chord and performed the progression together as a class. Students undertook this exercise using several similar chord progressions—with small changes in the chords used within the sequence—and in various keys.

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[46] I played the chord on the first two beats of the bar, while students arpeggiated on the third and fourth beats. For a detailed description of this arpeggiation pattern, which differs from the one used in T1 & T2, see p. 177.

[47] The arpeggiation pattern is described later in this chapter, on p. 177.

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Figure 7.8 An example of what the class might performance during T3. The chord progression is derived from Mozart Trio no. 3, K.496, II. Andante, bars 5–10 (see Figure 7.6). Chord arpeggiations should be transposed to suit each student's instrumental or vocal range.

Figure 7.9 Rhythmic notation for Mozart Trio no. 3, K.496, II. Andante, bars 5–10 (cf. Figure 7.6). Students used this as a reference while listening to the excerpt recording, both at the start and end of T3. A similar format was adopted for harmonic dictation tests.

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The above exercise encouraged students to not only experience the aural identification process by listening, but also through performance and discussion. The performance was not always correct, but this gave students a valuable chance to experiment and discuss what went wrong. In many cases, working out the bass line corrected this issue as students related back to T1 & T2, in which students arpeggiated the same chords.

The chord progressions in the above exercises were relevant to the chords found in a specific music excerpt, chosen for that session. One of the chord progressions was always identical to the one found in the excerpt, albeit without many elements of the original (such as the melody, harmonic rhythm, and instrumental timbres). I did however keep many features the same, including the rough contour of the bass and melodic parts and the tonality. After undertaking the above exercises, the next step was to listen to a recording of the related excerpt and identify the chords. In many cases, particularly when the harmonic rhythm was steady and similar to the above exercises, students were able to quickly associate the previous exercises with the recording and identify the chords—success! This was obviously more difficult when the excerpt had a fast tempo, or when chord changes happened quickly. In such cases, I often performed the piece on a piano at a slower tempo, occasionally also asking students to perform the bass line simultaneously. When appropriate, I also referred students back to the chord progressions that they had identified, performed, and discussed earlier in the activity.

In most cases, the students performed each chord arpeggiation by going *up* from the bass note (as in T1). However, when the excerpt had a relatively simple melodic line, an alternative approach was to ask students to arpeggiate down from a given note. Unlike providing the bass notes, which in many cases would allow the students to guess the chord without listening, providing a melodic note would not necessarily give away the chords. Therefore, I often provided students with the melodic notes (in music notation) by writing this on the whiteboard. In this way, students did not need to work out which note to start from. When the melody was simple enough, I provided the melody in its original form. Otherwise, when the melody involved numerous leaps or passing notes, I simplified it by taking only the most important tones on the downbeats. For instance, in the case of the aforementioned Mozart excerpt, I could provide students with the highest note in each bar of the teacher's part as shown in Figure 7.8. Students would then arpeggiate two chords (i.e., bars) each, as described earlier.

Compared to T2, where students could arpeggiate any chord (as long as it was a chord!), T3 was

considerably more challenging because students had to first identify the chord. I used a variety of techniques to help students overcome the challenges of correctly identifying and performing chords in T3. A common cause of the difficulty was that the student was unable to identify the bass note. To help students identify the bass note, or to avoid this problem altogether, I sometimes asked the whole class to perform the bass note (or the bass line throughout the whole progression). When students still could not hear the bass note, I asked the whole class to perform that note. Once the struggling student was able to perform that note, the next step was to ask him or her to state the scale degree of that bass. This step achieved two purposes. First, it helped the student realise which chord they should arpeggiate (e.g., by relating back to the chord diagram in T1). Second, it served to establish that the student was not merely imitating the sound of that note without appreciating its *function*, which commonly occured when the note was *sung* in response rather than played on an instrument. Alternatively, I occasionally assisted students by sustaining the chord with the pedal and lightly and slowly arpeggiating the chord, one note at a time, to get the student going. This method is not preferable because, again, it encourages imitation rather than the development of aural identification skills.

The chord progressions that I used in T3 were arranged based on the particular excerpt designated for a given session. As I mentioned earlier in this section, the arrangement of music repertoire for Study III involved simplifying or removing the non-harmony features as much as possible. This was so that students could focus on the chords, which was the core purpose and focus of the activity.[48] My arrangements generally featured the same chord sequences as that in the excerpt, but presented as block chords with only the outline of the original melody (i.e., soprano) part. Each chord was designated at least one bar to allow students to arpeggiate using the designated pattern.[49] Although the excerpts lacked the original harmonic rhythm, this decision greatly simplified the task of identifying chords because students heard each chord for roughly the same duration each time.

Once each student had correctly arpeggiated the chords in the given sequence, I asked the same students to verbally label the same chords, in the order that they heard (and performed) it. To be able to do this, the students had to memorise the function of those chords in relation to the tonality while performing it. If a student was unsure what chord they had performed (even

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[48] Ideally, students should learn to identify various different features in a music excerpt that they listen to, rather than focus only on the chords (cf. H6). However, due to the limited amount of time available for the aural harmony activities within my teaching environment, I had to focus specifically on chord identification in my activities.

[49] For details, see p. 178.

though they played the correct notes), I helped students identify this by considering the notes (in the case of instrumentalists) or chords that immediately preceded or followed. To ensure that every student internalised the chord sequence that was just heard and discussed, I often wrote the chord labels out on the whiteboard and asked the whole class to arpeggiate it once again. In this final performance, I asked students to arpeggiate in the manner of T1 & T2 (i.e., starting *on* the beat rather than on the third beat).

In addition to the above exercise, which used the exact chord sequence found in the session's music excerpt, I also prepared several other progressions that were very similar but not identical. For example, if an excerpt had the sequence T–S–D$^6_4$–D–T, similar chord progressions could include T–S–D$^6_4$–D–Tr, T–S$^6_5$–D$^6_4$–D^7–T, and so on. This is because using similar progressions in this way gradually boosted ' confidence in their abilities. Throughout the activity, also I encouraged students to describe the differences between the progressions, in terms of specific notes as well as the function of the chords. After working on a number of similar chord progressions in this way, I finally played a sound recording of the excerpt which featured one of the several progressions. Having learnt to distinguish between similar kinds of chord progressions, this final step was usually straightforward; most students were able to immediately identify the correct sequence of chords.

7.3.4   Evaluating T1, T2, & T3

At the end of the first period of Study III (i.e., first semester of 2010), I distributed a brief questionnaire to the 43 students that I taught throughout that period. The questionnaire was designed to elicit their thoughts about the aural harmony activities specifically. There were 43 first-year students who participated in aural harmony course. Of these students, 34 voluntarily returned a filled questionnaire form. It is beyond the scope of the present research to investigate in detail each students' experiences with the three activities, nor is it beneficial to simply reproduce each students' responses to every question within the questionnaire. instead, I will describe the findings of the questionnaire in summary form, and point out some of the most pertinent views that students conveyed.

Concerning the use of instruments, many students were appreciative of engaging with their main instruments during aural harmony work. Through my discussions with the students at the end of the semester, it became clear that none of them had prior experiences with activities that involved chord arpeggiations. They also told me that they did not previously realise that they

could use their instruments (or singing ability) as a means towards learning to identify chords by ear. Many students commented positively about this performance-based approach to learning that they had experienced for the first time through the three aural harmony activities presented here.

One particular response from a first-year double bass student suggested that performance was a means through which he grasped theoretical concepts, such as functional harmony and chord progressions. This student wrote: "Pure theory is like grating my forehead with a cheese grater. Performance is where I have any ability whatsoever so with links to it I can do theory." Another student commented on how it was "It was fun to identify chords that I played." These sorts of responses illustrate the benefits of incorporating performance into aural harmony activities.

A number of students commented on the use of instruments. Although most students appreciated the use of performance actions per se, some students expressed concern about the differences between *singing* and playing an *instrument* in aural harmony activities. Some singers held the view that arpeggiating chords vocally was a lot more difficult than for instrumentalist. One voice student summarised this view thus:

> I felt singers were at a disadvantage because when we played on our 'instruments' we were expected to have highly developed pitch skills something which the instrumentalists didn't really have to deal with.

The different kinds of skills required in these activities were probably most noticeable in T1. Students who performed on instruments found this exercise relatively easy once they knew what key it was in. They simply had to work out the starting note and arpeggiate the chord (which was usually in root position) Students who sang the arpeggiations, on the other hand, had to accurately locate the first note vocally (in their mind). Failure to correctly 'identify' the starting bass note naturally resulted in the wrong notes for the rest of the arpeggiation. The response from one particular student, a piano performance major, illustrates this phenomenon in her response: "I like piano more than singing because I don't have to think about the pitch produced—the piano does it for me ...".[50]

Concerning the learning outcomes of these activities, most students found the activities beneficial to their aural training. One student wrote "I struggled a lot at first [...] But now I have

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[50]   This student, like several others in my classes, had at several sessions opted to arpeggiate chords vocally rather than on their instrument (the piano in this case). The student therefore had experienced arpeggiating through singing as well as on the piano.

worked on my understanding I enjoy harmonic analysis greatly—I used to loathe it!" Another student wrote: "I've learnt an incredible amount since February. It's been great to see my [practice] for homework & in class work lead to be able to more often than not hear the progressions correctly."

Overall, the first sequence of activities (T1, T2, & T3) was well received by the students.[51] By consistently using the same chord arpeggiation patterns in those activities, students were able to participate through performance during each session despite the short amount of time available. Unfortunately, as I gradually realised during the semester, consistently employing chord arpeggiation has its drawbacks. In particular, the nature of arpeggiating chords made it difficult to develop an understanding of harmonic rhythm, an important feature when discussing any chord progression in terms of real music. Gradually as the activity became familiar to students, arpeggiating chords using the same method each week came to be seen as a drill rather than a powerful learning tool. Its predictability made it ideal for introducing new concepts and chord types, which happened every few weeks, but it also made the activities somewhat tedious.

In addition, during my teaching I gradually became aware that, for a small proportion of students in my classes, the requirement to arpeggiate chords became an obstacle to their aural development. This issue was alluded to in some questionnaire responses, with specific reference to vocal performance. It was clear also from my perspective as a teacher that some students could not keep up with the other students when arpeggiating chords. I noticed this in both T1 and T3. However, because students usually arpeggiated individually in T3, and perhaps because it was the most challenging (it required the application of both performance and aural identification skills), students who arpeggiated vocally. The issue only affected a small number of students, but was nevertheless exacerbated by the relatively small amount of time available as well as the large class sizes.

On the whole, the inclusion of performance actions and the use of music excerpts in T1, T2, & T3 were generally well received by the students. Importantly, the vast majority (71%) of students felt that their ability to identify chords had improved significantly (see Figure 7.10). In answering the question "Do you think that your ability to identify chords by ear has changed since you started your studies in February?", 21% of students (7) responded with "Very significant improvement",

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[51]   This general view comes from a range of sources, including my observations during teaching, informal discussions with students both inside and outside the classroom, as well as student questionnaires.
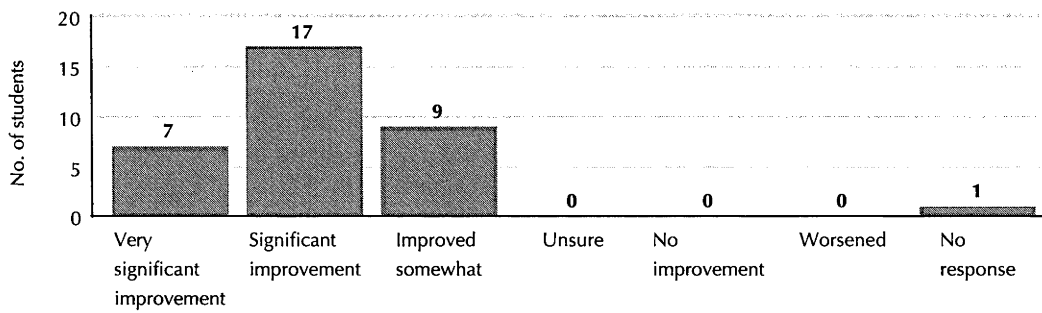
Figure 7.10   A graph depicting students' responses to the question: "Do you think that your ability to identify chords by ear has changed since you started your studies in February?" Responses from 34 students who undertook T1, T2, & T3 on a weekly basis throughout their first semester of aural training at the School.

while 50% (17) responded "Significant improvement".[52]

Creating exercises for use in T3 took turned out to be a tedious activity in itself due to the inclusion of music excerpts. The most time-consuming task was the selection of music excerpts. In addition to choosing works that students had performed or were familiar with (as mentioned earlier), I also covered a range of instrumental combinations and musical periods (baroque, classical, and romantic periods in my case). After the selection process, I also had to digitally edit the sound tracks to enable class time to run smoothly.[53] In my opinion, the time spent creating these activities was well worth the effort. Although creating exercises for aural training in this way requires considerable time and effort, it is well worth it if students enjoy the activity, and if the teaching materials can be used again in subsequent years (cf. Alldahl, 1974, p. 122).

7.4   Improvisation and aural identification with gestures: T4 & T5

As I described in some detail earlier in this chapter (subsection 7.2.5), the circumstances of my teaching environment necessitated the creation of a new set of activities in the latter part of Study III. I devised two activities, T4 & T5, to suit the new environment, thus ensuring that my teaching methods remained constructively aligned with the desired learning outcomes and the

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[52]   Nine students (26%) responded "Somewhat improved", while one student did not respond to this specific question.

[53]   This was done in a sound file editor on a computer. The first step was to cut out the relevant section (e.g., the first 16 bars of a symphony). I then added a fade-in and fade-out to the start and ending, and normalised the section to ensure the volume was appropriate. To enable me to move quickly between one section and another, I usually added additional markers throughout the excerpt (e.g., at bar 5, 9, and 13) so that I could easily play a specific part of the music during teaching, if necessary. Finally, I exported these tracked files onto a portable music player (i.e., an iPod).

method of assessment. I wanted to find the most efficient means of developing aural identific-ation skills. I settled with two complementary activities, T4 & T5. These activities introduced the use of gestures in a novel way, thus enabling a student-directed approach to learning. It also combined the visualisation of chords devised the year earlier, through the use of chord diagrams (e.g., Figure 7.2).

7.4.1 T4: Improvising chord progressions with gestures

My goal in the first activity, T4, was to enable my students to create (i.e., spontaneously compose) chord progressions without *requiring* them to sing or play an instrument. The main inspiration for this activity was I7. In that activity, one student stood at the front of the class and pointed to one of three chord labels written on the whiteboard (T, S, and D), while the teacher played them immediately as they were pointed to. Students could point in any order that they wished, and the goal was to recognise the sounds of those three chord functions. The labels were treated somewhat like electronic buttons; the moment a student 'pressed' a label by tapping the board, the teacher played the corresponding chord and students could hear the feedback almost instantly.

I7 presented an interesting method of enabling students to 'perform' chords through a proxy (the teacher) without worrying about the technical aspects of performing.[54] Undertaking this exercise did not require keyboard skills, a good vocal range, or any chord arpeggiation pattern. Without touching an instrument, this interaction between teacher and student made it possible to quickly compare the differences between the three chord functions. The barrier of performance was removed without taking from students their role in the music-making process. It was an approach that was particularly suited to the needs of my students at the School.

With T4, I used the same fundamental concept of gesturing and listening as I7. Before the start of each class, I drew on the classroom whiteboard the chord diagram just as I did for T1.[55] Depending on the amount of time available and the class size, either one or two students took their 'turn' while standing beside the chord diagram. The student (or student pair) then selected

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[54] Bannan (2010) describes a technique called 'harmonic signing', whereby students perform chords and chord pro-gressions in response to certain hand gestures. However, this approach involves performance (singing) as well as learning to recognise many complex hand gestures. For example, "the [student] moves from the subdominant to the supertonic chord by curling the fingers into a fist and simultaneously moving the whole arm a little bit higher in the air. This signals that anyone singing the tonic moves to the second" (p. 211). The resulting performance in multiple parts is reminiscent of C11 (from Study II).

[55] Cf. Figure 7.2 on p. 186 and Figure 7.3 on p. 186 for two examples of chord diagrams in major and minor tonalities, respectively.

a continuous sequence (usually 10 to 20 different chords) by simply pointing to the chord labels. When there were two students working together, each student took turns to point to two chords at a time. Meanwhile, I observed which chords they pointed to (as did the remaining students in the class) and improvised a simple melody above those chords, thereby creating an original chord progression.

An important distinction between T4 and I7 was the music that students created using this point-and-listen technique. I7 provided students with the opportunity to aurally compare different chords in any way they liked. However, that activity was not used to create a functional chord *progression*. Thus, in T4, the focus was on the sequencing of chords, rather than the individual quality of each chord. Students chose any chord order that they wanted to hear, and usually started and concluded each progression on the tonic chord.[56] Meanwhile, I improvised a simple melody to go with the chosen chord sequence and other students in the class observed and listened to the chord progression come to life.

My role as a teacher as well as performer in T4 was critically important. Unlike I7, in which the teacher played each chord immediately when the student pointed to it (or pushed the 'button') in T4 the *timing* of when each chord sounded was delayed while the *sequence* in which students pointed to the chords was preserved. In doing so, I maintained a clear beat and a predictable harmonic rhythm. The result was a short musical improvisation created collaboratively by one or two students and myself.

When I originally conceived of T4, I intended it to be a companion activity to T5, whereby T4 would function as a preparatory exercise for T5. It was, however, a surprise to realise, upon my reflection of the learning process in T4, that this activity could not be simply categorised using the classification system that I devised in Chapter 3.[57] How could an activity engage students in a sequence of actions that is completely unlike any Study II activity?

It was in solving this dilemma that I realised that, in fact, many Study II activities *did* exhibit such a learning experience. For example, in dictation exercises, teachers often provided students

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[56]   At the start of the semester, I suggested to students to start and end on the tonic chord as a guideline. As the students progressed through the semester and became more familiar with the activity, some students suggested starting or ending progressions on chords other than the tonic. This sort of suggestion gave the activity an interesting, personal touch that students appeared to enjoy.

[57]   As I have explained in Chapter 3, the classification system does not purport to represent *all* action sequences that are conceivably possible in aural harmony activities. Rather, it represents only what was observed and emphasised in the Study II data. For this reason, it is perhaps not that surprising that one may conceive activities that do not fit a taxonomy that is limited to one dataset. Nevertheless, I did not expect and initially seek to create activities that were completely incomparable to those that analysed in Study II.

with the 'answers' at the end so that students could assess their own performance. Less frequently, this in Category 3, whereby the teacher sang the chord arpeggiations *for* or *together with* students (thus students were asked to describe the chords that they had heard. However, in all cases, teachers only revealed the 'answer' to the original question or required task *after* a student had failed to correctly identify the chords or parts. In none of the Study II activities did teachers pre-empt an aural identification activity with an extended exercise or activity whereby students listened to a chord progression and received the solutions. Providing the solutions was, in other words, always a last resort.

Unlike the above examples, there are clear several pedagogical benefits of employing the procedure of letting students hear the chords without making them identify them. First, and most crucially, T4 was not conceived as a method of correcting mistakes that students make. While correcting mistakes and advising the correct responses naturally occurs in virtually any learning experience, in T4 there was not 'mistake' or 'wrong' choice of chords. Second, the learning in T4 is directed mainly by the individual student at the front of the class. In this sense, T4 is like T1 but with the roles of the teacher and students reversed.[58] The student can determine which chords that I as a teacher should play. In this way, students can choose not only sequences that are pleasing to the ear, but ones that the student is unfamiliar with. Students can in other words experiment freely, as in improvisation. Although this mechanism of learning is similar to the act of 'reviewing' or 'giving the answers' to students when they struggle with $A \Rightarrow N$ or $R \Rightarrow P$ activities, as in the above examples, what makes T4 different is that this learning process is promoted as a full-blown activity in itself. Furthermore, by coupling it with a similar exercise (T5, which I present later), students engage in two very different action sequences that learning experience that

There were no Study II activities that engaged students in improvisation *without* also performing at the same time. Indeed, improvisation in music is commonly assumed and defined "creation of a musical work, or the final form of a musical work, as it is being performed" (Nettl et al., n.d.). Although students don't literally 'perform' by singing or playing an instrument in this activity, they do learn to recognise functional chord progressions by associating the sounds of chords with what they anticipate hearing. In doing so, this activity encourages the development of audiation skills, that is, the ability to hear chords without those sounds being physically present.

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[58]   In T1, the teacher pointed to a sequence of chords while students arpeggiated. In T4, the student pointed to a sequence of chords while teachers performed the chord progression.

7.4.2 T5: Identifying chords with gestures

Figure 7.11   An example of a chord progression that I improvised for use in T5. The fermatas indicate moments where I would pause if a student had not pointed to (i.e., identified) the correct chord label in the chart shown in Figure 7.3 on p. 186. The chords in this example are: $T-S_3-D^7-T-D_3r^7-Tr-D_5^7-T-S_5^6-D_3^7-D^{\frac{6}{4}}-D^7-T$.

Once each student or student pair had had the opportunity to create (and listen to) one or two chord progressions in T4, they then demonstrated their ability to aurally identify those same types of chords in T5, a Category 2 activity (coded as **A** $\Rightarrow$ **G** (*or* **V**)). The physical setup in T5 was practically identical to T4, whereby one or two students stood beside the given chord diagram at the front of the classroom. In T5, rather than me following the direction of my students as was done T4, students took on the role of the 'follower' while I performed an improvised chord progression at the piano. In other words, students individually took turns to point at the appropriate chord labels in the chord diagram while listening to my performance, with the goal of being both accurate and rapid in their aural identification. In order to encourage a smooth transition from T4 to T5, I adopted a similar style of performance in both activities, that is, by maintaining a steady beat, by creating a predictable sense of harmonic rhythm whenever possible, and by adding a simple melody above the chords.[59]

A technique that I found particularly illuminating for the participating student(s) was to incorporate chord sequences that are identical or very similar to those that they had just created in T4. This method allowed students to immediately relate their aural experiences with the previous activity, and often led to further discussions or clarifications of prior work. As with T4, working in student pairs (taking turns to identify two chords each) rather than individually saved class time while also providing more opportunities for engagement and interaction. Meanwhile, the other students in the class observed and participated through discussions during and after the exercise, and, on occasion, they shouted advice or hints to those undertaking the activity at the front of the classroom. There are many possible variations on this activity, including the use of excerpts, which I describe below.

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[59]   See Figure 7.11 for an example of a chord progression that I improvised during T5.

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7.4.3 Incorporating music excerpts in T4 & T5

Although I originally intended T4 & T5 for learning about functional chord progressions without links to music excerpts, it was very easy to adapt this to the use of references. On several occasions during 2011, combined the activity with music excerpts and repertoire that students were familiar with to make the learning experience more stimulating and interesting for the students.

I originally created T4 so that students could improvise chord progressions in various ways. However, shortly after implementing the activity over several weeks, I realised the potential of using the diagram for students to accompany melodies. The melodies could be selected from sight-singing exercises[60] or they could be based on songs that students were already familiar with. After students had sung the melody once or twice, I asked one of the students to point to the chords while the whole class sang the melody, thereby 'accompanying' the singing. As the rest of the class sang the melody, I performed the chords that the student pointed to. Some changes to T4 (as described earlier) were necessary to make this process work. In the original form of T4, I performed each chord with a slightly delay as the student pointed to successive chords. When used as a tool that allowed students to 'accompany' a melody, however, I played each chord at the precise moment when the student pointed at the chord diagram, i.e., as he or she physically tapped the whiteboard. In this way, students appreciated the importance of the *timing* of chord changes while gaining an intuitive ability, through a degree trial and error, in appropriately harmonising any given melody.

Another similar exercise based on T4 was to use it for the accompanying of a well-known piece of music, one that students had already internalised prior to the class. Examples of musical repertoire include famous national anthems, popular songs, Christmas carols, etc. The requirement for choosing the repertoire was that it had to be a piece that most students in the class were familiar enough with, to the extent that they could immediately recognise the correctness or appropriateness of a given harmonisation. First, students sang the melody as a class. Occasionally, I harmonised the melody at this stage already, so at to prepare the students for the exercise. Next, I asked one of the students to point to the chord labels to pick which chords to accompany the melody, which I also performed on the piano. In many cases, this results in a lot of incompatible chord-melody combinations at the start, but eventually, after a few tries, students tend to discover a satisfactory chord progression. Again, this variation naturally involves a different process to the

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[60] In my teaching, the melodies for sight-singing were derived from *Modus Vetus* by Edlund (1974).

original exercise. Here, students were essentially asked to pick the 'correct' chords to harmonise a known melody. It is therefore an ideal way of relating functional chord progressions with real music, but only once students have acquired a basic ability to identify chords (in an activity like T5).

I also adapted T5 with a similar goal of enabling students to interact, through gestures, with music derived from the music literature. To this end, I created two 'variations' of T5. The first type involved identifying and accompanying chords in pieces of music they were very familiar with. In one example, I asked my students to sing the "Happy Birthday To You" song while listening carefully to my harmonic accompaniment. Next, I asked one of the students to pointed to the chords as I played the accompaniment once again. This usually resulted in a lively discussion on various other popular chord progressions that students were familiar with (or preferred). Hearing their ideas and playing through some of their suggested harmonisations, this exercise proved to be a learning experience for myself as much as it was for my students.

This technique can also help students identify chords in more complex musical works, including unfamiliar works. One method that I found particularly effective was to combine the basic concept of identify-and-point in T5 with the simplification method used in T3. The first step was to select a music excerpt. Next, I simplified the excerpt by noting only the main melodic notes and the chords, similar to what I did in T3. Because students responded through gestures, rather than through arpeggiation, I did not need to change the harmonic rhythm in my arrangement as I did in T3. When I presented this to my students during class, I began by performing this arrangement from start to end. At this step, I asked all students to gather around the whiteboard, so that minimal time would be wasted as I worked with different students on an individual basis (as explained below).

Once the students had heard the excerpt once or twice, I performed only the first segment (say, 4 to 8 chord changes), slowly but still maintaining the harmonic rhythm. I asked one of the students to try and point to the labels on the chord diagram as I replayed this segment. It was important that the chord changes in my performance was synchronised with the students' pointing. Once the student was able to achieve this, they had essentially memorised the chord changes in the segment, and were thus able to 'perform' the chord progression by pointing to the chords (as in T4).

When one student had successfully completed the identification of one segment, I summoned

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the next student to the whiteboard by saying "Next!" Because all of the students in the class stood nearby at the beginning of the activity, the changeover from one student to the next did not cause any interruption to the music. Once the next student arrived, I had two options. The first option was to repeat the segment again, and see whether this student had diligently observed and listened during the previous student's pointing; if so, there should be no issues at all. I usually chose this option when the segment was quite challenging, and therefore all students would benefit from 'seeing' those chords being pointed at once (or even twice) again. The second option was to proceed to the next segment. I usually chose this option when the segment was relatively straightforward (e.g., with minimal chord changes or more basic chords). Working in this way, I essentially performed my arrangement of the excerpt with several repeats in each segment, but otherwise without any pauses in the music until reaching the end of the excerpt. By this time, each student in the class should have had at least one turn under the spotlight.

Just before the students heard the original excerpt, I played my arrangement one more time from start to finish, while they took turns to point at one segment each. This time, I did not repeat any of the segments. If one or more students struggled with a particular segment, I repeated it several times and discussed the chord changes with my students as necessary. Once the class was able to proceed from start to finish without any repeats to any segments and without making any (serious) errors in their identification, they were finally ready to hear the original recording. In some cases, when the students first heard the recording, they found it difficult to relate the simplified arrangement to the recording because of the differences in melodies, counter-melodies, rhythms, and most of all, instrumentation, between the two. After a few listenings, however, most of them were able to correctly identify the chord changes, and by the end of the activity, many of them were astonished that had successfully identified virtually all of the chords in the sound recording with minimal assistance.

In one of my third-year classes that I taught during 2011, I applied this method of combining T5 with an excerpt using a live concert recording of an improvisation by Bobby McFerrin ("Improvisation on Bach's Concerto in F minor, BWV 1056: II. Largo", McFerrin, 2006, chapter 24).[61] The music in this excerpt modulates to the dominant several times, which the chord diagram presented earlier in this chapter does not accommodate (see Figure 7.2 on p. 186).

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[61] A recording of this performance is also available online; see http://www.youtube.com/watch?v= xQqrf6CWgQc (accessed 1 July 2011).
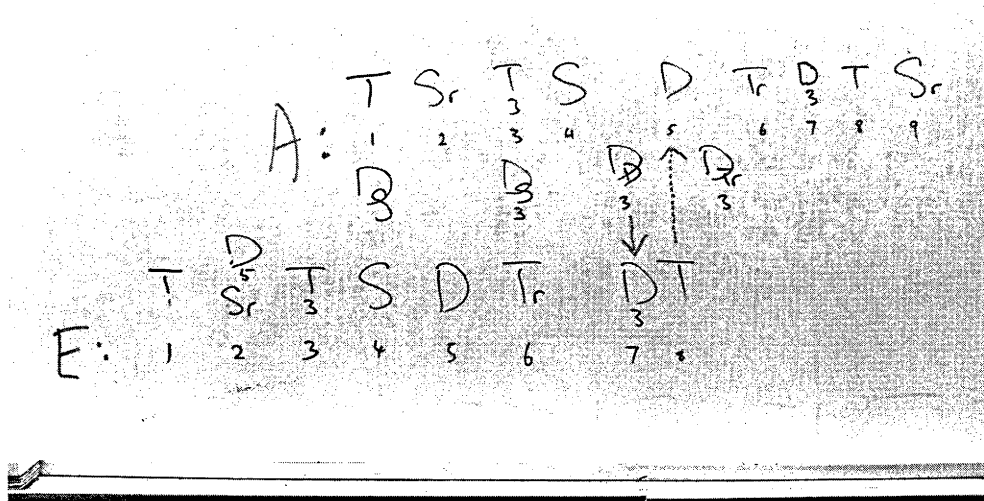
Figure 7.12   A customised chord diagram that enables a modulation to the dominant. The chords shown here was used for a specific sound recording; refer to the textual explanation and the cited online videos (p. 210).

For this reason, I drew a customised layout of chord labels specifically for this excerpt (see Figure 7.12). In this custom chord diagram, the chords in the dominant key are positioned below the chords in the tonic key in such a way that the bass notes of both keys are vertically aligned. For example, $\hat{8}$ in the dominant key (E) is right below $\hat{5}$ in the tonic key (A). To further simplify the aural identification task, I drew two arrows marking the *pivot chords* between these the two key areas. The $\underset{3}{D}$ chord in the tonic key, for instance, acts as a pivot chord that changes to become a $\underset{3}{D}$ in the key of the dominant; the downward arrow in the diagram indicates this change.

Rather than describe the chord progressions here in this dissertation, I have instead produced two video recordings that visually illustrate the technique of combining T5 with this particular excerpt. In the first video,[62] I perform my simplified arrangement of the piece and point to the chord labels that students are supposed to identify. In the second video,[63] I point to the same chord labels, but this time following the original sound recording of the performance. These demonstrations illustrate the progression from identifying chords in a simplified piano arrangement to identifying chords directly from the sound recording. Naturally, in a classroom situation, students would follow the exact procedure explained earlier, whereby each segment of the arrangement is repeated as many times as necessary until students are able to synchronise their movements with the chord changes. Both videos are available online and can be accessed from the URLs cited in the footnotes in this paragraph.

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[62]   See http://bit.ly/Bach-McFerrin-Laue-simple
[63]   See http://bit.ly/Bach-McFerrin-Laue-harmony

7.4.4 Evaluating T4 & T5

Unlike the first period of Study III, I did not distribute questionnaires at the end of the second period. However, all students were given the opportunity to take part in an institution-wide survey that allowed students to anonymously evaluate their learning experiences at the end of the academic year in 2011, which corresponded with the end of the second period of Study III. As with the original questionnaire, participation in this survey was voluntary. Some of the responses provided by my students were specifically relevant to the two aural harmony activities that I presented.

The relevant student responses came under two specific statements relating to my teaching of the aural training course. The first statement in the survey concerned student creativity; it read: "The teacher facilitated an environment conducive to creative thinking or creative expression". One of the students responded: "Yes, especially with educational games we play in tutorials." This was a direct reference to T4, which was the only 'game-like' activity in the tutorial.[64] The second statement in the survey concerned the class activities: "The teacher developed activities that were well organised and managed effectively". There were two responses that directly related to the aural harmony activities. One student commented:

> [Especially] harmony [activities], they have helped a lot, seeing the chords on [the] board and comparing that to what is being played is very helpful.

Another student wrote:

> [The teacher] designed a great practical way to recognise chords!

These responses suggest that some students felt that both T4 & T5 represent effective ways of teaching students to aurally recognise tonal chord functions.

My students also seemed to appreciate the application of music excerpts into these activities (as described in subsection 7.4.3). Such activities did not directly relate to the assessment tasks, which involved identifying harmonic progressions performed on a piano. Using excerpts was nevertheless fun for my students, and therefore fun for me as a teacher. The activities validated in the students' minds the fact that many harmonic idioms that they subconsciously relate to through their daily

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[64]   In relation to the use of games in aural training, Rifkin and Urista (2006) present a range of inspirational ideas relevant to many areas of aural training. Many of these suggested activities involve the study of harmony and chords.

engagement in music (whether through performance or listening) can in fact be understood in terms of functional harmony. Despite the fact that the idea of incorporating excerpts into T4 & T5 came as an afterthought (albeit one that I recognised very soon after teaching both activities in their original forms), this particular approach, in my opinion, very effectively combines the relevance of real-life musical examples with the visual-spacial element of these activities.

Students benefited from the visualisation of chords in both activities (i.e., the chord diagram), as the survey responses show. It is also likely that they they were more engaging in the activities due to the kinæsthetic aspect of the activities (see Gault, 2005). During my teaching, I was aware that the chord diagram served its purpose of encouraging students to relate the bass notes of chords to chord functions. Quite often, students were able to hear the chord function (e.g., D) but then struggled to identify the inversion of the chord. By referring to the chord diagram, students could visually locate the two inversions of the dominant chord over the scale degrees of $\hat{7}$ and $\hat{2}$. This approach to learning chord inversions was often more illustrative (therefore students could grasp the concept more quickly) compared with the writing out of the various inversions of the dominant chord in music notation.

I believe that ordering the chords labels by the scale degree of the bass notes (as shown in Figures 7.2 and 7.3) resulted in a very powerful visual tool for many students. During the latter period of my teaching in Study III (2011), several of my students—particularly those in their second year of study who had previously learnt aural harmony without this chord diagram—advised me that *seeing* the chords in that particular order helped them to focus on the bass line. This in turn enabled many of them to aurally identify chords more accurately and quickly. Also, one of these students told me that the chord diagram helped her to finally appreciate the relationships between various chord functions and between chords of different inversions, concepts that she had struggled with throughout her first year of study. This specific visual arrangement of chords thus has the potential to address a common weakness many students experience in their aural training—the ability to aurally follow the bass line, as well as illuminate certain theoretical features of functional harmony.

The two activities presented in the second activity set are very different to those in the first set. As I have explained earlier in this chapter, this was necessitated by the changes to the educational context that were beyond my control. Although I was initially concerned that reducing the focus on performance actions might potentially reduce student engagement, these two activities did not appear to have such an effect. Contrariwise, it seemed to me that students were highly engaged

in both activities, even those who had difficulty with basic performance activities (e.g., sight-singing and rhythmic performance). The lack of performance actions, in other words, did not result in less interest or participation in this case. Perhaps what matters more than performance actions, especially for students that do not major in music performance, is active participation and engagement. Students in T4 & T5 were actively engaged while *hearing* the chords, *seeing* the chords being pointed out, and when it was their turn, *pointing* at the chords in order to represent their aural identification as well as to create new sequences. As the Chinese proverb goes, "I hear and I forget; I see and I remember; I do and I understand."

Summary

In this chapter, I have presented the findings of Study III. I explained the process of devising and implementing two sets of aural harmony activities for a particular learning context, the aural training classes at the School. I began by carefully considering the existing educational setting within the aural training curriculum at the School (section 7.1). My main goals in devising activities for my teaching were to incorporate performance actions (subsection 7.2.1) and to increase the relevance of the activities through the use of music excerpts (subsection 7.2.3).

In the first period of teaching in Study III, I created my first set of activities (section 7.3) that maximised the use of chord arpeggiation technique. (subsection 7.2.2). I distinguished between two forms of chord arpeggiation (subsection 7.2.2, on pp. 7.2.2 and 7.2.2) that were suited to my Category 1 (T1) and Category 3 activities (T2 & T3), respectively. To enable students to arpeggiate chords efficiently, I created chord charts (subsection 7.2.4) for the Category 1 activity in my first activity set (T1).

In order to adapt my teaching methods to the new educational environment during the second period of Study III, I created a second set of activities (section 7.4) that did not require performance actions. Although students did not perform, it nonetheless enabled them to 'improvise' and otherwise engage actively in the learning process. These activities made further use of the chord diagram that was used in the first set. An important realisation during this second phase of Study III was that T4 (subsection 7.4.1) was in fact not categorisable using the classification system proposed earlier in Chapter 3. This was due to the special method of engaging students in T4, which does not correspond with the action sequences exhibited in Study II activities.

The five activities that I created in this chapter were influenced by a variety of sources. Some of

the ideas, such as the use of improvisation, came from my teaching experiences prior to Study II. The most significant source of inspiration, however, was Study II data. I have frequently cited specific activities and ideas that were derived from my experiences of observing classes in Study II. Had I not have had the opportunity to directly learn from so many other teachers, my activities would never have taken the present form.

This chapter concludes my three-part journey of discoveries and realisations. A journey that began with the devising of a specific teaching approach with minimal external influences (Study I), progressed through the discovery of a multitude of pedagogical approaches across ten institutions in four countries (Study II), and concluded with the application of those ideas (coupled with my prior experiences) into two teaching approaches that were appropriate to the two student cohorts that I taught at the School (Study III).

Chapter 8

Conclusions

> The final goals ... in teaching music theory are tolerance and flexibility. Besides acquiring knowledge of music theory itself, perhaps the most useful aid in preparing or improving one's teaching in theory ... is to acquire knowledge of the trade-offs involved in choosing one approach over another. By forming and developing a set of consistent conceptual principles and a personalized belief system for teaching theory from an awareness of the similarities/differences and strengths/weaknesses of competing systems, we simultaneously solidify our own values and open our minds and ears to additional possibilities. (Rogers, 2004, pp. 176–177)

Effective teaching, as Rogers suggests above, is the result of an ongoing process of discovery and evaluation of a full range of contrasting teaching approaches. As I mentioned at the end of Chapter 7, the six preceding chapters of this dissertation document my journey through much of this process over the last four years. I have discovered a considerable range of aural harmony activities at ten institutions in four countries (Chapter 2 and Appendix A). In response, I have devised a classification system for categorising these activities (Chapter 3), which allowed me to systematically evaluate the pedagogical approaches exhibited in these activities (Chapters 4–6). This process has resulted in the mapping out of effective pedagogical approaches across all types of aural harmony activities. I then applied this knowledge of effective pedagogical approaches into my own teaching, which enabled me to create and implement two sets of activities that were suited to my particular educational context (Chapter 7).

In this chapter, I will address the research questions outlined in Chapter 1. First, I will describe the kinds of actions that students undertake in aural harmony activities, based on my experiences in

both Study II and Study III (section 8.1). I will then review the effective pedagogical approaches in aural harmony activities (section 8.2) and examine how this can be applied to teaching in particular educational contexts (section 8.3). To conclude, I will discuss the broader implications of the present research for aural skills pedagogy, and suggest directions for future projects (section 8.4).

8.1   Actions in aural harmony activities

Our understanding of the kinds of activities students undertake in aural training classes has increased tremendously through the observational data collected in Study II. Although my analysis of this data brings us much closer to a fuller appreciation of what is possible within the field of aural skills pedagogy, the conclusions presented in this dissertation serve as an overview of existing teaching approaches rather than a comprehensive record of all conceivable methods of teaching. The potential to expand beyond the findings of Study II is highlighted by the fact that I devised an activity in Study III (T4) that could not be classified using the classification system created in response to Study II. The two principal features that differentiated T4 from the 89 Study II activities are that (1) its action sequence has gestures leading to aural identification ($G \Rightarrow A$), which no other Study II activity exhibited[1]; and (2) the activity gives students the ability to determine and realise the direction of a chord progression *without* undertaking performance actions.[2] These features reveal a method of engaging students that was uncommon in Study II, and thus not represented in the classification system presented in Chapter 3.

The first 'step' in T4 was to point to chord labels, which in some ways is comparable to the 'gesture' action defined in Chapter 3 (subsection 3.2.7). However, the mental processes that students engage in during this task are much more complex than simply moving one's hands in response to sounds. As I explained in my description of this activity (subsection 7.4.1), students in fact make conscious decisions to progress from one chord to the next based on how the previous chord sounded like. Unlike most aural identification tasks, the chord sequences in this activity are improvised, and so there are no 'right' or 'wrong' choices. Although students have the freedom to create any sequence they fancy, they are also guided by their aural sensitivities and preferences for

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[1]   To the best of my knowledge, there are also no documented instances of an aural harmony activity (in pedagogical and research literature) that can coded in this way.

[2]   There were no Study II activities that gave students the opportunity to improvise music through non-performance means. Furthermore, although some activities in Study II involved *melodic* improvisation (cf. C6, E3, I5, I12, I13, & J7), there was only one activity where students had some freedom in choosing what sequence of chords to perform (I12).

certain kinds of chord changes, which can then lead to interesting discussions. In this way, T4 allows students to direct their own listening and learning. Not only is such an approach to learning uncommon across the field of aural training, but it also illustrates how teachers can potentially invent completely new methods of teaching.

The method of developing aural identification skills as exemplified in T4 can be quite easily applied to many other kinds of activities that are commonly found in aural harmony. In place of standard dictation exercises, for instance, teachers can begin *not* by giving students the starting notes and an empty grand staff, but instead showing students a full score and allowing them to hear a professional recording that music. Taking the idea of incomplete scores seen in activities like H6, the next step might be to provide students with scores that have certain missing features. Students can thus gradually develop their ability to aurally identify these elements with progressively fewer hints and cues. Their aural identification can be represented through a variety of actions (performance, gestures, and verbal responses) in addition to notation.

A technique similar to the one suggested above is 'error detection', which has been mentioned in both research (Davis, 2010; Sheldon, 1998) and pedagogical literature (Rogers, 2004; Karpinski, 2000). Despite the similarities between the two approaches, creating intentional errors for students to identify would encourage them to become familiar with a particular kind of error. This approach also encourages students to ignore all musical features that are not related to the 'mistakes' that they must identify. Although students can certainly develop their aural identification skills through error detection exercises, they can also acquire similar skills through other activities that engage them in authentic musical experiences that involve performance (e.g., H5 & I13) or directed listening (e.g., T4). Teachers should therefore consider the benefits of employing activities that avoid the direct *assessment* of students' aural identification skills (through Category 2 or Category 3 activities), but instead encourage the gradual development of a certain aural familiarity with particular musical features within a supportive and creative learning environment. Over time, and with exposure to a variety of music repertoire, students should naturally develop a much deeper understanding of those musical features, which can then lead to success in the assessable types of aural identification tasks.

It is commonly acknowledged in the field of aural training that developing aural skills concerns the training of one's mind (e.g., Rogers, 2004; Karpinski, 2000). More broadly, various researchers have in the last few decades recognised the positive effects of mind training in many fields of

human activity (see Driskell, Copper, & Moran, 1994). Just as athletes can use mind training to boost their physical strength in training (e.g., Shackell & Standing, 2007), performing musicians can potentially improve their musical performance through rehearsing in silence. To audiate (cf. E. E. Gordon, 2001) music in this way is not simply to 'hear' your own part, but includes developing a keen sensitivity to the *other* sounds that form elements of that music.[3] Interestingly, none of the Study II activities required students to consciously hear or think of chords or harmonies in the absence of any aural stimuli (i.e., in silence).[4] An activity that could elicit such an action might be to recall or audiate a well-known musical work (say, the opening of the first movement of Beethoven's fifth symphony) and in response describe or notate an aspect of it: for instance the bass line, the melody, or even the chords.[5]

In my evaluation and comparisons of aural harmony activities, I have focused on individual students' actions and interactions with teachers.[6] However, students can also potentially acquire aural skills through interactions with peers in the same class. There were a few examples of Study II activities that exhibited this kind of interaction.[7] These instances of student-to-student interaction, however, did not constitute student-directed learning. The actions that students undertook in Study II occurred in response to instructions given by their teacher or their interpretation of materials that were not in their control, namely music notation or symbols (**R**), aural stimuli (**A**), or teacher instructions (**T**). The learning process in virtually all Study II activities was, in other words, predominantly *teacher*-directed.

Giving students an opportunity to direct the outcome of a creative process encourages them to take a more active role in the learning process, as T4 illustrates. To expand on this approach, students can also direct their peers' performance actions. For example, a hypothetical activity might be to have one student point to a series of chord labels (as in T4) while the rest of the class arpeggiates the chords one after another (as in T1). Another conceivable activity might involve

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[3]   Such a state of mind results in hearing melodies, harmonies, rhythms, and textures in the music as a whole, whether those elements are sounded in a piano accompaniment part or blasted in a tutti section of a 100-member symphony orchestra.

[4]   Bailes (2007) found that of eight different dimensions that music students audiate (melody, timbre, harmony, expression, dynamics, texture, lyrics and physical memory of playing), harmony was the least vivid. This suggests that many students may also be weak in this aspect of inner hearing. See Covington (2005, p. 38) for one method of teaching students how to audiate harmony.

[5]   Commonly, an appreciation of the rhythm should come first (e.g., Beckett, 1997, p. 613). Alternatively, students can focus on the pitch-related content (e.g., the parts or the chord labels) without including the rhythms.

[6]   Occasionally, I have alluded to student-to-student interactions within certain types of activities, such as in Category 3 part-performance activities (cf. subsection 6.1.2, p. 146) and in Category 2 activities that involved gestures (cf. section 5.3, p. 132).

[7]   For example, in J10, students aurally identified and performed notes that were played or sung by another student. Cf. Appendix A on p. 339.

having a class perform the transcription of a piece as notated by one of the students in the class. This can then lead to various different interpretations, analyses, and comments about the written or improvised music. Such student-directed approaches to learning have the potential to engage students much more than conventional kinds of activities, thereby making more effective use of valuable class time.

In answering the first research question proposed in Chapter 1, I have identified seven basic actions in aural harmony activities: **R**; **T**; **P**; **A**; **N**; **V**; and **G** (section 3.2). Each of these actions serve as a means towards different pedagogical outcomes. Of these actions, performance (**P**) and aural identification (**A**) are fundamental. I have shown that these seven actions are ordered in a predetermined way, and that all Study II activities can be classified under one or more of the four categories based on their action sequences (section 3.4; see also Figure 3.2 on p. 66). Despite the comprehensiveness of this system in accounting for Study II activities, there are potentially other kinds of actions and action sequences that teachers can discover, create, and implement in their own teaching. These yet-to-be-identified ways of engaging students may even be preferable within certain learning contexts, a topic that I will explore in the next section.

8.2   Effective pedagogical approaches

My systematic comparisons of Study II activities (Chapters 4–6) have revealed a remarkable range of pedagogical approaches within the various types (i.e., categories and subcategories) of activities. Importantly, I have compared these different approaches in terms their effectiveness—the potential for a teaching strategy to achieve certain learning outcomes. Naturally, it is impossible to set objective standards for determining the overall effectiveness of a pedagogical approach.[8] Instead, in this dissertation I have focused first and foremost on presenting a *range* of pedagogical approaches within similar kinds of activities, as determined by their classification. In the process of distinguishing between these different approaches in my analysis, I have nonetheless arrived at broad conclusions concerning the efficacy of specific strategies in specific kinds of activities.

Teaching and learning in any context naturally progress from the simple to the complex, and in

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[8]   The main exception to this is when 'effectiveness' is understood in terms of an ability to perform a discrete skill as demonstrated in a particular situation (e.g., during a class or testing situation), in which case one can ascertain the effectiveness of an approach quantitatively (e.g., Brown, 1990; Daniels, 1964). As I have asserted in Chapter 1, quantitative means of determining effectiveness is not desirable for the purposes of this dissertation. For qualitative studies that examine the effectiveness of one system or teaching strategy over another, see Lorek and Pembrook (2000); Smith (1991).

aural harmony activities teachers often achieved this by focusing students' attention on *parts* before moving on to *chords*. Take harmonic dictation as an example. As we saw in a large proportion of Study II dictation activities, teachers often encourage students to first identify parts, particularly the bass notes, before identifying chord labels (cf. section 5.1). The same kind of progression is also common in Category 1 activities, in which students generally acquire skills in reading and performing parts (section 4.1) before interpreting chord labels (sections 4.2 and 4.3) or performing both chords and parts simultaneously (subsection 4.3.2). Similarly in Category 3 activities, the first step usually involves aurally identifying and performing one or more parts (subsection 6.1.2) before doing the same with chords (subsection 6.1.3). An effective way of proceeding directly to chord identification and performance without first identifying and performing parts, as demonstrated in several Study II activities, is to combine the listening task with part reading actions through, for instance, the use of specialised worksheets (see subsection 6.1.4).

Another feature of aural harmony activities that I discussed in my comparisons of activities in each category is the kind of music materials that students listened to, performed, and discussed about. As I have argued on several occasions, there are significant implications of the use of music excerpts within the various categories of activities.[9] There are essentially three types of materials that teachers can choose to implement into an activity. First, music can be derived from excerpts extracted from the literature of a particular musical genre. This includes works in notated form (e.g., full scores) as well as recorded performances of such works. Second, the music can be exercises or short works composed specifically for the purposes of aural training.[10] Such materials can vary greatly, ranging from a simple list of individual chords to complex chord progressions, and, like excerpts, can also be used in both aural identification and performance tasks. The third option is to judiciously combine the two extremes. Simplifying an existing musical work can make it more accessible to the students when they listen to, perform, or talk about the music (e.g., H6 & T3). This final option requires much more preparation on the part of the teacher, a fact that I experienced personally during my teaching in Study III (cf. section 7.3). The extra preparation work required for this approach to work perhaps explains why it was an uncommon choice in Study II activities. However, in learning situations where teachers wish to focus their students' attention on a particular feature of an excerpt (e.g., the harmony), the use of exercises derived from the music literature may be the most pedagogically-sound option.[11]

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[9]   Cf. subsections 4.2.3, 4.3.3, and 6.1.1.

[10] This does not include musical works that were composed for the development of performance skills (e.g., études).

[11] Some teachers even argue that this approach is an ideal strategy for much of aural training. For example, Payne

My approach to comparing pedagogical approaches involved isolating each activity as discrete units of learning. In this way, I was able to more efficiently compare one pedagogical approach with another. In practice, however, teachers often intentionally sequence two or more such activities in order to extend or further develop a particular concept or skill. Teachers in Study II often used this method to get students to practise a specific skill through the use of different kinds of music materials (e.g., E8 & E9).[12] The reverse process works well, too, whereby students study the same music excerpt through different kinds of exercises (e.g., in J3, J4, & J5; see also T3). By carefully planning the order in which to present a series of different activities or exercises, teachers can successfully extract the most out of their teaching materials through the reinforcing of particular concepts or practical (i.e., listening or performance) skills.

As I explained in Chapter 1, I commenced this research project with the firm belief that student performance is vitally important in aural harmony activities. This view is supported by the proposed classification system, in which performance is one of the two defining features of activities in aural harmony. In my comparisons of Study II activities, I have discovered that many effective pedagogical approaches in one type of activity (i.e., in one category) are likely to be applicable to other types of activities. The corollary of this realisation is that every activity, even those in Category 2, has the potential to result in effective learning opportunities. Although the role of performance is indeed significant, it is only effective when the performance actions that students undertake engage them appropriately and also remain relevant to the intended learning outcomes.[13] Performance is, after all, one of the most natural forms of learning about music. However, and as I further explicate in the next section, performance is not the only method of effectively engaging students in learning. More important than asking oneself whether an activity involves student performance actions, is whether it effectively *engages* students in such a way that it results in learning that is *relevant* to their needs as musicians.

To summarise, I have in this dissertation identified a large variety of effective pedagogical approaches through the comparisons of similar kinds of activities. This includes a unique contribution to the field of aural skills pedagogy: a method of classifying aural harmony activities based on student actions. This method, which has proved useful for comparing similar activities in aural

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suggests that "it is advisable to use every opportunity to reinforce these basic concepts within the context of actual music" (2005, p. 30).

[12] Where relevant, I have mentioned the sequencing of activities in the relevant full descriptions of Study II activities (Appendix A) as well as in my analyses of these activities (Chapters 4–6).

[13] As Forte (2000) suggests, "perhaps the best way of measuring the real value of our teaching is to try to imagine the degree to which it will have a positive effect upon the musical activities of our students in the future" (¶10.9).

harmony, is likely to be applicable to activities in other areas of aural training, for instance in the study of rhythm.[14]

In addition to identifying effective pedagogical approaches within each of the four categories of aural harmony activities, I have also referenced several broader techniques that teachers can employ in aural harmony activities. These techniques, such as the progression from simple to complex, the type of musical examples, and the sequencing of activities, all serve the common purpose of maximising our students' opportunities to acquire aural skills. Although the comparisons of pedagogical approaches in this dissertation are firmly based on empirical examples of activities as manifested 'in the field' (i.e., Study II), they represent my personal interpretations and experiences. Ultimately, aural training teachers, in weighing the benefits and drawbacks of each strategy, must reach their own conclusions in deciding which approaches suit their teaching needs. This leads to my addressing of the third and final research question in the next section, where I examine (with specific reference to my experiences in Study III) how an appreciation of effective pedagogical approaches influences the creation and implementation of activities within particular educational contexts.

8.3 Informed teaching

Despite our deepened appreciation of the various existing pedagogical approaches in aural harmony activities through the analysis of Study II data, it does not give us universal rules for teaching in this subject. It is tempting to decide, upon noting the success of one activity as compared with the perceived failure of another, that a particular approach or activity is ideal in all cases. There is, however, no such thing as a definitive approach to teaching aural training, just as there are no definitive musical performances or musical compositions. Every choice that results in an aural harmony activity must be made according to the pedagogical needs within a particular educational environment (see Payne, 2006, p. 148, as cited earlier). As teachers, we need to judiciously

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[14]   There are a number of studies (e.g., Palkki, 2010; Bergby, 2007b; Pottenger, 1969) and textbooks (e.g., Hall, 2005; Palmqvist, 2004; Heavner, 2003; Jersild, 1966) concerning the pedagogy of rhythm in aural training. However, these sources alone do not provide a broad comparison of possible pedagogical approaches in this area of aural training. Activities in the study of rhythm can, in other words, be conceptualised in terms of the seven actions defined in this dissertation. Some adjustments will of course be necessary to account for particular features of rhythmic exercises, such as the presence of pitched materials and the use of conducting, for instance. In a similar way, these seven actions, as well as the proposed method of categorising activities based on their action sequences, are potentially applicable to virtually all other subjects within aural training.

decide what methods to employ, as well as which ones to discard, in order to maximise our students' learning. Our subjective perceptions of the successes and failures of different approaches should *inspire* us in our work. Success in our duty as aural training teachers occurs when there is a symbiosis between our method of guiding students and their potential to learn.

Before deciding what activities and materials to use, teachers must first fully appreciate the intended learning outcomes and thereby choose which categories of activities to include in a curriculum. If the goal is to develop an ability to aurally identify chords, for instance, teachers have at their disposal three of the four categories of activities. If teachers want students to acquire keyboard skills, we now know that there are various types of Category 1 and Category 3 activities that reinforce these skills (cf. section 4.3 and subsection 6.1.3). However, we should not only decide on the specific skills we want our students to acquire, but also contemplate to what extent those skills are beneficial and relevant to our students' musical pursuits. Developing a basic ability to aurally identify chords in tonal music might be best served with Category 2 activities (particular those coded as **A** ⇒ **V** *or* **G**), whereas acquiring an aural acuity in complex performance contexts might be best served with Category 3 and Category 4 activities. Harmonic dictation is commonly used to develop aural identification skills in students, but as my Study II data has shown, there is a plethora of other alternative options. Teachers should therefore ask themselves: is there a genuine need to acquire skills in notating outer parts of chord progressions played on a piano, or could students be better served with Category 2 and Category 3 activities? Again, there are no simple right or wrong choices, but any decision should be fully supported by a clear rationale and be constructively aligned (Biggs, 2003) with the outcomes of the music degree being conferred.

Once teachers have chosen which categories are applicable to their teaching environment, they should next consider how to order them effectively. Naturally, the sequencing of these activities should gradually move students from simple tasks to more challenging ones. In Chapter 7, I documented my method and rationale of the sequencing of my two sets of activities in Study III (sections 7.3 and 7.4). Both sets of activities were flexible enough such that I could employ a variety of exercise materials and develop a range of harmony-related concepts while keeping the learning sequence the same in each weekly class. Teachers need to consider the benefits and drawbacks of using a consistent set of activities throughout an entire course versus varying or completely changing activities at a certain times during a semester.

In addition, the limitations of a particular learning context must be taken into consideration

when creating activities. Factors include the amount of class time available for the activities, the class size (i.e., number of students), and the 'starting point' of students' skills and knowledge. Ideally, the answers to these questions should be attained long before the start of a teaching period. In cases where this is not possible (e.g., if the number of students enrolled varies significantly from year to year), changes to the teaching approach will inevitably be required during the period of teaching.

Perhaps one of the most important goals for teachers trying to work around the above limitations is to ensure that students are frequently and variously engaged in the learning process. As part of my class observations in Study II, I noticed on many occasions that many students appeared unengaged or bored during a significant portion of class time. This was common when teachers gave students time in silence to complete a notation task, or when teachers interacted with only one of the students at a time.[15] This undesirable situation can be easily averted by more frequently engaging students in a greater range of musical experiences. Teachers can also ensure that students have adequate opportunities to participate in the activities. In performance activities, for instance, participation will be greater if students perform together as a class (e.g., E11 & T1) or when students take turns to perform in rapid, uninterrupted succession (e.g., C3 & T2).

The decision to engage students in performance actions, particularly when using instruments, needs to be carefully managed.[16] We must bear in mind that students come from various backgrounds in performance, and so their fluency and agility on their instrument will naturally differ when compared to their peers. I learnt in Study I and Study III that when the performance abilities of the students in a particular class vary greatly, the learning progress can be hindered by activities that rely heavily on performance, especially those in Category 4.[17] Let me clarify that I am not suggesting that teachers reduce the opportunities to undertake performance actions in aural harmony activities.[18] Instead, I argue that teachers need to be fully aware of this challenge by

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[15]   Reporting on student engagement was not a principal aim of Study II, and so I did not specifically note this in my data. Where relevant to the progress of an activity, I have occasionally made references to such incidents in the full activity descriptions (e.g., B4).

[16]   See Bergby (2007a) for suggestions on the use of instruments in aural training.

[17]   This issue does not concern teachers working with exceptionally talented students who are heading for a career in music performance. However, it is becoming increasingly common for aural training classes to comprise students of considerable range of performance abilities, thereby making this issue one that many teachers face today.

[18]   Although teachers do not desire this change, it is sometimes unavoidable. This was apparently the case when, some years prior to my visit during Study II, teachers at Institution C and Institution F decided to stop students from bringing their instruments into aural training classes (cf. sections 2.3 and 2.6). The reasons for this change appeared to be largely due to personal (i.e., the teacher's) preferences, but they also cited the practical inconvenience of bringing instruments to each class.

choosing different activities or changing their teaching methods accordingly. Having students perform in groups rather than individually, as mentioned above, can in many cases solve this problem by giving them more confidence in their performance abilities. However, this is not a long-term solution. Even without performance actions, as I have shown with T4, there are other ways of engaging students in similar modes of learning, and teachers should contemplate these options.

Having chosen the categories and considered the limitations, teachers should decide more specifically which *subcategories* might be appropriate for the teaching of a specific concept. A Category 1 activity can simply teach students to read notation, or it can develop their appreciation of concepts relating to chords and harmony (see Chapter 4, especially subsection 4.2.1). In Category 2, there are three different actions through which students represent their aural identification without performance. The ability to write what one identifies aurally is important, but it limits student-teacher interaction as a classroom activity (section 5.1). Verbal responses and, in particular, gestures provide a solution to this concern while complementing the learning approaches in almost any kind of activity (sections 5.2 and 5.3). Category 3 activities, like Category 2 activities, range from part performance (section 4.1) and arpeggiated chord singing exercises (section 4.2) to chord performance activities using instruments (section 4.3). Even though there were only eight Study II activities in Category 4, we have identified many ways in which these activities encouraged the development of specific listening and performing skills (section 6.2).

Referring to the 89 Study II activities documented in Appendix A can serve as a starting point for discovering new teaching techniques in aural harmony. Teachers can, however, improve their teaching much more by directly observing classes where such opportunities may be available, whether in nearby regions or in foreign countries, as I have had the privilege to undertake in Study II. Textbooks and pedagogical writings provide a wealth of information and ideas for teaching in aural harmony, although as I asserted in Chapter 1, the activities suggested in these sources very often reveal stagnant, prescribed methods that may be effective only in a particular kind of learning environment. A more desirable source of information is the choice of musical repertoire, which, 'commonly agreed to by performers and historians alike, is our touchstone of truth." (Bergsma, 1955, pp. 30–31, cited in Rogers, 2004, p. 176). The choice of what musical excerpts to incorporate into an activity, unlike the choice of which textbook to use, is limited only by our own imagination. In Study III, I similarly made choices relating to the use of musical repertoire (subsection 7.2.3) and the exact method of singing arpeggiated chords (subsection 7.2.2). Certain choices, such as the specific exercises or musical works we cite and the textbooks we use, are often

a matter of personal preference. This is what makes each teacher different, and such differences should indeed be celebrated. However, even in these less critical choices we make in our activities, we should nevertheless remain guided by our desire to make the learning process engaging and fun for our students.

One of the most significant influences of Study II on my teaching in Study III was the realisation of the various roles of performance in aural harmony activities. In my earlier experiences as a teacher (e.g., in Study I), my teaching and presentation of activities were essentially the result of my (1) aural training experiences as an undergraduate student, (2) personal training in aural skills pedagogy, (3) review of pedagogical and research literature, and (4) my desire to include opportunities for students to perform and use their instruments during class. Before undertaking Study II, however, I did not fully appreciate the various functions of performance actions. Not only are performance actions in Category 1, Category 3, and Category 4 activities completely different, but, as I have shown in Chapters 4 and 6, there are many different ways students can 'perform' in an activity, which all lead to different learning outcomes. Discovering the 89 Study II activities and the four categories opened my eyes to a world of possibilities that had hitherto been unknown to me.

My class observations in Study II also validated the importance of constantly assessing the effectiveness of one's teaching methods. As soon as an activity is presented to a class of students, teachers should gauge the effectiveness of the chosen approaches and adjust the activity accordingly. The reaction should of course be delayed and carefully considered; changing the teaching approach on a frequent basis would create a lot of confusion for both teachers and students alike. Instead, teachers should consider small changes that can gradually help students overcome their learning difficulties. If students have trouble arpeggiating sequences of chords, for instance, it may be helpful to provide a starting note for each arpeggiated chord (as in H7). The activity should gradually evolve into something that works well for a particular group of students. In other words, the resulting pedagogical approach should be group-specific. There is no one-size-fits-all approach. Every class comprises a unique combination of students, and their preferences and tendencies need to be accounted for as much as the set goals of the aural training course.[19]

The final five activities that I presented in Chapter 7 were also the result of several stages of refinement and changes throughout the course of the year. For instance, the idea of combining T5

[19]   As Biggs (2003) argues, "students bring in their abilities, personalities and motives; teachers bring in theirs, and they make decisions about teaching and assessment. What works for one class does not work for another" (p. 19).

with an entire music recording came to me when I stumbled across a recording of an improvisation by Bobby McFerrin (see subsection 7.4.2). My devising of T2 was similarly instigated by my perceived need to more gradually blend the development of performance skills (T1) with aural identification skills (T3). Teachers should not be restricted by the proposed classification system, either. In my own experiences, thinking outside the square led to my discovery of a completely new method of teaching (T4). The improvements we make to the activities in our classrooms are thus a complex and ongoing process.

There is no question that my teaching has been more influenced by my experiences in Study II than any other single source of learning available to me. Not only has my observational experiences inspired my teaching of aural harmony activities—the focus of my dissertation—but it has coloured my teaching of all areas of aural skills. Observing other teachers has sensitised my self-awareness in my own teaching. Although I expected them to present their activities in different ways, the sheer variety of teaching approaches that I saw made me appreciate that improving my own teaching of aural harmony will become a lifelong endeavour, extending beyond this present research.

As I observed classes during Study II, I was in fact interpreting data from two distinct perspectives: that of the teacher and that of the students. In my attempts to understand the teacher's perspective, I monitored each uttered word, the choice of each music excerpt used, and the music performed on a piano by the teacher. Each choice had a subtle effect on the students' learning experience, whether intentional or not, that either helped or hindered the students' acquisition of aural skills. On the other hand, understanding the student's role in aural harmony activities naturally requires a very different interpretation. Students undertake activities in order to develop skills relevant to their purpose of study. As I observed each class in Study II, I was constantly alternating between these two contrasting viewpoints. In order to understand the outcomes of an activity, an observer must be able to simultaneously appreciate the subtle intentions of each move by either party. This requires an appreciation of aural training from the perspectives of both teachers and students. Observers would also benefit from having attained an advanced level of musicianship (aural skills and theoretical understanding) that enables them to follow, anticipate, and critique the interactions between teachers and their students, thereby assessing the observable learning outcomes of an activity.

Finally, I believe effective teaching must come out of creative approaches to solving problems.

As was the case in Study III, new activities are inspired by others, but they are also inspired by the needs of students within a particular learning context. There is little to be gained from simply taking another teacher's method, whether from observations or from a textbook, and presenting it without understanding what it is that students really need to (and want to) acquire. It is therefore important that not only are the activities and goals within the aural training curriculum aligned, but that the entire aural training curriculum is aligned to the goals of the music degree. What this dissertation has confirmed is that through class observations and collaborating with teachers, one can gain considerably more insight into effective teaching approaches than would be possible through any other means. This will remain true so long as teachers continue to innovate and create exciting new ways to develop our ears and minds.

8.4   Implications and further research

The investigative method of observing other teachers' presentation of activities in aural training is largely unheard of in research on aural skills pedagogy. I would not have been able to report such a diverse range of teaching methods and techniques without the observational data I collected in Study II. Observing other teachers' classes, or 'peer observation' as it is commonly known,[20] deserves much more attention in aural training. The highly interactive nature of aural training also makes peer observations an ideal method of collecting data for research in the field of aural skills pedagogy. It is therefore unfortunate that this form of research and teacher development has so far been overlooked. No matter how long a teacher has been working in the profession, there is always something to be gained from seeing others teach. After all, "a good teacher is always becoming a better teacher, [and] one of the most powerful ways to do this is to observe other teachers." (Casson, 2012). By observing other teachers present the same subject, teachers can potentially discover ingenious solutions to common problems in aural training.

To ensure that my research remained manageable, my investigations emphasised my personal experiences, both through the observation of other teachers (Study II) and in my own teaching (Study III). Although my descriptions of many Study II activities were informed by informal and formal discussions with teachers, I have not focused on their perspectives, including their precise reasons for presenting activities in the way that they did. Any attempts to investigate these

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[20]   See Willerman et al. (1991) for a thorough discussion of peer observation. Khen (1999) suggests that students can also benefit from observing classes in a structured manner, an idea that can potentially be applied to aural training contexts.

issues would be challenging, especially if it were applied to all 50 staff members that I met during Study II.[21] Such studies would complement the findings of Study III by further illuminating our appreciation of effective ways of presenting activities within other unique learning contexts. The same naturally applies to the teaching of aural skills in areas other than harmony.

In our endeavour to create more meaningful learning experiences for our students, we also need to better understand their educational needs and struggles in aural training. In this dissertation, I was interested in discovering activities with minimal disruption to the natural learning environment—the classroom. Although I have briefly alluded to the views of my students in my evaluation of Study III activities,[22] and much of my teaching has been informed by my students' informal feedback during my classes, the present investigation has not been the result of a fully developed understanding of student perspectives. Researchers and teachers can understand students better through a variety of means, including student interviews (e.g., Ilomäki, 2011; Randles, 2009; Burt, Lancaster, Lebler, Carey, & Hitchcock, 2007; Clarke, 2006; Bailes, 2002; Braham, 1997b) and through the use of student journals (e.g., Ilomäki, 2011; Baker, 2007). In recent times, there has been a welcome increase in research generated from student perspectives in music education (e.g., Clarke, 2006; Aróstegui, Silvey, Matsunobu, Silva, & Kushner, 2004) and specifically in aural training (e.g., Reitan, 2009, 2006).[23] Our pedagogy of aural skills will benefit profoundly from a better understanding of students' experiences both during and after their training in our classrooms.[24]

Relevant to our students' perceptions of aural training is whether or not our activities encourage them to take a 'deep approach' to learning (Biggs, 2003, pp. 16–18). In other words, we need to know whether students are able to apply the skills that they acquire in aural training to their field of specialisation, be it performance, composition, or musicology. In some cases, the connection between an activity and a musical context is self-evident. For example, improvising while listening to a chord progression (e.g., I5 & I12) develops listening and performance skills that are relevant to some performance contexts. With many activities, however, the relevance between the actions we require students to undertake (e.g., notating the outer parts in harmonic dictation) and their

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[21]   Of these, 34 were full-time teachers, 11 were teaching assistants (i.e., postgraduate students undertaking part-time teaching), and 5 were course coordinators who supervised teaching assistants without any teaching role.

[22]   See subsections 7.3.4 and 7.4.4.

[23]   Interestingly, a survey conducted by Reitan (2006, pp. 104–106) found that 70% of students recognised 'harmonic awareness' as the most important skill acquired in aural training.

[24]   Narrative inquiry is another research methodology that has in recent times become more commonplace in music education. Although there are some opposing views concerning the precise methods and philosophies (Clandinin, 2006) its basis is on story telling and lived experiences (see also, Jorgensen, 2009; McCarthy, 2007; Bowman, 2006).

applicability to musical contexts is less clear. Ilomäki (2004) adverts to the importance of deep learning approaches in aural training, but there is presently no research that investigates the effects of different curricula or teaching approaches on students' approaches to learning.[25] Until such research is published, we should promote "learning [that] is the result of students' learning-focused activities which are engaged by students as a result both of their own perceptions and inputs, and of the total teaching context" (Biggs, 2003, p. 20).

I have already asserted my conviction that gesturing actions in aural harmony activities represent a highly effective means of engaging students. The clear benefits of engaging students through gestures can furthermore be applied to virtually any kind of activity in aural training. Just like in T4 & T5, gestures can be used for 'improvisation' as well as aural identification of other musical elements. For instance, melodic and rhythmic dictation can be substituted, perhaps as an introductory activity, with activities that involve students pointing to notes or rhythms (i.e., rhythmic cells) that are presented on a 2D surface in a similar fashion to the chord diagrams in Study III (cf. Figures 7.2 and 7.3) Such an approach would of course have to be carefully adjusted to make the exercise as straightforward as possible. In the case of identifying rhythms, for instance, the task would be much easier if all rhythmic cells in the illustrated diagram were of the same duration (e.g., one beat for each rhythmic cell).

As technology further infiltrates the daily lives of teachers and students alike, many educators have begun to take advantage of the new mediums of delivery and interaction (e.g., Jakhelln, 2007; Laurillard, 2002). As promising as it may seem, there are also serious dangers of over-reliance on technology in our profession.[26] It may happen one day in the future—one will never know—but *presently*, technology alone is no substitute for a good teacher, contrary to what Gearing (2008) has recently suggested.[27]

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[25]   One method of establishing whether students are engaged in deep learning is by administering a questionnaire specifically designed to reveal whether or not students are engaged in deep learning (e.g., Biggs, Kember, & Leung, 2001). The questions would obviously need to be adjusted to suit music students studying at the tertiary level.

[26]   For discussions on the use of technology as applied to constructivist theory in education more generally, see Duffy and Jonassen (1992).

[27]   Gearing (2008) advises that tuition through the use of an interactive software loaded on a CD-ROM results in more improvement in aural identification skills than compared with face-to-face learning. The statistical analysis conducted in this quantitative study was based on dictation test scores across three non-randomised samples of students: the group that was equipped with a CD-ROM comprised mostly piano students aged between 20–57, while the group that underwent face-to-face aural training comprised students aged between 17–19, most of whom studied instruments other than piano. The pitched dictation tests were sounded using a piano timbre. Despite the questionable nature of this research methodology, Gearing concludes that "tertiary music schools experiencing funding constraints may be able to re-organise aural tuition practice either to replace or to augment face-to-face classes with external aural training materials, without sacrificing the quality of their instruction" (p. vii). Bremberg and Roll (2008) have conducted a similar study, although their findings are less conclusive. Much more research is needed in this area. For now, Collinson (2001) makes intellectually sound arguments against the use of technology as

There is, however, one particular use of technology that I believe has the potential to significantly benefit aural skills teaching. This draws on my own experience in teaching activities, such as T4 & T5, which provide a means of interacting with students, but only enable up to two students to participate directly at the same time. Through the use of portable devices (e.g., the iPad), along with appropriate software that might record and relay 'gestures' to other devices, any number of students in a class may simultaneously participate during aural identification activities while the teacher (and potentially other students in the class) monitors each student's response in real time. With recent improvements in networking bandwidth and latency, teachers and students working from any networked location on our planet can, for the first time, communicate and make music without boundaries of distance.

As technology matures to a stage where it becomes affordable and readily available, it will probably forever alter the field of education in every discipline of human learning. We can only hope that the decision by education policy makers and teachers to adopt such technologies will be due to their educational benefits for future generations of musicians, rather than the result of following trends or cost-cutting measures. In any case, and until then, our pedagogy will continue to be informed by teachers who seek to improve their teaching methods through an openness to alternative approaches and a lifetime of self-reflection.

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a replacement of teachers. The issues raised in Collinson's paper are valid for teachers of any subject matter and at all levels of education. In relation to the field of music, her concerns about the negative influences of technology on the development of social skills (pp. 39–41) are directly analogous to my concerns about eliminating student-to-student interaction in aural training. If students are to develop a keen aural sensitivity, whether in performance or listening contexts, we must engage them fully within a similarly interactive and music-filled environment.

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Appendix A

Full descriptions of Study II activities

This appendix chapter contains the fully detalied descriptions of the 89 aural harmony activities collected from ten tertiary music institutions in Japan, the US, Sweden, and Norway. The ten sections in this appendix correspond with the ten sections in Chapter 2; that is, each section presents the activities at each of the ten institutions. Readers should first consult Chapter 2, which provides an overview of all activities within each respective institution.

Each activity description comprises three main elements. At the start of each activity description is a bold heading comprising the activity's label (e.g., 'G2') followed by its short descriptive title (e.g., 'Singing arpeggiated chords'; see p. 301). The activity label comprises the institution's label (e.g., 'G' for Institution G) and a number. Beneath this heading is a list of between one and three action sequences that I coded for the activity (e.g., R_c *or* $T \Rightarrow Pv_c$).[1]

The second element comprises a synopsis of background information relevant to the activity. This can include details about the teaching materials, the teaching methods, and references to other activities that immediately preceded or followed. Here, I also cite the data sources that I used to create the full activity description, by referencing relevant Study II events.

In the third part of each activity description, I list each step of the activity. Each step begins with a boxed number and is followed by a one-sentence summary of the step. Beneath this summary sentence, I often provide some more explanations about the procedures; this is set in a slightly smaller font. In G2, for instance, the summaries of the three steps reveal that students

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[1]   The symbols and meaning of the action sequences are documented in Chapter 3 of this dissertation.

arpeggiated chords from the bass up (step $\boxed{2}$) and from the melody note down (step $\boxed{3}$) in response to interpreting chord labels (step $\boxed{1}$). The detailed explanations explain the different ways in which the teachers provided their students with chord labels and the exact method of arpeggiation (including the notes and rhythms that students performed). One can therefore acquire an overall understanding of what an activity involved by reading the summary sentences alone.

A.1   Activities at Institution A

Activity A1   'Multi-part dictation from students' instrumental performance'

◇ **A ⇒ N$_p$**

The teachers at Institution A suggested that while students undertook most dictation exercises using chord progressions played on a piano, this activity represented a variation that was occasionally featured. They explained that the activity was intended to expose students to instrumental timbres other than the piano. It involved inviting two to four instrumentalists (students from *outside* the class) to perform for the students in the class. This activity was described during an interview (Event 1).

Steps

$\boxed{1}$ Two to four instrumentalists (from outside the class) performed a multi-part instrumental arrangement.

The instrumentalists performed on instruments other than piano, and included brass ensembles, string duets, etc. They often sight-read the pieces on the day; otherwise, for more complex pieces they sometimes rehearsed beforehand. The pieces ranged from two to four parts, and varied in complexity depending on the skill level of the students in the aural training class.

The excerpts used for this activity were arrangements of compositions from the common practice period, usually comprising a small section (e.g., around 20–30 bars long). The teachers expressed their preference, in this type of activity, to use arrangements of compositions by famous composers rather than composed exercises. The arrangements were stored in a shared office for future reference and use by any faculty member.[2]

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[2]   This practice strongly resembled the sharing of worksheets and exercises as described at one institution in Sweden (Alldahl, 1974, p. 122).

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$\boxed{2}$ Students notated the missing parts on a worksheet.

The worksheets comprised a score of the arrangement with missing notes (i.e., blank bars) in several locations throughout. Students notated in the blank spaces while listening to the arrangements, performed several times by the instrumentalists.

$\boxed{3}$ Once students finished notating the parts, the class discussed aspects of the harmony, including cadences and individual chords.

The teacher explained that this activity, which was part of the solfège (as opposed to harmony) course, primarily focused on students' ability to write individual notes or parts rather than identify chords. Once students accomplished this task, the teacher occasionally discussed or explained concepts relating to the chords and harmony; students generally did not have to identify chord labels.

Activity A2 'Harmonic analysis with singing and performance on piano'

◇ $R_c \Rightarrow Pv_p$ *or* Pi_c

The main purpose of this activity was to undertake a musical (and particularly harmonic) analysis of a given musical excerpt. It involved both class discussions and performance actions, although it is unclear as to whether the discussions occurred before, after, or in tandem with the performance (singing and instrumental playing) of the music. The activity was described during an interview (Event 1).

Steps

$\boxed{1}$ Students performed music from the full score of an excerpt (e.g., a Chopin mazurka).

Depending on the repertoire and the assigned role of each student, they either sang a given part or performed the piece on an instrument. In the case of the Chopin mazurka, one student performed the piece on a piano while the rest of the class sang the melody.

$\boxed{2}$ Students analysed and discussed aspects of the music, including features relating to the chords and harmony.

Teachers sometimes alluded to harmonic features of the music. For example, the class might talk about the occurrence of ninth notes (i.e., ninths above the root of the underlying chord) within the melody.

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Activity A3 'Four-part harmonic dictation from piano'

◇ **A ⇒ N_c**

This activity was undertaken only by students with advanced aural skills, while A4 was intended for students with weaker aural skills. This activity was very briefly described during an interview (Event 1).

Figure A.1 Harmonic dictation exercise for students with advanced aural skills, played on a piano in Event 1. Tempo was generally steady (♩ = c. 90).

Steps

[1] The teacher played a four-part keyboard chord progression (see Figure A.1).

The chord progression was performed in keyboard style (three notes in the right hand, one in the left).

Figure A.1 was an improvised demonstration by one of the teachers, and represents the type of chord progressions used in advanced-level aural training classes.

[2] Students notated the whole chord progression and labelled each chord.

As this activity was for students in the advanced classes, students were expected to notate all the notes.

Students also wrote chord labels (as roman numerals) below each bass note.

Activity A4 'Identifying and comparing chords and cadences'

◇ **A ⇒ V**

This activity was intended to for students with weak aural skills, and was contrasted with another activity intended for students with advanced aural skills, A3. It was described during an interview Event 1.

Figure A.2 Chord progression for students with weak aural skills, played on a piano in Event 1. The teacher performed the progression slowly ($\downarrow$ = c. 40) while explaining the exercise. Refer to the transcription in Event 1 for references to the circled letters.

Steps

| 1 | The teacher played short chord progressions or cadences while describing them to students. Figure A.2 shows some of the sequences of chord progressions that the teacher played while presenting the activity. The intention was to help students to aurally identify the differences between similar chords and chord functions. For example, the teacher compared different types of subdominant chord at Ⓑ and Ⓒ (cf. Figure A.2) by playing them one after another, while explaining to students the notes that changed.[3]

| 2 | Students responded verbally as the teacher explained concepts or asked them questions.

A.2 Activities at Institution B

Activity B1 'Bass line dictation from recording'

$\diamond$ **A** $\Rightarrow$ **N**$_\text{p}$

This activity was principally a homework task that was to be completed at home. Time spent on this activity during class was mainly for the purposes of going through the questions as a class. This activity as described here was one of several aural identification exercises that were usually assigned to a particular recording; the excluded exercises did not directly relate to aural harmony. The activity was observed in three classes (Events 2, 4, & 6).

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[3] The order in which it's shown here was not necessarily how it was presented to students. Refer to the original transcription of Event 1 for detailed descriptions of the explanations that accompanied the chords played.

Steps

☐1 Students listened to a recording of an excerpt at home and notated the bass line of a specific passage.

The recording quality varied significantly. In Event 2, the recording was a MIDI playback using low-quality synthesised instruments. In other classes, the excerpts were based on commercial CD-quality recordings.

☐2 The teacher played the excerpt and then asked students to identify the bass line.

The presentation of the excerpt varied depending on the teacher. In some classes, the teacher played the bass line only on the piano (Event 2). In most classes, the teacher simply played the excerpt through the classroom's sound system. On some occasions, the discussion of this activity was skipped during class (e.g., in Event 6). In lieu of discussing the activity during class, the teacher collected students' notated answers (e.g., manuscript paper with the notated bass line) together with their solutions to other questions set as part of the assignment) and graded them after class.

Activity B2 'Singing note sequences while playing chords on piano'

◇ $R_c \Rightarrow Pi_c + Pv_p$

This activity was observed in three classes (Events 4, 23, & 25) and described on two occasions (Events 18 & 24).

Steps

☐1 Students played a three- to four-chord progression to play on a piano.

Students were allowed to perform the progressions in any key, although the teacher preferred C and A for major and minor keys, respectively. Students performed the chord progressions in keyboard style (with three notes in the right hand and one in the left). Chord sequences with three chords were performed with the rhythm C ♩♩♩ |.[4] They learnt to play the chords by reading music notation and following instructions in their workbooks, or occasionally, the teacher demonstrated how to play the chords during class.

Early on in the semester, students not trained as pianists were sometimes exempted from playing the chord progression; they instead sang the sequences alone (see step ☐2). However, all students were

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[4] The rhythm of four-chord progressions were likely performed in a similar way, with steady beats on the first three chords with the final chord held for slightly longer and on a strong beat, for example in ¾ time.

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eventually assessed on their ability to simultaneously sing while playing the chord progression (see step $\boxed{3}$).

$\boxed{2}$ Students sang a series of three- or four-note sequences while playing a three- or four-chord progression on a piano.

The list of note sequences were notated or represented by scale degree numbers. Each note in the sequence harmonised with the same corresponding chord within the progression. For example, the note sequences $\hat{1}$–$\hat{7}$–$\hat{1}$, $\hat{1}$–$\hat{2}$–$\hat{1}$, and $\hat{3}$–$\hat{2}$–$\hat{1}$ were all harmonised with a I–V–I progression. The rhythm in both the sung part and the performed chords was thus identical. Students sang the note sequences with scale-degree number solmisation; $\hat{7}$ was abbreviated to a single syllable, '*sev*'.

During class, the teacher asked one student to play the chord progression while all other students in the class sang the series of note sequences, one after another. Students rehearsed this either as a class (where one student performed the progression on a piano while all other sang the note sequences one after another), or in small groups. A variation on the group activity was to have one student sing the bass line of the chord progression while the other students in the group simultaneously sang the note sequences (Event 23).

$\boxed{3}$ Students were assessed on their ability to simultaneously sing the note sequences while performing the set chord progression on a piano.

This final step was not undertaking during class. Students were assessed individually.

Activity B3 'Singing melodies based on arpeggiated secondary dominants'

◇ $\mathbf{R_p} \Rightarrow \mathbf{Pv_p}$

This activity was observed in four classes (Events 8, 21, 22, & 26) and described on two occasions (Events 9 & 28).

Steps

$\boxed{1}$ The teacher presented students with a series of similar melodies for sight-singing.

The melodies, each of nine bars duration, were primarily based on arpeggiated chords that strongly implied secondary dominant chords. Each melody started and ended in the exact same way, and in the same key of D major. The distinction between the melodies was in the middle of each melody, from bar 3 to halfway through bar 8. In these few bars, the melody was based on an implied I–V–I–V–I progression in diatonic keys related to the tonic, such as E minor, A major, and B minor.

2 Students sang one melody at a time, either as a class or individually.

Even though the melodies strongly implied arpeggiated chords, teachers were focused entirely on the accuracy of the singing. They rarely mentioned the implied chords or harmony. Thus, while the melodies were composed for the purposes of making students aware of reading and singing *chords*, due to the way in which the activity was presented students were encouraged to treat the exercise as a sight-singing exercise involving *melodic* reading and singing. Students sang the melodies unaccompanied.

Activity B4 'Harmonic dictation: outer parts and chord labels'

◇ $A \Rightarrow N_c$ *or* Pv_p

This activity was observed in five classes (Events 9, 21, 22, 26, & 27) and described on one occasion (Event 10).

Steps

1 The teacher performed a chord progression several times.

Before playing the chords, the teacher usually provided students with the time and key signatures as well as the starting notes in the soprano and bass parts. Each repeated listening was separated by silences lasting about one minute or longer.

2 Students identified and notated the outer parts.

During the minute-long silences between repeated listenings, some teachers waited at the piano as the students wrote out the parts, while others walked around the room to monitor student progress and give individual advice. Occasionally, some teachers asked students to sing the bass line after several listenings. One teacher asked students to sing the bass line on scale-degree number solmisation (Event 8). In another class, a different teacher asked students *not* to use solmisation when singing the bass line due to the fact that doing so would reveal the 'answers' to other students in the class (Event 21).

3 Students identified and notated the chord labels beneath the bass line.

There was no clear distinction between students' notation of outer parts and chord labelling. However, teachers frequently encouraged students to write the outer parts *before* identifying chord labels. Most chords were thus identified via analysis of the two notated parts. However, there were some instances where the precise label for a given chord could not be identified without knowing what other notes were present in the chord. For example, in one instance, students were asked to identify whether a

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chord was ii^6 or ii$^6_5$ when the bass note was $\hat{4}$ and soprano note was $\hat{2}$. In this instance, while checking the answers at the end of the activity, the teacher played the two different chords, directly comparing them in both aural and theoretical terms.

Activity B5   'Identifying bass lines and chords'

◇ A ⇒ N$_c$

This activity was observed during one class (Event 10).

Steps

1. The teacher performed a chord progression several times.

   Before playing the chords, the teacher usually provided students with the time and key signatures as well as the starting notes in the soprano and bass parts. Each repeated listening was separated by silences lasting about one minute or longer.

2. Students identified and notated the notes in the bass line.

3. Students identified and notated the chord labels beneath the bass line.

   This process was very similar to B4, in which students were encouraged to analyse the outer parts and work out the chord labels. Here, students worked the chord labels out based only on their notated bass line. The teacher often encouraged students to describe the chord quality (i.e., major or minor) of each chord. When students experienced difficulty labelling a particular chord, the teacher played the chord progression from the start and paused on the chord in question.

Activity B6   'Learning new chords through expectation'

◇ A ⇒ V

This activity was described during an interview with a theory teacher at Institution B, who had in the past worked as an aural training teacher at another tertiary music institution (Event 12). The description was not observed in a classroom setting, although the teacher demonstrated the activity with some examples played a piano. The teacher used this activity to introduce students to concepts about chords and chord progressions common in tonal harmony.

Steps

1. The teacher played a chord progression on a piano, ending on a ii^6 chord on a *strong* (first) beat of an imaginary $\frac{4}{4}$ bar.

   During the demonstration in Event 12, the teacher played the following chords: I–I^6–$vii°^6$–I–$\widehat{ii^6}$. These block chords were performed with the appropriate accentuation to encourage most listeners to perceive the chords as being performed in $\frac{4}{4}$, with the final ii^6 chord on the first beat of a second bar. Performed in this way, the teacher would not need to explicitly convey the mensuration.

2. Pausing on the ii^6 chord, students were asked what chord they expected to follow.

   The teacher explained that most students would, upon hearing the above performed progression, expect the following chords to be a dominant and tonic chord, on the second and third beat of the bar, respectively.

3. The teacher repeated the exercise by playing another chord progression, this time with a ii^6 chord voiced as before, but occurring on a *weak* beat.

   The teacher demonstrated this tendency by playing another chord progression with the ii^6 on the fourth beat of the bar, $\hat{4}$ in the top-most part, and with the same harmonic rhythm of one chord per beat in a $\frac{4}{4}$ bar. Under this configuration, the teacher explained that most students would respond by suggesting that an additional chord is required before an impending dominant chord. For example, students may expect the melody note in the ii^6, $\hat{4}$, to descend stepwise with notes $\hat{3}$–$\hat{2}$–$\hat{1}$ on the first, second, and third beats of the second bar, respectively. Through this melodic tendency, the teacher would demonstrate how the cadential six-four chord could harmonise the first beat, followed by a perfect cadence in the two subsequent beats of the bar.

Activity B7 'Identifying chord functions in modulating progressions'

◇ **A ⇒ V**

This activity was presented to graduate students undertaking a course in music theory pedagogy (Event 19). The teacher described it as an alternative to harmonic dictation, in which students typically focus on the outer parts and notate their answers. The activity was also briefly described during an informal discussion prior to the pedagogy class (Event 12).

Figure A.3 Chord progression as performed by teacher (Event 19). Performed with a generally steady tempo ($\downarrow$ = c. 100) with pauses (and discussions) indicated by the fermatas.

Steps

[1] The teacher performed a chord progression (see Figure A.3).

The chord progression was performed without a score, and was likely to be at least partially improvised. An important characteristic of the progression was that it modulated to various keys (in this case, four). The teacher suggested that modulating frequently would be helpful in getting students with absolute pitch to not focus on pitches or keys but to hear the harmonic *function* of chords based on the tonal context (Event 19).

[2] At several times during the chord progression, the teacher sustained the chord and waited for students to identify and speak aloud the *function* of that chord by labelling it as either tonic, dominant, or pre-dominant.

The pauses occurred seven times during the performance as shown by the *fermatas* in Figure A.3. All students in the class were collectively asked to respond. They were not expected to identify the key that the progression had modulated to, and chords were never labelled by its chord symbol.

[3] As students became familiar with this activity, the teacher asked for more detailed descriptions or chord labels.

The teacher did not explain how students would gradually transition from labelling chords by function to roman numerals. Instead, she demonstrated how this activity enabled her to easily switch between the two types of labelling, done by simply requesting for either type of chord label as appropriate while

pausing on a chord. For example, at the pause marked Ⓑ in Figure A.3, she sustained the cadential six-four chord and said, "And this one you should be able to give me [the] actual chord," to which one student (correctly) responded, "Six four."[5] Again, it was not necessary to describe key changes (i.e., the student only noted that the chord *functions* as a six-four chord, and didn't need to specify that it was *leading to* a modulation to the subdominant).

Activity B8 'Singing bass and soprano lines from chord labels'

◇ $R_c \Rightarrow Pv_p$

This activity was intended as a preparatory exercise before harmonic dictation exercises, such as B4 & B5. It was observed in one class (Event 27) and described on one occasion (Event 28).

Steps

1. The teacher revealed chord sequences with three to four different chords.

   The chord sequences were individually presented on an overhead projector, labelled as roman numerals (e.g., V^6). No key or outer parts were provided.

2. The class discussed the possible outer voices that could be derived from a given chord sequence.

   During the discussions, the teacher made references to common chord progressions used in the class' harmonic dictation exercises, such as commenting on the likelihood of a particular chord sequence and soprano line occurring at the start or end of a harmonic dictation.

3. Students sang soprano and bass lines as directed.

   Following the discussions, the teacher asked students to sing one of the possible outer parts. Students either sang one of the outer part in unison, or they sang both outer parts simultaneously in two groups. The teacher often accompanied students' singing by playing the chords on a piano. Sometimes, the teacher compared the sung soprano line and chord sequences with a musical work that shared the same features. For example, on one occasion the teacher performed on a piano an excerpt from a Haydn symphony that features the same chord sequence and movement of outer parts as those discussed during the activity.

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5   See Event 19 for details on the student-teacher interaction during the activity.

Activity B9 'Identifying chords with given bass line'

◇ $R_p \Rightarrow Pv_p$

◇ $A + R_p \Rightarrow N_c$

This activity was essentially a simplification of B5: both activities were virtually identical apart from the fact that students were not required to identify and notate the bass line, which was provided. The activity was observed in one class (Event 27) and described on one occasion (Event 28).

Steps

1. Students read a notated bass line and discussed possible harmonisations.

   The teacher asked students to propose various chords that could harmonise the given bass line. When students had no further ideas, the teacher proposed more possible chord sequences. The repertoire of chords discussed was limited to those used in harmonic dictation activities (e.g., B4). As an example, at one point the teacher advised students to associate bass notes like $\sharp\hat{1}$ with secondary dominants.

2. Students sang the bass line.

   No accompaniment was provided during the singing.

3. The teacher played the chord progression while students looked at the notated bass line and identified the chords.

   The progression was played three or four times, each time separated by about 20 seconds of silence. Students notated chords as roman numerals. Optionally, after labelling the chords, students were given the option to notate the soprano line if they liked. In Event 27, students undertook a similar but more advanced activity (B4) immediately after this step.

A.3   Activities at Institution C

Activity C1   'Singing arpeggiated chords from chord labels and bass line'

◇ $R_c \Rightarrow Pv_c$

This activity was observed in one class (Event 32) and described on one occasion (Event 43).

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Steps

1. Students were presented with a chord progression represented by chord symbols and a bass line.

   The chord labels and bass line were notated on a whiteboard.

2. Students first sang the bass line.

   The bass line was sung unaccompanied, on solfège syllables.

3. Students sang arpeggiated chords based on the chord symbols.

   Each chord was sung on three beats, starting and ending on the bass note on the first and third beats. Each arpeggiated chord was sung without repeated notes other than the bass note. The first two beats were subdivided equally. Triads were thus arpeggiated with two notes per beat, while seventh chords (i.e., chords with four notes) were sung as triplets on the first two beats.

   The arpeggios were sung using what was referred to as "functional solfège". This type of solmisation requires the use of different syllables used when modulating or singing secondary dominants. Any chord functioning as a dominant seventh (in root position) would be sung with syllables *so ti re fa*, including secondary dominants. For example, in normal do-based solfège, a V^6_5/ii chord would be sung with the syllables *di mi so la*. In functional solfège, the chord functions as a dominant, and thus would be sung with the syllables *ti re fa so*. The subsequent chord, ii, would then be sung using syllables back in the original key, i.e., *re fa la*.

Activity C2 'Singing warm-up arpeggiated cadence'

◇ **T ⇒ Pv_c**

This activity was observed in several classes that were taught by the same teacher (Events 32, 38, & 42). Lasting fewer than 15 seconds, this very brief activity was treated as a warm-up or preparation before a singing activity (such as sight-singing or four-part singing). The teacher used this activity several times during each class to re-establish the tonality, usually when students began singing out of tune.

Steps

1. The teacher quickly gave the starting tonic note by singing it or playing it on a piano.

   The tonic note varied depending on the key of the sight-singing exercise.

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do mi so mi do　　so ti re fa re ti so　　do mi so mi do

Figure A.4　Warm-up sequence of arpeggiated chords (I–V⁷–I) sung by the whole class to establish the tonic before sight-singing activities in Events 32, 38, & 42. Sung at a fast tempo (♩ = c. 120). The sequence was sung in the key of a given sight-singing exercise, with the same (moveable-*do*) solfège syllables.

2 Students sang an arpeggiated cadence (I–V⁷–I) starting on the given tonic note (see Figure A.4). The arpeggiation was sung in the manner described in C1, including the rhythm and solfège syllables used. The teacher usually sang the three chords together with students. Occasionally, the teacher played the cadence (as block chords) on a piano while the students sang the arpeggiated melody (Event 32). Students usually sang the arpeggiated cadence once only before they worked on the sight-singing exercises. The teacher then asked students to repeat this activity when the class moved on to a different sight-singing exercise (especially when it was in a different key), or when students began to lose their sense of tonality or pitch (e.g., by singing flat).

Activity C3　'Four-part singing and identifying cadences'

◇ $R_p \Rightarrow Pv_p$

This activity was principally a four-part singing exercise in which harmony-related concepts were frequently discussed. The repertoire was usually a Bach chorale. The activity was observed during four classes (Events 31, 32, 37, & 42).

Steps

1 Students were divided into four groups and sang the exercises in four part harmony.
During this step, students generally read only one part while singing it, usually on solfège syllables or note names. This step was usually treated as a sight-singing exercise. Students sometimes sang *a cappella* and other times with the teacher accompanying at the piano. Sometimes, the whole class was asked to sing only one part, in which case the teacher usually played the three remaining parts on a piano.

In one class (Event 31), students sang one part in unison while regularly switching from one part to another. The switching was directed by the teacher, who specified the part name (e.g., by shouting, "bass") a few beats before the start of the next phrase. Upon hearing the instruction, students switched

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to the named part and sang the named part from the start of the phrase, until the next instruction to switch was given. The switch from singing one part to another occurred without interrupting the flow of the music. The teacher accompanied the students during this exercise by playing the chorale on a piano sans the part that students sang at any given moment. For example, while the students sang the tenor part, the teacher played only the soprano, alto, and bass parts.

2̲ After singing the chorale several times, the teacher sometimes asked students to identify cadences or chord labels at specific locations within the excerpt.

Although there was an emphasis on sight-singing and singing accuracy, the teacher frequently asked students to identify chords from the score. After receiving the correct answer, the teacher sometimes played the cadence on a piano to clarify how it sounds like. Since students were usually asked to identify chords and cadences immediately after singing through the music, they could potentially do this by recalling what they had just sang. However, given that the teacher referred to the chord or cadence by its beat and bar (measure) number, which required students to look for that particular location on a score, and compounded with the fact that students were not asked to be aurally aware of chords while initially singing the chorale, it is almost certain that students chose to identify chords by visually analysing the score rather than by aural identification.

Activity C4 'Singing arpeggiated chords'

◇ R_c *or* $T \Rightarrow Pv_c$

This activity was observed within five classes (Events 33, 35, 44, 45, & 46) as presented by four different teachers. Of the five classes, two (Events 33 & 35) were taught by the same teacher, and the approach was virtually identical in both. Despite the four contrasting approaches, they all shared the same essential pedagogical outcome: the ability to read chord labels and sing arpeggiated chords in response. Where relevant, the distinguishing features of each teacher's approach are listed in each step. The activity was also described by two of the teachers (Events 34 & 40).

Steps

1̲ Students interpreted directions to sing arpeggiated chords, including chord symbols or solfège syllables denoting the actual chords to be sung.

Singing chord arpeggiations was the main activity in Events 33 & 35, while it was treated as a brief

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warm-up exercise in Events 44, 45, & 46, often used before sight-singing. Each of the four different teachers provided students with differing instructions and information for them to sing arpeggiated chords. These different approaches are described below:

Events 33 & 35 Students read chord progressions written as chord labels (roman numerals), which were provided on worksheets. The progressions were derived from music excerpts.

Event 44 The teacher played an arpeggiated tonic chord on a piano and asked individual students to sing a specific chord (e.g., "supertonic triad"). The teacher gave them about three seconds to prepare in silence before singing the required chord.

Event 45 The teacher directed the students either by *speaking* (as opposed to singing) a series of solfège syllables, (e.g., "*fa la do la fa*"), or naming the chord (e.g., "dominant triad"). The chords, whether provided as chord labels or syllables, were combined to form progressions common in tonal music (e.g., following the sequence T–S–D–T). The teacher occasionally described the chords and asked students questions about them[6] before students sang the arpeggiations.

Event 46 The teacher announced the chord progression that students were to arpeggiate: "I, I^6, I^6_4, V^7, I". Before singing this chord progression, students warmed up by singing some scales within an octave, starting and ending on $\hat{1}$.

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2 Students sang arpeggiated chords.

As with the previous step, students sang their arpeggiated chords in very different ways depending on the class. The following describes how students sang the arpeggiated chords in the various classes:

Events 33 & 35 Chords were arpeggiated from the bass note up and were sung on scale-degree number solmisation.[7] The teacher sang every arpeggiation together with the students. The teacher was often louder and slightly ahead of the students, giving the impression that students were 'following' the teacher rather than working out and singing the chords by themselves. The speed of the singing was dependant entirely on the teacher's pace, and was generally very fast but not set at any constant tempo. The singing exercise was interspersed with oftentimes lengthy explanations from the teacher about specific chords, their function, and their use in music excerpts.

Event 44 Students arpeggiated the chord from bass note up, on solfège syllables (e.g., *re fa la*). Students only arpeggiated one chord at a time; each chord was treated in isolation rather than as part of a chord progression.

Event 45 Students responded to the teacher's *spoken* solfège syllables by *singing* the corresponding notes, with the same syllables. Chords were usually arpeggiated from the bass up to top note, and then back down to the starting note. The teacher always spoke the syllables in a regular beat

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6 For example, the teacher asked students what ii^6 very often substitutes for (to which some students responded correctly: "IV").
7 Students added the words "raise" and "low" for sharpened and flattened notes, respectively. For example, "raise two" denotes a sharpened supertonic note.

(each note was about the same length); accordingly, students arpeggiated each chord at a similar tempo. Students arpeggiated with a similar, regular beat when the teacher called out chord labels rather than syllables.

Event 46 The whole class, including the teacher, sang the arpeggiated chord progression on solfège syllables, while the teacher accompanied on the piano. The accompaniment was performed with one block chord for each arpeggiated chord, supported by the same bass note as in the sung progression. The arpeggiation was sung in the exact same way as described in step ☐3 of C1 (p. 258), in ¾ time and with one chord per bar.

Activity C5   'Body movements corresponding to chord functions'

◇ **A ⇒ G**

This activity was observed in one class (Event 38) and described at an interview (Event 40). The activity took place while students were seated. Three gestures were demonstrated during Event 38, although the teacher said to students during class that in subsequent lessons they would expand on the repertoire of chords to include "substitute chords". This suggests that students used other gestures in addition to the three described below.

Figure A.5   Chord progression as improvised by the teacher in Event 38, while students made corresponding body movements. Performed slowly, at ♩ = c. 60.

Steps

☐1 Students listened to a chord progression as it was being improvised by the teacher (see Figure A.5).

The teacher improvised a chord progression while observing students' movements. The teacher performed the chord progression slowly and steadily, allowing students to move in time with the chord changes.

☐2 Students made contemporaneous gestures according to the function of the chord being played.

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Students tilted their bodies to indicate the function of the chord. Sitting up straight indicated a tonic chord; leaning to the left indicated a subdominant chord, and leaning forward was a dominant chord. Students' gestures were usually delayed by one or two beats, but when chord sequences were repeated, for instance between bars 4–9 in Figure A.5, some students predicted what the teacher was going to play and thus gestured simultaneously, as the chords were played.

Many students gestured incorrectly at bar 4 of Figure A.5, where the harmonic rhythm changed from one chord per bar to two chords. The teacher repeated this sequence (I–I–IV) while observing students' responses (cf. bars 4–9 in Figure A.5). Gradually, most students noticed that the chord sequence was not changing and correctly synchronised their gestures with the slightly faster harmonic rhythm. The teacher then stopped repeating the chord sequence (at bar 10 of Figure A.5) and concluded the chord progression.

During the activity, some students were noticeably uncertain about what gesture to make, and therefore appeared to be relying on other students' responses. These students were either more noticeably delayed in their gesturing compared to other students, or they initiated an incorrect gesture at the start. Once students gestured incorrectly, they often looked around and noticed that their gesture did correspond with the majority of the class. In response, they corrected themselves by matching other students' positions. These observations suggest that at certain times during the activity, some students' gestural responses were potentially more influenced by their peers' gesturing than by the music that the teacher performed.

Students gestured incorrectly when the teacher stopped repeating the sequence at bar 10 of Figure A.5 and played a cadential six-four chord . Towards the end, when many students were unsure what the correct gesture should be for the cadential six-four chord, the teacher gave students some hints: "You treat that as a dominant, don't you? [...] It's a pre-dominant chord, isn't it?" Following these rhetorical questions, the teacher explained the concept of the cadential six-four chord again while slowly playing the final three chords in the progression (i.e., V_4^6–V^7–I).

Activity C6 'Singing improvised melodies over given chord progressions'

◇ $A + R_c \Rightarrow Pv_p$

This activity was observed in one class (Event 39).

Steps

1̄ The teacher presented students with a chord progression with four chords with one soprano and bass note per chord.

In Event 39, the chord progression was written on the whiteboard. It was in ¾, four bars long with one chord per bar, and comprised the chord progression I–I–V^7–I in C major. The notes in the upper-most voice, G–E–D–C, were written out on a whiteboard for students to refer to.

2̄ Students took turns to individually improvise over the given chord progression while the teacher accompanied on a piano.

Students were individually called upon to sing their improvised melody. The teacher varied the accompaniment style as each student took his or her turn. Most students sang on solfège syllables although they were not required to, especially if this negatively affected their performance (such as incorrect rhythm, intonation, or a melody that didn't harmonise with the underlying chords).

Although students were asked to improvise melodies based on the chord progression notated in the first step, the improvisations were initially all very similar. Students mostly based their improvisation on the previous student's melody, essentially imitating them. Every student's performance was heavily based on the provided soprano line, with only small embellishments added. For example, every student chose to begin their improvisation on G and gradually descend towards and end on C until the teacher specifically asked them to start on a different note.

Activity C7 'Harmonic dictation: outer parts and chord labels'

◇ **A ⇒ Pv$_p$** *or* **N$_c$**

Students regularly undertook this activity on a weekly basis, and it was used as an assessment item at the end of each semester. It was briefly described on two occasions (Events 40 & 47).

Figure A.6 A basic chord progression for harmonic dictation at first-year level as played by the teacher in Event 47. Generally, such a progression was performed several times. Each time, the teacher emphasised either one of the two outer parts (i.e., by playing it louder).

Figure A.7 A more advanced chord progression for harmonic dictation at second-year level as played by the teacher in Event 47. Generally, such a progression was performed eight times in a row while students notated the outer parts and wrote chord labels (roman numerals).

Steps

[1] The teacher played a chord progression on a piano.

First-year students worked with very short progressions based on chords I, IV, and V only, starting with only about four chords in each progression (see Figure A.6). Second-year students worked with more complicated secondary dominants and modulations (see Figure A.7). For longer progressions such as this one, the teacher played the progression eight times in a row (see step [2]). When teaching students with absolute pitch, the teacher performed the progression in a different key to what the students were required to notate in (e.g., the teacher played in C major while students notated it in E♭ major. Depending on the part students were focusing on while undertaking step [2], the teacher sometimes emphasised the bass or soprano lines while playing the chord progression. The chord progressions were either based on exercises composed by the teacher or transcribed from music excerpts, such as slow movements from symphonies or Bach chorales. In all cases the teacher played the chord progressions on a piano.

[2] Students sang the outer parts and then notated them, or they notated the outer parts directly without singing it first.

For first-year students, after listening to the chord progression (usually with the bass part emphasised, i.e., played louder) they first attempted to sing the bass line with solfège syllables before notating it on manuscript paper. Students then heard the progression again, this time with the soprano part emphasised. They then similarly sang (with solfège) and notated the soprano line. For second-year students, they notated as much as of what the teacher played as they could (in four-part harmony) while the teacher played the chord progression eight times in a row. By the end of second year, the teacher expected students to be able to write down the outer parts without first singing it.

[3] Students identified and notated the chord labels beneath the bass line.

Finally, the teacher played the progression at least one more time, during which students wrote chord

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labels (roman numerals) for each chord. The teacher sometimes told students they could write the inner parts (in addition to the minimum requirement of writing out the bass and soprano lines), which gave them extra credit in assessments.

Activity C8 'Discussing chords and harmony during sight singing'

◇ $R_p \Rightarrow Pv_p \Rightarrow A \Rightarrow V$

In three observed classes (Events 42, 45, & 46), sight-singing exercises often involved discussions about chords and harmony. These discussions occurred frequently and extensively enough to emphasise the integral role of harmony in sight-singing exercises. For this reason, this activity is described here as an aural harmony activity.

Steps

1. Students undertook sight-singing exercises.

   Students sang the exercises in several ways, including singing solo, in pairs, and as a class.

2. The teacher discussed or posed questions concerning the chords and harmony underlying the sung melody.

   Although the main focus of the sight-singing was clearly accuracy in singing and intonation, students were quizzed quite frequently concerning harmony and chords within the music. The teacher often accompanied students' singing of the melodies by improvising an accompaniment part on a piano. These harmonisations sometimes became topic of discussions, whereby students were asked to describe the chords that the teacher played while accompanying the student. For instance, in Event 45, the teacher asked students to describe what chord the teacher used to harmonise the penultimate bar of the sight-singing exercise.

   On other occasions, rather than asking students to recall the chords, the teacher explained and discussed with students the various possible chords that could harmonise specific portions of a given melody (i.e., what chords the melody implied). The teacher also related the chords and harmony to their intonation, phrasing, and singing more generally, especially when students made errors during their singing.

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Activity C9 'Identifying chords in music excerpts'

◇ $A \Rightarrow V$ *or* N_c

This activity was described as a second-year activity that required more specialised skills than more common aural training activities such as sight-singing and dictation. This activity was described during a brief interview (Event 43).

Steps

[1] The teacher played an excerpt on a piano.

During the interview, the teacher mentioned piano sonatas by Beethoven and Mozart as typical works selected for this activity.

[2] Students were asked set questions pertaining to the excerpt.

Examples of questions included identifying cadences and chords at particular sections, phrasing, form, and other features of the music. More general and "global" features, such as cadences, were discussed first before analysing the music in more detail, such as identifying chord labels at specific moments within a piece.

The teacher suggested that this activity encouraged students to understand harmony in a more realistic way. For example, the use of repertoire for chord identification could counter many students' assumption that every note change in a melody part indicated a chord change. The teacher also said that using musical excerpts helped students to better understand the concept of "harmonic rhythm". This activity generally involved verbal interaction between the teacher and students, although occasionally students also notated their answers individually.

Activity C10 'Singing chord function names while listening to chord progressions'

◇ $A \Rightarrow Pv_p$

This activity was observed during one class (Event 44).

Steps

$\boxed{1}$ The teacher briefly explained what to do: "let's sing pre-dominant, dominant, tonic", and

played the starting note.

The teacher played the starting note, D, just before the next step. This note was not the tonic, but

the second degree of the scale, which happened to be the first note in the pre-dominant chord that

the teacher was about to play in step $\boxed{2}$. The teacher did not explain this nor provide any other

instructions.

$\boxed{2}$ Students listened to teacher play chord progressions that repeated the above chord sequence,

while singing the functional label using the note of the top melody note

Although students were told what words to sing, they did not initially know what notes to sing (apart

from the first given note, D). This was because the teacher improvised the melody while playing the

chord progression. At the start, the teacher sang each functional label while pausing briefly on each

chord, using the pitch of the top melody note. Students did not sing initially, and only spoke quietly

the functional labels while the teacher sang. Gradually, students joined in the singing by imitating the

melody note and rhythm as the teacher performed it.

Activity C11 'Singing intervals and chords in three parts'

◇ **T ⇒ Pv$_p$ ⇔ A**

This activity was practised immediately after some interval identification drills (intervals were

played on a piano) and was observed in one class (Event 46).

Figure A.8 Notes as sung by students divided into three groups (rows) as observed in Event 46.
The back row commenced singing at Ⓐ and Ⓕ; the middle row at Ⓑ and Ⓖ; and
the front row at Ⓚ. Students sustained their notes while the teacher instructed one
of the groups to change their note; notes were not of equal duration.

Steps

$\boxed{1}$ Students were divided into three groups.

The three groups were decided by the row of chairs in which students were seated. The teacher referred to the groups as "back row", "middle row", and "front row".

2 The teacher asked the back row to sing the starting note on a neutral syllable (see Figure A.8).

The teacher first played a D on a piano. The teacher then sang, "can you sing this note" on the same note. Students responded by singing the note using a neutral syllable (e.g., 'doo' or 'la'). They then sustained this note throughout the activity, until asked to change the note in subsequent steps.

3 The teacher then instructed one of the groups to adjust their note in order to create a specified interval or chord type.

With the back row singing a D (as per previous step), the teacher asked the middle row to join in, by singing (on a D): "sing a major third above that". The middle row responded by singing an F♯, also on neutral syllables, as shown at Ⓑ in Figure A.8. The teacher next asked the middle row to "make it minor" (before Ⓒ) and then the back row to "make it major" (before Ⓓ), and so on. At Ⓚ, the front row joined in with the following instruction: "Front row, add a fifth". Students continued to sing and sustain their notes while receiving instructions from the teacher.

As described in step 2, rather than giving instructions by speaking, the teacher often sang the instructions at a particular pitch. The pitch used was usually that of the highest note within the chord at that moment. For example, after Ⓑ, the teacher sang "make it minor" on an F♯, while after Ⓛ, she sang "make it diminished" on an A♮. By singing the instructions (as opposed to speaking them), the teacher effectively reassured students that the last note was sung correctly. The teacher's singing also increased the overall volume, which was generally quite soft—perhaps due to students' lack of breath from singing sustained notes without being told when to take breaths.

A.4   Activities at Institution D

Activity D1   'Identifying chords after singing activities'

◇ $Pv_p \Rightarrow A \Rightarrow V$

This activity was described during an informal discussion (Event 48). The teacher described this activity as being suited to students at a relatively advanced level of aural skills. The teacher did not demonstrate this activity during class. Because this description relies solely on verbal descriptions,

not much information was available. This activity is nevertheless presented here because it illustrates the teacher attempts to help voice students relate their performance experiences with chords and harmony.

Steps

1. Voice students undertook singing activities outside of aural training.

   The teacher specifically mentioned singers during the discussion, although the activity could have been applied to performances on any instrument.

2. The teacher asked students to recall and identify chords in the pieces.

   Although the concept of the activity was clearly communicated, it was vague how the activity was exactly presented during class. For example, it was unclear whether the teacher played the music to the students when asking them to identify chords, or whether they could recall particular moments in a piece without hearing it again. The teacher gave the following description:

   > [...] And the singers also ... last year they sung [sic] some complicated stuff. So I asked them what chord did they hear. Did they hear the inverted chord, is the parallel inversion that's moving, or is that some I [i.e., tonic] chord and it changed to inversion? So that way they kind of, 'Oh I have to pay attention to what I do.' (Event 48)

Activity D2 'Harmonic dictation: identifying parts and chords'

◇ $A \Rightarrow N_c$ *or* Pv_p

This activity was observed in two classes, at first-year (Event 49) and second-year (Event 51) levels. While the teachers in the two classes approached the activity somewhat differently, they both placed emphasis on the notation of one or two of the outer parts within a four-part chord progression before identifying any chord labels.

Steps

1. The teacher played a four-part chord progression on a piano.

   The chord progressions were taken directly from Karpinski's (2006) *Manual for Ear Training and Sight Singing*. In Event 49, the teacher asked students to sing the bass line after hearing the chord progression, while in Event 51 the students were not asked to sing.

|2| Students notated one or more parts from the chord progression, one part at a time.

In Event 49, following an attempt to sing the bass line, students notated the bass line (as scale degree numbers), including all passing notes that did not indicate chord changes. In Event 51, the teacher facilitated their notation of each part by playing each part alone; that is, by playing the bass, tenor, alto, and soprano parts individually, one at a time.[8] Each part was repeated two to five times. Meanwhile, students silently notated the four parts on two staves.

|3| Students identified and notated the chords.

Students identified the chords based on what was notated previously. Students in Event 49 identified most chords by the bass notes only, because most chords were in root position. In Event 51, the teacher instructed students to work out the exact chord labels based on the notated parts in the previous step. There was little discussion after the activity; the teacher announced the correct chords and students assessed their own performance. At the end of the dictation, the teacher asked students to sing the chord progression in four parts. Unfortunately, their one attempt at this was not very successful, as several students sang their parts incorrectly.

Activity D3 'Singing a chord progression in three parts'

◇ $T \Rightarrow Pv_p$

This activity was observed in one class (Event 51) wherein the teacher discussed second inversion chords using the textbook *Manual for Ear Training and Sight Singing* (Karpinski, 2006, pp. 194–198). The teacher preceded this activity with a theoretical explanation of the cadential six-four chord, including its function as a dominant chord despite containing the notes of the tonic triad. This activity, which immediately followed the explanation, then involved singing the cadential six-four chord and resolving it to a dominant chord, as illustrated in *Manual for Ear Training and Sight Singing* on p. 194. This activity of specifically singing the V_{4-3}^{6-5} chord sequence in this manner is not described within the original text.

Steps

|1| The teacher assigned students to one of three groups: "bass", "alto", and "soprano".

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[8]   It should be emphasised that Karpinski (2006) did not endorse this approach of sounding each part separately.

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The bass group comprised six male students; the alto and soprano groups comprised one and two female students, respectively.

2 Students sang the cadential six-four chord.

The teacher first played the bass note (G) on a piano and asked the bass group to sing that note. While they sang it, the teacher asked the alto and soprano groups to join in, in that order. The alto group sang a C instead of the B, which the teacher corrected by playing a C on the piano.

3 Students resolved the cadential six-four chord to the dominant.

The teacher indicated (by conducting his hand) to switch to the dominant chord. While most students sang their parts correctly, the student responsible for the alto part, who was supposed to sing the suspended $\hat{4}$–$\hat{3}$, stopped singing suddenly. To compensate, the teacher struck a B on the piano while the two other voices held the G and D. The exercise was then concluded without rectifying or discussing errors in the performance.

Activity D4 'Singing arpeggiated chords in isolation'

◇ $R_c \Rightarrow Pv_c$

This activity followed immediately after D3 (Event 51). The activity was essentially the first preliminary exercise shown in chapter 46 of *Manual for Ear Training and Sight Singing* (Karpinski, 2006, p. 197).

Steps

1 The teacher wrote the following chords on a blackboard:

$$I \ I^6 \ I^6_4 \ IV \ IV^6 \ IV^6_4 \ V \ V^6 \ V^6_4$$

The chord sequence was taken directly from the textbook as mentioned above.

2 Students sang arpeggiations of these chords, one after another, in the sequence shown.

In the textbook, Karpinski (2006) explicitly writes that the above preliminary exercise should be used "as symbol-reading, solmization, and singing" exercises rather than treated as singing an actual chord progression (p. 197). These preliminary exercises were clearly followed by exercises specifically for singing arpeggiated chord progressions. However, in Event 51, the teacher skipped straight from this preliminary exercise directly to the chapter's corresponding harmonic dictation (D1) activity, without having students sing arpeggiated chord progressions.

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The students did not sing this preliminary exercise accurately.[9] They only attempted this exercise once before moving on to the next activity.

A.5 Activities at Institution E

Activity E1 'Singing root motion in circle-of-fifths chord progression'

◇ $R_p \Rightarrow Pv_p$

This activity was observed in two classes (Events 55 & 61).

Steps

1. Students were instructed to sing the bass line of a circle-of-fifths chord progression.

   In Event 55, the teacher wrote on a whiteboard a list of solfège syllables representing the root tones of a common circle-of-fifths progression. These syllables, "*D F te me le re S D*",[10] represented the following bass notes in the key of C minor: C F B♭ E♭ A♭ D G C. The teacher reminded students that in their previous class (which was not observed), the same exercise was undertaken but in the key of C major. In Event 61, students recalled or read directly from their previously completed harmonic dictation test, which comprised the following progression of chords: Dm^7–G^7–$C^\triangle$–$F^\triangle$–$Bm^{7\flat5}$–E^7–Am^7–A^7.

2. Students sang the bass line.

   In Event 55, the teacher accompanied the students by playing the same notes on a piano. The teacher focused on the accuracy of the singing, reminding students to take care particularly when singing the tritone interval between A♭ and D. In Event 61, the teacher sang together with the students, and following this singing, asked students whether each of the bass note supported a major or minor quality chord (the chord progression was heard earlier during the dictation test). In both classes, students did not get to hear the chord progression after singing the bass line.

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[9] One student arpeggiated a tonic chord instead of a V_4^6 chord, possibly due to confusion between that chord and I_4^6, because the teacher earlier described the two chords as being identical. At least one student did not sing at all throughout the activity.

[10] Although not mentioned during the class, the *D*, *F*, and *S* were most likely abbreviations for the solfège syllables *do*, *fa*, and *so*, respectively.

Activity E2 'Harmonic dictation: identifying chord labels'

◇ **A** ⇒ **N$_c$** *or* **Pv$_p$**

This activity was observed in one class (Event 56).

Steps

☐1 The teacher prepared students for the dictation with some hints and preliminary exercises.

The teacher first revealed that chords in the progression were all triads (Event 56). The teacher then announced the tonic key (B♭) so that students could identify chords by chord symbols (rather than roman numerals). Lastly, the teacher played on a piano two chords separately, B♭^{sus4} and B♭^{sus2}, asking students to describe the difference. Most students immediately shouted the correct labels, "sus four" and "sus two" (Event 56). The teacher then briefly described the chord's construction and clarified one student's misconception that they were major in quality.[11] The teacher then briefly explained how the dictation would proceed: "What I'm gonna do is I'll just keep looping the progression, and then if you guys need to hear fundamental root motion I'll split the sounds up, and you'll hear root [followed by] chord [followed by] root [followed by] chord" (Event 56).

☐2 The teacher played the chord progression several times on a piano, without pausing between each repetition.

The chord progression in Event 56 was as follows: B♭^{sus2} B♭^{sus2}/D /E♭ /F G♭^{sus2} A♭^{sus2} B♭^{sus2} B♭$^{(9)}$.[12] As explained in step ☐1, the teacher performed the progression several times, repeating the chord progression five times, without pausing in between. Each repetition was performed with some improvised variations and ornamentation, changes in dynamics and right hand voicing, and added neighbour tones in the bass line, etc. The first three times was performed as block chords, while in the last two repeats the teacher split the beat into two, playing the bass note (left hand) in the first half and the chord (right hand) in the second half (with the bass note sustained throughout the beat).

☐3 While listening to the progression being repeated, students identified and labelled the chords.

Students labelled the chords using chord symbols. The written responses were not assessed during or

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[11] 'Sus two' and 'sus four' chords in fact are neither major nor minor because they do not have a third.

[12] These were the chord symbols as written on a whiteboard at the end of the dictation. As the teacher explained during class, the parenthesis around the '9' in the final chord indicates that there is a 9th (or 2nd) *added* to the B♭ major triad, i.e., it is an added tone chord (the notes in the chord were B♭, D, F, with and added C) rather than a 'ninth chord', which often implies the presence of a seventh. The chord is otherwise commonly labelled as B♭^{add9} or B♭^{2}.

after class. The purpose of writing the chord labels down was mainly for students to check their own answers at the end of the exercise while the teacher listed the correct chord labels.

4̲ After the fifth repeat of the progression, students sang the bass line while the teacher played the chord progression for the sixth time.

The teacher slowed down the tempo a little as students sang the bass line. The teacher omitted the bass notes, only playing chords in his right hand. Students sang the bass line with solfège (moveable *do*): *do mi fa so le te do do*. Since students were supposed to have notated the chord symbols by this step, they could have either sung the bass line based on their memory, or they could read the chord symbols that they had written down themselves.

5̲ The teacher revealed the correct chord symbols.

Students confirmed their answers while the teacher described each chord and wrote the chord symbols on a whiteboard. Immediately after, the teacher played another chord progression and demonstrated an alternative approach to chord identification (E3).

Activity E3   'Identifying chords through performing tetrachords and improvisation'

◇ **A** ⇒ **P$_c$** *or* **V**

This activity was observed in three classes (Events 56, 60, & 66) and described on one occasion (Event 59). The data collected in these four events revealed significant variations in terms of the specific order of the steps and their emphases within the activity. All observations and descriptions were presented by one particular teacher at Institution E. This teacher applied the activity in various learning contexts, sometimes incorporating elements of this activity into other activities (e.g., E2).

Steps

1̲ Students were either given the starting note.

The starting note was the note from which students 'tetracized'[13] each chord. In all cases, the starting note was derived from one of the following options: (1) the *tonic note* of the chord progression, (2) the

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[13]   Although a tetrachord was traditionally defined as a four-note scale wherein the first and last note forms a perfect forth, the more modern usage of the term as referring to "a set of four pitch classes" (Grove Music Online, n.d., ¶4) maintains fewer restrictions and was most likely the understanding implied by the teacher. As strongly implied by the teacher at Institution E, and for the purposes of this study, the term 'tetracize' denotes the performance of tetrachords as described in step 3̲.

bass note of the chord, or (3) an *arbitrary note* specified by the teacher. The teacher gave the starting note by either naming the specific note or playing it on a piano, which students then identified by ear and performed.

The tonic note was used as a starting note *only* when students tetracized chords that were part of a chord progression. The teacher usually played the starting note on a piano, after playing the chord progression, and before students tetracized each chord (see step ⟨3⟩). Alternatively, students tetracized each chord from its bass note. In this approach, each student had to first aurally identify the bass note of each chord before proceeding to tetracizing the chord. The third approach was only used when students tetracized isolated chords (Event 60). Here, the teacher gave the starting note by playing it on a piano and announcing the note name so that students could quickly locate the note on their instrument. While sustaining the starting note, the teacher performed a chord, which students then tetracized from the given starting note (see step ⟨3⟩).

⟨2⟩ Students listened to the teacher play isolated chords or a chord progression on a piano.

The teacher either presented students with isolated chords or chord progressions. When students listened to and identified *isolated chords*, the teacher played and sustained each chord while students tetracized the chord (see step ⟨3⟩). When students identified chords within a *chord progression*, the teacher looped the progression several times (2e.g., as part of a harmonic dictation exercise; cf. E2). After hearing the progression several times, the teacher played and sustained each chord one after another, during which students tetracized each chord (see step ⟨3⟩).

⟨3⟩ Students 'tetracized' one chord at a time while the teacher played them on a piano.

To 'tetracize' was essentially to perform[14] two tetrachords comprising notes that correspond with a given chord. This involved performing two superimposed tetrachords, one ascending then descending, the other descending then ascending. Both tetrachords starting and end on the starting note (cf. step ⟨1⟩). For instance, students tetracized a Em^9 chord by performing the following two tetrachords (starting on B): B–C♯–D–E–D–C♯–B, B–A–G–F♯–G–A–B (Event 60). Students identified the notes within each tetrachord by matching them to the sound of the chord that the teacher played.

In most instances, tetracizing involved performing seven different notes (i.e., two four-note tetrachords with one overlapping note) for each chord. However, in practice, tetracizing was *not* restricted to performing seven specific notes for every chord. In one class (Event 60), students listened to and tetracized a Bm^7 chord with B as the starting note. While performing the second tetrachord, two of the students played a G while a third student in the class played a G♯. This resulted in a dissonant clash

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[14]   Depending on the class, students performed the tetrachord by either singing on movable-*do* solfège (Event 56) or playing on instruments, such as brass instruments (Event 60) or electric keyboards (Event 66).

when they simultaneously performed the two tetrachords, B–A–G–F♯–G–A–B and B–A–G♯–F♯–G♮–A–B. After the students labelled the chord correctly (cf. step 5), the teacher reassured them that it didn't matter whether they played a G or G♯ because neither note exists in the Bm^7 chord.

In another class (Event 56), the teacher added and subtracted notes from the tetrachords while demonstrating the method of tetracizing. The teacher demonstrated how to tetracize eight different chords within a chord progression. For one of the chords, Bb$^{13}_{♯9,♭9}$ the teacher sang eight notes in total rather than seven.[15] In the same class, the teacher also tetracized a tonic 'sus four' chord by sing only two notes: the root and the fourth above it. Singing these two notes alone was sufficient in this instance.[16] These observations demonstrate that despite the activity being described as 'tetracizing', it was not a strict requirement that students perform two four-note tetrachords.

Students tetracized either *in unison* or *individually*. When students tetracized in unison, the teacher counted them in, saying "one, two, three, four." When students tetracized individually, they freely performed tetrachords without adhering to set tempi or starting notes. While this latter approach enabled individual students to identify and perform the tetrachords at a pace comfortable for them, it created a noisy environment due to students performing various different notes at different moments in time. The resulting cacophony was exacerbated by the fact that some students played incorrect notes, which other students occasionally mistook as being part of the original chord that the teacher played.

Students sometimes identified specific notes within a chord while tetracizing. When students tetracized a chord starting from the tonic note, they were sometimes asked to *pause* upon playing or singing the bass note. While pausing on the bass note, students could memorise its scale degree and use this information to identify specific chord labels in step 5 . In Event 66, the teacher asked student to pause on specific chord tones (e.g., "seventh", "ninth", or "root") while tetracizing. For instance, the teacher played an Am^9 and asked students to pause on the seventh of the chord. Starting on a C, students performed C–D–E–F–E–D–C followed by C–B–A–G—pausing on the G.[17]

After tetracizing each chord, students labelled them verbally (see step 5). Sometimes, students undertook step 4 in place of tetracizing.

4 As an alternative to tetracizing, students improvised melodies while listening to short chord sequences.

Students individually improvised melodies while listening to the teacher perform and loop a chord

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[15] The first tetrachords comprised *do re me fa*; the second comprised *do ti te le so*. Five syllables were necessary to cover both the *ti* (the flat nine, i.e., Cb or B♮) and *te* (the root, Bb). The teacher also performed the starting note, tonic (*do*), not because it was not part of the original chord, but because the starting note was the same tonic note for every chord within the progression (cf. step 1).

[16] Here, the fifth was omitted presumably because it was not an important feature of a 'sus four' chord. This chord then resolved to a tonic chord, which the teacher sang with three syllables: *do fa mi*. Although the *fa* was not part of the final chord, the teacher sang it to outline the resolution of the fourth to the third. Note also that it was not necessary to sing descending tetrachords for both chords.

[17] In Event 66, only two out of the five students in the class performed this correctly. They were generally only given one attempt to correctly tetracize each chord, which enabled the class to go through many chords within a short space of time.

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progression. Just like in step $\boxed{3}$, students worked out which notes harmonised with the chords, and used this information to work out the chord labels in step $\boxed{5}$. Students took turns to improvise individually, while others observed. Chord progressions were limited to between two to four different chords.

$\boxed{5}$ Students identified chords by their chord symbol following their tetracizing or improvising. Finally, using the information learnt from either step $\boxed{3}$ or $\boxed{4}$, students labelled each chord by its chord symbol. Students labelled each chord immediately after tetracizing it. When students improvised a melody over chord progressions (cf. step $\boxed{4}$), they listed every chord in the progression after their performance. When students labelled chords incorrectly or otherwise failed to identify them, they sometimes repeated either step $\boxed{3}$ or $\boxed{4}$ and tried again.

Occasionally, students were also required to identify the scale degree of the designated starting note (Event 60). The starting note was usually the top note of the chord. For example, students correctly labelled a B in a D^{9add13} as '13'.

Activity E4 'Harmonic dictation: chord labels from bass line and chord quality'

$\diamond \ \mathbf{A} \ (+ \mathbf{R_p}) \Rightarrow \mathbf{N_c}$

The chords used in the chord progression were limited to root and first-inversion triads within the diatonic key, a feature that was necessary due to the way in which students identified each chord label (see description below for details). This activity was observed in one class (Event 57).

Figure A.9 Chord progression as notated by the teacher by the end of the activity (Event 57). The teacher initially notated the soprano line alone on a whiteboard for students to refer to. The teacher added the bass line and chord labels gradually throughout the activity, as described in the steps below. The remaining notes in the inner voices were not notated by either the teacher or students.

Steps

[1] Students undertook a quiz involving identifying chord labels based on two spoken parameters: (1) the moveable-*do* solfège syllable of the bass note and (2) the mode (major or minor) of the chord.

This theory quiz preceded the harmonic dictation activity, but was used again during the dictation as a final step (see below). Students deduced the chord label (which were always within the given diatonic key) based on these two pieces of information. As an example, the teacher made the following statement for question five: "my bass note is *mi*, my chord is major." The students then wrote down the chord that satisfies the given criteria, which in this case would be I^6.

[2] The teacher played the chord progression with accented bass notes, while students identified and notated the bass line (see Figure A.9).

Prior to playing the chord progression, the teacher wrote out the soprano part (notated in the treble clef) onto a whiteboard for all students to refer to. The teacher played the chord progression twice, at a steady and slow tempo. After this, the teacher played this a second time and asked students to state the bass line. The teacher then notated the bass line shown in Figure A.9.

[3] The teacher played each chord slowly while students identified each chord as either major or minor.

The teacher paused on each chord for at least four seconds, from start to finish. After playing it once through, students checked their answers while listening to the teacher play it once again. This time, the same chord was sounded with the sustain pedal engaged and, with the chord ringing, the teacher slowly arpeggiated the same chord but in closed, root position. This made it easier to differentiate between major and minor. At this point, the teacher revealed the answers (major or minor) and wrote them up on the board beside each corresponding bass note.

[4] Students identified the chord labels one chord at a time using information collected from the previous steps: the bass note and chord quality.

With the bass notes and chord qualities identified in the previous steps and written on the whiteboard, students were asked to identify chords as described in the first step of this activity. For example, the teacher said, "My bass note is *la*, and my chord is minor". Students responded to each statement verbally—e.g., "vi". They did not listen to the chords both during and after the task of identifying the chord labels.

Activity E5   'Singing two guide-tone lines in chord progressions'

◇ **A ⇒ Pv$_p$**

This activity was observed in one class (Event 61). Students knew the chord progression used in this activity as they had already identified and discussed it in other exercises (including E1) immediately prior to this.

Steps

1. Students were provided with the chord symbols for a chord progression.

   The same chord progression was used in a dictation test prior to this activity, and then in E1 which followed immediately afterwards. Students were therefore aware of both the chord labels and how the chord progression sounded like.

2. Students were divided into two groups, and each group was assigned a specific guide tone to start singing from.

   The starting guide tones were the third and seventh of the first chord. Assignment of which guide tone line to sing was based on the row in which students were seated in the classroom rather than vocal range. The teacher slowly arpeggiated the three notes (root, third, and seventh) of the first chord on a piano to give students their notes.

3. The class sang the chord progression with piano accompaniment.

   Both student groups sang guide tones in various octaves depending on their vocal range. The teacher sang the bass line together with students' singing of the guide tone lines. All notes were sung on solfège syllables (e.g., starting on *re*, *fa*, and *do* in the first chord). Because the teacher was a soprano, the bass line was not always at the bass of the chord due to male students singing guide tone lines at their comfortable vocal range. The singing was accompanied by the teacher who simultaneously playing the three-note chords on a piano.

4. The class sang the chord progression without accompaniment.

   When there was no piano accompaniment, the bass line was noticeably higher than the lowest guide tone line; the teacher thus prioritised the correct voice leading rather than a supporting bass line, regardless of vocal range.

5. The class sang the same chord progression, without accompaniment *and* with eyes closed.

This final step presumably encouraged students to focus more attention on the chord progression and the guide tone lines while singing. Discussions concerning aural identification of chords labels by following guide tones ensued.

Activity E6 'Singing bass lines while listening to recordings'

$\diamond$ $A \Rightarrow Pv_p$

This activity was observed in one class (Event 61). Several excerpt recordings were used during that class. For each one, the questions and activities varied slightly, determined largely by the harmonies and chords in the original music. For consistency and readability, the description below describes the steps pertaining to one specific excerpt recordings.

Steps

1. The teacher played a recording of a pop song[18] while singing the bass line.

   Before playing the recording, the teacher told students to focus on distinguishing between IV^6 and vi, two chords that share the same bass note ($\hat{6}$) but that are differentiated by their chord quality (major or minor). While the recording was playing, the teacher sang the bass line very loudly (on neutral syllables), while occasionally describing the harmonies and the bass line.

2. Students sang the bass line together with the teacher, from memory.

   After hearing the song once through, the teacher stopped the recording and asked students to sing the bass line. The students sang very quietly and mostly followed behind the teacher's singing (basically relying on the teacher's memory of the bass line). The singing was performed unaccompanied. All singing was on scale-degree number solmisation (e.g., "one" denoted scale degree $\hat{1}$). The singing was interspersed with the teacher's explanations and questions concerning the chord progression.

3. Students sang the bass line again (with the teacher) while listening to the recording.

   As not all students recalled the bass line from memory, the teacher asked them to sing it again, this time while listening to the recording. The teacher advised students to progress slowly and step by step: "Again, we're taking this in steps. We're not in a race, trying to get the answer as fast as possible" (Event 61).

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[18] The detailed steps described here are based on the activity as the teacher applied to the recording of "Fields of Gold" (Sting, 1993, track 3).

4̲ Students listened to the recording again while focusing on chords with $\hat{6}$ in the bass.

As described earlier, students were told to identify chords with $\hat{6}$ in the bass as either IV⁶ or vi. A student suggested that one of the chords was a vi, which was correct. The teacher replayed the recording to confirm this answer, pausing on the particular chord. The teacher then arpeggiated the chord, singing:

You're right it's minor.

5̲ The teacher demonstrated how to discover whether a chord was correctly identified.

The teacher gave the following explanation: "Now I'm going to do the opposite. I'm going to sing *fa* over that, and you're going hear how that doesn't work. So I'm singing the wrong answer. I'm going to sing *fa*, on the vi minor, to prove that I'm wrong" (Event 61). With the recording playing, the teacher waited until the IV⁶ chord. Once reached, the teacher sang a *fa* together with the recording, creating an unpleasant dissonance between the sung note and the *mi* within the vi chord.

The teacher then talked about another chord in the recording, one that could possibly be a IV⁶ chord. Explaining that there wasn't enough time to arpeggiate the whole chord from the bass note up (i.e., *re fa do*) while listening the recording, the teacher said it was only necessary to focus on the one note, *fa*. The teacher then sang the *fa* with the chord in the recording, which sounded consonant with the recording. Thus, the chord was shown to be a IV, not vi.

Activity E7 'Identifying and playing triads on keyboard instruments'

◇ **A ⇒ Pi𝒄**

For this activity, every person in the class, including the teacher, was seated behind an electronic keyboard. Students wore headphones plugged into their instrument. In order that the teacher could monitor each student's performance, each instrument was programmed to a different timbre (e.g., vibraphone, strings), and all outputs were routed to the teacher's headphones. Students could hear only two sounds: their own, and the teacher's. This activity was observed in one class (Event 66), in which students undertook E3 immediately after E7.

Steps

1̲ The teacher played triads on a piano, one at a time.

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Each chord was not related to others as the teacher selected chords randomly. They were also performed with varying voicings and at different registers of the instrument.

2. Students identified each chord and attempted to perform it on their keyboards.

As soon as the teacher performed a chord, students began experimenting and playing various notes on their keyboards to find the same chord. There was not designated method for achieving this; the goal was to find the chord as quickly as possible. After the first chord, the teacher asked students to perform the exact same voicing and in the same register as played by the teacher. The teacher usually played each chord a few times and waited until most students performed it correctly before playing a different chord.

Activity E8   'Identifying chords and singing arpeggiated chords'

◇ $A \Rightarrow Pv_p$ *or* Pv_c *or* V

◇ $T \Rightarrow Pv_p$ *or* Pv_c

This activity was observed in one class (Event 68). The exercises in this activity gradually progressed from simple to complex, referring both to previously completed homework tasks and exercises undertaken during the class. The activity as presented here is roughly divided into three steps, denoting the chronological order of the activity as observed in Event 68, but in reality each step involved a variety of responses that was dependent on the specific task required by the teacher. Throughout the activity, the teacher continuously used the piano, both as a tool for playing chords (for aural identification tasks) as well as aiding their class participation (through singing and discussions).

Steps

1. While going through students' answers from a homework assignment (transcribing chords), the class discussed chord qualities and the identification and resolution of tension tones through various singing exercises.

As students read out each of their answers from the homework assignment, the teacher played the corresponding chord on a piano and asked students to sing various parts of it (e.g., the root, third, or specific tension tones). Students were asked various questions, for instance, how they would resolve a particular tension tone (e.g., a ♭9) if it was part of a dominant chord, resolving to tonic. The teacher demonstrated the possible resolutions on a piano, playing and comparing the two options: resolving

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the ♭9 down to $\hat{5}$ and up to $\hat{6}$. Students were also advised how to differentiate between 9th and 13th chords. To identify a 13th chord, students were instructed to arpeggiate from the root up to the 5th (*do mi so*), and then sing a tone above *so* to find *la*—which is the (major) 13th. Students were then told how to identify the 9th of a chord, by first singing the root (*do*) and then singing a tone higher.

|2| Students identified seventh-chord types.

The teacher first listed the chord types that students were to distinguish between: diminished seventh, major seventh, minor seventh, minor-seven-flat-five, full diminished, minor-seven-sharp-five, and minor-major sevenths. The teacher then proceeded to perform these chords in a random order, while students responded verbally with the answers. When students appeared uncertain, the teacher asked students to sing the third of the chord to work out whether it was major or minor. Most of the time, however, students were able to identify the seventh-chord type straight away, or with just a few hints or extra steps (such as singing the third).

Occasionally, students arpeggiated chords after identifying them. For example, after identifying a m7♭5 chord, the teacher listed the syllables verbally (*do me se te*) and played the bass note (*do*) on a piano. Students then arpeggiated the chord from the bass note up (using the given syllables). After going through the above list of seventh chords, the students identified other chord types (e.g., 6/9 chords).

|3| Students identified and sang specific tension tones.

First, the teacher listed the chord types that would be played on a piano: major seventh, dominant seventh, and minor seventh. Upon hearing these chords, students were asked to sing specified tension tones (including sharp and flat ninths, elevenths, and thirteenths). Students were occasionally asked to also identify the seventh chord type before singing the specified tension tones. Other times, students first identified[19] the tension tone present in a chord and usually in the top voice (e.g., a ♭9), and then sang an additional tension tone requested by the teacher (e.g., a ♭13). Students were sometimes asked to identify and describe how the tension tone resolved. For instance, the teacher resolved a ♭13 in a dominant chord to a $\hat{2}$ in the tonic chord, and asked the students to identify the position of the resolved tone. One student responded correctly by singing *re*.

Occasionally, students compared the chords used in this exercise with those found in standard jazz repertoire. When this occurred, the teacher often responded by playing the pieces. For example, when working on the minor ninth chord, one student suggested that he was reminded of *Laura*.[20] The teacher responded by performing the opening bars of *Laura* (with chords Am^9 D$^{7♭9}$ G$^{6/9}$ ... Gm^9 C$^{7♭9}$ F$^{△9}$ ...), confirming that it indeed starts on a minor ninth chord. Hearing the chord progression,

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[19]   Students identified tension tones either by *saying* the scale degree number or by *singing* the note on the corresponding solfège syllable. Since this step involved individual chords rather than chord progressions, the syllables used were relative to the root of each chord. For instance, *fa* represented the 11th of a chord, while *le* was a ♭13.

[20]   *Laura* is a jazz standard based on a popular song composed by David Raksin in 1945.

another student asked whether it was a ii–V–I. The teacher congratulated the student for recognising the cadence. These and other discussions not directly relating to the exercises occurred spontaneously at various times throughout the activity.

Activity E9 'Singing bass lines and arpeggiated chords while listening to recordings'

◇ $A \Rightarrow Pv_p$ *or* Pv_c *or* V

◇ $T \Rightarrow Pv_p$

This activity was observed in one class (Event 68), in which principles and steps described below were applied to two different excerpt recordings. Both E8 & E9 comprised similar exercises of identifying and singing arpeggiated chords, and in Event 68, students undertook E9 soon after E8. The main difference between the two activities was that E9 involved identifying chords directly from CD recordings of jazz or pop songs, whereas E8 involved listening to chords that the teacher played on a piano.

Steps

1. Students listened to a CD recording.
   The teacher first played the opening few bars of the recording, encouraging students to focus on specific harmonic features, such as recurring chord sequences and bass lines.

2. Students sang the bass line on solfège syllables after listening several times to the recording.
   After listening to the recording once, students sang the bass line on solfège syllables, unaccompanied. The teacher assisted where necessary, by singing the bass line and leading the students. In some recordings, for instance where all chords were in root position, students could immediately identify the chords once they could sing the bass line (with solfège). In such instances, or when chords changed too rapidly, students skipped singing arpeggiated chords in step 3. Instead, the teacher occasionally sang arpeggiated chords (rapidly) to remind students of the sound of the chord.

3. Students sang arpeggiated chords and identified chord labels during and after listening repeatedly to sections of the recording.
   Once the bass line had been sung once or twice, students gradually focused on the chords. One of the goals was to identify the chords in the recording, although much of the lesson time was spent on singing and arpeggiating chords in various exercises.

Students usually sang the arpeggiated chords while simultaneously listening to the recording. Occasionally, the teacher helped students by singing arpeggiated chords, which students then imitated. When the recording was too fast or when chords changed too rapidly, the teacher paused the recording and sang arpeggiated chords from memory. Chords were always arpeggiated from the bass note up and in time with the beats and rhythm of the recording. For example, students arpeggiated triads with the rhythm ♩ ♩ ♩ when the excerpt was in ¾ time, or with ♩ ♩ ♩ when in C or ¢ time.

When arpeggiating several chords in quick succession, the teacher used different techniques to help students to find the bass notes of each chord. One technique was to sing the bass note again after arpeggiating a chord to reduce the interval between two adjacent chords. For example, when going from IV to V, students sang the notes *so ti re fa la do*. For obvious reasons (i.e., due to students' vocal range and voice leading between chords), the *fa* was sung beneath the *so*, rather than a third above the *re*. When arpeggiating this, the teacher repeated the *so* note at the end of the IV chord (and just before the V chord) presumably to help students realise that the *fa* in the next bar is only a tone lower—rather than a skip of a major sixth from *re* (see Figure A.10). Only the teacher repeated the bass notes; the students did not arpeggiate in this way.

Another technique was to tie two notes together where possible. For example, when singing the sequence I–V, the last note of the arpeggiated I chord, *so*, happens to be the bass note of chord V. Students were thus instructed to tie the two notes rather than re-articulating it (see Figure A.10).

Figure A.10 Selected bars of arpeggiated singing as observed in Event 68. The teacher directed students' arpeggiation by singing the same chords but with particular emphasis on bass notes. Female students sang at the notated pitch, and male students at one or two octaves lower. The class sang the arpeggiated chords while simultaneously listening to Norah Jones' *Come away with me*, which was played through amplified speakers.

On one occasion, students arpeggiated chords in three parts. This was practised with two chords (I and vi) that alternated repeatedly in one of the recordings. Students were already aware of the chord sequence they were about to perform before they began the exercise. First, students were divided into three groups (by rows) and were assigned either the root, third, or fifth of the triad. Next, the teacher indicated to each of the three groups to sing and sustain their notes, effectively constructing a chord from the root up. This was practised with both the I and vi chords individually, after which students attempted it slowly in ¾ time (see Figure A.11). This particular way of arpeggiating was practised only
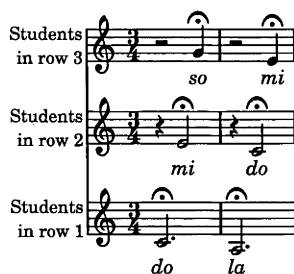
Figure A.11   A two-chord sequence sung in three-parts by students in Event 68. Female students sang at the notated pitch, and male students at one or two octaves lower. Students were assigned to three groups (by the row). The teacher directed the three groups by indicating when they should start singing their notes.

briefly, and some students struggled to sing in tune or follow the teacher's indications of when to start and stop singing their assigned notes.

Activity E10   'Harmonic dictation: bass line, guide-tones, and chord labels'

◇ **A ⇒ N$_c$** *or* **Pv$_p$**

This activity was undertaken four times during one class (Event 68), with two different approaches to the dictation of inner (melodic) parts that assisted students identification of chord labels. The description below follows the specific order of steps that the teacher encouraged and enforced, which was to first identify and notate the bass line, the guide tones, and identify the chord qualities, *before* finally deriving the chord labels.

Steps

1 The teacher played a chord progression on a piano, either in keyboard-style (three notes in right hand) or with two guide-tone notes in the right hand.

Almost every chords used in the chord progressions were in root position,[21] which meant that by correctly identifying the bass notes students could work out the roots of the chords.

2 The students identified and notated the bass line.

After listening to the progression several times, when students began notating the bass notes, the teacher occasionally asked students to sing specific parts, such as a guide tone line or the melody. Students

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[21]   The only exceptions were chords where the bass moved from the root down to the seventh (with the right hand notes sustained) and chord changes over a tonic pedal, usually towards the final cadence of a chord progression (e.g., a plagal cadence).

always sang on solfège syllables. When the chords in the chord progression became more complex, the teacher encouraged students to first focus on notating the bass line by playing only the bass line (without chords in the right hand), before performing the progression in full (both hands).

|3| Students listened to the chord progression a few more times, identifying either the top part played in the right hand, or two separate guide tones.

When students were asked to identify the soprano line, the teacher played chord progressions with three or more notes in the right hand. Students only had to identify the top note in the right hand. Otherwise, when students were asked to identify guide tones, the teacher played two parts in the right hand. After playing it several more times, the teacher occasionally asked students to sing specific parts while being accompanied.

|4| Students identified and described the 'quality' of each chord.

Students described the chord quality, as either major or minor, and noted the presence of any added tones (e.g., sevenths). The teacher encouraged students to identify added tones through both listening and by referring to their written-out guide tone parts from the previous step, using theoretical deductions. For example, the presence of an E♭ in a guide tone line where the bass note (and therefore root) was an F would indicate the presence of a minor seventh.

|5| Finally, based on the information collected in previous steps and from listening to the chord progression, students identified the chord labels.

By identifying and notating the guide tones, and in combination with the known bass notes, students could use their theoretical knowledge to derive the chord labels. For example, in the key of F, an A in the bass with guide tones C and G would signify an Am^7 (or iii^7) chord.

Activity E11 'Singing and resolving a diminished seventh chord in four parts'

◇ $T \Rightarrow Pv_p \Rightarrow A \Rightarrow Pv_p$

This activity was observed in one class (Event 69) during a sight-singing exercise. At one point, many students experienced difficulty singing a portion of a melody that was based on a diminished seventh chord. To fix this problem, teacher used the present activity to encourage students to think harmonically rather than melodically when singing those notes. Before undertaking the activity, the teacher mentioned that the class had attempted a similar exercise with major triads in the past, but that this was their first time to do the same using a diminished seventh chord.

Steps

[1] Students were assigned a group number, from one to four.

The group was dispersed evenly across the room, such that no two members of the same group were sitting beside each other.

[2] Each group sang one of the four notes of a diminished seventh chord (*ti re fa le*).

The teacher first played a tonic chord (a minor triad) and asked all students to find and sing the tonic, *do*. Once they found the tonic, the first group was instructed to sing *ti*, and to sustain that note. The second, third, and fourth group were asked to sing and sustain a *re*, *fa*, and *le*, respectively. The diminished seventh chord was constructed once all four groups were singing. All notes were sung on solfège syllables.

[3] Students sang the resolution of their respective chord tones.

Once the whole class sang the diminished seventh chord in four parts, the teacher asked all students to 'resolve' the chord. Students were not advised how exactly to resolve the chord. The majority of students (correctly) resolved their notes to the nearest tone of the tonic triad, perhaps using their intuition, prior theoretical knowledge, or by imitating other students. Only a few students had issues finding which note to resolve to. One student sang the correct notes (from *fa* to *me*) but didn't know the correct solfège syllable for the note of resolution.

Activity E12 'Singing four-part exercises and discussing chords'

◇ R$_p$ ⇒ Pv$_p$

This activity was observed in two classes (Events 58 & 69). The chorales used in both classes were all composed by teachers at Institution E.

Steps

[1] Students read from full scores of a composed four-part chorale and sang through one or more parts.

In Event 58, all students read and sang all four parts at some stage (see next step). Every student sang through each of the individual parts (in their own comfortable register) while the teacher accompanied them on the piano and also sang the parts. After singing through each part as a class, every student

selected one of the four parts and sang through the whole chorale, first with keyboard accompaniment, then a second time *a cappella*.

In Event 69, students selected one of the four parts and sang through their respective parts as a class. Starting notes were provided by the teacher on a piano, but all singing was conducted without accompaniment.

2 Students discussed the chords and chord progression in the chorale.

In Event 58, the teacher played through the chorale slowly, chord by chord, while asking students to label each chord. Because all students had in front of them the full score, chord labels were most likely derived from analysing the notation rather than through listening.[22]

In Event 69, after students had sung through the chorale once, they sang it again but this time pausing on each chord. While students sang and sustained each chord, the teacher described the chord quality (e.g., major or minor), and sometimes the chord label. Occasionally, students were asked to describe the chords. The teacher distinguished subdominant chords from dominant and tonic chords by describing them as "that other ... sound [ ], not tonic, not dominant, but that other sound" (Event 69).

Activity E13 'Singing bass lines and arpeggiated chords'

◇ T ⇒ Pv$_c$

This activity was observed in one class (Event 72). It comprised a series of activities involving singing bass lines, chromatic neighbouring tones, and arpeggiated chords. Throughout the activity, students were to sing the exercises with solfège.[23] All singing was undertaken without piano accompaniment.

Steps

1 Students sang the previous sequence the following syllables, *do ... la ... re ... so ... do*, derived from the bass line of a I–vi–ii–V–I chord progression.

The teacher first provided students with the tonic note (C) by playing it on a keyboard, and occasionally throughout the activity, sounded the tonic again to check students' pitch (which was often flat[24]). The

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[22] I observed that almost every student was looking at their scores while shouting out the answers (chord labels). Furthermore, not every student was required to respond verbally; the teacher heard all answers shouted out from the same couple of students although there were 18 students present.

[23] Despite the instruction to do so, in Event 72 many students did not consistently sing with solfège. Some students also often using incorrect syllables, which the teacher ignored. Nonetheless, students' usually sang the notes correctly.

[24] Some possible reasons for this included students' poor posture and lack of motivation (observed in Event 72) as

teacher spoke each solfège syllable (i.e., without pitch), while students' responses were sung. The ellipses (…) used in the present description indicates a syllable or note that was held for a short duration. When students sang the wrong notes or had difficulties, the teacher spoke (without pitch) one or more syllables (usually stopping at the end of a segment as indicated by the ellipses), after which students sang the corresponding notes. This call-and-response approach was used only occasionally.

2. Students sang the same bass line plus chromatic neighbouring tones: *do … do ra do ti do … la … la te la si la … re … re me re di re …*, etc.

3. Students sang the previous sequence plus arpeggiated triads: *do … do mi so mi do … do ra do ti do … la … la do mi do la … la te la si la … re …*, etc.

4. Students sang the previous sequence plus diatonic sevenths for each arpeggiated chord: *do … do mi so ti so mi do … do ra do ti do … la … la do mi so mi do la … la te la si la … re …*, etc.

5. Students sang the original bass line with chromatic scales linking each bass note: *do … do ti te la … la … la te ti do di re … re …*, etc.

Students initially struggled to sing the chromatic tones. In response, the teacher dictated small fragments of the tonic triad and chromatic tones between the tonic chord tones, while students responded by singing those tones. Slowly, the length of the chromatic scale was increased until students sang a scale down an octave, from *do* to *do*. Students then attempted to sing the original sequence once again.

6. Students sang arpeggiated chords as directed by teacher.

The teacher constructed a long chord progression by asking students to arpeggiate specific seventh chords, one chord at a time. Each chord was arpeggiated as described in step 5 (i.e., starting from the bass note, up to the seventh, and back down to the bass note). The teacher first played a C major chord on a keyboard, and asked students to arpeggiate it (i.e., a C$^\triangle$ chord).

After singing each chord, the teacher either asked students to sing a specific chord, or asked them to resolve the chord when it was a dominant seventh. For example, after arpeggiating the C$^\triangle$ chord, the teacher said, "Let's do some […] modal interchange. I'd like a minor seventh from there." Students responded by arpeggiating a Cm^7 chord. Later on, after students arpeggiated a dominant seventh chord starting on *do*, the teacher said, "Now we need to resolve." Students then instinctively found the root of the next chord, *fa*. Students were then expected to arpeggiate an F$^\triangle$ chord. As in previous steps, the teacher sometimes recited the solfège syllables to remind students of the notes they should sing (e.g., saying "*fa la do mi do la fa*"). Arpeggiating chords one after another in this manner, the activity concluded upon the return, via mostly circle-of-fifths motion, to the starting chord.

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well as common difficulties with singing chromatic tones and scales.

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Activity E14 'Singing arpeggiated chords and guide-tones from chord labels'

◇ $R_c \Rightarrow Pv_p$ *or* Pv_c

◇ $R_p \Rightarrow Pv_p$

This activity was not completed during the class due to lack of time, and was thus partially observed during one class (Event 72). The teacher described the rest of the activity immediately after the class (Event 73).

Steps

☐1 Students identified and sang the bass line from a given eight-bar lead sheet.

The lead sheet was projected onto a screen and included a melody and chord symbols. The melody was ignored in this exercise; students were asked to focus on the chords only. Students sang the bass line on solfège syllables, without accompaniment, while the teacher conducted (four beats a bar).

☐2 Students sang arpeggiated chords from bass up.

The teacher first played the tonic triad (E♭) on a keyboard, and then asked students to arpeggiate the first chord (E♭Maj^7). Students sang the arpeggiation slowly from the bass, up to the seventh, and back down to the root, on solfège syllables (as in E13). Each chord was sung *a cappella*. Students progressed one chord at a time, from start to finish.[25]

☐3 Students identified the four notes (as solfège syllables) within each chord while the teacher wrote them on a whiteboard.

Students spoke each chord tone (by solfège syllable) while the teacher wrote this up on a whiteboard. Each note was spelled out from the bass note, up to the seventh, and written vertically in the same manner. Subsequent chords were written to the right, resulting in a matrix with four columns and nine rows horizontally (i.e., there were nine chords).[26]

☐4 Students identified the four "guide tone lines" derived from the chord tones identified earlier.

Looking at the matrix, the teacher pointed to the *ti* in the first chord (E♭Maj^7) and discussed possible

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[25] They struggled to arpeggiate the final chord, A♭Maj^7/$_{B♭}$, perhaps because it has five different notes (B♭, C, E♭, G, and A♭), whereas all other chords in the progression were four-note chords. The teacher did not address the issue of how to arpeggiate five-note chords, and instead concluded the arpeggiation step and proceeded to step ☐3.

[26] All chords in this exercise were seventh chords, which meant that each chord had to contain four distinct syllables. A notable exception was the problematic chord encountered earlier, the A♭Maj^7/$_{B♭}$, which, in the key of E♭, should comprise the following *five* syllables: *so la do mi fa*. While writing out the syllables for that chord, the teacher erroneously omitted *mi* (i.e., G, the seventh). No one in the class pointed this out.

voice-leading to the next chord. Students were encouraged to find the same tone in the next chord, or to move down by step where possible. The same procedure was applied to each syllable that the voice leading lead to, until reaching the final chord. This was then undertaken three more times, starting from three remaining notes in the first chord. While students discussed possible notes of resolution, the teacher re-wrote the guide tone lines on another part of the whiteboard.

5 Students sang each guide tone line in unison, with piano accompaniment.
The last couple of steps (5 and 6) were not observed due to lack of class time; the teacher described the activity immediately after the class (Event 73). Students sang each of the four guide tone lines while reading them on the board. The teacher accompanied the students while they sang.[27]

6 Students sang guide tone lines in four parts, without piano accompaniment.
Students selected one of the four parts to sing. Just like in step 5, they read the syllables on the whiteboard while singing their parts.

Activity E15 'Singing seventh chords by stacking thirds'

◇ $R_c \Rightarrow Pv_c$

This activity was observed during one class (Event 72). Prior to this activity, students practised a similar exercise that involved only one major third above a given note. The activity here was an extended version of that exercise, culminating with the task of identifying the chord type.

Steps

1 The teacher played a starting note on a piano; this note was treated as the root of a seventh chord.

2 The teacher specified an interval (either a major or minor third), to which students responded by singing that interval above the starting note.
The teacher simply provided the interval name (e.g., "major third"), and waited until students sang the correct note, which was the *third* of the chord. All notes were sung *without* solfège syllables.

3 The teacher played the correct note (the third of the chord) while sustaining the starting note.

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[27]   There was no indication of how students were accompanied—whether chords or individual guide tone lines were played on a piano.

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4 The teacher specified an interval (either a major or minor third), to which students responded by singing that interval above the third of the chord.

That is, students sang the *fifth* of the chord.

5 The teacher played the correct note (the fifth of the chord) while sustaining the root and the third.

6 The teacher specified an interval (either a major or minor third), to which students responded by singing that interval above the fifth of the chord.

That is, students sang the *seventh* of the chord.

7 The teacher played the correct note (the seventh of the chord) while sustaining the root, third, and fifth.

At this point, the whole chord was now constructed and sounded.

8 Students identified the chord type.

For instance, when the teacher asked for a major third followed by a minor third and a major third, the resulting chord would be a major-seventh chord. Students could derive the chords type using either theoretical or aural skills; they were not encouraged to use any specific approach.

A.6 Activities at Institution F

Activity F1 'Identifying and comparing chords and cadences'

◇ **A ⇒ V**

This activity was brief and served as a warm-up exercise for the harmonic dictation that followed immediately (F2). It was observed in one class (Event 74).

Steps

1 The teacher played a chord sequence or cadence on a piano.

Each chord sequence began on chord I, and ended either on V or back to I in a perfect cadence. Students focused on the pre-dominant chords (e.g., ii^6 and the Neapolitan chord).

2 Students described the chords and cadences.

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Students were asked to respond after hearing each chord sequence. During the discussions, the teacher compared different pre-dominant chords by playing them on a piano and describing their differences. The discussed pre-dominant chords were featured in F2, which immediately followed this warm-up exercise.

Activity F2 'Harmonic dictation: outer parts and chord labels'

◇ **A** ⇒ **N$_c$** *or* **Pv$_p$**

The activity was observed in two classes (Events 74 & 79).

Steps

1̄ The teacher performed a chord progression two or three times.

In Event 74, after listening to the chord progression, students sang the bass and soprano parts on fixed-*do* solfège syllables *without* chromatic inflections.[28] The singing was usually unaccompanied, except on one occasion where the teacher played the bass line on a piano while students sang the soprano line. In Event 79, students did not sing any part after listening to the progression.

2̄ Students identified and notated the outer (soprano and bass) parts.

In Event 74, the teacher notated the two outer parts on a blackboard after playing the chord progression several times. In Event 79, students wrote the outer parts in silence, with no assistance from the teacher.

3̄ Students identified and notated the chord label.

In Event 74, the teacher asked students to identify specific chords and wrote chord labels (as roman numerals) beneath the bass part as students responded correctly. Often, the teacher asked students to describe *where* specific chord or chord sequence occurred within the progression. For instance, the teacher told students that the progression had a "prolongation of tonic," and then asked students to say *where* it occurred. Once the prolongation was identified, students labelled individual chords within that portion of the chord progression. During the teacher-led discussions, most chord labels were derived from analyses of the outer parts, which were fully notated after step 2̄. The teacher did not play the chord progression again once all chords were labelled.

In Event 79, students identified and notated chords mostly in silence, and the activity was completed once the chord progression had been played a set number of times.

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[28] That is, only seven syllables were used regardless of key signature. For instance, both F and F♯ was sung with the syllable *fa*.

Activity F3 'Identifying chords and transcription from piano and recordings'

◇ **A** ⇒ **N$_c$** *or* **Pv$_c$**

This activity was described during one class (Event 75) and was assigned as a homework exercise. One of the two transcription exercises was subsequently undertaken during that class. The activity was also described immediately after the class (Event 76).

Steps

[1] Students listened to chords, either as the teacher played them on a piano or from recordings. For homework, students listened to two types of recordings: (a) recordings of (jazz) chords sounded individually (and not as part of a chord progression), and (b) excerpts or entire portions of commercial recordings, frequently including chord progressions. At home, students could listen to the recording as many times as needed for them to complete the assigned exercise. For recordings of individual chords, the starting note usually remained the same (to make it easier to notate and arpeggiate from each chord—see step [2]). For commercial or excerpt recordings, students were only told the key of the piece or the starting note of the melody.

Class time was used to work on portions of the set homework assignments. For example, in Event 75, the teacher played chords (derived from a commercial recording) on a piano for students to transcribe rather than have students transcribe them directly from the recording. The original recording was of a folk-like melody sung over chords that were also performed on a piano. Each chord was played with the sustain pedal engaged and left to ring for several seconds; the chords harmonically supported the melismatic vocal part. The teacher took the transcribed chords and played them on a piano, which students then transcribed (in step [2]). The teacher provided students with the top note (E) before playing the first chord (which was Am).

[2] Students identified chords and transcribed the music, and occasionally sang arpeggiated chords. For homework, students transcribed chords from the recording. Individual (jazz) chords were transcribed by their chord type (e.g., major seventh, minor thirteenth). For commercial recordings, students were sometimes asked to transcribe the melody and bass lines as well (e.g., transcribing a lead sheet).

During class, for the particular exercise described in step [1], the teacher asked students to focus "entirely on voicings" (Event 75). That is, students had to identify every note that the teacher played in each chord. (Each chord comprised four to six notes.) Students notated the chords while the teacher

performed it several times, usually at least six times. After transcribing the chords, the teacher selected some students to each write out one chord they transcribed onto a whiteboard. The class discussed the answers, and the teacher encouraged students to describe their transcriptions if they differed from what was written on the whiteboard. The teacher often played both the original chords and students' answers on a piano to compare their differences aurally. Students errors were usually minor, usually involving missing or additional octave doublings—both of which were often particularly difficult to hear when played on a piano. During the discussions, the teacher occasionally helped students to hear each note by arpeggiating the chords more slowly. After confirming the correct voicings for each chord, the activity was concluded by having students listen to the original recording (from which the chords were derived).

When students had difficulty in the task and asked for help, the teacher asked students to sing each note of the chord starting from the top note, while listening to the chord played on a piano. The teacher suggested that students were taught to also apply this exercise when undertaking transcription activities at home: "they have to sing it [...] top-down [...] so they can hear chords from a melody" (Event 76).

Activity F4 'Associating chords with memorised chord progressions'

◇ **T ⇒ Pi$_c$**

This activity was described briefly on one occasion (Event 76). The activity was presented during a discussion in which the teacher characterised the 'traditional' approach to teaching harmony—that is, through textbooks—to be lacking in real-world relevance. The teacher preferred activities involving excerpts and recordings, such as F3 & F4.

Steps

1. The teacher nominated a specific jazz chord to focus on.

    The chosen chords were presumably ones that students would have previously studied or learnt during classes. Chords were identified by type (e.g., minor ninth).

2. Students individually performed excerpts of pieces (on a piano) that featured the nominated chord.

    Students were required to learn (prior to the activity) to play various jazz excerpts that featured specific types of chords. The teacher explained the rationale behind the exercise:

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"[Students] have to be able to play an excerpt that has [a particular chord] [...] They have to have an excerpt for every chord in the world. That's the idea. So the idea is [they'll] know the chord because they know some piece that has the chord within it." (Event 76)

Activity F5 'Playing chords progressions on keyboard with given chord labels'

◇ $R_c \Rightarrow Pi_c$

This activity was observed in one class (Event 78). Students undertook this activity while seated at electronic keyboards, each equipped with a pair of headphones. The activity was also briefly mentioned during an interview (Event 82), in which the teacher described this activity as being only recently introduced at Institution F.

Steps

1. Students read instructions and chord labels from a textbook.

   The textbook contained numerous notated exercises and explanations of chords and chord progressions (e.g., ii^7–V^7–I). The exercises included music notation and instructions on how to perform the chords in keyboard style harmony. Some of the exercises involved reading roman numeral chord labels and performing chord progressions in response. The chord labels were sometimes accompanied by notated bass and soprano parts.

2. Students played chords and chord progressions on an electric keyboard.

   A teaching assistant supervised the students, answering questions and assisting them on an individual basis. Students worked through set exercises individually and at their own pace, with limited supervision.

Activity F6 'Identifying cadences from recordings'

◇ $A \Rightarrow V$

This activity was observed in one class (Event 81).

Steps

1. Students listened to recordings from an excerpt and focused on the cadences.

In Event 81, the teacher selected two excerpts from the same recording of a Mozart string trio. Each excerpt comprised an 8- or 16-bar phrase, and students were asked to focus on two main cadences within each excerpt. The students worked on one excerpt at a time.

☐2 Students identified the scale degrees of the bass line at the cadences.

The teacher replayed the recording several times and stopped the recording at various times while indicating to the students to focus on the specific cadence. Students then identified the scale degree of the bass notes. Students also identified the scale degree of the melody note in order to determine whether an authentic cadence (V–I) was perfect or imperfect (in step ☐3). When students struggled to identify the scale degrees of either bass or melody parts in the recording, the teacher played parts of the excerpt on a piano. The teacher also sang the bass and melody notes on scale degrees number solmisation.

☐3 Students identified chords at the cadences.

The teacher explained how to identify the chords theoretically using knowledge of the scale degrees in the bass and melody parts. For example, the teacher explained how a $\hat{5}$ in the final bass note at a cadence (as identified in step ☐2) would indicate a half cadence.

Activity F7 'Singing arpeggiated chord sequences and outer parts'

◇ **R$_c$ ⇒ Pv$_c$**

◇ **A ⇒ Pv$_p$**

This activity was observed in one class (Event 84).

Steps

☐1 Students sang a scale in D minor up to $\hat{6}$, back down to leading note, and to tonic.

The notes D–E–F–G–A–B♭–A–G–F–E–D–C♯–D were written on a blackboard. Before singing the scale, the teacher provided the first note by playing a D on a piano. The students then sang the sequence of notes on fixed-*do* solfège syllables,[29] slowly and without accompaniment.

☐2 Students arpeggiated the tonic chord.

Students sang D–F–A–F–D with solfège.

☐3 Students arpeggiated the diminished-seventh chord and resolved it to a tonic chord.

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[29] Students sang the note B♭ the solmisation "*ti*-flat", C♯ the "*do*-sharp", etc.

First, the teacher wrote out the arpeggiated figure onto a blackboard with the notes C♯–E–G–B♭–A–F– D, in that order. The teacher then asked one student to describe the two chords; the student correctly labelled them as "diminished seventh" and "tonic." The class then sang the arpeggiated figure with solfège, unaccompanied.

4 The teacher played dominant seventh chords and asked students to sing either the top or bottom note, and to resolve the "tendency tones".

For example, the teacher asked one student to sing the top note and then played a A^7 chord, with a C♯ at the top. Once the student identified and sang the C♯, the teacher asked the student to resolve the note—the student sang a D. Several other students were selected individually to identify either the top or bottom note of dominant chords that the teacher played on a piano, and then to resolve the tendency tone (e.g., $\hat{4}$–$\hat{3}$ or $\hat{2}$–$\hat{1}$).

A.7 Activities at Institution G

Activity G1 'Playing chord progressions on piano or guitar'

◇ $R_c \Rightarrow Pi_c$

In Event 85, the teacher described this activity to students, who then practised and undertook the activity for homework and in subsequent classes. The activity was also described during an interview (Event 87).

Steps

1 Students read chord progressions on worksheets.

Chords were notated as functional symbols in the handouts, which included instructions on how to perform the chords in keyboard style (i.e., with three notes in the right hand and one in the left). In Event 85, the teacher demonstrated the exercise by simply playing three- and four-chord cadences in various minor keys, such as T–D–T, T–$^+$S–D–T and T–S–D–T.[30]

2 Students performed the chord progressions on a piano or guitar.

Students could choose to perform the progressions on either instrument.

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[30] The $^+$S symbol denotes a *major* subdominant chord in a minor tonality.

Activity G2 'Singing arpeggiated chords'

◇ R_c *or* $T \Rightarrow Pv_c$

This activity was observed in two classes (Events 85 & 86).

Steps
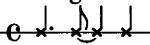
|1| Students read chord labels or received directions from the teacher.

Chord symbols were usually written in worksheets (for practise at home) or on the classroom's blackboard. Occasionally, the teacher asked students to arpeggiate specific chords or progressions.

|2| Students arpeggiated chords from the bass note up.

The chord arpeggiation pattern varied depending on the context. In Event 85, students arpeggiated up from the bass note and skipped back down to the starting note. For example, a tonic triad was arpeggiated with the notes $\hat{1}$–$\hat{3}$–$\hat{5}$–$\hat{1}$. The final note was slightly extended in duration, and it was tied to the starting note of the next chord if the two notes were identical. All notes were sung on neutral syllables.

In Event 86, students arpeggiated up *and* down, starting and ending on the bass note. When singing individual chords, students sang on scale-degree number solmisation (in Swedish).[31] However, they used neutral syllables when singing chord progressions to prevent confusion with the numbers referring to either scale degrees or a chord labels (e.g., $\hat{1}$ vs. chord I).

The rhythm of the arpeggiation was not bound by clear rules. Apart from the last bass note, which was usually extended, the duration of the arpeggiated chord notes was roughly equal. In Event 86, the teacher mentioned a well-known song (in Sweden). This song's melody basically outlined the arpeggiations of the chords T, S, and D using the rhythm: ♩ ♩ ♪ ♪ ♩ ♩. Students instinctively sang the tune (thus arpeggiating the three chords) while the teacher accompanied on a piano.[32]

|3| Students arpeggiated chords down from a melody note.

When arpeggiating down from a melody note, students were not always given a melody (although chords were provided, e.g., in a worksheet). In this case, students were expected to find a melody note closest to the melody note in the previous chord. For example, when arpeggiating a T–S chord sequence and starting on $\hat{1}$ in the tonic chord, students first arpeggiated with $\hat{8}$–$\hat{5}$–$\hat{3}$–$\hat{8}$. Holding the

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[31] This was not strict a strict requirement. One voice student whistled the tones instead of singing on numbers.

[32] In this particular piece, students performed the arpeggiation slightly differently to conform to the melody. Each arpeggiated triad comprised three notes: the bass note, third, and fifth of each chord, in that order. I.e., the bass note was not repeated.

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final $\hat{8}$, students were then expected to sing $\hat{8}$–$\hat{6}$–$\hat{4}$–$\hat{8}$. As the last note in the first chord was sustained, students did not have to repeat the same note in the subdominant chord. This was not as commonly practised as arpeggiating from the bass note up, and was observed in Event 85 only.

Activity G3 'Singing melodic lines while playing chords on piano'

◊ $R_c \Rightarrow Pi_c + Pv_p$

Like G1, this activity was assigned as a homework task; students did not undertake the activity during the observed class (Event 85). Instead, the teacher demonstrated the activity while students observed and asked questions.

Steps

1. Students played short chord progressions on a piano.

   The progressions were typically short, like those used in G1, and were notated and labelled on worksheets. The chords were performed in keyboard style, with three (or four) notes in the right hand, and the bass note in the left.

2. While playing each chord progression, students sang the highest note in the right hand.

   For each chord, the highest note in the right hand was treated as the melody note. The chord progressions were performed with smooth voice leading, and the highest note changed only when necessary, and only in stepwise motion. Students sang the melody while playing the chord progression.

3. Students played the same progression in two other right hand positions while singing the highest note in the right hand.

   After playing and singing the progression in one position, students then shifted their right hand up or down the keyboard to change the highest note in the right hand (e.g., starting from $\hat{5}$ rather than $\hat{1}$ in a tonic chord). Students then performed the same chord progression with the changed right hand position, while singing a different melodic line.

Activity G4   'Singing bass lines of chord progressions'

◇ $A \Rightarrow Pv_p$

This activity was presented to first-year students, who had just commenced learning about harmony in their aural classes. It was observed during one class (Event 86).

Steps

1. The teacher improvised a chord progression on a piano.

   Before starting the activity, the teacher explained the purpose of the exercise: "when you listen for the chords in a song, [...] I think the easiest way is to go from the bass line, and find the bass notes" (Event 86). The teacher then improvised a chord progression. Each chord in the progression occupied four slow and steady beats, which were marked by the right hand. The four beats gave students time to identify and sing each bass note in step 2.

2. Students sang the bass line while listening to the chord progression.

   As the teacher performed the chord progression, students freely began singing the bass notes whenever they were ready. Some students sang several wrong notes until they could find and matched the bass note that the teacher played. Students did not need to identify chord labels; they only had to listen to the bass line and sing it as quickly as possible. The bass line was sung on neutral syllables.

Activity G5   'Identifying chords by singing bass lines'

◇ $A \Rightarrow Pv_p$ *or* V

This activity was observed twice, in one first-year and one second-year class (Events 86 & 89, respectively).

Steps

1. The teacher played a chord progression on a piano.

   In the first-year class (Event 86), the chord progressions were relatively short with up to four chords in length. Chords were restricted to tonic, subdominant, and dominant chords, in major keys only, and

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all progressions began on the tonic. In the second-year class (Event 89), chord progressions were more rhythmically and melodically ornamented, and were longer (with four to seven chords). More types of chords were used, and only in minor keys. The progressions did not always start with a tonic chord. The teacher announced the key before playing each progression.

2️⃣ Students sang the bass line of the chord progression.

In the first-year class, students always sang the bass line while the teacher simultaneously played the progression on a piano. In the second-year class, the teacher often omitted this step. Only occasionally, usually when a student was unable to identify the chord (see next step), were second-year students asked to sing the bass line of the chord progression. When this happened, the bass line was sung either with or without simultaneously listening to the chords.

3️⃣ The teacher selected individual students describe the chord progression.

Since students in the first-year class worked with T, T, S, and D chords only, they identified the *order* in which they occurred. Second-year students, on the other hand, identified all the chords in each progression. Chords were labelled by their chord symbols. In both classes, the teacher followed up students' responses by describing the chords in terms of function.

Activity G6 'Harmonic dictation from CD recordings'

◇ $A \Rightarrow N_c$

This activity was intended as a homework task only; students did not undertake this activity during classes. It was described during an interview with two teachers (Event 87).

Steps

1️⃣ Students listened to recordings of excerpts on their study CD.

Recordings were of a variety of genres, including rock, pop, jazz, and classical.

2️⃣ Students transcribed the chords.

Chords were written using chord symbols (e.g., A^7 and $B\flat^7_5$) rather than roman numerals.

Activity G7 'Identifying types of seventh chords'

◇ **A ⇒ V**

This activity was described to me briefly at the end of a class (Event 90), and was intended for second-year students.

Steps

1. The teacher played a seventh chord on a piano.

   The teacher selected from a range of common seventh chords, such as minor seventh and half diminished chords. Each chord was played twice before the next step. Usually students practised this activity with about ten different chords during one class.

2. Students described the type of seventh chord.

   If necessary, the teacher played the chord again to correct or confirm students' answers.

A.8   Activities at Institution H

Activity H1   'Dictation exercises from CD recordings'

◇ **A ⇒ N$_c$ *or* V**

This activity required students to undertake homework tasks, which were then discussed or explained during class time. It was observed in three classes (Events 92, 93, & 105).

Steps

1. Prior to attending class, student undertook aural identification tasks at home from CD recordings of musical excerpts.

   Common exercises included transcription of certain parts (such as the bass and specific melodic lines) as well as aurally identifying and notating chord functions. Students were usually assisted in this step with worksheets contained indications (such as rhythmic values) so that they could follow the recording effectively. These worksheets were produced by—and shared amongst—staff members at Institution H.

In some classes, answers (such as chord labels) were provided to the students so that they could check their answers prior to the next class.

2. Students worked through excerpts through discussions and further listening.

Usually, in order to prompt and aid discussion and aural identification of the music, the teacher played sound recordings or performed the excerpt on a piano. Students usually listened to recordings at the start. During the discussions, the teacher either replayed specific sections of the recording or performed it on a piano, whenever necessary. The specific questions and exercises that students undertook varied depending on the type of excerpt, the details that the teacher wanted to discuss regarding the excerpt, and the ability level of the students. Students were free to ask questions about the excerpt, and this usually prompted further discussion amongst the whole class.

Both homework tasks and in-class discussions were not assessed or graded. The main purpose of this activity was to engage in discussions concerning the harmony and chords in a given excerpt. The discussions were often flexibly combined with various other activities that involved singing and playing on instruments (e.g., H2 & H3).

Activity H2 'Discussing cadences and chords while singing through excerpts'

◇ $R_c \Rightarrow Pv_p$

This activity was observed in two classes (Events 92 & 94).

Steps

1. Students were provided with a full score of a musical excerpt.

The music used in Event 92 was a Bach chorale, although many other examples included orchestral works, chamber music, and jazz repertoire. Students were usually assigned homework involving singing through specific parts and reading the scores at home, prior to class.

2. Students sang through the music.

In one class (Event 92), there were four male students: two tenors and two basses. The teacher played the soprano and alto parts while the men sang the lower parts, from start to finish.

3. While singing the excerpt, students occasionally identified chords through singing and listening exercises.

On one occasion, the students experienced intonational issues with a diminished seventh chord. (The interval between the two lower parts was a diminished seventh, while the upper parts, which the teacher

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played on a piano, contained the minor third and flattened fifth.) The teacher asked the students to sing the phrase again and to pause on the problematic chord. Upon singing the chord and pausing on it (this time more in tune), the teacher asked the students to describe the chord quality. One student correctly identified it as a diminished seventh chord.

Both during and after singing a phrase or section of the music, the teacher often talked with students about specific features of the music excerpt, in particular the harmonies and chords.

Activity H3   'Singing arpeggiated chords from music or chord labels'

◇ $R_c \Rightarrow Pv_c$

This activity was observed in numerous classes (Events 92, 93, 95, 97, & 107) and described on one occasion (Event 106). The description below also presents a general method of arpeggiating chords, which was applied not only in this activity (wherein students *read* chord labels or notation) but also in other activities that involved arpeggiating chords (e.g., H7). In order to simplify the presentation of this method, arpeggiating from the bass up and from the melody down are separated into steps even though they constituted a single method. In practice, students did not necessarily undertake bass-up arpeggiation first (step ②) followed by melody-down (step ③), in that particular order, although bass-up arpeggiation was more frequently employed.

Steps

① Students read and interpreted music notation or chord labels.

Students read from a variety of sources, including full scores (music notation) and notated melody or bass lines with accompanying chord labels (either chord symbols or functional chord labels). For example, in Events 92 & 95, students read from choral (four-part) scores, while in Event 105, students read jazz chord symbols.

② Students sang arpeggiated chords from the bass up.

Students either arpeggiate chords from the bass line up or from the melody down (see step ③). When arpeggiating from a given bass line,[33] students first sang an arpeggio up from the bass note without repeating any notes (i.e., the starting note was not sung an octave higher). Upon singing the final note of the broken chord, students sang the bass note again, sustaining it briefly, before proceeding to the

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[33]   While this step constantly refers to the *bass* line and arpeggiating *upwards* from it, the same principles were applied when students arpeggiated *down* from the *melody* line.

next note in the bass line. Thus, the bass line was essentially treated and sung like a melody with the addition of arpeggiations whenever it was part of a new chord. The rhythm of the arpeggiation was free—students could take their time to 'find' the notes. One teacher strongly encouraged students to maintain a sense of rhythm when singing the bass line and arpeggiations, such that the exercise was treated as a vocal performance of the bass line in its original form, combined with a harmonic accompaniment. In this way, repeated notes in the bass line were sung, and, apart from when arpeggiating, note lengths and rhythms were approximated.

The skills involved in arpeggiating chords were vastly different when students read from music notation as opposed to chord labels. When arpeggiating from music notation (i.e., scores), students had to analyse the music notation (usually multiple parts) in order to work out what notes to sing. This was usually much more demanding than singing from chord labels. While the teacher did not rush students, this visual harmonic analysis of the score needed to be completed at a reasonable pace in order to maintain momentum in the singing. In addition, the bass line normally included non-chord tones (e.g., passing notes that are not harmonised) in addition to chord tones.[34] Since arpeggiations must start from chord tones only, students had to distinguish chord tones from non-chord tones while arpeggiating. Furthermore, each chord was only arpeggiated once until it changed—that is, subsequent chord tones occurring over the same prevailing chord were usually *not* arpeggiated again. Therefore, when arpeggiating from music notation, students had to constantly analyse the music not only to identify *what* notes to arpeggiate with, but also *when* to arpeggiate.

The task of arpeggiating was greatly simplified when students arpeggiated while reading *chord labels*. Here, students did not need to analyse music notation to find out what notes were in each chord, nor did they need to work out the locations of each chord change. Having chord labels eliminated the need for both tasks, so students could focus on singing the correct notes.

The teachers usually played (on a piano) the starting note or chord only, allowing students to arpeggiate with minimal accompaniment. Once a student arpeggiated a chord correctly, teachers sometimes played the chord on a piano to confirm the correctness of the singing and to provide some harmonic accompaniment. The teachers rarely played the chord *before* students sang the arpeggiation, which would enable students to simply imitate what they heard rather than auralise the chord internally before singing it.

3 Students sang arpeggiated chords from the melody down.

The method of arpeggiating from the melody down was essentially identical to the method presented above (step 2), with the two main differences being the starting note (melody rather than bass) and the direction of the arpeggio (downwards rather than upwards). Melody-down arpeggiation also required

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[34]   In music, bass lines and melodies comprise much more than just chord tones, unlike many chord progressions and exercises created specifically for the purposes of aural training. At Institution H, students worked almost exclusively from excerpts derived from music repertoire.

that students read from a notated melody, whereas the bass-up type could be undertaken with chord labels or symbols only, without any music notation.[35] Sometimes, when a student's vocal range made arpeggiating downwards prohibitive, he or she instead arpeggiated *up* from the melody.

Activity H4   'Performing chords in four parts while identifying chords'

$\diamond$ $R_p \Rightarrow P_p \Rightarrow A \Rightarrow P_c$ *or* V

A crucial element of the activity was the use of a specially designed score. This score, or worksheet, comprised four staves, each containing one of four parts of a series of chords or a chord progression, with each stave oriented against each of the four edges of the page. This meant that, depending on how the worksheet was placed on a music stand, only one part could be (easily) read. The four parts usually resulted in block chords, which themselves were derived from an excerpt of a repertoire piece. In each part, every bar (or in some cases note) was numbered so that the teacher could easily specify which chord students should perform. The activity was observed in one class (Event 93) and described in several discussions and interviews at both Institution H and Institution G[36] (Events 87, 95, & 106).

Steps

$\boxed{1}$ Students were assigned one of four parts.

As described above, each students received the same worksheet but placed it on their music stand in one of four possible positions to read their designated part. Each part was usually assigned to one student only. In Event 93, there were five students. The other four students were seated at electronic keyboards, while one student sat and observed for half of the activity and swapped with another student for the remaining half.

$\boxed{2}$ Students performed individual chords or the whole chord progressions, as directed by the teacher.

In Event 93, students first played through the whole excerpt once through. Afterwards, the teacher conducted students in playing smaller phrases, discussing after playing through each one (see below).

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[35] This is possible because bass notes can be identified when reading chord labels, whereas melody notes are not denoted in chord labels.

[36] Due to the frequent exchanges of ideas at gatherings (e.g., forums, seminars, workshops) between music theory teachers in Sweden, it was not unusual for staff at one institution to be acquainted with the teaching practices at other institutions. Also, one staff member at Institution G had previously taught at Institution H and thus was in a position to describe some activities, such as H4, in sufficient detail.

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3 Students identified chords by either describing a chord label or arpeggiating it.

The teacher asked individual students to label chords and describe cadences while playing through smaller phrases of the excerpt. Students approached the task of identifying chords differently. Some took notes or wrote chord labels onto the worksheet during and soon after playing through it as an ensemble, presumably because they recognised it upon first hearing. Students who had difficulty identifying chords arpeggiated the chord (using their aural memory of the chord), and then identified the chord by analysing the notes. Students arpeggiated either on their keyboard or by singing it.

4 Students listened to a recording of the original excerpt from which the chords were derived.

In Event 93, students discussed various features of the music, sang specific parts, and analysed the score after listening to the recording. Finally, students were assigned a homework activity involving the same excerpt (see H5).

Activity H5 'Singing melodies while playing chords on piano'

◇ $R_c \Rightarrow Pi_c + Pv_p$

This activity was assigned as a homework activity during one class (Event 93). This homework was assigned *after* undertaking several other activities involving the same excerpt, hence students were already familiar with the music—both the score and how it sounded like (see H4). After practising the activity at home, students were to present it (i.e., perform the music as instructed) during class one week later.

Steps

1 Students read music from a reduced score.

The reduction was of an orchestral score[37] presented onto three staves. Instruments and parts were separated onto one of three staves, including an *ostinato* figure in the clarinet which was notated in the top stave.

2 Students performed the music while singing the *ostinato* figure.

The music was spread across three staves, with the *ostinato* melody notated in the top stave.

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[37]   In Event 93, the excerpt was taken from the *Andante molto* section of George Bizet's *L'Arlésienne* (*The Girl from Arles*), Suite No. 1: I. Prélude.

Activity H6 'Performing excerpts on piano by ear through guided repetition'

    ◇ $A + R_p \Rightarrow Pi_c$

This activity was intended to be undertaken by one student at a time, and was observed in one class (Event 95) and described on two occasions (Events 106 & 108). In this activity, the teacher and student were seated at one of two upright pianos, which were positioned back-to-back. The height of both pianos was identical and low enough to enable the two people to communicate and interact directly, face-to-face. On top of the piano were stereo speakers for playing sound recordings of the excerpts.

The activity was essentially a comprehensive study of music excerpts through listening and performance. While a significant portion of the activity pertained to harmony and involved aural identification of chords, students were also introduced to various other topics that were relevant to the music excerpt being studied, including the relevant historical context, lyrics and word-painting, and both instrumental and vocal intonation as heard in the recording. Students also aurally identified and discussed the rhythm, instrumentation, textures, dynamics, and more. For the purposes of this study, the following description focuses on the harmony-related aspects only.

Steps

1. The student was provided with a worksheet for a specific excerpt.

   Each worksheet was a partial or incomplete score of the music excerpt being studied. For example, the score could be a chorale score missing an alto part, or perhaps one part was presented with only the rhythm, but without pitch information. It could also be a rhythmic reduction, including only crotchet notes with all quaver passing notes eliminated. The worksheet was treated as a template, and the student's task was to identify the elements that were missing. Usually, the teacher prepared several worksheets prior to class, each one with differing portions of the score reduced or missing. The teacher then decided which worksheet to use depending on the ability of the student and the topic. For example, a worksheet with pitches but without rhythm could be used to train the student's recognition of rhythmic patterns. The teacher did not reveal to the student what was missing from the worksheet.

2. The student listened to a recording of the excerpt, from start to end.

   Each excerpt usually comprised a large section of a composed work (such as the development section of a *sonata-allegro* movement) but usually not longer than one A4 page. The teacher asked the student

what information was missing from the worksheet, implicitly explaining that the task was to identify (and perform) the missing details.

3 The teacher played small fragments of the excerpt, to which the student responded by playing them on a piano.

This step, the main part of the activity, involved intensive listening and responding on the part of both student and teacher. Starting from the beginning of the excerpt, the teacher played back small fragments or portions of the music to the student, who responded by attempting to play the same thing back on the piano. These fragments were short enough to enable the student to memorise and play it back by ear, yet long enough to make it challenging. The exact length of each fragment thus depended on the complexity of the music as well as the students' ability to perform the music. When the teacher realised that a fragment was perhaps too long for the student, it could immediately be cut into smaller pieces. Once the teacher judged that the student performed a fragment satisfactorily, the teacher played the next fragment, gradually progressing from the start to the end of the excerpt. A certain amount of overlap between past and new fragments of music made the process a continuous and musically satisfying experience.

The teacher played the fragments in one of two ways: by playing a CD sound recording or by playing the excerpt on a piano. The teacher carefully controlled the playback of the sound recording with a remote control, using the CD player's memory, fast-forward, and rewind functions to efficiently play only the required portion of the recording. When playing the excerpt on a piano, the teacher either performed it as notated (e.g., for keyboard repertoire) or with some simplifications (e.g., as a harmonic reduction of ensemble or orchestral works). In either case, the teacher read from the complete score. Harmonic reductions were either performed in *basso continuo* style (one note in the bass, three or more notes in the right hand, while avoiding doubling of leading tones, etc.) or exactly as notated in the score (e.g., in four-part chorale music). The teacher usually chose to have the student play by ear from the recording, reserving the piano only for times when the student had difficulty identifying details when listening to the recording.[38]

While much of the interaction between student and teacher was done through playing the piano (and the recording), verbal discussions formed an equally important role throughout the activity. For example, when the student's rendition of the music was incomplete or incorrect, the teacher often assisted the student by asking questions, providing hints, or sometimes directly pointing out the problem. The student could respond verbally, although more commonly, the teacher encouraged the student to play the music to demonstrate understanding rather than verbally describing the music. Playing the music on a piano enabled the teacher to immediately assess what the student had correctly (and incorrectly) identified. This approach was especially more efficient than words when the teacher assessed whether the student observed small but important details, such as the octave placement of specific

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[38] Factors that made it difficult to identify details from the sound recording included (but were not limited to): poor sound quality, soft dynamics, fast tempo, and flaws or incorrect execution in the recorded performance.

notes, managing voice leading (or the lack thereof in the original music), etc.

Sometimes, the teacher asked the student to *sing* portions of the music rather than play it on the piano. This was observed on one occasion when the student performed a chord progression mostly correctly, forgetting only to play the seventh of the dominant chord. The teacher noticed this and asked in response: "[Is it a] three note chord or four note chord? [Is] there a seventh or not? If there is a seventh, how should it sound? Don't play, just sing" (Event 95). In this situation, singing the note encouraged the student to recall and 'hear' the chord, rather than simply striking it on the piano to compare the actual sound. The student responded by arpeggiating the dominant triad (see H3), then added the seventh. As soon as the student sang the seventh, the teacher played back the relevant portion of the sound recording and paused on the same chord. Upon hearing the recording, the student was able to confirm that the chord was indeed a dominant seventh rather than a dominant triad.

4 The student listened to the whole recording again from start to finish.

This last step was undertaken once the student had performed through the whole excerpt from start to finish in small fragments (as described above). Before listening to the whole recording again, the student was given the complete score of the excerpt, containing all the missing information (e.g., pitch, rhythm, key signature, and accidentals) that the student tried to identify aurally in the previous step. As an extra challenge, and when time permitted, the teacher sometimes asked the student to perform the excerpt transposed to other keys, while reading from the incomplete score (i.e., from memory).

Activity H7 'Identifying chords through performing arpeggiated chords'

◇ $A\ (+R_p) \Rightarrow P_c$

This activity was observed in two classes (Events 97 & 99). It involved arpeggiating chords using the method described earlier in H3.

Steps

1 Students listened to a chord or chord progression.

The teacher performed the chord or chord progression on a piano. In some instances, student were provided with a worksheet showing a notated melody or bass line, which supported them in following music linearly while listening to and singing the arpeggiated chords (see next step).

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$\boxed{2}$ Students arpeggiated chords, either from the bass up or from the melodic down.[39]

The teacher usually played and sustained individual chords on a piano while students arpeggiated each chord. Students usually took turns to arpeggiate chords individually, at their own pace. The teacher sometimes assisted students who had difficulty arpeggiating by also arpeggiating each chord on the piano, sounding notes one at a time (usually from the bass note up). This behaviour encouraged students to sing each note as it was sounded on the piano, thus completing the arpeggiation once all notes were sung. Students usually arpeggiated by singing (on neutral syllables), but they could also play them on their instruments.

When a melody or bass line part was provided, students were encouraged to sing the part as written, including all ornamental and passing tones. However, students were to arpeggiate only when the harmony changed when the note in the melody or bass part was a chord tone.[40]

When students struggled to identify or describe chords during *other* activities involving chord identification, the teacher sometimes asked students to try and sing arpeggiate chords (as described in this activity) to help them then label it (e.g., Event 99). Quite often, students were able to correctly identify and label chords after successfully singing them in an arpeggiated manner.

Activity H8   'Identifying chords by singing guide-tones while listening'

$\diamond\ \textbf{A} \Rightarrow \textbf{Pv}_\textbf{p}$

This activity was observed in aural classes for students studying music pedagogy (Events 102 & 104). In Event 102, students individually played the role of a 'teacher' while the teacher observed and acted as a 'student'. The teacher occasionally described alternative ways of presenting the activity through carefully worded questions designed to assist students in correcting problems by themselves. When necessary, the teacher also demonstrated different approaches by taking the role of a teacher again while students (including the practising 'teacher') observed. The activity was very similar to the "guide-tone method" described in Rahn and McKay (1988).

Steps

$\boxed{1}$ Students listened to chord progressions.

The chord progressions were usually derived from music excerpts. In Event 102, the excerpts were selected by a music pedagogy student, who 'taught' this activity to the teacher, acting as a student, and

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[39]   For a detailed description of the arpeggiation method, refer to the activity description of H3 on p. 307.

[40]   This method is described in more detail in H3.

other fellow students. The chords were either played on a piano or as a CD recording. During the class, the teacher and students discussed and described two features that would make an excerpt suitable for this exercise (step 2). First, the harmonic rhythm should be regular, usually in four-bar patterns, so that students feel a natural change from one chord to another. Second, only the primary triads (tonic, subdominant, and dominant) should be used in the excerpts so that students can identify all the chords using the two "filters" described below.

Students were provided with worksheets that indicated (with horizontal lines) where chord changes occurred. The notation only included a time signature, bar lines, and the rhythm of the most aurally prominent melodic (or rhythmic) line. No pitch content was provided. Students read from this worksheet while listening to the excerpt.

2 Students sang or hummed either a "dominant filter" or "subdominant filter" while listening to the chords.

Students essentially harmonised the prevailing chord by singing one of two notes of the filter while listening to the recording. This required students to identify the presence of either one of two specific notes within the prevailing harmony. They then sang or hummed the note in response. Changes between the two notes indicated where a particular chord occurred in the music. Thus, the dominant and subdominant filters were used to aurally identify the occurrence of dominant and subdominant chords, respectively.

In Event 102, students applied the dominant filter by singing either the tonic note ($\hat{8}$) or the leading tone ($\hat{7}$) while listening to a recording. Harmonising with $\hat{7}$ signified a dominant chord. Once this was completed, students noted down where the dominant chords occurred on their worksheets. Afterwards, students listened to the recording again, this time singing the subdominant filter, which comprised two other notes: $\hat{5}$ and $\hat{6}$. Students only had to focus their attention at the remaining spaces on their worksheet which were *not* marked as a dominant; in other words, they had to distinguish between the tonic and subdominant chords where they previously sang $\hat{8}$. Harmonising with a $\hat{5}$ represented a tonic chord (where it was not already marked as a dominant chord), while $\hat{6}$ indicated a subdominant chord. Using these two filters, then, and based on the knowledge that no other chords (e.g., vi) were used within the excerpt, students aurally identified the three chords in the excerpt.

A.9 Activities at Institution I

Activity I1 'Identifying and discussing chord progressions in repertoire'

- ◇ $R_c \Rightarrow Pi_c$
- ◇ $A \Rightarrow V$

Students were required to prepare for this activity by bringing to class a written-out music score or chord progression (see first step). The activity was observed in two classes (Events 109 & 114).

Steps

1. Prior to class, students were given the homework task to bring to class music excerpts that contained specific chord progressions.

   Students were asked to find pieces of music that contained specific cadences, such as II–V–I and IV–V–I. They then brought these pieces to class in the form of music scores, lead sheets, or written-out chord progressions.

2. Students presented their excerpts, either by performing it on a piano or by presenting it to the teacher, who performed the excerpts.

   The range of repertoire that students chose from varied greatly, ranging from traditional folk melodies to jazz standards.

3. The class discussed the different types of cadential patterns, the harmonic rhythm, and chords as the teacher played the chord progressions on a piano.

   In Event 109, the teacher discussed how a IV chord can be substituted with other chords, such as ii and II^7, and how the dominant chord in a i–V^7–i progression could be substituted with two chords to create, for example, i–ii°–V^7–i. Throughout the discussions the teacher illustrated these cadences and substitutions by playing excerpts of jazz repertoire or improvised block chords on a piano.

Activity I2   'Discussing different harmonisations of melodies'

◇ $R_p \Rightarrow Pv_p$

◇ $R_c \Rightarrow P_p$

◇ $A \Rightarrow N_c$ *or* V

Students usually undertook this activity immediately after I1.   It was observed in one class (Event 109).

Steps

1. The teacher wrote a melody on the whiteboard, which students sang unaccompanied.

2. The class discussed possible harmonisations for the melody, while the teacher wrote chord labels above the melody.

   The class discussed what chords one might use to harmonise the melody, while the teacher wrote roman numerals chord labels over the melody. At one particular bar, students could not reach a consensus on how to harmonise the note (the melody was on $\hat{5}$, and thus could be harmonised with I, iii, or V). The teacher wrote a question mark ('?') above that note and moved on.

3. Students played on their instruments (or sang) the bass line of the harmonisation, while the teacher played the melody and chords on a piano.

   The students were instructed to play their part until they reached the question mark, at which point they were to stop playing (the bass line). Upon reaching the question mark, the teacher played the melody note (without any chordal accompaniment) and held it for a brief moment. After the pause, students resumed playing the bass line and the teacher accompanied with chords until the end of the piece.

4. The teacher then performed the same melody with changes to the harmonisation, which the students identified and wrote down.

   Students were asked to jot down which chords the teacher changed in the new harmonisation. At this step, they listened to the teacher's performance without performing any part themselves.

5. The class described the chord changes and discussed the problems of parallel octaves and fifths in outer parts.

   First, students focused their attention on the teacher's harmonisation of the melody note marked with

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the question mark (see step $\boxed{2}$). The teacher harmonised that note with chord iii (A minor).[41] After listening to it, students correctly identified the chord as A minor. The teacher then showed the students how to "prove" it. First, the teacher played the chord and asking students to sing the melody note, and then the root (bass) of the chord. As instructed, the students sang the two notes in turn (C, then A). The teacher then sang the two notes again, arpeggiated the A minor chord (from the root), and explained to the students that "[the melody note] is the third in the minor chord" (Event 109).

One of the chord changes that the teacher played resulted in parallel octave motion between the bass and melody parts.[42] Without pointing out the problem directly, the teacher asked the students to play the bass line where the parallel octaves occurred. The teacher played the melody on the piano while the students played their part. This made the issue of parallel octaves very obvious for the students, who then discussed with the teacher possible changes to the harmonisation that would avoid the problem.

$\boxed{6}$ The teacher wrote out another melody, played it on a piano, and discussed with students how to avoid parallel fifths and octaves between the melody and bass parts when harmonising it. This second melody had a similar contour to the first, which enabled the teacher to directly compare the two during the discussions.

Activity I3 'Singing arpeggiated chords'

◇ $R_c \Rightarrow [Pi_c \text{ or } Pi_p] + Pv_c$

This activity involved reading from a worksheet that contained a large table of different arpeggiated chords represented on one staff. The chords were arranged systematically, sorted by the starting notes and types of chords; there were no accidentals or key signatures. The worksheet contained all possible combinations of triads, i.e., major, minor, and diminished triads in all every inversion. Each arpeggiated chord was barred separately and comprised one musical example. The arpeggiations took various forms, such as $\hat{1}$–$\hat{3}$–$\hat{6}$–$\hat{8}$–$\hat{10}$ and $\hat{2}$–$\hat{7}$–$\hat{4}$–$\hat{9}$–$\hat{7}$–$\hat{12}$–$\hat{9}$. The teacher gave demonstrations of this activity during class time; students were expected to undertake the activity individually and outside of class time. The activity was observed in three first-year classes (Events 109, 110, & 114).

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[41]   The chord progression was as follows: [...]–V–**iii**–vi–ii–V–I (i.e., [...]–C–**Am**–Dm–Gm–C–F).

[42]   The teacher presumably harmonised in this way intentionally, using this 'error' to instigate the ensuing discussions on avoiding parallel octaves and fifths when harmonising melodies.

Steps

1. Students played a triad (in root position) on a piano, and then sang the arpeggiated chord.

   First, the teacher selected at random one of the arpeggios. Once students worked out the triad, the teacher played it as a block chord on the piano, in root position. The students then worked out the starting note of the arpeggio, based on the chord played on the piano, and then sang the arpeggio.

2. Students played the root of the triad, and sang the arpeggiated chord.

   This was essentially the same as the previous step, except students only heard the root of the triad before singing the arpeggio.

3. Students played the first note of the broken chord on a piano, and then sang the arpeggiated chord.

   In this final step, students heard only the first note of the written-out arpeggio before singing the arpeggio. The goal was to be able to sing the notated arpeggio as quickly as possible upon playing the chord or melody note; the teacher referred to this final step as a "speed exercise" (Event 109).

Activity I4 'Identifying, singing, and playing arpeggiated chords'

◇ $A \Rightarrow P_c$

This activity was observed in one first-year (Event 110) and one second-year (Event 115) class. Students brought their instruments to class or used an electric keyboard.

Steps

1. Students listened to the teacher play a chord followed by an arpeggiated figure.

   In Event 110, the teacher first named the chord (e.g., saying "F major") and then played it (with both hands) near the lower register of the piano. Sustaining that chord with the pedal, the teacher then slowly played a three- or four-note arpeggiated figure (e.g., in F major, A–C–A–F). In Event 115, the teacher played four-note chords both harmonically and melodically (by arpeggiating up from the root of each chord).

2. Students sang the arpeggiated figure.

   Students sang the figures on scale-degree number solmisation, relative to the root of the chord. For example, A–C–A–F was sung as "$\hat{3}$–$\hat{5}$–$\hat{3}$–$\hat{1}$".

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3 Students played the same arpeggiated figure on their instruments.

Students were usually asked to play the figure on their instruments only after singing it correctly. In Event 115, when students appeared to have little difficulty singing the figure, the teacher asked students to play it on their instruments right after hearing it, skipping step 2 .

Activity I5 'Performing counter-melodies in chord progressions'

◇ $A + R_c \Rightarrow Pi_p^i$

This activity was observed in one class (Event 110) and described immediately after it (Event 111).

Steps

1 Students were each assigned a two-note figure (either $\hat{5}$–$\hat{6}$, $\hat{3}$–$\hat{4}$, or $\hat{1}$–$\hat{7}$).

The three figures were written on the whiteboard for students to refer to.

2 The teacher performed a looped chord progression, while each student took turns to improvise a melody while other students harmonised with their two-note figures.

The chord progression was usually written out on the whiteboard. One of the chord progressions was an eight-bar sequence of C–F–G^7–C, with one chord change every two bars. As the teacher played the progression, students harmonised the chords with their assigned two-note figures on their instruments. They were not told to do this, but improvised[43] and relied on their ears to match either one of their two notes to the chords. Towards the end of the first eight bars, and without interrupting the music, the teacher nominated one student to improvise a melody. This student then improvised a solo while the others played their assigned figures. The teacher assigned a different student to improvise at each repetition of the progression, until every student had a turn, at which point the performance concluded.

Activity I6 'Multi-part performance while labelling chord types'

◇ $T \Rightarrow Pi_p \Rightarrow A \Rightarrow V$

This activity was observed in a second-year class (Event 112) and described on one occasion (Event 111).

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[43] Indeed, some students when playing their figures deviated from their assigned figures. The teacher was not concerned about this, as long as students were able to correctly harmonise the given chord changes.

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Steps

1 Students were each assigned a starting note to play on their instruments.

In Event 112, the teacher explained that in first-year classes, students worked with three-note chords rather than four-note chords. First-year students had to identify both the chord quality (e.g., major or minor) and the inversion. Event 111 was a second-year class, and so students played and identified four-note chords.

In Event 111, students were assigned the following notes: G, B, D, and E (from lowest note up). These four notes were played by a student each on a piano, viola, viola, and clarinet, respectively. One student (whose instrument was electric guitar) did not participate in the chord-playing activity, presumably in the interest of balancing the timbre and volume of the four notes.

2 The teacher indicated note changes to individual students through gestures.

Before starting the activity, the teacher reminded students of the three hand gestures that denoted moving up a semitone, moving down a semitone, and sustaining the chord. At each chord change, the teacher first indicated either the up- or down-gesture to one of the students, and then indicated the sustain gesture.

3 The teacher and students identified chord qualities after each chord change.

While students held and sustained their chord, they were asked to name the chord quality (e.g., "minor sixth", "minor seventh"). Although the teacher asked students to name each chord quality, in most instances the teacher gave the answers away before students could respond. Therefore, while students were encouraged to identify the chord types, they were not required to do so.

Activity I7 'Identifying chord changes and responding through gestures'

◇ $A \Rightarrow G \ (+ Pv_p)$

This activity was observed during one class (Event 114) and described on one occasion (Event 111).

Steps

1 Students individually indicated chords by pointing while listening to a recording.

In Event 114, the teacher used a recording of a Beatles song streamed over the internet. The following chord labels were written on a whiteboard at the front of the classroom: I, IV, V, and I. The teacher invited one student to stand at the whiteboard and, while listening to the recording, point at the chord

label that corresponded with the music. Other students either observed from their desks, or they could also participate by pointing at chord labels written on a piece of paper (prepared beforehand) while seated.

During an interview (Event 111), the teacher described a preparatory exercise using similar principles. In this exercise, the three primary chord functions were written on a whiteboard and each chord was circled; in each circle was a chord symbol (Gm, Cm, and D^7) plus a chord label (I, IV, and V^7) beneath. The student then pointed to either of the three circles. In response, the *teacher* played the corresponding chord on a piano. By pointing to several chords in succession, students effectively 'composed' their own unique chord progression, with the teacher acting as the performer. Students took turns to undertake this preparatory exercise individually.

$\boxed{2}$ Students raised their hands to signify dominant and subdominant chords while the teacher played chord progressions on a piano.

This step involved singing assigned two-note figures, similar to the steps described in I5. However, rather than writing down their responses (as in I5), students raised their hands to indicate either a dominant or subdominant chord. Students listened to a recording while quietly humming or singing one of the two notes. First, students identified dominant chords by humming either $\hat{1}$ or $\hat{7}$ in order to harmonise with the chords in the recording. When $\hat{7}$ harmonised with the chord, this indicated a dominant chord, and students raised their hands for the duration of the chord. Next, students similarly identified subdominant chords by humming $\hat{5}$ and $\hat{6}$ and raising their hand when humming $\hat{6}$, which indicated a subdominant chord.

Activity I8 'Step-by-step dictation: identifying chords by type'

◇ **A ⇒ N$_c$**

In this activity, students were provided with a worksheet containing a notated melody, boxes above the melody (for notating chords), and the sequence of steps (as described below). The activity was described on one occasion (Event 111).

Steps

$\boxed{1}$ Students listened to a music excerpt played by the teacher.

The excerpt was played on a piano. The teacher repeated as many times as necessary for students to complete each of the tasks below.

2 On the first listening, students identified all instances of the tonic chord by labelling them in the provided boxes above the notated melody.

The students labelled them as chord symbols (e.g., A^7).

3 Students listened to the excerpt again, and identified and labelled the dominant chords.

4 Students listened to the excerpt again, and identified and labelled all *minor* chords.

Students first wrote an 'm' for minor.

5 Students listened to the excerpt again and filled in all the remaining empty boxes.

Students were advised to identify the labels for the minor chords by comparing them with chords that preceded or followed immediately, and to focus on the bass line.

6 Students described their answers and the teacher revealed the correct chord labels.

Where necessary, the teacher played the relevant sections on a piano for students to listen to again.

Activity I9 'Identifying chords and chord progressions from piano'

◇ **A ⇒ N_c**

The teacher described this activity as a "mini test" and was observed in one class (Event 112).

Steps

1 Before the test, the teacher played chords and chord progressions while describing the chord labels.

The teacher demonstrated chords and chord progressions (excerpts) that were similar to those that were used in the test (step 2). When playing individual chords, the teacher sustained it for about 5 to 10 seconds before announcing the chord type (as major, augmented, minor seventh, etc.). The teacher performed long jazz piano pieces to demonstrate chord progressions. While playing the piece, the teacher shouted out the chord label while playing it, and without pausing. Sometimes, the chord label was announced just before it was played; other times, simultaneously.

2 Students listened to note sequences, isolated chords, and chord progressions played on a piano, and notated them on paper.

Note sequences were usually short melodies based on arpeggiated chords; the starting note was provided. Individual chords were identified by chord type (e.g., major seventh). Chord progressions were labelled by chord symbols (the key was provided). Chord progressions were three to four chords long, and were derived from the jazz repertoire.

|3| Students marked each other's test paper.

The teacher announced the answers while students marked their peers' papers.

Activity I10 'Identifying chords while singing accompanied melodies'

◇ $R_p \Rightarrow Pv_p$

◇ $A + R_p \Rightarrow V$

This activity was observed in one class (Event 114).

Steps

|1| Students sang a simple four-bar melody while the teacher accompanied by playing chords on a piano.

The melody was written on a whiteboard.

|2| Students identified and described the chords that the teacher played.

Students could only identify a few number chords after hearing it only once (while singing the melody in step |1|). The teacher wrote chord labels on the whiteboard when students correctly identified them. Once students identified all the chords that they could remember, the teacher played the chord progression again. The teacher played the progression as many times as necessary for students to correctly label every chord. Students did not sing the melody while listening to the chords, except for the first time they sang the melody (in step |1|).

Activity I11 'Singing arpeggiated chords with body movements'

◇ $T \Rightarrow Pv_p$ *or* Pv_c

This activity was observed in one class (Event 114), immediately after I10. It required students to step forwards and backwards over a space of about metre or two. Students undertook this activity

behind their chairs facing the right-hand side of the classroom (parallel with the row of desks). To prepare for this activity, students first stood up and tucked their chairs under the table to make space on either side.

Steps

1. Using a I–IV–V–I chord progression, the teacher named one chord label at a time while students stepped forwards and backwards corresponding to each chord change.
In this activity, each step backwards and forwards indicated moving up and down the bass line, respectively. Since all chords used in this activity were in root position, the bass line movement also corresponded with the roman numeral chord label. Chord I was treated as the starting position. From there, ii was a *small* step forward, for example, and V was a *large* step forward. The distance travelled in each step was a relative, not precise, indication of the interval size between bass notes.

    The teacher slowly announced each of the four chord labels (I, IV, V, and I), while students stepped forwards and backwards in time. Students moved in the following way: a large step forward (I to IV), small step forward (IV to V), and a larger step backward to approximately the starting position (V to I).

2. The teacher sequentially named the scale degree numbers of a major scale, from $\hat{1}$ up to $\hat{8}$ and back to $\hat{1}$, while students sang the bass notes and stepped forward or backward correspondingly.
This was treated as a warm-up exercise before the teacher added more complex skips in the bass line. Students sang on neutral syllables.

3. The teacher sequentially named each scale degree number, sequentially from $\hat{1}$ up to $\hat{5}$ and back down to $\hat{1}$, while students sang arpeggiated chords from the bass note and stepped forward or backward correspondingly.
Students arpeggiated each chord from the root up to the fifth, and then back down to the root. The arpeggiations were sung to the following rhythm, with the first and last notes on the root of each chord: ♩ ♫ ♫ ♩ .[44] The teacher announced the scale degree of the next bass note (e.g., "one") right on the fourth beat of the arpeggiation rhythm, giving students one beat to prepare for the next chord. Each chord was arpeggiated without interruption from one chord to the next, together with the corresponding body movements.

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[44] The arpeggiation pattern and rhythm was never notated or articulated by the teacher; instead, the teacher briefly demonstrated how to perform them before students undertook the activity.

Activity I12 'Playing harmonic accompaniments from chord labels'

◇ **R**$_c$ ⇒ **Pi**$_c$

This activity was intended for music pedagogy students, and was conducted on a one-to-one basis. The purpose of this activity was to enable pedagogy students to accompany *their* students in studio teaching settings. This included writing, playing, and improvising appropriate accompaniment parts for performance on piano. The activity was observed in one class (Event 116); the student in that class was a violinist studying to become a violin teacher.

Steps

1. Before class, the student selected music pieces (e.g., songs, melodies, anthems) written for their instrument.

   The pieces were usually ones that the pedagogy student was teaching at the time to his or her students. Selecting such pieces meant that the pedagogy student could immediately apply the skills learnt in this activity in their own lessons with *their* students. The selected pieces often did not include any piano accompaniment part, although some works did come with a piano part (e.g., a Mozart violin sonata).

2. The teacher analysed the pieces and harmonised them or created simple arrangements, while explaining and comparing the various possible choices through discussions and demonstrations.

   The teacher ensured that the accompaniment part was appropriate for the music, both harmonically and æsthetically. The harmonisation was usually simple, and indicated with chord symbols written above the melody or top stave in the piece. It was not usually written out in music notation, leaving the student to improvise the rhythms, ornamentation, dynamics, and phrasing according to the music and genre as well as technical ability. When harmonising pieces that already had accompaniment parts (e.g., a Mozart violin sonata), the goal was to simplify the part for basic accompaniment purposes. This involved removing extra notes, such as ornaments and other fast figures, leaving only a basic harmonic reduction, which the pedagogy student could play more easily. Simplifying the part reduced the burden of performing an accompaniment part for the pedagogy student, whose main instrument was not piano. The pedagogy student could therefore focus more on his or her student's performance than on playing the right notes.

   The teacher usually presented different ways to harmonise the music, and asked the student for input. The teacher demonstrated these by playing them on a piano, sometimes asking the student to

identify what chords were altered (see I4) as well as the musical effect of doing so.

[3] Following the teacher's explanations and demonstrations, the student performed and improvised accompaniment parts, while the teacher assisted at another piano or performed the melody part.

The student performed the accompaniment several times, experimenting with different accompaniment figures, choices of chords, etc., while the teacher demonstrated these at another piano where necessary. Further simplifications were made where necessary to suit the pedagogy student's keyboard skills. The teacher and pedagogy student frequently swapped roles, one acting as the instrumentalist and the other as the accompanist. When the pedagogy student accompanied, the teacher either sang the melody or played it on a piano or violin.

Activity I13 'Harmonising looped chord progressions'

◇ **A ⇒ Pi$_p$** *or* **Pi$_c$**

This activity was conducted with students on their main instrument or seated at a keyboard or piano. It was observed in one class (Event 115).

Steps

[1] Students listened to the teacher perform a sequence of chords on a piano, repeating it several times without pausing in between.

The chord progressions were often derived from repertoire that most students would immediately recognise, such as from common in jazz standards or even video game music.

[2] Students gradually joined in the performance on their instruments harmonising with the chords in the progression.

Students with harmonic instruments (e.g., guitar or piano) could play chords, while students with single-line instruments (e.g., saxophone) improvised melodic lines above the looped chord progression. Students could play their part quite freely as long as they harmonised correctly with the set chord progression. After repeating the chord sequence several times, the teacher gradually played more softly (or stopped playing) to listen to the students' performance and make sure they were playing it with the correct chord changes.

[3] Afterwards, the teacher occasionally asked students to describe cadences and chord sequences.

Such discussion usually took place after the performance. However, the focus of this activity was for students to improvise and play in harmony with the looped chord progressions, rather than necessarily being able to label or identify each chord in the progression.

A.10   Activities at Institution J

Activity J1   'Identifying bass lines and chords from recordings'

◇ **A** ⇒ **Pv$_p$** *or* **V**

This activity was observed in three classes (Events 119, 122, & 131).

Steps

☐1 Students listened to a short excerpt of a recording.

The music genres of the recording range greatly, from pop music (Events 119 & 122) to Haydn string quartets (Event 131). The recording was replayed several times, usually as many times as necessary for students to identify the bass line and chord labels (see step ☐2).

☐2 Students sang the bass line.

When singing the bass line, students either sang it immediately after the recording was played or while simultaneously listening to the recording. The former approach was more common, especially for excerpts with fast tempi. The teacher sometimes assisted students by singing the bass loudly, which students followed or imitated. Students usually sang the bass lines unaccompanied when singing from memory; the teacher only occasionally played one or two bass notes when students had difficulties with their intonation. In Event 122, after identifying and singing the bass line, students proceeded to J2 wherein they arpeggiated the chords from memory.

☐3 Students worked out the corresponding chord labels.

In Event 119, all chords in the recording were in root position. This meant that identifying the bass notes automatically revealed the chord labels. The teacher also provided hints on how to identify the chords, such as by asking students to find "patterns" in the chord progression, and by asking students to recall whether a chord was major or minor. The chord labels were written up chord by chord as the answers were discussed amongst the class. The chord labels were then used in the next activity, J2.

In Event 131, students were asked to find where specific chords (e.g., a Neapolitan chord) occurred

within the excerpt recording. Students also sang and subsequently transcribed the bass line (cello part), using this information to help work out chord labels.

Activity J2 'Singing arpeggiated chords from recordings'

◇ **A** (+ **R$_p$**) ⇒ **Pv$_c$**

This activity was observed in two classes (Events 119 & 122).

Steps

$\boxed{1}$ Students were told what chords to arpeggiate.

Students did not usually read chord labels while arpeggiating. In Event 119, students read from the notated bass line that they had written down from the previous activity, J1. In Event 122, the students arpeggiated chords from memory (without any visual aid) after listening several times to an excerpt in another activity (J1).

$\boxed{2}$ Students sang arpeggiated chords, one after another.

Students performed the arpeggiations in one of the following methods: (a) both up and down from the bass note, or (b) up only from the bass. The first method was most common, and was applied to all seventh chords that students arpeggiated. Each chord note was of approximately equal duration, apart from the final repeated bass note which was double the duration. When arpeggiating seventh chords, each chord thus occupied the duration of a (say) $\frac{4}{4}$ bar, where every note would be a quaver in duration—except for the final bass note, which would be a crotchet. The second approach to arpeggiating—from the bass note up—was used when students arpeggiated a F$^{\triangle 9}$ chord, which comprises five notes rather than four.

The arpeggiations were usually sung on neutral syllables. The teacher advised me that given sufficient class time, students would also sing arpeggiations on note letter names at a later stage.

Activity J3 'Identifying bass lines and chords from piano'

◇ **A** ⇒ **Pv$_p$** *or* **Pv$_c$** *or* **V**

This activity was observed in three classes (Events 119, 120, & 128) and described on one occasion (Event 129). The approaches to this activity varied between the observed classes, depending on

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the teacher. The description below represents the most comprehensive version of the activity as observed in Event 119, except where specified otherwise.

Steps

1. The teacher played a chord progression on a piano.

   Students first listened to the chord progression at least once before undertaking the next steps. The chord progressions were usually composed specifically for this activity.

2. Students sang the bass line while listening to the chord progression.

   While listening to the chord progression for the second time, students sang the bass line on scale-degree number solmisation while the teacher played the progression. In Events 120 & 128, students skipped straight to step 4 or 5 after listening to the chord progression twice.

3. Students sang arpeggiated chords from the bass up while listening to each chord.

   In Event 119, the teacher paused on each chord while students arpeggiated each chord (as described in J2). This step was skipped in Events 120 & 128.

4. Students worked out the scale degrees of the bass line.

   The teacher wrote the scale degrees of the bass notes onto a whiteboard (using arabic numbers) once students correctly identified each one. In Events 120 & 128, this step was undertaken only when students had difficulty identify the chord labels.

5. Students identified the chord label for each chord.

   When students gave the wrong answer, the teacher suggested hints and often reminded students to refer to the identified bass line's scale degrees. The teacher wrote (on a whiteboard) the chord symbols one at a time as students correctly identified each one.

   In Events 120 & 128, students were asked to verbally label each chord (by chord symbol) while the teacher played the chords, one at a time, on a piano. When students experienced difficulty identifying the chord label, they were asked to sing the bass notes (cf. step 2) and then identify them (cf. step 4). Students then used this information to work out the chord labels. Once students identified every chord in the progression, the teacher wrote down the chord symbols on the whiteboard and asked students to work out the equivalent functional chord symbols. The teacher wrote the functional chord symbols out beneath the chord symbols as students named them individually.

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Activity J4   'Singing arpeggiated chords from chord labels'

◇ $R_c \Rightarrow Pv_c$

This activity was observed in three classes (Events 120, 122, & 131) that were presented by three different teachers. The differences in approach amongst the three observed classes were considerable and are described in each step below.

Steps

1. Students read chord labels.

   Event 120 Students sang arpeggiated chords immediately after J3, in which students first identified the chords. The chords were written out onto a whiteboard as chord symbols (A–Hm/$_A$–E^7/$_A$ –A–F♯m–H^{sus4}–H–E)[45] with functional symbols beneath. The chord progression was composed for aural training purposes.

   Event 122 Students read chord symbols from a jazz lead sheet. Before singing the arpeggiated chords, students practised singing the melody in the lead sheet with a swing rhythm (as indicated in the score).

   Event 131 Students read bass note scale degrees and chord symbols written on a whiteboard. The teacher gradually progressed from the simple elements of the chord progression to more complexity. First, the teacher wrote bass notes (e.g., $\hat{1}$–$\hat{6}$–$\hat{4}$–$\hat{5}$–$\hat{1}$), which students sang (see step 2). The teacher then wrote the corresponding triads (D–hm–G–A–D) beneath, later adding extra notes to the chords (D^6–hm^7–G^6–A^7–D^6). Finally, the teacher wrote one more chord progression: D^6– em/$_D$–A^7/$_{C♯}$–D^6. The chord progressions were not based on any particular composition.

2. Students sang arpeggiated chords (and bass lines).

   In all classes students arpeggiated from the bass note up on neutral syllables, without accompaniment. The teacher usually sang the chord arpeggiations together with the students. There were some variations in the method among the three classes, as described below.

   Event 120 Students arpeggiated chords up from the bass note, and then arpeggiated back down to the bass note. Students sang each note with approximately the same duration, regardless of the duration of the chord in the original exercise, and the final bass note was sustained for about twice as long as the other notes. Hence, triads were approximately three beats in duration, while seventh chords lasted four beats. Due to the fact that the progression comprised both triads and

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[45]   In Norway, as in other parts of Europe, 'H' refers to the conventional music note 'B♮'. Thus, Hm denotes a B minor chord, etc.

seventh chords, the harmonic rhythm was irregular—arpeggiated seventh chords were slightly longer in duration than arpeggiated triads.

Event 122 When arpeggiating, students sang from bass note up to the top note (e.g., the seventh), and skipped back down to the starting bass note. When arpeggiating seventh chords in quadruple time signatures where chords changed once a bar, the four-note arpeggiation was completed in the first two beats of the bar (i.e., two notes per beat) and the final bass note was sustained for the remaining two beats in the bar. The harmonic rhythm of the jazz piece was carefully observed. For example, when chord changes occurred twice as fast (i.e., two chord per bar), students arpeggiated chords twice as fast. Students sang arpeggiated chords to a steady beat, as if accompanying the melody in the lead sheet, and using a medium swing rhythm (i.e., as a crotchet-quaver triplets). When students experienced difficulty with intonation where they had to arpeggiate twice as fast, the teacher slowed down the tempo and got students to sing only the root, seventh, and root, on the first, second, and third beats of the bar, respectively. Once they could do this properly, they resumed singing arpeggiated chords. For homework, students were advised to sing the bass line first before attempting to sing arpeggiated chords.

Event 131 Students first warmed up by singing seventh chords on each scale degree in the major scale (i.e., from $\hat{1}$ up to $\hat{8}$). Students first sang the bass line, which the teacher first wrote on a whiteboard (see step $\boxed{1}$). Students then sang arpeggiated chords using the method observed in Event 120. Because each chord progression was composed of *either* triads *or* seventh chords, not both mixed together, each arpeggiated chord was roughly of the same duration, resulting in a regular harmonic rhythm when students sang the chords.

Activity J5 'Singing chord progressions in multiple parts from chord labels'

◇ $A + R_c \Rightarrow Pv_p$

This activity was observed in two classes (Events 120 & 128) and described on three occasions (Events 121, 129, & 133). This activity was undertaken immediately after other activities (J3 & J4) where students studied the chord progression used within this activity. Therefore, by the time students undertook this activity, the chord progression was familiar to students in terms of both their aural experiences and their understanding of the progression's theoretical basis (e.g., the chord functions, important cadences, etc.).

Steps

1. Students read a sequence of chord labels.

   In Event 120, students read chord symbols and functional chord symbols (beneath) written on a whiteboard. In Event 128, students read from chord symbols only (sans functional chord symbols).

2. The teacher pointed at the first chord in the progression, and students sang a note from the chord.

   Before starting, the teacher played the first chord on a piano. Students then selected and sang any note from the first chord. Because each student selected his or her own starting note, which could be any note of the chord, the lowest note was not necessarily the root. That is, the inversion of the first chord, and all subsequent chords, were not relevant to this exercise, which was focused on voice leading rather than the movement of the bass line. Student sang their notes on neutral syllables, and without piano accompaniment.

3. The teacher pointed at each subsequent chord, from left to right, while students sang notes that harmonised with each chord.

   Students were advised to apply voice leading rules when moving from one chord to another. For example, students were to stay on the same note if the chord change did not necessitate a note change (e.g., singing the tonic note while changing from T to S would not require any note changes). If the note needed to change, students were to move by step or resolve any dissonant notes appropriately (e.g., leading notes should resolve up a semitone). Occasionally, when students had difficulty finding the note in the next chord, the teacher played the bass note of the chord on a piano. Sometimes, when the whole class sang a chord correctly, the teacher played that chord on a piano for students to listen to before they progressed to the next chord.

   The teacher gave students time to find the correct notes and sing them in tune before progressing to the next chord. As students took varying amounts of time to 'find' the correct notes, their performance did not correspond with the chord durations—and thus harmonic rhythm—of the original chord progression.

4. Students sang their part again (as in step 3) while the teacher accompanied by playing the chord progression on a piano.

   The teacher played the chord progression slowly but with a steady beat and without pausing at each chord.

Activity J6 'Performing chord progressions on piano with given chord labels'

    ◇ $R_c \Rightarrow Pi_c$

This activity was briefly described during one class (Event 120). The activity was a homework activity that students were to present at their next class. Students in the class were all church musicians (i.e., organists).

Steps

1. Students read chord symbols in short chord progressions.

    The progressions included several types of pre-dominant chords, including D_4^6 and augmented sixth chords.

2. Students played the chord progressions on a piano.

    Students first practised this at home. They then performed the progressions individually during their next aural training class.[46]

Activity J7 'Improvising melodies in modulating passages'

    ◇ $T \Rightarrow Pv_c$

This activity was observed in one class (Event 122).

Steps

1. The teacher explained the parameters of the improvisation, and demonstrated it once.

    The parameters were simple. The improvised melody had to start and end with a given theme (see step 2). The theme had to modulate from tonic to specific chord (e.g., the dominant, relative minor, subdominant, or supertonic), via an appropriate secondary dominant chord. The melody then had to end with a performance of the theme in the new key; this completed the exercise. Apart from these parameters, students could improvise as freely as they liked. Before proceeding with the activity, the teacher gave a demonstration by improvised a melody that modulated to the dominant.

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[46] Even though this was planned for Event 120, students did not undertake this during class due to lack of time.

2 Students were each given a unique melodic theme.

The themes generally comprised about six notes, occupied two bars in $\frac{4}{4}$ time, and were in major. The teacher played the theme on a piano.

3 Students improvised their melodies one at a time.

The teacher first played a starting note (tonic) on a piano. Before students improvised their melodies, they sometimes prepared themselves by arpeggiating the chords that were crucial for the performance. For example, when modulating to the dominant, they arpeggiated the following chords: T, D, and $\textcircled{D}^7$.[47]

Students improvised their melodies on neutral syllables. While students performed, the teacher provided some rhythmic support by snapping fingers on off-beats (i.e., on the second and fourth beats of a $\frac{4}{4}$ bar).

When students had difficulty singing the melodies in tune or in modulating to the specified key, the teacher reminded students that they needed to think of the secondary dominant chord, and importantly, the leading note in that dominant chord. The teacher sometimes supplemented these hints and explanations by playing the relevant chords (e.g., the $\textcircled{D}^7$ chord) on a piano. Students usually reattempted the exercise if they sang out of tune or were unable to modulate successfully.

Activity J8 'Identifying and performing outer parts and chords'

◇ **A** (+ **R$_p$**) ⇒ [**P$_p$** *or* **P$_c$**] + **G**

This activity was observed in one class (Event 123) and described on one occasion (Event 125). The activity comprised a series of exercises intended to assist students in the final goal of identifying and performing arpeggiated chords from a chord progression. The chord progressions were always derived from the repertoire; in Event 123, the excerpt was the 40-bar chorale from the second movement of Bartók's *Concerto for Orchestra*. The steps described below were only applied to select phrases of the entire excerpt. The teacher advised that most of the students would have listened to and studied the music (using a CD recording) prior to attending the class.[48] Students were provided with a worksheet containing an incomplete score of the outer parts' notes. However, the teacher advised students to not use the worksheet if possible (i.e., if they had aurally memorised

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[47] $\textcircled{D}^7$ is the dominant seventh of the dominant. In the roman numeral system, this chord would be labelled as $V^7/_V$

[48] The reason why not all students were prepared was because they were scheduled to undertake this activity a few days later. The teacher changed the class activities on the day of my observation so that I could observe aural harmony activities that I would have otherwise missed.

the parts and chords). In Event 123, students sang the parts and arpeggios, although usually they undertook this activity on their main instruments.[49]

Steps

1 Students sang the soprano part while indicating the contour of the bass part through arm gestures.

Students gestured the bass part with one arm, using their hand to indicate the relative pitch height. I.e., they moved their hand up and down in response to pitch rises and falls, respectively. The movements were relative, not absolute, although students were to indicate relatively large skips with bigger arm movements. Students sang the soprano part on neutral syllables. The teacher accompanied the singing by playing each chord (on a piano) either together with or almost immediately (less than half a second) after students found the correct note. Students were allowed to read the score on their worksheet while singing and gesturing the two parts, although they were encouraged to perform it from memory if possible.

2 Students sang the bass part while indicating the contour of the soprano part through arm gestures.

The same principles as those described in step 1 applied, but with sung and gestured parts reversed.

3 With eyes closed, students listened to the outer (bass and soprano) parts while indicating the contours of the two parts through arm gestures.

The teacher played the chord progression at a slower tempo while students gestured the contours. Students did not sing either part.

4 With eyes closed, students listened to the outer parts while gesturing the two parts and singing the bass part.

Students essentially repeated step 3 with the addition of singing the bass part. Since students had to close their eyes, they sang each bass note from memory (e.g., from having heard the chord progression several times in the previous steps). The teacher accompanied by playing the chords on a piano, with a slight delay as described earlier (step 1).

5 Students gestured the outer parts while singing the bass and soprano notes of each chord.

This was essentially step 4 with the addition of singing the soprano note in each chord. While listening

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49 Students usually undertook this activity on another day of the week, on which they brought their instruments into class. Although it was not possible to observe the activity with students playing on instruments, the teacher advised that the basic steps and principles were essentially the same whether students sang or used their instruments.

to each chord, students sang the bass and soprano notes in the following order: bass, soprano, bass. Each note was sung for one beat, with the last note held for two beats, resulting in four beats per chord. The teacher emphasised that all students had to keep their eyes closed, suggesting that "you listen ten times better with closed eyes" (Event 123). When students sang wrong notes, the teacher sustained the chord on a piano and waited for them to correct themselves before proceeding to the next chord.

6 Students gestured the outer parts while singing the soprano and bass notes of each chord.
This was essentially step 5 with the singing of the bass and soprano notes swapped. That is, students sang the soprano note, bass note, and soprano note, in that order.

7 Students gestured both outer parts while singing the bass and soprano notes of each chord and consciously listening to each chord for four beats.
This was essentially based on step 6, but students were advised to listen carefully to each chord for four beats before singing the soprano, bass, then soprano note over four beats. Students listened to each chord in silence while gesturing the outer parts with eyes closed, as before. As each chord was now spaced over eight beats rather than four, it took approximately twice as long to go through the chord progression.

8 Students gestured both outer parts while arpeggiating each chord from and to the soprano note.
The teacher played and sustained each chord for approximately two beats before students commenced their arpeggiation. Students sang each arpeggiated chord from the soprano note down, and then back up to the starting note, over four beats. Each chord arpeggiation was sung in closed position starting from the soprano line, which meant that the lowest note of the arpeggiation was not necessarily the bass note of the chord. For instance, a $G^\triangle$ chord with B in the soprano part was to be arpeggiated as B–G–F♯–D–F♯–G–B, with D as the lowest note of the arpeggio.

Each chord was sounded for approximately six beats, divided into three groups of two beats. After students listened to each chord for the first two beats, they arpeggiated (both down and up) the chord over two beats, and then sang the soprano (starting) note over the last two beats. Triads were arpeggiated with four notes over two beats, while seventh (or four-note) chords were arpeggiated with six notes over two beats. The six notes were sung as two triplets so as to maintain consistent beat durations throughout the exercise. Students continued to gesture the outer parts while arpeggiating each chord.

Activity J9 'Performing melodies and voice-leading in chord progressions'

◇ $T \Rightarrow P_p$

This activity was observed in one class (Event 123) and described immediately after (Events 125 & 126). In Event 123, the teacher used this activity after students had difficulty identifying and arpeggiating a C♯ half-diminished chord (C♯$^{\varnothing}$) while undertaking J8. Students sang the parts during the observed class (Event 123), although the teacher suggested that activity also works well when students perform on instruments. Step $\boxed{3}$ was skipped when students performed on instruments.

Steps

$\boxed{1}$ The teacher played a short chord sequence, C♯$^{\varnothing}$–F♯^{7}/C♯–Bm, on a piano, and the class discussed the function of the first chord.

After some discussion about the chords, one student correctly labelled the cadence as a 'two five one' cadence, and sang the three root notes (C♯–F♯–B) on scale-degree number solmisation. The teacher then played the chord sequence again while the whole class sang the bass line.

$\boxed{2}$ Using the chord sequence in step $\boxed{1}$, students identified and sang four voice leading parts, singing each part one at a time on neutral syllables.

The teacher instructed students to move with the smoothest possible voice leading from chord to chord, without describing what specific notes to sing. The teacher accompanied the singing of each voice-leading line by playing the three chords on a piano as soon as student sang the correct note. The teacher asked students to first start from the root note of the first chord, C♯. Students sang (correctly) on neutral syllables: C♯–C♯–B. The exercise was repeated for each of the other three 'parts', starting from the third (E), fifth (G), and seventh (B), in that order.

$\boxed{3}$ Students sang the same four voice leading parts on chord-degree number solmisation.

Students sang the first part starting from the top note of the C♯$^{\varnothing}$ chord (B). Each note was sung with chord-degree number solmisation, *not* scale-degree number solmisation. That is, the numbers that students sang represented the note function within each chord—the interval between the root of the chord and the sung note. For example, when singing the first part (containing notes B–A♯–B) students sang the first B on "seven" as it was the seventh of the C♯$^{\varnothing}$ chord; the following note, A♯ (in an F♯^{7} chord), was sung with the word "three"; the final note, B on "one". Students figured out the numbers by themselves while slowly singing each part. The teacher accompanied students by playing the chord

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sequence, as was done in the previous step. The exercise was repeated for each of the other three 'parts', starting from the fifth (G), third (E), and root (C♯), in that order.

Activity J10 'Performing chords in parts while identifying notes in other parts'

◇ T ⇒ P$_p$ ⇔ A

This activity was described on three occasions (Events 125, 126, & 133). The main goal of this activity was to help students focus on their listening skills during performance activities, whether singing or with instruments. The teacher explained that the activity had been used in various groups, including choristers, instrumental ensembles, pre-tertiary aural training teachers, as well as tertiary-level music students in aural training classes. The activity was usually done with small groups of around three or four students. The teacher summarised the exercise with three rhyming Norwegian phrases: "*lytt, bytt, bytt på nytt*",[50] which describes the three instructions given by the teacher while conducting the activity (see steps 3 – 5). There was no clearly defined 'final' step in this activity because the last three steps (i.e., 3 , 4 , and 5) could loop ad infinitum, the number of repetitions being determined by the teacher.

Steps

1 Each student was assigned to play a particular note to form a chord.

The teacher either wrote the chord out for students to read, or assigned each student to a specific note in order to construct a chord. The teacher explained that students usually had to work out their starting notes: "I never give them their notes, before they need it. [...] I give them the root, or tonic" (Event 126).

2 The teacher instructed students to perform a chord sequence with smooth voice leading.

For example, if asked to perform a T–D–T cadence, a student assigned to sing or play $\hat{1}$ in the first chord would perform the note sequence $\hat{1}$–$\hat{7}$–$\hat{1}$ or $\hat{1}$–$\hat{2}$–$\hat{1}$. This step was optional.[51]

3 While all students sustained a chord, the teacher issued the instruction to 'listen' ("*lytt*") while pointing at two students with fully extended arms.

Upon receiving the instruction, the two selected students had to aurally identify the note played by

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[50] A literal English translation would be "listen, change, change again".
[51] See also J9 on p. 338, which involved similar exercises.

the other student. The teacher paused for a brief moment, allowing the two students to identify and memorise each other's notes. Meanwhile, all members of the ensemble played and sustained the chord.

4 | The teacher issued the instruction to 'change' ("*bytt*") while pointing at the same two students but with the opposite hand, and with arms crossed over.

This arm movement, together with the verbal instruction, indicated to the two students to play or sing the other student's note. If either student were unable to swap their notes correctly, the teacher immediately went to step | 5 |. If both students swapped their notes correctly, the teacher could instead repeat the exercise with two *other* students in the group (starting at step | 3 |). This process of selecting two students and swapping notes was repeated as many times as required.

5 | The teacher issued the instruction to 'change again' ("*bytt på nytt*") while reverting back to the original arm position (step | 3 |).

This step was optional and was usually applied when the two selected students had difficulties swapping their notes with each other. In such circumstances, changing again meant that both students could quickly return to their initial note. They could then try again to identify the each other's note before attempting to 'change' again (step | 4 |).

Activity J11 'Singing four-part exercises while identifying chords'

◇ $R_p \Rightarrow P_p \Rightarrow A \Rightarrow V$ *or* N_c

This activity was observed[52] in one class (Event 131) and described on two occasions (Events 130 & 133). In Event 131, student sang the parts, although the teacher explained that the activity could also be undertaken with students playing the parts on their instruments (Event 133).

Steps

1 | Students read from a special four-part worksheet.

In Event 131, the chord progression featured in the four-part exercise was taken from the ubiquitous five opening bars of the first movement of Beethoven's *Piano Sonata No. 14 in C♯ minor*. The chord progression in the excerpt—which students were to identify later (in step | 3 |)—was as follows:[53]

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[52]　As this activity involved four-part singing, it was intended for at least four students. However, only two of the five enrolled students turned up that day. Consequently, the teacher and I participated by singing two of the parts.

[53]　The chord labels were not revealed to the student at this step; they are presented here for reference only. The T_{cr} chord denotes the 'counter relative' of the tonic (VI in the roman numeral labelling system). In the key of C♯ minor, this chord is A major. The S^N chord denotes the Neapolitan chord, which in Scandinavia was treated as a functioning

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$$\text{(C\sharp:)} \quad \text{T} \quad \text{T\textsubdot} \quad \text{T}_{cr} \quad \text{S}^{N} \quad \text{D}\sharp^{\substack{7\text{-}6\text{-}5 \\ 3\text{-}4\text{-}3}} \quad \text{T}$$

The four-part worksheet contained interval indications rather than music notation. It enabled students to perform their parts without easily identifying the chords visually, thus encouraging them to identify chords (in step ③) by ear. The worksheet was basically a table with one column for each chord and four rows for four voices (SATB). The first four notes of the first chord were provided as scale degree numbers, "3", "1", "5", and "1" (from the soprano note down), and the mode was specified (minor). Each cell in the table contained signs indicating the intervallic distance between the current note and the previous note. An equal sign ('=') indicated an unchanged note, while interval sizes and arrows denoted the size and direction of the skip. For instance, starting on a C♯, '=' indicated the same note, while 'L2↑' indicated a upward skip of a minor second (to D♮).[54] The width of each cell represented the relative duration of each note, with vertical rules separating each bar.[55] These features enabled the ensemble to perform the chord progression with the same harmonic rhythm as that in the original excerpt.

The four members of the ensemble (comprising two students, the teacher, and myself) each had a copy of the worksheet, and the two students sang the tenor and alto parts.

1		=		=	L2↑		S2↓	L2↑	=	L2↓	L2↑		‖
C♯		C♯		C♯	D♮		B♯	C♯	C♯	B♯	C♯		

Figure A.12 The alto part of a four-part worksheet used in J11, as observed in Event 131. The chord progression was based on the five opening bars of the first movement of Beethoven's *Piano Sonata No. 14 in C♯ minor*. The first row shows the signs used on the original worksheet. The symbols are described in step ① of J11 (p. 340). The second row indicates the notes that each symbol represented, and was not shown on the original worksheet. The complete worksheet comprised a table with all four parts—with rows S, A, T, and B, from top-down—and each of the nine chords were numbered at the top (above the 'S' part) from 1 to 9 for quick referencing.

② Students sang through the chord progression, without accompaniment.

The teacher first played the tonic chord (C♯ minor) on a piano and asked the ensemble to sing the first chord. The teacher then conducted the ensemble as it sang through the chord progression. During their first attempt to sing their parts, both students lost their notes and stopped singing before reaching the

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as a subdominant (the reasons for this is made clear in Rogers, 1990, pp. 136–137). The original chord labels that were annotated in the teacher's textbook were as follows: T T̯ Ts Sn D^7 ♮D $^{5}_{4}$ $^{5}_{3}$ D^7 T (Event 131). In Norway, the chord function '*Tonikasubmediant*' (Ts) represents either chord vi or VI (although the converse is not always the case due to the fact that functional chord symbols for a given chord varies depending on the tonal context).

[54] Minor intervals were indicated with the letter 'L' (from the Norwegian word *liten*, meaning 'small'), major intervals with 'S' (from the word *stor*, 'large'), and perfect intervals with 'R' (from the *ren*, 'perfect'.

[55] Cf. Figure A.12.

end of the exercise. The teacher judged that the student singing the alto part was having difficulties,[56] and asked the ensemble to sing that part together (see Figure A.12).

|3| Students sang through the chord progression again while simultaneously identifying and writing chord labels.

While singing through their parts and listening to the chords, the two students identified the chords and wrote them down on the worksheet as functional chord symbols.

|4| Students discussed their answers with the teacher.

When students were uncertain or gave an incorrect answer, the teacher played a portion of the chord progression and paused on the problematic chord. Listening to this, and with further hints from the teacher, students were usually able to correctly identify the chord.

|5| Students sang the alto part while the teacher played the excerpt (the first five bars of Beethoven's *Piano Sonata No. 14 in* C♯ *minor*).

This was done to complete the activity, once every chord was correctly identified. The teacher performed the excerpt from the original piano score while students sang the alto part as notated on the worksheet (Figure A.12). In Event 131, students subsequently undertook J1 with a focus on the S^N chord.

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[56] This may partly be due to an inconsistency in the alto part's notation. In strictly theoretical terms, a skip from D♮ down to B♯ is a diminished third, not a major second. However, the worksheet used the symbol 'S2↓' to denote this interval (see Figure A.12). While this presumably made the notation simpler by avoiding extra letters to represent uncommon (i.e., augmented and diminished) intervals, reading the alto part notation in diatonic terms would result in the note sequence that ends in D♭ rather than C♯ (C♯–C♯–C♯–D♮–C♮–D♭–D♭–C♮–D♭)!

Appendix B

Study II Data

Table B.1   All (134) Study II Events

Event no.	Location	Event type	Event duration	Activities referenced	Teachers and staff involved
1	A (JP)	Interview	2h 11m	A1, A2, A3, A4	3 teachers
2	B (US)	Observation	50m	B1, B2	TA
3	B (US)	Discussion	4m	-	TA
4	B (US)	Observation	50m	B1	TA
5	B (US)	Discussion	4m	-	TA
6	B (US)	Observation	50m	B1	TA
7	B (US)	Discussion	3m	-	TA
8	B (US)	Observation	50m	B3	TA
9	B (US)	Discussion	8m	B3, B4	TA
10	B (US)	Observation	50m	B4, B5	TA
11	B (US)	Discussion	8m	-	TA
12	B (US)	Discussion	17m	B6, B7	theory teacher
13	B (US)	Discussion	43m	-	course coordinator, TAs
14	B (US)	Discussion	7m	-	TAs
15	B (US)	Discussion	26m	-	TAs
16	B (US)	Observation	1h 0m	-	theory teacher
17	B (US)	Interview	1h 35m	-	theory teacher
18	B (US)	Interview	1h 2m	B2	2 course coordinators
19	B (US)	Observation	1h 0m	B7	theory teacher
20	B (US)	Discussion	50m	-	theory teacher, TA
21	B (US)	Observation	50m	B3, B4	TA
22	B (US)	Observation	50m	B3, B4	TA

Continues onto next page ...

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Table B.1   All (134) Study II Events (continued)

Event no.	Location	Event type	Event duration	Activities referenced	Teachers and staff involved
23	B (US)	Observation	50m	B2	TA
24	B (US)	Discussion	4m	B2	2 TAs
25	B (US)	Observation	50m	B2	TA
26	B (US)	Observation	50m	B3, B4	TA
27	B (US)	Observation	50m	B4, B8, B9	TA
28	B (US)	Discussion	58m	B3, B8, B9	TA
29	B (US)	Discussion	4m	–	2 TAs
30	C (US)	Discussion	13m	–	students
31	C (US)	Observation	25m	C3	teacher
32	C (US)	Observation	25m	C1, C2, C3	teacher
33	C (US)	Observation	18m	C4	teacher
34	C (US)	Discussion	13m	C4	2 teachers
35	C (US)	Observation	50m	C4	teacher
36	C (US)	Discussion	4m	–	teacher
37	C (US)	Observation	50m	C3	teacher
38	C (US)	Observation	25m	C2, C5	teacher
39	C (US)	Observation	25m	C6	teacher
40	C (US)	Interview	27m	C4, C5, C7	teacher
41	C (US)	Interview	50m	–	teacher
42	C (US)	Observation	25m	C2, C3, C8	teacher
43	C (US)	Interview	37m	C1, C9	teacher
44	C (US)	Observation	25m	C4, C10	teacher
45	C (US)	Observation	25m	C4, C8	teacher
46	C (US)	Observation	25m	C4, C8, C11	teacher
47	C (US)	Interview	12m	C7	teacher
48	D (US)	Discussion	28m	D1	TA
49	D (US)	Observation	1h 0m	D2	TA
50	D (US)	Discussion	7m	–	student
51	D (US)	Observation	55m	D2, D3, D4	TA
52	D (US)	Discussion	3m	–	TA
53	D (US)	Interview	18m	–	course coordinator
54	E (US)	Observation	55m	–	teacher
55	E (US)	Observation	50m	E1	teacher
56	E (US)	Observation	1h 0m	E2, E3	teacher
57	E (US)	Observation	50m	E4	teacher
58	E (US)	Observation	50m	E12	teacher
59	E (US)	Discussion	10m	E3	teacher
60	E (US)	Observation	1h 30m	E3	teacher
61	E (US)	Observation	1h 10m	E1, E5, E6	teacher

Table B.1   All (134) Study II Events (continued)

Event no.	Location	Event type	Event duration	Activities referenced	Teachers and staff involved
62	E (US)	Discussion	1m	-	teacher
63	E (US)	Discussion	4m	-	teacher
64	E (US)	Interview	28m	-	teacher
65	E (US)	Discussion	7m	-	teacher
66	E (US)	Observation	35m	E3, E7	teacher
67	E (US)	Observation	21m	-	teacher
68	E (US)	Observation	1h 40m	E8, E9, E10	teacher
69	E (US)	Observation	50m	E11, E12	teacher
70	E (US)	Discussion	1m	-	teacher
71	E (US)	Interview	34m	-	course coordinator
72	E (US)	Observation	53m	E13, E14, E15	teacher
73	E (US)	Discussion	3m	E14	teacher
74	F (US)	Observation	1h 0m	F1, F2	teacher
75	F (US)	Observation	46m	F3	teacher
76	F (US)	Discussion	10m	F3, F4	teacher
77	F (US)	Interview	1h 34m	-	teacher
78	F (US)	Observation	25m	F5	TA
79	F (US)	Observation	56m	F2	teacher
80	F (US)	Interview	1h 4m	-	teacher
81	F (US)	Observation	50m	F6	teacher
82	F (US)	Interview	15m	F5	teacher
83	F (US)	Interview	37m	-	teacher
84	F (US)	Observation	45m	F7	teacher
85	G (SE)	Observation	30m	G1, G2, G3	teacher
86	G (SE)	Observation	35m	G2, G4, G5	teacher
87	G (SE)	Interview	1h 24m	G1, G6, H4	2 teachers, other staff
88	G (SE)	Discussion	16m	-	teacher
89	G (SE)	Observation	57m	G5	teacher
90	G (SE)	Discussion	9m	G7	teacher
91	H (SE)	Discussion	13m	-	teacher
92	H (SE)	Observation	45m	H1, H2, H3	teacher
93	H (SE)	Observation	45m	H1, H3, H4, H5	teacher
94	H (SE)	Observation	1h 0m	H2	teacher
95	H (SE)	Observation	1h 15m	H3, H4, H6	teacher
96	H (SE)	Discussion	55m	-	3 teachers, other staff
97	H (SE)	Observation	1h 0m	H3, H7	teacher
98	H (SE)	Discussion	12m	-	teacher
99	H (SE)	Observation	54m	H7	teacher
100	H (SE)	Discussion	7m	-	teacher

Table B.1   All (134) Study II Events (continued)

Event no.	Location	Event type	Event duration	Activities referenced	Teachers and staff involved
101	H (SE)	Discussion	21m	-	teacher
102	H (SE)	Observation	1h 6m	H8	teacher
103	H (SE)	Discussion	19m	-	teacher
104	H (SE)	Observation	28m	H8	teacher
105	H (SE)	Observation	1h 3m	H1, H3	teacher
106	H (SE)	Interview	1h 42m	H3, H4, H6	2 teachers
107	H (SE)	Interview	1h 5m	-	teacher
108	H (SE)	Interview	46m	H6	other staff
109	I (SE)	Observation	35m	I1, I2, I3	teacher
110	I (SE)	Observation	55m	I3, I4, I5	teacher
111	I (SE)	Interview	1h 15m	I5, I6, I7, I8	teacher
112	I (SE)	Observation	1h 15m	I6, I9	teacher
113	I (SE)	Discussion	10m	-	teacher
114	I (SE)	Observation	56m	I1, I3, I7, I10, I11	teacher
115	I (SE)	Observation	19m	I4, I13	teacher
116	I (SE)	Observation	40m	I12	teacher
117	I (SE)	Interview	1h 6m	-	teacher
118	J (NO)	Discussion	7m	-	teacher
119	J (NO)	Observation	1h 30m	J1, J2, J3	teacher
120	J (NO)	Observation	36m	J3, J4, J5, J6	teacher
121	J (NO)	Discussion	9m	J5	teacher
122	J (NO)	Observation	1h 34m	J1, J2, J4, J7	teacher
123	J (NO)	Observation	47m	J8, J9	teacher
124	J (NO)	Discussion	15m	-	teacher
125	J (NO)	Discussion	19m	J8, J9, J10	teacher
126	J (NO)	Discussion	45m	J9, J10	teacher
127	J (NO)	Discussion	54m	-	teacher
128	J (NO)	Observation	45m	J3, J5	teacher
129	J (NO)	Discussion	5m	J3, J5	teacher
130	J (NO)	Discussion	5m	J11	teacher
131	J (NO)	Observation	55m	J1, J4, J11	teacher
132	J (NO)	Observation	1h 9m	-	teacher, other staff
133	J (NO)	Interview	59m	J5, J10, J11	3 teachers, other staff
134	J (NO)	Discussion	22m	-	teacher

Table B.1   List of 134 Events collected from ten tertiary music institutions in Japan, the US, Sweden, and Norway (as part of Study II). The Location column lists the institution label and ISO country code (cf. Table 1.1 on p. 23).