

THE UNIVERSITY OF HULL

**'Investigating Aural: A Case Study of its Relationship to Degree Success
and its Understanding by University Music Students'**

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by

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ABSTRACT

The central aim of this research is twofold: first, to examine the relationship between university music students' aural ability as measured in examination marks and overall success on a music degree programme; and second, to investigate current university music students' views on aural and its importance in a music degree programme. Previous research indicates that aural skills are vital in developing musical expertise (see Karpinski, 2000a), yet the precise nature of those skills and the emphasis placed upon them in educational contexts merits attention. An extensive review of literature provides an introduction to terminology as well as a framework with which to understand research perspectives on aural, specifically to address aural in practice and aural as process. Two empirical studies are carried out as part of a case study investigation in this thesis: Study 1 compares aural test scores with overall marks obtained in a music degree so as to investigate their potential correlation; Study 2 analyses the views of current undergraduate and postgraduate music students from the same institution via focus groups about aural alongside their response to the data obtained in Study 1. Findings indicate that there are positive correlations between students' aural test marks and overall degree results, although these are not always significant. The views of current students about aural reflected shifts in understanding from undergraduate to postgraduate level, with the former offering specific ideas about what it entails and highly subjective attitudes towards it, and the latter providing abstract and broad appreciation of aural in music practice. The students provided tentative remarks about the findings of Study 1. Related issues that emerge within the research, including the students' views on training, singing, and the role of module choice in gaining a music degree, are debated as part of the thesis.

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CONTENTS

ABSTRACT	Page	ii
ACKNOWLEDGEMENTS		iii
CONTENTS		iv
LIST OF FIGURES		vii
LIST OF MUSICAL EXAMPLES		viii
LIST OF TABLES		ix
INTRODUCTION		
0.1 Preamble		2
0.2 Research motivation		2
0.3 Research problem		6
0.4 Aims and objectives		9
0.5 Research questions		10
0.6 Thesis outline		10
CHAPTER 1 AURAL: DEFINITIONS AND PERSPECTIVES		
1.1 Preamble		13
1.2 Preliminary Issues		13
1.2.1 Definitions and Use of Terms		13
1.2.2 Understanding the Scope and Relevance of Aural		16
1.3 Understanding Aural in Practice:		20
1.3.1 The Importance of Listening		20
1.3.2 Standalone Perspectives		26
1.3.3 Integrated Perspectives		30
1.3.4 Summary		39
1.4 Understanding Aural as Process		40
1.4.1 Aural and Musical Imagery		41
1.4.2 Representation Theory and Auditory Streaming		43
1.4.3 Aural Perception		47
1.4.4 The 'Inner Ear'		57
1.5 Conclusion		64
CHAPTER 2 AURAL: EDUCATIONAL ISSUES		
2.1 Preamble		67
2.2 The Socio-Cultural Considerations about British Music Education		68
2.3 Music in British State Education		73
2.4 Aural Training and Assessment		84
2.5 Aural in Higher Education		100
2.6 Summary		113

CHAPTER 3	METHODOLOGICAL ISSUES: THE TWO EMPIRICAL STUDIES	
3.1	Preamble	118
3.2	Research Methodology	119
3.3	Design of the Two Empirical Studies	124
3.4	Location of the Empirical Studies and Sampling Issues	129
3.5	Data Collection	130
3.6	Data Analysis	131
3.7	Instrumentation	133
3.8	Validity	134
3.9	Reliability	135
3.10	The Focus Group Pilot	136
3.11	Ethical Considerations	136
3.12	Summary	137
CHAPTER 4	STUDY 1: AURAL SKILLS AND THE MUSIC DEGREE PROGRAMME – A QUANTITATIVE INVESTIGATION	
4.1	Introduction and Context of the Data Collection	139
4.2	Aims and Objectives	140
4.3	Hypotheses	141
4.4	Method	141
	4.4.1 Design	143
	4.4.2 Sample / Participants	144
	4.4.3 Materials	146
	4.4.4 Procedure	148
	4.4.5 Data analysis	148
4.5	Results and Discussion	149
	4.5.1 The Four Main Data Sets	149
	4.5.2 Relationship between Aural Tests Scores and Final Degree Results	151
	4.5.3 Relationship between Pretest Quartiles, Aural 1 Quartiles and Final Degree Quartiles	153
	4.5.4 Relationship between Pretest and Aural Examination Results	155
	4.5.5 Relationship between Module Choice and Year-Group	157
	4.5.6 Relationship between Module Choice and Pretest, Aural 1 and Final Degree Quartiles	158
	4.5.7 Relationship between Module Choice, Aural Mean Quartiles and Final Degree Results	161
	4.5.8 Relationship between Module Choice, Aural Mean Quartiles and Final Degree Quartiles	161
	4.5.9 Relationship in the Results of First-class Degree Students	162
	4.5.10 Relationship in the Results of Mature Students	164
4.6	Conclusion	165
CHAPTER 5	STUDY 2: MUSIC STUDENTS’ PERSEPCTIVES ON AURAL: A FOCUS GROUP STUDY	
5.1	Introduction and Context of the Data Collection	171
5.2	Aims and Objectives	171
5.3	Subsidiary Research Questions	172

5.4	Method	173
5.4.1	Design	173
5.4.2	Participants	174
5.4.3	Materials	175
5.4.4	Procedure	177
5.4.5	Data Analysis	177
5.5	Results and Discussion	179
5.5.1	Overview of analysis	179
5.5.2	Students' Views on the Understanding of Aural and Aural Ability – Inner processing	184
	– Practical application	186
5.5.3	Students' Attitudes towards Aural and Aural Ability	190
5.5.4	Aural in different Contexts and Roles	197
5.5.5	Students' Views on the Quantitative Data from Study 1	
	– Views on Relationships	206
	– Relationship between Aural Ability and Module Choice: Views on the Data	208
5.5.6	Aural and Related Issues: Specific Areas of Relevance	211
5.6	Conclusion	217
CHAPTER 6	CONCLUSIONS	
6.1	Preamble: Thesis Summary	223
6.2	Summary of the Research Findings	225
6.2.1	Aural and Degree Success	225
6.2.2	Aural and Module Choice	229
6.2.3	The Understanding and Meaning of Aural, Aural Ability and Aural Skills	231
6.3	Aural in other Contexts	235
6.3.1	Aural as part of Musical Development	235
6.3.2	Singing	237
6.3.3	Aural Skills Training within the Music Degree Programme	238
6.3.4	Aural Skills Training: Recommendations for Revision	242
6.3.5	Preparation for Career	242
6.4	Limitations of the Research	243
6.5	Directions for Future Research	244
6.6	Endpoint	247
BIBLIOGRAPHY		249
APPENDICES		
APPENDIX A:	Aural Pretest (Example)	306
APPENDIX B:	Aural Examination Paper (Example)	307
APPENDIX C:	Focus Group Questions	315
APPENDIX D:	Focus Group Handout	316

LIST OF FIGURES

Figure 1.1	Imgur’s Cat-on-the-stairs photo Illusion	51
Figure 1.2	Grecian Vase or Face Profiles Illusion	51
Figure 1.3	Diagram of aural processing – A new graphic representation of the principal practical stages involved	60
Figure 4.1a	Bar graph showing the distribution curve of Aural 1	150
Figure 4.1b	Bar graph showing the distribution curve of Final Degree Results	151
Figure 4.2	Scattergraphs showing the positive line of relationship between (a) the Pretest and (b) Aural 1 results against the Final Degree (b) Result respectively	152
Figure 4.3	Bar graphs showing the relationships between the Final Degree Quartiles and (a) Pretest Quartiles and (b) Aural 1 Quartiles	155
Figure 4.4	Scattergraph of the relationship between Pretest and Aural 1 results	156
Figure 4.5	Scattergraph of the relationships between Aural 1 and Aural 2 results	157
Figure 4.6	Module Choice according to Year–groups	158
Figure 4.7	Bar graphs showing the associations with Module Choice of (a) Aural Mean Quartiles and (b) Final Degree Quartiles	162
Figure 5.1	Chart showing a breakdown of the five main headings into the topic areas	181
Figure 5.2	Views about aural ability in order of importance given by individual groups	192

LIST OF MUSICAL EXAMPLES

Example 1.1	Change of relationship between held note and underlying chord	52
Example 1.2	Further changes of relationship produce the sense of modulation	52
Example 1.3	Confirmation of the tonic centre of D major	54
Example 1.4	The mental change from D major to F major without preparation	54
Example 1.5	The mental change from D major to F major anticipated by the C natural	55
Example 1.6	Various possible 'resolutions' of a C sharp diminished seventh chord	55
Example 1.7	The mental change from F major to A flat major without preparation	57

LIST OF TABLES

Table 4.1	Breakdown of numbers in each year-group	145
Table 4.2	The Standard Deviation and Mean of each of the four main data sets	149
Table 4.3	Stepwise multiple regression of predictors of the Pretest and Aural 1 Results	153
Table 4.4a	Cross-tabulation between Final Degree and Pretest Quartiles	154
Table 4.4b	Cross-tabulation between Final Degree and Aural 1 Quartiles	154
Table 4.5ab	Cross-tabulations of Module Choice with (a) Pretest and (b) Aural 1 Quartiles	160
Table 4.5c	Cross-tabulation of Module Choice with the Final Degree Quartiles	161
Table 4.6	Standard Deviation and Mean of First-class degree students	162
Table 4.7	Standard Deviation and Mean of Mature students' results	164
Table 5.1	Details of focus group participants	175
Table 5.2	The focus group questions	176
Table 5.3	Division of the analysis into the five main thematic headings	179

INTRODUCTION

0.1 PREAMBLE

A significant amount of interest has been shown by musicians over many years about how we understand and develop skills in Western art music-making and, historically, 'aural' has featured as a fundamental skill of the trained musician and been recognised as something that is deployed in the variety of roles in which musicians engage: 'as performers, conductors, composers, arrangers, students, teachers, scholars, editors and copyists – musicians can apply their aural skills to all their musical activities' (Karpinski, 2000a, p. 223). The question is, however, what exactly are those 'aural skills' and, perhaps more importantly, what exactly is 'aural'? For example, McPherson and Gabrielsson (2002) highlight one kind of 'aural skill', namely 'playing by ear', and describe it from a purposeful as well as practical perspective within an educational context: 'the skill of playing by ear helps student musicians to learn to coordinate ear, eye and hand (and) to perform on an instrument what they see in notation and hear or imagine in their mind' (p. 109). The imaging of sound inside the head, sometimes referred to as 'the inner ear', could be regarded as an integral part of musical development, experience and activity, and it is the occurrence and concomitant growth of this kind of 'aural skill', along with others, that might be regarded as central to achieving success as a music student. This thesis sets out to explore this possibility, specifically to examine the nature of 'aural', and by extension, 'aural skills' and 'aural ability', and its importance to music students. As a starting point, however, it must be recognised that 'aural' is a complex phenomenon and in order to begin to consider the many ways in which it might be understood, it is necessary to reflect upon my personal experiences as a musician, for these provided the primary motivation for this research as well as shaped my approach to exploring 'aural' in a specific educational context.

0.2 RESEARCH MOTIVATION

My understanding of what constitutes 'aural' has developed across my career as a professional musician, including performing, teaching and examining. In particular, my

extensive work in teaching 'aural' to university music students led to an awareness of the different ways in which individuals hear and process musical sounds as well as the apparent ease or difficulty with which they do so. Personally, having begun piano lessons at the age of 5 and developed what was with hindsight an acute ear, including absolute pitch (or 'perfect pitch'), I realise that my 'aural' awareness underpinned and continues to underpin the whole of my musical career. Although now retired from full-time employment, I remain active in practical music-making, including conducting and examining, but it is in performance and composition that I believe the greatest application of my 'aural' continues to be made.

Along with many of my peers who were learning to play a musical instrument and developing knowledge of music theory and history in the 1950s, attention was not especially given to the acquisition of 'aural' during childhood, yet it was apparent that my facility of perfect pitch was not commonplace and that I had the capacity to perform from an early age by ear and create my own improvised music on the piano. Indeed, learning music at a time when pianos were a more familiar piece of domestic furniture than is perhaps the case nowadays, the circumstances of playing hymns at Sunday School and day-school encouraged growth in harmonic experience, and the frequency of playing previously unknown music strengthened the powers of sight-reading to the extent that continuous development of my 'inner ear' was probably taking place subconsciously for many years from a young age.

It was also the case at the time that alongside performance and theory, specialist training usually included 'aural exercises', not just for examination purposes but as an essential part of musical development, reflecting the belief held by my teachers and many others in my musical surroundings, and which I have shared and retained throughout my life, that the fundamental characteristic of musical ability is the possession of a good 'musical ear'. Furthermore, while musicians may have many other attributes on which they can call to carry out their musical activities, without this 'musical ear', the advancement of performance and conducting, for example, can only be limited, although the level of these skills may vary between individuals.

As with other skills, I believe that 'aural' needs to be practised. It may be the case that there is not always an awareness of mental development in any field during an activity,

yet it is possible that many subtle progressions in ‘aural’ development occur during the habit-forming processes involved in performance preparation that necessarily call upon a number of personal deliberations, such as reading, listening, reacting, responding, creating, digitally transferring, and so on.

We are, of course, subject to the benefits and passions, as well as the whims and failures, of our teachers, often absorbing their values and beliefs, especially when we are young and impressionable, and although we might try to assume a musical personality and individuality, the probability is that pupils will absorb elements of their teacher’s views and techniques to some extent. My teachers of the piano and organ were themselves products of the current system of that time and schooled me in believing in the importance of accuracy and application, and these are two of the traits that have remained with me throughout my teaching career. Perhaps as an off-shoot, the rigour of ‘practise until perfect’ is another aspiration which has acted as a foundation of my own musicality especially in the preparation of solo recitals and accompanying work following my training.

Certainly without such dedicated effort, even though this may not have seemed to be as arduous at the time as it now sounds – the inspiration, devotion to study and practice, the reward of satisfaction in the achievement of goals, are common in youthful endeavours – I believe that I would not have succeeded in securing musician appointments as teacher, soloist, accompanist and conductor, were the extent of my ‘aural’ ability not so significant. From the earliest duties I have undertaken as musician, including positions of organ scholar at St. Catharine’s College, Cambridge (1964-1967) and Musical Director, East Riding County Choir (2014-present, Assistant Conductor since 2002), as well as church organist (Assistant Organist, Beverley Minster 1996-2010), to the later role of continuo player in a professional capacity (since 2000), and from employment as a school and college teacher responsible for music and music education to university lecturer covering harmony, composition and ‘aural’ training, all duties have been enhanced by my good ‘musical ear’. These musical activities represent the basis of the rationale to underline the importance of ‘aural’ within this thesis, especially for university music students.

As with many other young musicians, my training in 'aural' was mostly in preparation for graded instrumental examinations (piano, viola, organ) and involved completing various tests including the recognition of intervals, clapping the rhythm and singing back a short melodic phrase according to the grade, many of which (with some modifications) continue to this day, as described in the current instrumental syllabuses (see, for example, Associated Board of the Royal Schools of Music (ABRSM), 2015). During my time at university, the level of 'aural' ability of my peers was high and a session per week was attended in which, for example, complex chords and four-part harmonic phrases were dictated for transcription into written notation. There was, however, no examination in 'aural' and the training sessions were regarded as purely support for study in other spheres of the music programme.

Much of my musical development after university centred on organ performance, from the access to instruments at both church and school, and the frequent opportunities of performance that that brought, to later achievement of prestigious awards and appointments which have provided many benefits, for example, in the way of travel to other parts of the world as accompanist or later as examiner, and performance on large instruments such as those in many English cathedrals. A significant element in organ performance often involves the skill of improvisation and extemporisation and this facility has been applicable on many occasions during services and ceremonies at which I have played the organ. The reliance on the 'inner ear' and mental processing during improvisation has acted as a major element in my understanding of the concept of 'aural' and its overall significance in both performance and composition.

The underlying support in practice and performance in all these contexts from my 'aural' has therefore been enormous. Indeed, experience across a wide variety of musical activities has, I believe, been vital as an underpinning of my own musicianship, and now at retirement, having seen how each role in music that aims for excellence depends, for example, on access to mental imagery, on analytical listening, on interpreting theoretical elements, not just on practical technique, the recall of knowledge, or isolated creativity: each context requires a grounding of 'aural'. Indeed, without an underpinning level of 'aural' ability, this particular research into the subject would have been circumscribed and although it might be said that the very importance I have attached to 'aural' has

acted as the source of its inspiration, my experience has provided the background rationale and scope in the understanding of related research on the subject, including Karpinski (2000a), Kinarskaya (2009), Bailes (2003a) and Ilomäki, (2011) to whose work I have referred frequently in this thesis.

I am aware that my perspective of 'aural' is perhaps traditional in that it inevitably reflects my experience of music in a variety of Western art contexts, from teaching and examining to listening and performing over the past sixty years or so; nevertheless, this personal viewpoint has provided the initial motivation for this research and the impetus to explore other ways in which 'aural' might be understood.

From my musical experience, I posit initially that 'aural' involves the processing of sound in the 'inner ear' and that it underpins a range of activities undertaken by musicians, including composing, performing, improvising, sight-reading and analysing notated scores. The 'musical ear' may also be used to describe this kind of 'aural'. My understanding is further shaped by the following three beliefs: 1) all individuals can develop their aural potential from childhood via musical learning, dedicated instrumental practice, and exposure to a range of different musical activities in different musical environments; 2) aural underpins all areas of musical activity; 3) a good 'musical ear' – 'aural skills' – is needed to be a professional musician.

0.3 RESEARCH PROBLEM

Whereas it might be debated that undergraduate music students should have received training that adequately prepares them for further study that in turn leads on for many to a professional career in music, the social background to university study has considerably changed over the past several decades and developed an increased interactive significance perhaps at the expense of the study-time by students: 'Higher education institutions are academically adrift but socially alive, active and attentive' (Arum and Roksa, 2014). Study at university was conceived in terms of specialist knowledge that led to career preparation and thereby commonly thought of as a preparation for adulthood rather than, as now, a precursor to the labour market (see

University Alliance, 2012), whatever programme has been followed. The situation now, in addition to the issue of personal choice and preferences, has opened up programmes to students who are studying for reasons of ambition, leading to a widening in participation with the number of young people who attended a university in 2011/12 reaching 49% (as documented on BBC News 24, in April 2013). The programmes are designed to meet the needs of a wider range of students than previously, with an equal range of skills, not necessarily those, in the case of music, which are required for going on to teach the higher levels of ability. Paradoxically, because of the problems in the employment market and high numbers of graduates failing to fulfil appropriate career prospects, there have been criticisms of higher education programmes in that insufficient preparation is provided to students for employment in their chosen subjects, and consequently in professional careers (Barnett and Coate, 2005).

The anxiety concerning levels of aural ability in students has also been noted by others, namely, Palmer (2013), who relates his experience with conservatoire students that their aural ability is no better on leaving than on entering the conservatoire, with a 'limited ability to hear accurately or understand their musical environment or to contribute creatively to it' (p. 271). Clearly little improvement seems to have been made since Odam (1993) reported twenty years previously, whom Palmer cites: 'Far too many students graduating from BA, BMus and BEd courses cannot rely solely on their ear for fundamental musical decisions...' (ibid., p. 271). It is with this recognition of complex differences in aural skills and the desire to investigate the matter further that motivated the study.

Related literature demonstrates that there is much ongoing interest in the study of 'aural' and, in particular, inner musical thought (e.g. Trevarthen, 2002; Sloboda, 1990; Rink, 2002; Parncutt and McPherson, 2002; Lehmann et al., 2007), particularly about how exactly one perceives sound, from the foetal stage right through to adulthood, and how the brain encodes the signals and interprets the meanings of the impulses. With the technological development of electronic and computerised equipment, new channels of neuroscientific discovery have been opened up that have enabled us to answer some of the deeper questions about aural. Many attempts continue also to be made to devise methods of musical training that build on these newly found

physiological discoveries and it is one of the challenges of this study to try to bring together these wide bands of new and traditional experience in conjunction with an examination of the understanding of aural within the narrower pursuit of music at university level.

In drawing upon the area of my personal experience as a lecturer in teaching 'aural' to undergraduate music students at university, three significant issues arose. First, my understanding of 'aural' and my assumption that it is fundamental to musical activity was not necessarily shared by the students I was teaching. Second, there seemed to be an apparent growing marginalisation of 'aural' as a specialist area of study within the degree programme, for over the course of several years, the subject shifted from being taught as a distinct component within a module (with the word 'aural' in the module name: 'Instrumental Studies and Aural'), to a smaller component within a module (with the word 'aural' removed from the module name: 'Practical Studies'), to being absorbed within a module involving no separate classes in 'aural' (with the module name reflecting a broader approach to studying music: 'Music in Practice'). Third, the music students that I was teaching possessed a broad range of musical abilities and interests when they entered university, and I wondered whether or not their final degree results were affected in any way by their ability to process musical sound in the 'inner ear', or, by their 'aural skills'. These issues also raise the question of the extent to which general 'aural ability' sustains the role of a musician and underpins students' readiness for studying music at higher education level.

This thesis is thus set in the context of higher education and is concerned with addressing the place of 'aural' and 'aural skills' in a university music degree programme and to explore current music students' understandings of 'aural' alongside their views on its relevance in their studies. It attempts to unpack some of the complexities surrounding the nature of 'aural', 'aural skills' and 'aural ability', as well as related concepts, such as the 'inner ear'. At the same time, it interrogates the assumption that 'aural' is a fundamental basis of musical activity by evaluating the relationship between university music students' 'aural ability' and their degree success. There are only a few existing prior studies about the operational role of 'aural' in higher education (for

example, see Wolf and Kopiez, 2014; Papageorgi et al., 2010c; Harrison, 1990), so the time is ripe for further research in this domain.

The target subject of this thesis is the undergraduate music student of a recognised British university, in particular the BMus student who is perhaps uncertain about where their proposed musical studies will lead, whether as historian, analyst, practitioner, teacher, or any other occupational pursuit within or outside the profession of music. This student is different from the one who might attend a British music conservatoire whose experience may already be proven especially (though not exclusively) in performance or composition. The aspirations and goals of conservatoire music students are likely to have been established before entry to higher education due to their initial leaning towards performance, though this ambition may be adjusted according to their study experience. As Long (2013) remarks, young musicians now grow up influenced by the lure of the 'celebrity culture' surrounding musical activity. The issue as to how central 'aural skills' are to the university music student is addressed in the light of this factor along with the extent to which 'aural ability', its understanding and relevance, is perceived to be a core basis of musical activity and indicative of success on a degree programme.

0.4 AIMS AND OBJECTIVES

The overall aim of the thesis is twofold: first, to investigate the potential relationship between university music students' 'aural' test marks (as a measure of their 'aural ability') and their undergraduate degree results (as a measure of 'degree success'); and second, to explore current university music students' understandings of 'aural' as well as their views on the relationship between 'aural ability' and degree success. These aims open up a number of investigative avenues, including current music students' attitudes towards 'aural', as well as consideration of the nature of their 'aural ability', their understanding of 'aural skills' and their views on the role of 'aural' within their undergraduate degree programme. The objectives of this research are thus to determine whether or not there is a correlation between university music students' 'aural ability' and degree success; and second, to theorise about current music students'

understandings of 'aural', 'aural ability' and 'aural skills' in their degree programme. The thesis is therefore issue-based rather than one in which a theory is put forward and tested. It explores the assumption of a correlation between 'aural ability' and degree success and assesses the views of current student students about 'aural' and about that assumption.

0.5 RESEARCH QUESTIONS

Two main research questions were posed in order to address the aims of the research:

RQ1 Is there a correlation between the 'aural ability' of university music students and their degree success?

RQ2 What are the views of current university music students about their understanding of 'aural', its importance in a music degree programme and its relationship to degree success?

Empirical research was undertaken in order to address these two research questions. A case study focusing specifically on past and current music students at the University of Hull was carried out with a mixed-methods approach. The first part of the research (Study 1) investigated past undergraduate music students' 'aural' test marks and degree results, and the second part (Study 2) involved interviewing focus groups of current music students at different stages in their degree programme.

0.6 THESIS OUTLINE

The subject of this thesis is potentially very broad, reflecting the extensive role of 'aural' and its potential contribution to all major musical activity. Its social and cultural underpinnings influence not only its frequency of presence in daily musical life but its implications for understanding musical ability, musical development and musicianship in general. The thesis takes account of this through discussion of 'aural' in its many dimensions across a literature review in Chapters 1 and 2. Following discussion of

possible definitions of 'aural', Chapter 1 provides insight into related concepts, such as the 'inner ear', and provides a sense of different research perspectives on the subject. While music is experienced in all cultures and in many different ways, Chapter 2 focuses more closely on the way in which 'aural' functions in the context of higher education and encompasses relevant literature in the social and educational milieu including the issue of 'aural' training and development.

The methodology of the empirical research undertaken as part of this thesis is outlined in Chapter 3 followed by reports in Chapters 4 and 5. Study 1 (Chapter 4) examines the extent to which 'aural' test marks correlate with degree results using past university music students' results. Study 2 (Chapter 5) explores current university music students' views about 'aural', their understanding of its importance and their reactions to the data from Study 1. Finally, Chapter 6 discusses the findings of the empirical research and summarises the outcomes of the thesis. Limitations of the research are considered along with implications for further research.

CHAPTER 1

Aural:
Definitions
and
Perspectives

1.1 PREAMBLE

As stated in the Introduction, the central aims of this thesis are to explore the importance of 'aural' in a university music degree programme and to assess students' understandings of 'aural' alongside their views about its relevance to their degree studies. Given that there is no direct exploration of this particular subject in the current literature, an investigation is first undertaken to examine the possible meaning of 'aural' through a review of existing research that refers to the term both specifically and in the wider general context of musicianship. The context remains broad since only limited acknowledgement is made in the literature to aural *per se*, although the review probes a range of perspectives so as to illuminate the potential depth of the subject.

This chapter will be divided into three large sections that provide a conceptual framework within which to scrutinise the subject. The first section will define the use of key terms for the purpose of initiating understanding of the subject material as well as consider its scope and relevance. The second section will concentrate on understanding *aural in practice* (that is, general music practice), with an emphasis on listening, standalone and integrated perspectives. The third section will examine research on *aural as process*, including consideration of related studies on imagery, representation and perception. The final part of this section will look closely at the workings of the 'inner ear' to provide an explanatory tool for the empirical enquiries undertaken as part of this thesis.

1.2 PRELIMINARY ISSUES

1.2.1 Definitions and Use of Terms

An explanation is firstly necessary regarding the use of the terms 'aural', 'aural ability' and 'aural skills' in this thesis, and although there is some overlap with conversational usage, a distinction is made below between each term for the purpose of this research. Individual musicians may have separate views on the meaning of these terms, not least because there is a degree of subjectivity in the semantic interpretation of the words, yet

McNeil (2000) agrees that 'there remains little consensus about the nature of these skills or about how to assess them' (p. 1). Similarly, Lehmann, Sloboda and Woody (2007) claim that 'musicians and non-musicians both have unclear assumptions about what aural capabilities they have' (p. 212).

Modern English is fortunate to have developed from the fusion of several languages over many centuries and this has given rise to circumstances where words which have similar meanings contain nuances that lead to a variation in their usage and context. The distinction between skills and ability is an example, as explained below. Indeed, linguistics are a dynamic entity and, similarly to many trends in conversation over the last half-century and the recent movement towards greater social informality, 'aural' has emerged as a generic shortcut to denote an all-embracing view of the practical materialisation of inner musical thought. The word entails not just an overall ability to demonstrate aspects of musicianship and mental acuity but tends to be understood as subsuming the specific skills that are associated in assessment and musical practice, and indeed, often denoting specifically an association with the assessment of musicianship.

Literally, the word 'aural' derives from the Latin *auris* meaning 'the ear', and it is clear that there is an assumption in its use in music of the implication of listening. Though pronounced similarly to (and sometimes confused with) its counterpart in speech, 'oral' (from the Latin *os / oralis* concerning 'the mouth') is contrastingly more common in spoken language and in linguistics, while 'aural', perhaps by its rarer general usage, has widened in its overall concept. The infrequency of the appearance of 'aural' as a subject of research is notable and it is significant that when the topic is raised, it is often used in the context of either general ability (though possibly referred to as aural perception or even skills) by Clarke (2005), Levitin (2006), Deliège and Davidson (2011), Hallam (2015), or as defined skills, sometimes described as technical, in the writings, for example, of Karpinski (2000a), McPherson, Davidson and Faulkner (2012), Stakelum and Baker (2013), Hallam and Gaunt (2012) and Kinsarskaya (2009).

Indeed, 'aural' is now most often used as a common term in conversation to indicate a fusion of both proficiency and application, and it has also for general purposes been adopted in this thesis when ordinary reference is made to the subject, largely in the way

that it is understood when referring neither specifically to the general capacity (ability) associated with mental processing nor to the discrete competencies (skills) that are involved in its accomplishment. 'Aural' has become for many the term that describes also the various exercises and tests used in training and assessment (such as the 'aural' tests in graded practical examinations, further details of which are given in the next chapter) as well as simply describing the musical activity involved in hearing and listening to sound, as opposed to seeing and reading music from notation. Paradoxically, the facility required in such circumstances, for example, as describing a musical style, employs the alternative but homophonic word 'oral', to distinguish the process of speaking from hearing.

Although the use of the word 'aural' on its own implies through usage an inherent capability, 'aural ability' holds more precisely the broader designation that refers to a person's overriding aptitude which is represented as a wider-ranging facility despite retaining a more indeterminate capacity. It is used in this thesis in this encompassing sense to differentiate from the more objective practical accomplishments of 'aural skills', the expression applied to signify the precise techniques and analytical competencies in listening that are learned and potentially lead to expertise in understanding musical sound. The word 'ability' is defined as the power or capacity to do anything, from the Latin *habilis* meaning 'able', though, ironically, according to the Oxford English Dictionary, a second category of its meaning is 'skill or a talent'. Conversely, the word 'skill' derives from Old Norse 'skil' meaning knowledge which was adopted in Old English as 'skele' also to mean knowledge, while the current use of 'knowledge' itself (also derived from Old English as 'cnāwan') has now taken on the more cerebral concept of the retention and applied recall of facts and information. 'Skill' now implies a specific competence, generally of a practical nature that can be demonstrated physically or mentally.

For the purpose of this thesis, however, the word 'skill' has been reserved to designate in music the actual dexterity involved and needed to perform and create from musical thought. 'Aural skills', therefore, determine a specific practical entity, ostensibly embodying the faculty with which a person assimilates the detailed elements of music such as pitch, rhythm and timbre, that manifest themselves in melody, harmony,

instrumentation and structural devices. This viewpoint may reflect the understanding of other contemporary Western music practitioners, but it should be emphasised that this understanding of 'aural skills' is just that and no more: there is no single definition.

Indeed, the word 'aural' is a very apposite example of Kramer's (1996) point about the difficulties of using language in conceptual representation. Indeed, 'aural', like music, as a description of a human activity, is a social construct, and, as stated above, being a result of a linguistic appellation, is subject to the whims of conversational understanding and may be variable in its precise usage according to the experience and beliefs of the speaker (and the spoken-to).

In this thesis, the following definitions are used as a basis for explaining the research:

Aural: a general term to refer to the activity of processing musical sounds via inner musical thinking and the application and evaluation of that processing in Western music-making.

Aural ability: a general term to refer to the overall capability of an individual to undertake aural (as defined above).

Aural skills: the specific competencies and techniques required to demonstrate aural and aural ability (as defined above)

1.2.2 Understanding the Scope and Relevance of Aural

The broad definitions above thus embrace the notion of aural as something involving 'the inner ear' and a process that is applied to engagement with musical activity. However, a major limitation remains in establishing what exactly constitutes aural as a result of the difficulty of not knowing what musical thought other musicians (or non-musicians) have at any point in their heads. Any attempt to determine the detail of their aural perception of sound has been limited to their own description of their musical thinking, practically impossible, for example, in the area of harmonic movement, and it is frequently left to a speculative notational rendering or simple vocal reproduction to externally display a mental sound image. Similar limitations still largely exist in not knowing exactly how musical syntax and structure are encoded in the brain – at least

until technology allows a clearer analysis of musical thought processing – and it must be said that techniques are fast moving forward all the time in laboratories across the world to enable greater examination of the tiny electrical impulses that represent our thought processes. Indeed, a number of studies and music research are ongoing into our inner responses to music in such areas as imagery (see Dubiel, 1999; De Nora, 2000; Bailes, 2003a), timbre (see McAdams and Giordano, 2009), interpretation of musical shape and the question of familiarity (see Prior, 2011a; King and Prior, 2013), in neuroscientific circles (see Peretz and Zatorre, 2003), as a physiological and psychological reaction (see Hodges, 2009) or emotional response to different sounds and circumstances in which music plays a significant role (Adorno, 1976; DeNora, 2010; Sloboda, 1991; Gabrielsson, 2001, 2009, 2011b; Juslin, 2009, 2011; Juslin and Sloboda, 2010; see also King and Prior, 2013). Research has also recently taken place in a wide variety of musical contexts, especially those that have explored the meaning and development of musicianship (see, for example, Kinarskaya, 2009; Ilomäki, (2011); Stakelum, 2013), and the importance of the environment and natural ability (see McPherson, Davidson and Faulkner, 2012). The specific subject of aural skills has not been taken up by many though the research by Karpinski (2000a) investigates much of significance. Reference is also made below to the different ways sound sources are perceived as a process of auditory streaming (see Bregman, 1990; Huron, 2006).

To understand what musical thoughts are being processed we must also have access to deciphering mechanisms such as musical theory that enable us to make sense of the mixture of sounds we call music that is heard and which is carried around in our heads; having accessed our knowledge we can exercise and advance our potential skills in order to carry out activities associated with the practice of music such as perform, compose, direct and analyse. As Karpinski (2000a) asserts, ‘Anywhere there is music to be heard, read, or made, aural skills should be at the ready’ (p. 223). Indeed, as is indicated later in this chapter, musical thought, essentially what is understood as the ‘inner ear’, is at the foundation of musical experience, to a greater or lesser degree as part of human experience, irrespective of training, but the presence of aural at the level of awareness for trained musicians is a matter of importance in addressing the question of its relative indispensability for musicians in any role and it is the investigation of this aspect that is of particular relevance in this chapter. Also since the literature does not specifically

consider aural from the perspective of the contemporary music student, a major task in the thesis is to develop this particular line of enquiry.

Much of the literature which makes reference to aural is contained within debates about musical development and ability though little specific mention is made of aural and aural skills and even less discussion is undertaken about its relevance to music students on a university degree programme. This is especially the case concerning aural skills pedagogy which, as Ilomäki (2012) confirms, has been judged by several authors as being quite limited' (p. 18). Neither does there appear to be any clear definitive view concerning the attributes of aural ability itself nor as to what is understood to be precisely inherent in aural and its associated skills. This may be because the term aural is too broad to be directly meaningful and the examples below from the literature tend to demonstrate this. In some cases the writers by omission make the seeming assumption that aural has acquired a form of universal understanding: either it does not need to be explained as an entity or that it is difficult to define exactly and therefore the use of the term is actively avoided. Indeed, several main writers on musical development do not list the word in their respective indexes and others prefer the term 'ear training' as an equivalent term where an allusion to aural might be made. Some researchers alternatively adopt the perspective of aural as a general component of musicianship or as part of its development while other recent interdisciplinary writings reflect also on its neurological aspects.

To reiterate, the problem is that few explanations of aural or aural skills are given and where the terms are used, there is a lack of preciseness or commonality between writers. In the volume by Prosser (2000), actually entitled 'Ear Training for the contemporary musician' which is concerned with the development of what are essentially aural skills, no mention is made of the word 'aural' at all. Although the term ear-training (perhaps as a convention of North America) seems to be used as a substitute, as indicated above, aural is much more than just the training of the ear and the statement made in describing the book that 'every musician knows that ear-training is the cornerstone of competent musicianship' (back cover) clearly reveals the limitations of this view. Also, 'aural' is not listed in the index of Thompson's (2014) encyclopaedic compendium that includes music despite over forty references overall to

the term within. Similarly, Hargreaves (1996) does not introduce aural in his reflection on the musical competence and exploration of an expert musician's development. Indeed, in the whole volume by Deliège and Sloboda (1996) on *Musical Beginnings* in which his chapter is presented, there appears to be only one reference to aural, this instance occurring in the context of performance (p. 185). Perhaps these examples reflect the difficulties with definition and usage rather than oversight of subject matter.

To try to describe others' understanding of what is entailed by aural and aural skills is, therefore, a subjective and capricious process. However, from the exploration of other authors' views on aural, writings have demonstrated a breadth of interpretation and reference across a wide spectrum within music study and practice though the dilemma is that the research literature tends almost exclusively towards referring to aural as a factor in musical advancement as separate from the elemental aspect appropriate to training and assessment. The research falls into two main categories, largely defined by the difference between (the more specific) aural skills and (the more general) aural ability as follows:

1. Aural as a standalone area of musical practice:
 - a) where aural is understood as derived from effective listening and encompasses a range of competencies that are identified through practical demonstration of specific activities;
 - b) as an area identified by a breakdown of musical elements and representing the means by which musical ability can be trained and assessed through the demonstration of specific skills.
2. Aural as an integral part of musicianship and musical ability:
 - a) where aural is understood as part of the issue of aptitude within musicological debate about the constitution of musicality, musicianship and overall musical development;
 - b) where the context of aural is widened to include attempts to describe the neurological processing of the perception of musical experiences and inner representation.

There is an inevitable overlap between the training activities involved in music education implied and touched upon in (1b) above and the theoretical evaluation of musical ability

that occurs as part of the process of musical development in (2a). The distinction between the two is problematic in terms of literature analysis and there is also a pull away from reference to specific elements which are involved in listening to music and the processing of that experience by way of mental representation. As a consequence, somewhat confusingly, category (2b) above concerning inner representational processes also overlaps with (1a) in the focus given in each of these sub-categories to the breakdown and analysis of musical elements and practical applications. Nevertheless, the following section of this chapter will review the literature according to those texts that regard aural as a key force, (i.e. standalone perspectives), with those that discuss the term in the context of something else (integrated perspectives), including training, musicianship and musical development. First, however, discussion of the importance of listening in relation to aural practice will be given as it pertains to a general understanding of the subject.

1.3 UNDERSTANDING AURAL IN PRACTICE

1.3.1 The Importance of Listening

As indicated above in the definition of the word 'aural' in its reference to hearing, many aural skills derive initially from intuitive listening which forms the basis of the development of those subsequent musical (aural) skills. Clearly, listening as an activity is crucial and it is the level of discrimination, manifested at least to some extent in the explicit demonstration of aural skills, which differentiates the experienced musician from one who is less advanced or trained. An initial review of the importance of listening as a fundamental stage in acquiring aural skills is required before considering a detailed analysis of the literature concerning the breakdown of the skills associated with aural. Indeed, a good deal of literature exists about the way we hear and listen to music, for example, the interpretative processes explored by Beament (2005) and Parncutt and McPherson (2002), the ecological approach by Clarke (2005), the construction and manipulation of mental representations by Lehmann, Sloboda and Woody (2007), and the importance of cognitive understanding investigated by Rink (2002) and Sloboda (2005), aspects of which are explored further below. Prince (1972) affirms the

idiosyncrasy of the experience and adds that its difference for everybody is manifested in muscle movement, visual images, perception of mood, experience of feeling, judgments about preference. Altenmüller and Gruhn (2002), though not providing any specific definition, agree that ‘aural skills are developed through a broad variety of listening experiences’ (p. 63). Hansen and Milligan (2012) offer a more defined view that the listening experience begins early and that ‘as with reading, our earliest encounters with music are aural; internalising and discriminating sound is a process that is common and foundational to both domains. Reading specialists term this phenomenon “phonological awareness”—sensitivity to sound’ (p. 76).

Clarke’s (2005) ecological approach to listening places great prominence on the contextual aspect of musical experience and argues that the way we hear and understand music is affected by our physical and social circumstances, similar to Bourdieu’s (1984) concept of ‘cultural capital’. For example, a distinction is especially made in the environmental circumstances of the listener: the attention given to music in, say, a supermarket, or even during a surgical operation (see Bosanquet, Glasbey and Chavez, 2014), is likely to be quite different from the focus given by students in a ‘traditional aural training or analysis class’ (p. 135). The importance attached to the meaning of music during listening thus emphasises the significance of aural. One aspect of relevance to aural that Clarke (2005) refers to is the building up of meaningful interpretations of the listening that arise from the modification of existing knowledge and experience by the subsequent processing of new information and the reliance on mental representation, a topic returned to below (see Section 1.4.2). The implications for the development of aural skills as an integral part of this process are clear but reference is made only fleetingly to aural as a single phenomenon, as in the reference to the strengthening of initial perceptions of ‘pitch height, dynamics and timbre, resulting from manual / aural exploration (that) leads to ... tune building and expressive function’ (p. 23) or the importance of aural training involved in the ability to distinguish the three component notes of a triad which those who are untrained ‘tend to regard ... as a single entity’ (p. 24).

Indeed, Clarke’s writing is more about musical behaviour and the context of listening in the ‘virtual world’ of music (p. 154) than the process by which the skills involved in the

facility to understand the details and elements of music can be acquired. A discussion is undertaken nevertheless of what he terms the ‘invariants’ – the ecological conditions – during listening and that, for example, a perfect cadence in F major may be heard, among many alternatives, as ‘a musical ending, an extract from an aural test, a cadence played on the piano, a perfect cadence in F played on the piano’ (p. 44), thereby demonstrating on an imaginary continuum variations in the analytical detail of the sound by different listeners and, by implication, the range of aural skills used in the process, as well as the ‘descriptive competence, current preoccupations, and particular perceptual capacities’ (ibid.) of the listener.

In a later update of the above approach, Clarke et al. (2010) highlight other related skills, which, again by implication, subsume inherent aural competencies as part of the process of making music. While those ‘specifically musical attributes’ (p. 30) involve motor control, coordination, timing, reading skills, memorisation, creative and social skills and are dependent on the perception and psychological capacities of the listener, it is clear that the concept of aural and aural skills are founded on focused listening, though little detail of the means of acquiring such skills is explored in this ecological perspective. To the authors, ‘even the term “musician” has different meanings according to the context in which it is used and so reveals some of the value judgements and cultural assumptions that surround musical behaviour’ (p. 164). The perspective taken by the authors clearly places the progression of musical skills within the significant context of the environmental background of the learner, which is, of course, as pointed out elsewhere in this thesis, a vital element of musical development, including advancement in aural. While their approach to the understanding of the skills involved in music is from various angles largely concerned with practical music-making, including that made by those who are untrained, it is clear that musical expertise to Clarke et al. is not a clear-cut entity and that the informality in current attitudes to musical experience have considerably broadened in recent decades and that, by implication, musical training and, perhaps, traditional aspirations, should be questioned.

Beament (2005) approaches the subject of listening to music primarily from a scientific perspective and describes how sounds are coded by the ear. Although advances have been made in neuroscience since publication, the central theme of his analysis of the

hearing mechanism is the issue of interpreting how and what we hear. Beament likens the brain to a 'black box' (p. 93) in which many processes take place but how and why they happen is uncertain: 'when the pulses pass into the cortex, all we know is that they create sensations' (ibid.). Beament's relevant point is, that, with regard to the memory of music, we can only as yet 'describe what it does' (p. 150). He refers to what he terms the mental process of inner musical thought, that we 'auralise', as opposed to visualise, matter in our inner mind (p. 7), and while the writing focuses on the principle mechanisms of the hearing system, from a musical standpoint, he undertakes some of the demystification of the hearing process by stating that the issue does have some bearing on the aural capacity of musicians especially during the training stages. His attempts to describe the perceptive powers of the inner ear demonstrate that there are a variety of factors that influence how we interpret musical sound patterns and while pitch and loudness, for example, are tangible in terms of description and management, the sensation of rhythm and learning to recognise meter in music creates greater difficulty in defining and understanding. Although this issue relates closely to the development of aural skills, Beament's focus on the means by which we interpret the signals reaching our ears rather than how such processes can be improved, nevertheless provides valuable insight into the importance of how different ways of listening might influence the approach to aural training.

Elliott's (2005) praxial philosophy also emphasises the integral importance of listening as a fundamental element in music making: 'listening ... should be at the centre of the music curriculum' (p. 7) and widely incorporated in training. Students should engage in 'performing-and-listening, improvising-and-listening, composing-and-listening, arranging-and-listening, conducting-and-listening, and listening to recordings and live performances' (ibid.). Clearly, listening is a central component across the many strands of musical experience and, as Elliott is remarking here, without it, music, ostensibly, does not exist.

Lehmann, Sloboda and Woody (2007) confirm that listening is a vital part of the aural process despite their claim that 'skilled music listening is a solely mental activity' (p. 19). Moreover, listening can only be done by oneself: you cannot know what – how – another is hearing, although there is the possibility of sharing knowledge with others about the

listening activity and through discussion to be able with experience to become more perceptive and observant, reflecting through the oral activity identified earlier. Lehmann et al. consider a range of musical skills from a practical perspective in an attempt to elucidate the differences between what they describe as musical beginners, advanced music-makers and world-class performers and address the issue as to why so few people become directly involved with music. The fact that it is possible that the level of aural skills may be at the root of the differences of, and influence the extent to which, an individual might progress to an advanced stage, is not put forward. The authors rarely, indeed, refer to aural other than as a general part of musicianship, their approach to listening being taken from the perspective of performance in musicianship. Aural is regarded as a receptive skill along with perception in contrast to the productive skills of performance and composition (p. 34).

Though not a text-book as such, Lehmann et al.'s purpose in writing is to provide an assessment of the processes that determine the context of acquiring musical skills, rather than to explain them, while exploring the nature of musical activities such as sight-reading, improvisation, performance from memory and composing from the perspective of the development of musicianship. An example of their approach is the implication of an aural skill involved in the statement that 'someone who excels in improvisation might have special aptitude for aural memory' (p. 36), though it is in the context of brain research in which this point appears.

The middle section of the book, though devoted to 'Musical Skills', covers expression and interpretation, reading, improvisation and memorisation but avoids direct reference to those elements identified previously that are involved in the aural skills-base as though they need no explanation, leaving the reader to interpret the exact nature of the skills involved. Indeed, the occasional use of the word 'aural' tends to be confined to its meaning, for example, in a reference to musical practice, of listening and forming an inner image: 'the first stage entails reading through the piece, or more generally, getting an aural representation of the piece in its entirety' (p. 76).

As stated above, listening of course closely links with the representational aspect of aural and, as Lehmann et al. maintain, in referring to musical sub-skills such as those

employed in sight-reading and improvising, ‘the person’s ability to encode and manipulate musically relevant information, is, in essence, to construct and manipulate mental representations’ (p. 21). This view is later supported in the context of composition where the authors bring the matter of aural back to the importance of listening as ‘a central activity that fosters generative abilities through the formation of aural skills’ (p. 139). Clearly the authors agree with the significance of aural skills in music – ‘obviously a musician’s aural skills are of critical importance’ (p. 200) – but hold back from a detailed identification.

Karpinski (2000a), as part of a detailed analysis of the acquisition of aural skills, underlines the importance of listening skills which ‘are essential to musicians because music exists fundamentally in the aural domain’ (p. 4). He distinguishes two levels of listening by identifying the many strands that can be unpicked during the process of listening to a piece of music. This first level, which he describes as ‘optional’ (p. 11), includes the awareness of basic features such as texture, timbre, tempo, tessitura and register, dynamics and articulation. These features, he explains, require less dedicated attention than, for example, those perceived in a second level of listening, which include the perception of pitch and rhythm in listening and, for example, interpreting melody and harmony through dictation.

Karpinski’s view of this latter activity in developing aural skills, however, is as a ‘frequently inadequate means of determining perceptual and cognitive problems’ (p. 62) and it emphasises the importance of approaching aural development from a broader base than the use of dictation. Karpinski’s choice of the word ‘optional’ to describe the basic features of the first level, however, could be challenged, for awareness of such features, at least to some extent, may be regarded as automatic in the listening process, though they may not be analytically interpreted by an untrained ear. He does maintain that these ‘(basic features) are not absolutely necessary for immediate progress’ (p. 11) but that they contrast with those elements relating to pulse, meter, rhythm, scales, intervals and chord identification that need to be built on to progress towards musical expertise. These are the characteristics of what might be identified as the real discriminatory aspects required in the further development of aural skills.

Greater awareness of many features, however, may develop to some extent, as a result of repetition and familiarity of the music and, though referring more specifically to the inner processing of a listening experience, Daynes (2007) believes also that familiarity ‘appears to increase the detail in the schematic representation of a piece, and enable a deeper focus in the listener on thematic and structural features’ (p. 53), as distinct from those ‘optional’ features identified above by Karpinski and what Daynes goes on to describe as ‘those more readily accessible surface features such as dynamics, articulation and tempo’ (p. 53).

1.3.2 Standalone Perspectives

Having established that listening is a vital component in the consideration of aural skills, it is the individual processing of that activity that follows in the building up of the many areas of competence that comprise the essential nature of aural. Elliott (2005) emphasises the importance of listening in conjunction also with many musical activities in aural training and, as stated earlier, it is the variety of skills that develop from that listening through, for example, the perception of pitch, rhythm, timbre, texture and harmony, combined with the physical and mental aptitudes involved in instrumental and vocal performance, that demonstrate aural ability and which subsequently enable musical understanding and creation to occur.

A number of authors have written about the nature of musical skills although there is often fusion between the developmental aspects of musicianship and the concept of aural ability in terms of its role as a significant part of musical pedagogy leading to expertise. The range of skills can nevertheless be broken down into smaller components particularly for the purpose of training and testing and the ways in which this has been done helps to explain some conventional views of aural and its traditional association with assessment.

Karpinski (2000a) is one of the few writers who explore the subject of aural ability and associated skills in depth and who emphasise the inner processing component of aural skills and its importance in the development of musicianship as represented by ‘the ability to think *in music*’ (p. 4) (his italics). He also underlines the importance of harmonic

understanding when reading a score as a crucial part of musical development. He asserts that 'literate musicians learn to *think* about harmony as rapidly as they can perform it' (p. 181). Like Beament (2005), Karpinski adopts the concept of 'auralise', in relation to the internal imagination of aural by which he is able to define exactly that process which represents the experience that leads to the development of aural skills. A footnote (p. 49) explains that the word has been used by others, the first over a century ago in a didactic discourse by Matthay (1913), who underlines the significance of the process, perhaps overstating it, as a 'most salient feature of genius and real talent' (p. 10). Also used by Ward (1999), the term 'auralise' equates to the word 'audiate' originally used by Gordon (1979, 1988, 1999, 2005) many years previously, which as a cognitive process is described as the ability to hear and give meaning to music when sound is not physically present (2011, p. 10). Gordon's view that 'audiation is to music that thought is to language' (1999, p. 42) is not entirely precise as music is experienced and inwardly generated strictly also by thought processes, although his methods of musical instruction and assessment through aural-based exercises have attracted much recognition. Indeed, aural is equivalent to the process of listening for Gordon (2011, p. 17) whose interest has been in the establishment of measures of musical aptitude as deduced from his theories of teaching music.

While Karpinski's (2000a) view is that there has been a disparity between the 'disciplines of music cognition and aural skills training' (p. 4), he too does not explicitly provide a definitive meaning of aural. The book is designed essentially as a pedagogical treatise intended for higher education students as an exploration of how such students acquire the 'various skills involved in two broad areas of musical behaviour: 1) listening and 2) reading and performing' (p. 3). He prefers to divide his thinking into these separate elements rather than within categories of ear training and sight-singing in which he believes aural skills have been previously interpreted (p. 6). While not revolutionary as an approach, this does underline the essential partition in aural skills between the external practical application of musical thought and the internal processing aspect, one which is explored in more detail below.

Reference has been made above to Karpinski's emphasis on the importance of listening but his writing is also particularly concerned with ways in which aural skills are learned

and the training processes adopted by teachers especially at higher education level. These are reviewed through the use of melodic and harmonic dictation, and what he terms 'other listening skills' including transcription, error detection and correction, pitch and key identification, and formal structures. These aspects are separated out in the second part of his book that deals with 'music reading skills (that) comprise the other broad component of aural skills curricula' (p. 145), in which he emphasises the importance of sight-singing¹ and the inculcation of scale-degree sensitivity. He further recommends the advantage of practising such processes through listening to melodic passages using solmisation before notation is introduced 'in the aural skills sequence' (p. 158), since, as claimed elsewhere in this thesis (see Chapter 2), difficulties can more effectively be overcome 'in the absence of the variables introduced by reading and interpreting notation' (ibid.). The issue of experiencing musical sound before reading notation is raised below.

While the stated purpose of Karpinski's research is to explore ways of developing aural skills by describing methods that lead to the acquisition of such skills, each chapter provides a comprehensive rationale for the inclusion of the systems and exercises that help to explain the various processes of aural development identified. He highlights the contentious issue of melodic dictation in which some instructors consider it more beneficial to the student (in the longer term) for multi-part dictation to be always given in preference to breaking up the parts and dictating separately. He refers to Butler's (1992) term of the 'cocktail-party effect' (p. 112) in which a listener to a musical passage being dictated finds difficulty in filtering out the two or more melodic lines from each other, a common problem in aural skills training. He recommends that greater attention should be given to the relationship between the parts thereby reinforcing the importance mentioned above about the early inculcation of solmisation. While Karpinski's writing stands out as one of very few authoritative investigations of aural skills, it is more by inference than direct description that his understanding of aural skills is deduced through the systematic analysis of methods of approach to learning and training of the various skills expected of a musician. While achieving his purpose without

¹ In the USA and in Karpinski's text the term 'sight-reading' is often used as an equivalent to 'sight-singing'

doubt, and underlining the significance of aural skills in all musical activities, the question nevertheless remains as to what exactly is his view about the relative place of aural skills in musicianship. This point is not fully resolved by Karpinski, but is an issue which is taken up by others considered further below in the more integrated approach to aural skills pedagogy.

Aural as an entity, then, is founded on the development and advancement of a range of specific competencies that derive from the attentive listening of music and the practical and mental response to that stimulus. The skills, which can largely be trained, develop according to the individual and depend to a degree on those who activate the teaching and stimulate the influence on the process. While these skills can be broken down into integral parts through discussion of specific competencies such as in the way Karpinski achieves, no significant writings consider the topic in isolation and the tendency of authors taking up aural skills as a specialist area, like Karpinski, is to contextualise the constituents of the skills involved within methods of training. Although as stated elsewhere, the subject of training methodology and music development is not a central element of this thesis, clearly its association with aural skills cannot be avoided in an analysis of their application.

Karpinski recognises Butler's (1992, 1997) work in the field as a significant exploration of the development of cognitive awareness in music and approaches to training. By way of the study of a number of higher education music institutions in the USA, Butler identifies two main approaches to aural pedagogy. No similar study has, to my knowledge, been conducted in the UK covering the major colleges of music to ascertain their philosophy on aural teaching and the extent to which each compares with the findings of Butler (1997). Although his study, which is no longer recent, sets out to establish what he describes as the 'gulf between music perception research and aural training' (p. 38) – whether 'the journals mirrored life out in the aural training classrooms' (ibid.) – he discovered two main schools of thought. Mainstream philosophy was one where the aim was to achieve an effective inner ear using traditional sight-singing and dictation, understood as 'good relative pitch and a solid sense of tonality' (p. 40). In contrast, the alternative approach was the inseparable goal of an 'amalgam of aural mastery and performance skill' (ibid.). To some extent, though in the context of training,

this correlates with the distinction being made here, that aural skills can be understood in terms of individualised competencies concerning pitch, rhythm, harmony, etc. or in relation to their integration within musicianship and performance. These cover the same elements but contextualise them across the range of musical activity and development.

1.3.3 Integrated Perspectives

Thus, while there are arguments to support the common usage of the word 'aural' to apply equally to both ends of the continuum defined above – from effective listening and processing, standalone training and testing, to the significance of aural ability in musical development and musicianship – the understanding of 'aural skills' is a complex and controversial matter. Indeed, there is a tendency for the topic of aural skills to be fused with and to be increasingly conceived as a part of general musical ability. Aural is seen as one factor of musicianship, consequently attracting a more integrated perspective of the associated skills within musical development, rather than as separate elements described above.

Like many writers who adopt this viewpoint, Hallam (2013b) claims that 'the conceptualisation of the skills required to become a musician has broadened beyond aural skills' (p. 120), and that there are many educational and social influences that impact upon the formation of emergent musicianship. There is no problem in accepting that aural skills are an integral part of the developing musician along with other social and educational support mechanisms; the issue becomes more a matter of what constitutes that part of musicianship that is designated in the research literature under the broad terms of aural or aural skills where explanation and definition are lacking.

Indeed, Hallam (2013b) refers to aural skill in the singular and reports the growing recognition that it is 'only one of many skills which are necessary for the development of expertise' (p. 119). This point reflects an earlier study (see Hallam and Gaunt, 2012; Hallam and Creech, 2010; McPherson and Hallam, 2009), whereby a range of skills are identified that are necessary to achieve success as a professional musician, specifically, cognitive skills, technical skills, musicianship skills, performance skills, creative skills,

evaluative skills, self-regulatory skills, and aural skills. In this case, aural skills are described as those that 'support the development of rhythmic accuracy and a sense of pulse, good intonation, the facility to know how music will sound without having to play it, playing by ear and improvisational skills' (p. 119).

Hallam's basic premise, therefore, is that there are numerous sets of skills required to achieve musical expertise, of which one set is aural skill. The scope of the aural skill outlined by Hallam could be extended to include other related aural skills referred to above by other researchers, including sight-singing, general aural awareness and interpretation of timbre, texture and dynamics.

Interestingly, in a more recent separate publication, Hallam (2014) views aural skills as supporting 'the development of rhythmic accuracy, sense of pulse, good intonation, the facility to know how music will sound without having to play it, playing by ear, and improvisation skills' (p. 11). She goes on to explain that cognitive skills include the 'development of reading, transposition, memorisation of music, composition, understanding of keys' (ibid.), along with other aspects such as instrumental competence, expressive performance and creativity. Arguably, some of these skills could be regarded under the umbrella of aural skills. The classification of different components of skills under different skill groupings is challenging, not least because of the potential overlaps between one skill and another. Moreover, depending on the context of the musical activity, different skills may be regarded as more important than others. Hallam's essential point, however, that musical expertise involves a range of skill sets, including aural skills, is important.

Regarding the development of skills, Hargreaves (1986) and Kinarskaya (2009) concur that in the context of musical aptitude, the first skills to develop are rhythmic. More recently, however, Morgan, Killough and Thompson (2013) showed that even if a response to rhythmic music is exhibited through movement, 'only a few infants moved rhythmically' (p. 258). The inculcation of a sense of metre is therefore vital as an early stage in the teaching of aural skills and, as Levitin (2006) reminds us, 'rhythmic sequences excite recurrent neural networks' (p. 265). Myelination strengthens experience and allows the commitment to memory of metrical stimuli (see p. 233). Thus,

the process of learning through practice and repetition typifies many musical tasks that are founded on the mental storage of sound. Such action leads to the development over time of specific skills; similarly, aural practice consolidates the techniques of organising musical thought.

Dowling (1992) purports that there exists a 'distinction between cognitive components that are present at the earliest stages [of a child's development] and components that develop in response to experience' (p. 604). Clearly practice and repetition undertaken in formative years cannot easily, if at all, be made up at a later age and it is notable that Shuter-Dyson (1992) contends that 'tonal imagery is a condition for learning', (p. 633) underlining the importance of the 'inner ear' at an early age, age itself being the 'principal predictor of success' [as a musician] (ibid.). The length of time spent in musical activity, especially in what Ericsson, Krampe and Tesch-Römer's (1993) term 'deliberate' practice, has more recently been suggested as a more reliable indicator of later musical expertise (Hallam, 2013), especially the quality of that purposeful practice. Indeed, it is the interactive auditing of practice regimes between teacher and student and the consequent metacognitive reviewing of the process that are important in providing an understanding of what strategies are needed for musicians to enhance their performance (Bathgate and Schunn, 2013). The efficiency of the learning process resonates with the various conditions referred to above in which musical development takes place. These circumstances apply equally to the acquisition of aural skills and the different contexts in which practice takes place, including the motivations of the individuals pursuing it and the resultant awareness and understanding of the theoretical bases of aural processing.

Stakelum and Baker (2013) also view skills collectively from a developmental perspective in their construction of a model detailing 'possible notions of musical ability' (p. 137). 'Sources', such as universal human traits, genetic inheritance, and personal attributes, which feed into the central component of musical ability, lead to the 'evidence' of technical skills, memorisation, expression and discrimination of pitch, rhythm and timbre. These areas justifiably take account of the variety of influences on musical ability, and some of the terms overlap with aspects of the aural and cognitive skills identified by Hallam. The concept of aural and aural skills as separate entities are not

indicated specifically in this model, although all of the qualities marked as 'evidence' could be described as falling into these categories at least to some degree.

McPherson and Gabrielsson (2002) distinguish between playing by ear and playing from memory, advocating that improvising and playing without music are essential in musical development. They reiterate the view of Gordon (1997) that 'a premature emphasis on notation actually prevents a student from learning to hear and comprehend music internally' (p. 102). Furthermore, they claim that insufficient emphasis is often given to the perceptual understanding of aural and that 'technical development and knowledge of notation are valued above all else' (p. 101). While essentially discussing the demerits of the early adoption in musical training of reading notation, McPherson and Gabrielsson are, by implication, advocating the significance of aural skills generally in musical development, suggesting that the introduction in aural of symbol before sound is potentially detrimental to progress in that it 'leads to decreased aural sensitivity' (p. 107). Their view that ear-playing and rote learning are underestimated as a means of developing music-literacy skills leads to their recommendation of a more integrated approach in the establishment of competence in musical performance and, it can be inferred, advancement in aural skills. In addition, McPherson and Davidson (2006) found in their studies with children that those who 'established *ear-to-hand* coordination skills very early in their development for aural forms of performance such as playing from memory and by ear, and *eye-to-ear-to-hand* coordination skills for visual forms of performance such as sight-reading, went on to achieve at the highest level' (p. 339). The point echoes Lehmann, Sloboda and Woody's (2007) assertion that 'some educators consider learning music by ear first to be a more natural way of learning music' (p. 109), reiterating their claim that 'perceptual competence precedes performance competence' (p. 36). The principle of sound-before-symbol formed the basis of the method of music instruction recommended also by Kochevitsky (1967) that links the motor and auditory systems from the outset of musical training, so that the mental link between the sound and the physical reaction occurs prior to a young musician's instrumental response to the visual (notational) signal. The issue concerning the relevance of notation in singing and assessment is further discussed in Chapter 2 in the context of aural training.

Similarly, Mills and McPherson (2006) in their investigation into musical literacy regard the gaining of an awareness of sound before reading notation as particularly important, notably so as 'to link this auditory perception with the visual perception' (p. 160). Their point somewhat perpetuates the confusion surrounding the meaning of aural as it draws together both notation and reading skills. Though not specifically referring to aural activity, Mills and McPherson identify a variety of competencies that are effectively encompassed by aural skills, for example, listening for motifs, sequences, pulse, tonality, pitch, that 'form the basis of learning to comprehend or "audiate" what is seen in notation' (p. 162). They see also factors that fall within the range of aural skills such as playing by ear and development of musical memory.

Moving on from musical development, aural is also considered as an integral part of training. Pratt (1998) sees aural skills in training terms as part of overall musicianship and the range of musical skills needed 'as the valid spheres of musical activity: composing, performing and listening' (p. vii). He is particularly critical of the emphasis in traditional training methods given to the priority in which those skills are polarised and assessed as either 'right or wrong, stating that the most convenient material of this is the pitch and duration of notes' (p. 2). Although not dismissing at all the relevance in aural training of notating from dictation pitch and rhythmic elements as 'important skills for the practising musician' (p. 5), Pratt expands this notion to include 'timbre and dynamics, tempo, duration and texture' (p. 3). By enlarging the scope of aural skills and exercises to become part of a broader process of aural awareness, Pratt recommends the skills to be 'returned to the context of real musical activity' (p. 8). He advocates greater emphasis being placed on the neglected area of musical expression, itself a component of aural skills but which relies less on the discrete identification of pitch and rhythm, but – and this is the crux of the uneasiness with the earlier traditional approach – it is more subjective and less measurable and therefore less precise in musical assessment. Pratt himself admits that this presents a dilemma: that 'much of it is simply unassessable' (p. 150). Like the general subjectivity of musical experience, perhaps it is necessary to allow some parts of aural ability to remain heuristic and judge the overall canvas of the musician rather than evaluate selected parts.

Kinarskaya (2009) adopts a very different perspective by exploring the essence of musical ability, discussing the extent of talent in the context of potential musical development and the contrasts between expressive and analytical thinking in music. She, too, without defining aural in specific terms, nor including the word in the index, frequently refers to aspects of 'the musical ear' (see p. 307), and equally condemns the traditionally conservative view of musical ability and short-sightedness of training which puts 'too much weight on the accuracy of pitch perception and musical memory' (p. 74). While the approach does not concentrate specifically on musical training, Kinarskaya's main premise is that both the 'analytical ear' and 'expressive ear' are basic components of musicianship, which are present in part due to the flourishing of individual natural ability. While the 'analytical ear' is essentially informed by the skills developed through the inner ear, involving a sense of pitch and interval (p. 145), the 'expressive ear' is described by Kinarskaya as 'the least specific kind of aural perception, the least connected with pitch and rhythm' (p. 60). Musicality and musicianship are demonstrated much less by such elements and more from the personal feel for music, aspects that lead to true musicianship but which, as asserted by Pratt (1998), cannot easily be identified nor evaluated. The argument away from the standalone method of aural training towards an integrated approach is strong.

Ilomäki (2012) also favours the development of students' aural awareness and music literacy, and, while acknowledging that aural is a wide-ranging term, she does not explicitly describe what she understands by aural, despite making the comment that sight-singing, dictation, and aural analysis have previously been 'so pervasive that these activities can be regarded as defining elements for the subject' (p. 12). The philosophy of her significant dedicated study of aural skills development is based on the importance of incorporating aural training within a framework of a practitioner-research project using piano performance. The central focus of the training, described by the author as an 'action-oriented perspective' was founded on the principle of the 'interaction between people and their environment' (p. 5). This method emphasised students' own varied learning processes in connection with their broader musical experience and, compares in some ways with the views described above by Butler (1997) in which the philosophy of training governing some USA secondary education occurs through performance with the aim of 'the development of the whole musician' (p. 41).

Ilomäki's approach to aural skills education is represented by an integrated perspective of training through piano performance, in contrast to previous training methods where 'aural skills courses normally form part of music theory subjects' (p. 13). The separation out of aural instruction from other practical musical development through the use of singing, dictation and identification activities is highlighted. Moreover, aural testing has also been adopted as a means of selection and a measure of potential suitability at all levels, including professional and higher level study, and, as Ilomäki describes, 'routinised procedures for auditions' (p. 29). But, as she further remarks, these conventions 'are not quite congruent with current research on the nature of musical learning' (p. 14). The matter of aural in relation to assessment is taken up further in Chapter 2.

Four sub-skills are identified by Ilomäki which have acted as the mainstay of past aural training and the goals of instruction. These involve inner hearing, pitch location (relative pitch), harmonic, melodic and metric patterning, and musical analysis. Her practitioner research design, connects 'the students' development interests to aural skills practice more effectively' (p. iv), and supports the similar approach advocated by Bergby (2007) of the importance of the compact connection between 'auditive awareness and musical production' (p. 34). Ilomäki cites Bergby's view (p. 194) that the use of 'students' instruments in aural skills lessons enable them to develop the hearing *through* the instrument' (ibid.), a point also corroborated by the principles of the Suzuki method of instrumental learning (see Comeau, 1998), to which further reference is made later in the thesis. While continuing to reinforce the importance of listening as a central focus in aural skills pedagogy, the integrative method of training focuses on musicians' own 'productional awareness of music through their singing and playing' (p. 38) as distinct from the previously conventional processes of analysis and perception in which the reading of notation is given priority. The extent to which aural can be used as a measure of musicianship, partly explored by Ilomäki, is a separate but fundamental issue particularly in the context of this thesis and discussed further below.

A number of other authors consider aural in this respect within their writing. Furby (2014) is expansive in her alternative approach which incorporates other aspects, stating

that 'musical and non-musical abilities and behaviours that have been found to contribute to aural skills success include aural imagery, frequency of sight-reading experience, range of difficulty of sight-reading experience, style of thinking and external locus of control, speed of information intake, and acquired expertise in the field' (p. 1). This wider perspective further opens up the view of aural to include the importance of musical imagery which acts also as the main perspective of Bailes (2003a). She similarly states that 'the whole range of aural skills seems to implicate imagery, and as such, aural training directly involves the development of inner hearing' (p. 167). Neither a definitive analysis of the content nor a precise understanding of aural skills is provided. Further exploration of the topic follows in the next section of this chapter in understanding aural as process.

Davidson and Malloch (2009) also refer to the aural image of sounds but refrain from any further defining reference to aural. They quote Lehmann and Ericsson's (1996) view of three different types of mental representation that comprise the skills in performance that correspond to a 'goal representation, a production representation, and a representation of the current performance' (p. 567). No mention, however, is made of aural skills at all throughout the whole volume by Malloch and Trevarthen (2009) although they talk about musicality and musical ability as a communicative process in their own chapters without any links to aural ability, claiming that musicality is nevertheless a 'universal human attribute' (p. 73). Hargreaves (1996), though not specifically referring to aural, concentrates on the wider dimension of musical development, dividing it into four areas: singing, musical representation, melodic perception and composition and although these may reflect specific areas in which aural ability manifests itself, the aspects are not broken down with reference to the inner processing involved.

Indeed, the tendency towards an inner representational concept of aural prevails in several writings. While, as with other authors, Lehmann (2014) does not discuss the meaning of aural skills, the implied use of the term throughout his article is to encompass the inner representation of musical thought. Hallam (1997b) also refers to the aural representation of music that is intended to be practised and which is associated with listening and being involved in musical activities. These are likely to be

beneficial in musicianship, and developing aural skills is important for the monitoring of practice and performance (p. 104). McNeil (1997) similarly believes in the understanding of the link between aural ability and performance skills which is crucial to a musician's development, a point that is also made by McPherson et al. (2012). They view the situation from a more holistic perspective of becoming a competent musician, and, like Karpinski (2000a), the importance of developing the capacity to 'think in sound'. This involves being able to aurally represent in the mind what you see, hear or wish to create on an instrument and, essentially, describe aural skills as 'play from memory, play by ear' (p. 13), aspects that McPherson (2005) in earlier writing had similarly specifically identified (p. 16). From this research the suggestion is made that a better understanding of the ways of learning to perform on an instrument could be gleaned from what performers are thinking 'as they process music visually and aurally' (p. 31), although further exploration of what this entails is not undertaken.

Indeed, much musicological research has touched on the aspect of inner musical thought, although little investigation has been conducted into how aural functions in music processing as opposed to its meaning in developmental terms. The neuro-scientific angle from which the matter has been approached more frequently of late has attempted to ascertain more about the psychological and technical constituents that encompass such inner musical activity, an area about which further discussion is undertaken below. The research deals with the subject of aural less in terms of how it features in practice and in ways of training and use as a testing mechanism, more to establish and investigate the phenomenon of musical ability. In both instances, however, there seems to be an underlying acceptance of the concept of aural as a prerequisite for overall musical understanding although little definitive work is available in which clarification is provided as to how aural is really comprehended.

In earlier research of the twentieth century, the understanding of musical ability was one which covered both musical aptitude and achievement (see Boyle, 1992). Hallam and Prince (2003) maintain, however, that this research did not actually resolve the issue of what specifically within these two parameters was being measured. Indeed, they found from their more recent comprehensive study of a cross-section of musicians, educators, young people and non-musicians, that, while 72% of the 415 respondents

believed that musical ability was being able to play an instrument or sing, only 56% of the musicians thought so. One of the three main categories to emerge from the responses was that of aural skills, where the main identification by the respondents was having a musical ear and rhythmic ability. The other two were receptive skills, such as understanding and having knowledge about music, and generative skills which included all forms of performance and communication of music. Other categories concerned personal qualities and the issue of the origin of musical ability. The results of the survey appear to confirm the variability in the definition of aural skills and point towards the view that they are understood as one aspect of musical ability.

1.3.4 Summary

The breadth of the subject of aural then encompasses many aspects of study and research, from the philosophical and intellectual examination of its constitution to musicological insight into the development of skills through education and training. As terms, aural, aural ability and aural skills seem to resist definition within the texts discussed above, even though they are used implicitly or explicitly in literature about musical training and development. Indeed, their use and meaning are subject to the standpoints and motivations of the researchers as well as dependent upon the specific contexts of the different studies. It is notable that there no specific research appears to have been undertaken which considers aural within the context of a university music degree programme or how it is regarded by music students.

Existing research does tend to compartmentalise musical skills and, arguably, this sometimes leads to the separation of aural skills from others, which is not always helpful, particularly when overlaps could be made. The review of the literature above demonstrates that researchers' understandings of what constitutes aural varies widely and that there is also a contextual dimension to both interpretation and application. While there are some overlaps within the above divisions of the review of literature, in which aural has been explored in terms of listening, and the standalone and integrated perspectives, three distinct approaches to understanding aural in practice can be posited as a general response to the literature: 1) the identification of musical elements and their purposeful use in testing and selection, such as pitch and rhythm (Reflecting

standalone perspectives); 2) its implicit practical application and use in music activities, such as improvisation, sight-singing, and playing by ear (reflecting integrated perspectives; and 3) as a feature of musicianship and musicality alongside other characteristics of learning and personal skills (again, reflecting integrated perspectives). However, the dominating concept is one that involves the act of listening that takes on a pivotal role from which the three above approaches emanate; listening is a common means of identifying aural by researchers and is seen to be of paramount importance. This brings us back once more to the significance of what music students might hear during the development of their aural skills and the quality of their inner processing and interpretations. Aural represents the outward manifestation of musical processing, i.e. the workings of the 'inner ear', and it is the very fact that aural as an activity is idiosyncratic and locked into the secrets of personal thought that makes any investigation of it problematic. As mentioned previously, we can only know what people are thinking if they tell us; and what is said may also be incorrect, untruthful, even incomprehensible. Research about aural as a process is considered in the following section and it reflects somewhat indirectly upon the essential nature of some individual pursuits, such as singing and improvisation, as a means of developing aural skills. Perhaps it should be said that all aspects of musical practice have a part to play in this development: the repetition and practice of performance, along with memorising and playing by ear, for example, also contribute towards building up the range of aural skills required across a continuum of musical activity.

1.4 UNDERSTANDING AURAL AS PROCESS

Thus far, discussion has focused on aural in practice, notably through the use of terms aural, aural ability and aural skills within research on listening, musical training and development. In particular, emphasis has been placed upon the kinds of musical activity that may involve aural and aural skills; in other words, what we *do* with aural and aural skills. There are other significant bodies of research that provide alternative insights into aural, specifically those which consider aural as a process, specifically in terms of *how* we hear. Related studies on musical imagery, musical representation, auditory streaming, pitch and harmonic perception, and the 'inner ear' will be addressed below.

Such research necessarily informs an understanding of aural, provides terminology that may be used to discuss aural ability and aural skills, and offers perspectives on the applications and usage of aural in different musical activities, some of which may be a part of music study in a university degree programme.

1.4.1 Aural and Musical Imagery

The study of musical imagery by Bailes (2003a) exposes the significance of imagined music both in musical development and in the advancement of aural ability. Bailes divides the sensation of the 'inner ear' into three categories: where it occurs unintentionally; where it occurs in involuntary circumstances as a corollary to a musical activity, similar to the category of 'background hearing' put forward by Clarke et al. (2010); and where it occurs as an intentional activity, such as in silent score reading. The latter category equates to Clarke et al.'s (2005) 'focused listening', which, he maintains, is less commonly engaged in as an activity and 'an exception to everyday listening practices' (p. 77). Bailes asserts that auditory imagery is 'fundamental to all musical endeavour' (p. 7) and quotes Seashore's (1938) earlier statement: 'take out the image from the musical mind, and you take out its very essence' (p. 6). The difficulties of detailing precisely what musical thoughts a person is experiencing underlines its intangibility and the temporality of music unlike, for example, visual imagery in the viewing of a piece of art, where the visual order is largely immaterial. Unlike the static arts of painting, architecture and sculpture, music is dynamic and its creation must have a time entity in space: its patterns 'require duration for their development and completion' (Storr, 1997, p. 79). This temporal quality has semiotic and spatial implications for aural in the problem of representing musical experience both physically (on paper, for instance) and mentally (in the mind).

Although a vast amount of cross-referencing to other studies of musical imagery can be made, various terms have been adopted for essentially the same experience of the 'inner ear'. Reference has already been made to the use of the words 'auralise' by Ward (1999) and Karpinski (2000a), and 'audiation' by Gordon, while Levitin and Cook (1996) prefer the use of 'inner hearing'. Despite differences in terminology, the process remains the same: that of converting what is listened to to an imaginary version, and *vice versa*.

Indeed, it would appear that the term ‘inner hearing’ is a substitute for what largely has been understood to be ‘aural’ outside the training context, that is, the inner processing of musical thought.

While the objective of Karpinski’s (2000) work in aural, as explained above, is designed more from a training perspective, his approach to emphasise the importance of ‘thinking *in music*’, is inherent when musicians understand what they hear when simultaneously listening to music and looking at notation. This approach addresses the basic concept of the mental processing of the experience rather than the mere practical outcomes of musical thinking, which is largely the way aural is often understood. It moreover gives increased weight to the significance of effective training to develop the ear as an integral part of the study of music. There are many dimensions to this, including such extraneous aspects, for example, as the improvement of basic ability,² the matter of the intellectual capacity and psychological scope of a musician, and the enthusiasm in which an individual will engage in musical activity. The many components that comprise the building up of an imagery base, that is, in the structuring of inner aural activity, are given below and these reflect the smaller units referred to above which Karpinski (2000a) calls ‘basic features’ that define aural within the constitution of musicianship.

As part of the extended study of imagery, recent neuroscientific research has included the experience of inner musical thought concentrating on such areas as perception equivalence and the electrophysiological and blood-flow studies undertaken by Halpern and Zatorre (1999). Though interesting and topically connected to this thesis, it is beyond the scope of this review to provide detailed insight into this research. It should be noted, however, that, increasingly, findings in neurological explorations have offered explanations as to the nature of brain activity in many inner musical contexts. Three main types of investigation have evolved from the advances in technology, namely positron emission tomography (PET), magnetoencephalography (MEG) and functional magnetic resonance imaging (*fMRI*), the latter, due to its greater spatial effectiveness becoming used most commonly at the present time since it provides more detailed

² The nature-nurture debate about talent and giftedness, of which musical ability is a part, is discussed further in the next chapter

information. Kosslyn, Ganis and Thompson's (2001) claim that 'mental imagery draws on many of the same neural areas that are activated in perception or performance of equivalent tasks' (p. 635) is particularly noteworthy. They suggest that mental practice of a physical action such as musical performance is valuable as a learning tool and has implications for musical practice. By repeating and practising musical units solely in the mind, the split-second reactionary responses in live performance can be speeded up, thereby enhancing activity. The corollary of this is that 'mental practice can improve actual performance' (ibid., p. 639), and that the facility derived from reading and understanding the experience of listening to music, the 'thinking *in* music' referred to above of Karpinski (2000a), can be extended to the access of stored imagery through the almost subconscious conversion of notation to mental sound images. This facility reflects upon one possibly significant attribute of aural ability, that is, the individual's capacity to internalise what is notated on the printed page of a music score.

1.4.2 Representation Theory and Auditory Streaming

Imagery is closely linked to musical representation, and, arguably, the process of improving the mental acuity of recognition and access to theoretical knowledge is vital in developing aural skills. This has an important bearing on the development of aural ability in that the realisation or definition of a pitched note as an activity, held as a mental sound image, for example, in dictation or singing back a phrase, is an example of sonic representation. Levitin (2006) also connects mental representation with melodic cognition especially in the circumstance where we are able to detect when a melody 'is deviating from what we expect' (p. 165). Lehmann (1997) deals specifically with this point and contends that 'music performance is likely to require the performer to mentally picture various aspects of performance in their minds' (p. 141) or what he recalls Macek (1987) describing as a 'photographic ear' (p. 146). Again a connection can be made to an aural context in that a notional comparison is made between what is being heard in live sound during a performance with what is being heard inside one's head. Shuter-Dyson (1982) underwrites Seashore's (1938) assertion that in the context of music 'tonal imagery is a condition for learning' (p. 633), hence the crucial need for aural.

Bailes (2003a) further highlights the ability to use imagery as a means of creative musical thought through the adaptation and reordering of musical ideas within the mind without recourse to live sound. While Hebb (1968) had already several years before affirmed the significance of the mental representation that is formed of amalgamated knowledge, access to musical knowledge and prior experience supports the reuse and reformation of musical ideas that have been previously experienced, and, with conscious attention, learned. Aural can be similarly viewed since the experience of either listening or performing can accumulate a progression of knowledge from the experience by creating a sound image, the store being theoretically accessible on which to build skills, which can in turn be employed to supplement new listening and performing with greater insight. The process of composing music is a prime example of the application of these activities and, as Kinarskaya (2009) purports, its motivation derives ‘from the very roots of musicality ... and the help of visual, spatial and motor-tactile sensations’, (p. 196), in other words, the ‘inner ear’s’ representations of musical imagery.

Deliège and Sloboda (1996) expand on the concept of inner representation and emphasise both the importance of the brain’s ability to detect patterns and structures, known as the process of auditory streaming, and the significance in learning skills of the tendency for awareness of these skills to become unconscious and automatic through practice and repetition. The gradual assimilation of mental actions is of course common across other non-musical activities too. Examples of this include the changing of gears while driving and the complex physical technique of knitting, which, when committed to memory, appears to be undertaken with very little concentrated attention. In a musical context, the mental operation of the recognition of modulations to different keys is a similar operation that is further explored below.

The significance of *Gestalt* principles has been referred to by Deutsch (1999) who illustrates in this connection the importance of proximity, similarity and good continuation (p. 184). She also reminds us of the importance in music perception of the close grouping of elements by which values are assigned to different attributes separately, and ‘that this is followed by a process of perceptual synthesis’ (p. 301). Hargreaves (1999) describes this process as ‘cognitive schemata ... [that] comprise the

mental diagrams or frameworks that we use to organise knowledge' (p. 154). This could feasibly be applied, for example, to the visual stimulus from reading notation, or the aural signal from listening. Likewise, Borthwick (1995), in his analytical metatheory of cognition, considers the matter of grouping of elements from the perspective of identity, and further emphasises the relevance and consequence of similarity in terms of a set of 'hierarchically arranged levels' (p. 27).

How auditory signals are interpreted by the brain is clearly of considerable significance in relation to the movement of harmony within music and this links closely with the ongoing topic of auditory streaming taken up within current literature by Bregman (1990). The sounds we hear, whether musical or otherwise, are combinations of physical experience and it is the organisation of these impulses by the brain that cause us to make sense of them in the same way, as is stated above, that the understanding of a spoken sentence is formed from the grouping of syntactical features. Lotto and Holt (2010) claim that emphasis has been given in the past to visual perception at the expense of research into aural perception despite the enormous 'amount of cognitive-perceptual processing [...] involved in even the most basic auditory tasks in real-world environments' (p. 479). They refer to the remarkable achievement of the auditory system to 'segregate, locate and categorise' sound sources and its superiority over visual processing.

Bregman (1990) confirms that 'the way that sensory inputs are grouped by our nervous systems determines the patterns we perceive (within) them' (p. 5). He discusses in depth the subject of auditory scene analysis, exploring the different processes whereby both simultaneous and sequential sound sources are perceived, what might superficially be termed in the context of musical pitch as the distinction between harmony and melody, otherwise constituted by Bregman as part of the 'horizontal and vertical dimensions' (p. 674) of music, although these elements may of course overlap. He uses the word 'belongingness' (p. 11) to describe the neurological connection between individual components of sound and grammar and also draws attention to the point in his reference to the 'principle of exclusive allocation' (p. 595) that many similarities occur in the mental organisation of visual and auditory experiences. Huron (2007) extends the principle and contextualises the streaming process also to harmonic movement,

developing what is referred to as pitch proximity reflecting that, in addition to the expectations in normal experience that melodies move in step, in musical progression also 'successive pitches tend to be near to one another' (p. 91).

Indeed, as indicated above, the process of auditory streaming is an inherent part of aural in the way that pitches are differentiated in chordal movement yet a progressive interpretation in the form of harmonic movement is sensed with the quasi-emotional characteristics of suspensions, resolution of dissonance and realisation of anticipated or unexpected experiences occurring that as yet have not been satisfactorily explained in neurological terms. The reference detailed below (see p. 58) to the possible resolutions of the diminished seventh chord (Ex 1.6), gives an instance of such auditory movement.

There is a difference, however, as Bregman asserts, between what he terms 'primitive segregation', equivalent to the 'bottom-up' approach mentioned below of Zimbardo and Gerrig (2002), that is the innate capacity to differentiate incoming sounds, from signals requiring conscious listening or voluntary attention, and that 'any perceived property of an incoming array of sound is computed from a subset that the brain has selected from that array' (p. 661). The meaningfulness of auditory signals whether as isolated streams or as a combined entity lies at the heart of Bregman's work and clearly the understanding of musical notes whether in sequence as melody or simultaneously as harmony has a bearing on the development of aural ability. The awe-inspiring aspect of the brain's process of decoding sounds received by the ear is captured in Bregman's final thought that the 'processes of audition that can accomplish the grouping and use it to derive these experiences must be doing so in time periods that we have to measure in milliseconds' (p. 705). This observation reiterates the point made above concerning the speeding up of reactions in performance achieved by the practice and development of aural skills.

Current research into the signals that are structured by the brain into patterns and units of mental control has been taken into a different direction by Prior (2013) who examines the aspect of schemata (or schemas) in the context of familiarity in music, describing them as 'highly versatile and mental frameworks for representing knowledge ... (which) aid the understanding of music perception' (p. 33). Similarly, as stated above, aural is

built up on the basis of repetition and practice, hence familiarity supports the development of the associated skills. Her studies cover the extent to which a listener will tend to develop a greater insight into the detail of the musical sound, finding that 'familiarity allowed the listeners access to structural and thematic understandings of the music' (p. 58). The increasing speed at which knowledge and skills are accessed and utilised derive from familiarity which in turn comes from repetition and practice.

Familiarity can also be a feature of inattentive recognition which is another important component in musical experience and Todd and Mishra (2013) found in their study of children's experience of music, that 'familiarity with the musical genre plays a strong role in musical reception' (p. 5). This potentially raises the level of attention given to the auditory signal (see also Sims, 1986) as it spills over into aural perception since, while reference may be made via the 'inner ear' to interpret musical experience, this may occur involuntarily as a result of familiarity with the music, either microscopically through an unwitting referral to elemental detail or macroscopically to the overall style of the piece. All this research has a bearing on the development of aural skills, although the aspect of training is further addressed in the next chapter.

1.4.3 Aural Perception

Pitch recognition is a fundamental aural skill and although the detection of rhythmic elements and other aspects during the listening process that have been identified earlier may be regarded as having equal significance in the discriminatory analysis of music, the acquisition of skills relating to pitch recognition is a major element in the development of musical expertise. This exploration helps to consolidate the significance of inner processing as an integral part of aural skills learning, reference being made to the way intervallic and harmonic structures underpin melodic movement in Western music and give credence to their inclusion in the advancement of aural skills.

Research by Vos and Troost (1989) found that larger intervals were less common than smaller intervals in melodies of Western tonal music, with the most prominent being the major second. Melodic phrases are inclined to form an arch-shape, a fact reinforced

by Meyer (1973) and Narmour (1977) and to some extent reflects the contours of sentence intonation within speech. The term ‘melodic expectancy’ is used to denote the way in which the ear tends to anticipate notes because of their melodic syntax and reference is made to Krumhansl (1995) about a ‘system of perceptual–cognitive rules’ in which the brain makes sense of melodic sequences based on experience and knowledge. This approach to analysing melodic shapes within phrases and examining familiar and repeated patterns are further ways of breaking down the barriers within aural training that are experienced by some students who have not fully linked external sound with their ‘inner ear’. As Altenmüller and Gruhn (2002) confirm, aural skills, ‘developed through a variety of listening experiences ... are not represented in isolated brain areas but depend on the multiple connections and intersections established during training’ (p. 63). The very plasticity of the brain allows the continuous learning to take place of new experiences of aural listening although this requires repetition through practice.

Further analysis of the nature of musical sound is explored by Bigand and Poulin-Charronat (2009) who, in their study on tonal cognition, refer to the hierarchical importance of specific notes in a melody and the harmonic implication that can often be drawn from any series of notes³. They cite the way, for example, using the sequence *b-c-d#-e-f#-g* that C major is felt in ascending but that there is an inclination towards B major when the sequence descends. Curiously, no mention is made as to whether there is a distinction between hearing the series of notes live and imagining it in the mind. Furthermore, one may question if the first note *b* is heard in the same way by everyone? Possibly by association and recollection (especially if the individual has absolute pitch) the note *b* is the leading note of the most commonly learnt key. Also, the normal major and minor scales always start with a full tone. The semitone between the initial notes of the sequence automatically removes its tonal dominance as a tonic but if one is accustomed to modal harmony it is possible that the initial ‘*b*’ could be ‘heard’ or interpreted as the tonic. Equally, the initial notes in the descent *sound* like the G major scale to begin with and despite a chromatic D#, it is possible to feel the last as the median

³ This is something that could be used in aural training, where difficulty is experienced in recognising melodic intervals.

of G major. However, it remains that the power that combinations of notes possess whether simultaneously heard as chords or consecutively as melody is a significant issue in aural perception and needs to be taken account of in systems of music training. A further point is that the task in question may have different outcomes if either a piece or phrase in B major or C major had been played or was in the mind of the individual beforehand. Dubiel (1999) explores the issue in some depth and questions even whether different notes really form what we call an interval at all (p. 272).

Parncutt (2004) discusses the sensation of harmony and cites DeWitt and Crowder's (1987) reference to 'harmonic fusion ... as the tendency for a harmonic interval or chord to blend perceptually into a single sound' (p. 105). It is remarkable when analysed how regular the progression of harmonic movement is in traditional eighteenth- and nineteenth-century music and that, as Huron (1991) reports, the prevalence of fused sonorities is due to the aural preference for the consonance of perfect intervals (fourth, fifth and octave). An explanation of several other perceptive processes is also provided by Parncutt and McPherson (2002) – for example, the reason for the greater dissonance between close intervals in lower octaves is the physiological construction of the basilar membrane in the 'inner ear' and the 'critical bandwidth' through which the various sound frequencies pass that gradually widens in terms of semitones as notes get lower.

Computer-assisted analysis provides much help in establishing prevalent profiles of notes, chords, progressions, keys, even tonic and dominant relationships, and in understanding the grammar and content of most tonal music – though it is also successful with atonal styles – and it may produce evidence that demonstrates that there is a rank order of diatonic triads, thereby confirming the 'perceptual–cognitive theory' of Riemann's 'beziehendes Denken' (referential thinking) of 1877, and the deliberations of other earlier writers such as Budge (1943) and Piston (1970). Its relevance in the research by Krumhansl (1995) in relation to anticipation and referral to previous knowledge has been mentioned above. No computer-assisted program, however, can inculcate the perceptive–cognitive facility with which the brain is able to interpret and associate sound with understanding as is required in the practice of aural processing, and this is one of the arguments against relying on computer software as an exclusive or even partial method of training.

The representation theory mentioned above can be extended to cover the matter of the retention of a sense of key in music. This is clearly of considerable importance in practical terms, especially in aural perception, and more particularly in the context of understanding harmonic movement in Western tonal music. It relates also, for example, to the process mentioned above of imagining music, in particular pitch, by the continuous comparison with the 'inner ear' as a standard against which, for instance, strings are tuned or intonation is adjusted during singing. The continuum moves through to full accuracy in concert performance and is essentially a type of aural skill. What is 'heard' in the 'inner ear', whether or not it is music, is, as commented earlier, of course experienced differently by every individual (Clarke, 2005) depending on experience, interest, attentiveness, perceptive powers, and sheer musical competence and, as Lerdahl and Jackenoff (1983) state, 'rarely ... with the same degree of richness' (p. 3). Ilomäki (2012) agrees that people's development can radically affect their approach to hearing music and differences between people are likely to result in their 'focusing on different elements and layers of the musical fabric and also grasping notated music very differently' (p. 125).

It is interesting to compare this point to related research on visual perception. For example, Imgur's (2015) image of a cat on a flight of stairs (see Figure 1.1) presents a visual dilemma as to whether the stairs are ascending or descending. In aural perception, a comparative instance is the sound imaging of a harmonic progression and the sense one has of modulation during the silent reading of a passage of, for example, four-part harmony. Further investigation is needed into the human capacity for mental key changing and the influence of specific chords in different contexts and progressive movement. Indeed, as Karpinski (2000a) states with regard to the mental analysis of chords, the contextual harmonic aspect is vital and it is not helpful in training to use 'atomistically isolated chord structures as a learning tool' (p. 121). Another well-known image of optical illusion is that of the Grecian vase or face profiles (see Figure 1.2) and, again, a mental switch is needed to perceive the two images. It is almost impossible (but not entirely impossible!) to visualise the two images together, and it is arguably similar to the possibility of perceiving bitonality in musical passages where, for example, a dominant chord may overlay a tonic chord.



<http://imgur.com/gallery/I56Uepu>

Figure 1.1 *Imgur's cat-on-the-stairs photo illusion*

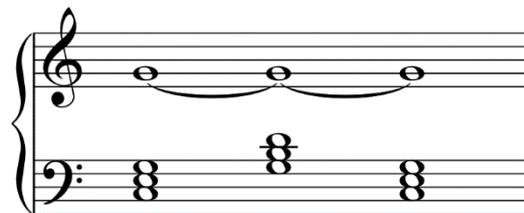


<http://www.britannica.com/EBchecked/topic/283066/illusion>

Figure 1.2 *Greician Vase or Face Profiles Illusion*

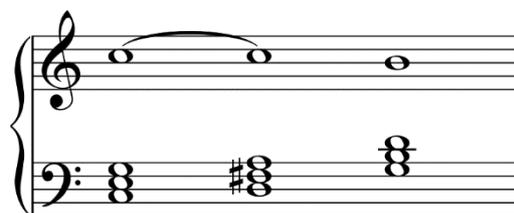
Levitin (2010) refers to other optical illusions that may have some bearing on musical interpretation such as that of the so-called 'subjective contour' by the Italian psychologist Kanizsa in which the 'ghost' of a white triangle is perceived overlaying a partly rotated triangle below that links three circles that are cut out at the points where the lower triangle overlaps. The analogy with music is applicable in the manner in which, for instance, a dominant 7th tetrachord does not need the mediant to be included for the chord nevertheless to sound sufficiently obvious in its harmonic function.

A simple exercise to explain the cat-on-the-stairs or Grecian vase phenomenon in a musical context can be conducted silently. If one imagines the note G (it does not matter whether it actually sounds G in reality) and a triad of C major below it, one probably senses a feeling for the key centre of C major. While holding the G in one's head, imagine a change of the triad to G major and although the key centre may continue to be felt as C major, the G has altered its relationship with the other notes and a small mental change has taken place in the 'inner ear', probably the frontal cortex (see Example 1.1).



Example 1.1 *Change of relationship between held note and underlying chord*

The exercise can then be extended to sense the process of modulation by further altering the relationship of the notes and chords by introducing, for example, under an imagined note C, a D7 chord and the effect of moving away from C major to the dominant key is produced (see Example 1.2). There is some fascination in the fact that some pianists tend to mentally form the playing of the chords in the left hand when undertaking this task.



Example 1.2 *Further changes of relationship produce the sense of modulation*

A further simple task can demonstrate the way in which this mental switch somewhere within the 'inner ear' occurs in the interpretation of a melodic string of notes represented, for example, by comparing the following series of letters *c-c-c-f-e-g-e-c* with *c-c-d-c-f-e*. Both phrases of course are familiar but it is intriguing to deliberate on what stages were passed through to interpret each phrase, to notice the static quality of C major in the first notes of *Bobby Shaftoe* in contrast to the change of key in the second phrase. The tonality (though not the pitch) is significant, and to a lesser extent the rhythm, but to correctly 'hear' the second melody the key has to be changed in the mind to establish a tonic on *F*, i.e. not the *C* which is the initial tendency. At what point does the process begin to link with the memory bank for the melody to become familiar and identified as *Happy Birthday*? If the melody continues to be imagined in the head, the further issue is significant in this context about mental key switching, namely, at what specific point has the mental feeling for key altered, treating the opening note *C* as the dominant? The tonic note after a very short time becomes so strong that the added key-signature of one flat is not, however, really needed for *F* to be felt as the tonic. Indeed, the *Bb* does not actually arrive until the very last phrase although it is very difficult to try to imagine the whole of the first phrase of *Happy Birthday* in *C* major, (though it is possible as a mental exercise!) without being influenced by one's memory and being taken to *F* major almost from the very beginning. (The notational representation of these two melodies is of course not necessary but their omission especially allows the sensation of the key change to be fully imagined in the 'inner ear'.) A similar task might be undertaken with the aspect of rhythm in mind using the opening phrase of another well-known melody: *c-c-c-c-a-f-f-f-e-d*. If the letters are spaced slightly differently *c-cc-c-a-f-ff-e-d*, a rhythmical realisation of *Waltzing Matilda* becomes more likely. It is also interesting to ponder to what extent there is a subconscious tendency to use *c* as the tonic and move up a major sixth to *a* instead of down a minor third.

Happy Birthday is almost unique in its tonal ambiguity in that most melodies commencing with what turns out to be the dominant note start with a rising fourth taking the mental key immediately to the tonic. It is a good example to use in aural training because of its common recognition and capacity to be heard inwardly by

practically everyone to describe the process of a key change operating in the 'inner ear'. A similar exercise can be undertaken to apply to a minor key, as in the opening motif of Beethoven's Symphony No 5 in C minor, where the key is not established fully until the underlying chords are sounded in the third phrase. The question arises as to whether the opening notes of the major third interval are still interpreted as being in Eb major despite the conscious anticipation of the change to the minor key that is about to happen. For the musician, as Karpinski (2000a) stresses, 'this ability to auralise underlying tonal shifts ... is a very valuable tool' (p. 211).

A similar exercise could be undertaken in the context of two or more notes in which the interval or chord produces different harmonic qualia. Consider the following: having heard or imagined a piece of music in D major, take either the perfect fifth dyad B natural and F sharp, or tritone C natural and F sharp, and be aware of the type of musical effect the two notes produce harmonically within the tonal centre of D major (see also Deutsch, 1982 concerning the 'tritone paradox'). If the two notes then move melodically (polyphonically) through C sharp and E natural concurrently towards D, a strong feeling of the tonic centre of D major is confirmed (see Example 1.3).



Example 1.3 *Confirmation of the tonic centre of D major*

Without changing the pull of D major go straight to the perfect fifth D and A (or the tritone D sharp / E flat and A, move towards E and G, thence to F natural, forming what becomes a new tonal centre based on F major (see Example 1.4). (The initial tendency is to be pulled towards F sharp because of the establishment of D major.) The question is, at what point does the feel for F major occur and, more particularly, *how* does the switch happen?



Example 1.4 *The mental change from D major to F major without preparation*

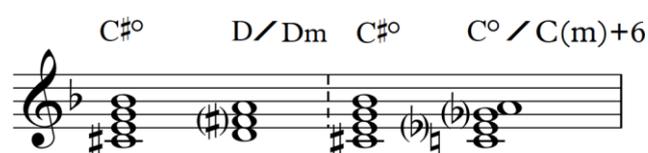
If the sequence is repeated starting with a major sixth, that is, from (low) A natural and F sharp (in D major) to C sharp and E natural to D, there is no uncertainty about the tonality from the start due to the use of the notes of the D major triad; but then undertake a similar sequence using a major sixth, C natural and A respectively, through E and G naturals, the change to F major occurs immediately, the C natural immediately cancelling the qualia of D major (see Example 1.5).



Example 1.5 *The mental change from D major to F major anticipated by the C natural*

But with some dyads, such as the perfect fifth F natural and C natural (going to A flat through G and B flat) the mental movement of key does not happen until almost the A flat is heard / imagined, depending on the key of any music that may have been heard just prior to the exercise or whether the key of F minor or A flat major is anticipated, particularly if the exercise is done from notation. (In fact, the exercise is best undertaken without the visual anticipatory effect of reading notation and the possibly consequent automatic reaction to the written symbol. For this reason the notational example is given later as Example 1.7 so that the mental reactions can be compared.)

A further similar activity could be executed in the mind with leading and non-leading triads and tetrachords. In the case of triads, take C major, hold the G and move the lower two notes to B flat and E flat and a new tonal centre is experienced, very likely anticipating a cadential conclusion into E flat major. Many composers, of course, have used such a process as a device to switch between key centres. With regard to diminished seventh chords, it is well-known that they can ‘resolve’ many ways by moving by step either one, two or three of the notes up or down to form a completely different key centre (see Example 1.6). Composers have also used this facility as a change of tonality as well as a means of surprise to great effect.



Example 1.6 *Various possible ‘resolutions’ of a C sharp diminished seventh chord*

of the 'inner ear' although the connection does not seem to have always been made in terms of aural (and, by extension, aural training).

Lerdahl (2001) sees the process of listening to music as part of his pitch-space theory linking the temporal experience to one of physical movements corresponding 'to a journey'. In his theory of musical understanding propounded earlier in *The Generative Theory of Tonal Music* (1983) he asserts that music is listened to in a hierarchical way and offers explanations, many geometrically conceived, for spatial representation of musical sound. In his reference to cross-domain mapping, Zbikowski (2002) discusses the importance of this spatial approach to sound and the way pitch is conceptualised through 'highness' and 'lowness': 'notes that are the result of more rapid vibrations of the sounding medium are placed higher on the page... [and] the two-dimensional space of the musical page thus correlates with the spatial orientation ascribed to pitch' (p. 67).

1.4.4 The 'Inner Ear'

The analysis of the importance in the development of the 'inner ear' within the context of musicianship (taking into account the implications of this term as discussed in the Introduction), and its relation to the theories of representation as a significant element of it, form a significant backcloth to this research. This places aural symbolically at the centre of musical sensation and understanding and, importantly, at the point where the 'inner ear' is notionally located. Fiske's (1992) construct of music cognition identifies three general forms of behaviour, namely, the recognition and recall of previously learned tonal and rhythmic patterns, the identification and storage in the memory of new patterns, and the ongoing comparison of patterns during music listening with appropriately recalled patterns (see p. 362). This harmonises well into the context of aural and will be used to inform a diagram of aural processing detailed below (see Figure 1.3). After all, as Storr (1997) reminds us, 'music originates from the human brain rather than from the natural world' (p. 51), and the central role of the musical mind, by way of the sensations attributed to the 'inner ear', play a crucial role in managing musical thought. It cannot be denied, though, that it is the organisation and structuring in the

mind of the physical elements already featuring in nature that comprise music, such as the vibrations of the air in their various combinations over time periods and natural formations of repetitiveness that give the concept of rhythm and pulse.

Jorgensen (1992) takes the issue to the next stage by seeking to answer the question about when does music actually occur. He suggests three possibilities: 'is it the idea in the composer's head, the notation of the score, or the musical performance, either live, or in the listener's head'? (p. 95). The concept of aural perception immediately dominates the answer, reminding us of the central place of the 'inner ear'. While we might argue that in tangible terms, music is the sound produced that activates natural phenomena around us, clearly the idea (*from the mind*) must have firstly conceived the phenomenon (then composed onto paper or created directly on to instruments), before the reception of the phenomenon occurs (*into the mind*) through understanding and possibly enjoyment. Without the facility to remember and recall, music would – could – of course, not be possible: it relies, even if very simply, on the inner semi-conscious ordering of the complex sound signals – aural – to make sense of them in musical terms. The separate issues of the power of memory and the memorisation of music are also significant in this respect but outside the scope of this thesis.

Following the above references to the literature, some further explanation is given in this section about how we do aural in an effort to define what is entailed by way of practical application and activity of the inner ear. While the issue of the transfer of music listening through to the creative application has been referred to above (see also Lehmann, Sloboda and Wood, 2007; Levitin 2006, 2010), the breakdown of the process has not been fully clarified in the literature and it is still not quite possible with current technology to track the actual cerebral activity whereby such neural processes take place, although the different areas of the brain which are, for example, activated by specific functions and reactions to music, can now be identified using fMRI technology. Although it remains a mystery as to how specific aural skills are developed, to clarify and understand more clearly the significance of the 'inner ear', a diagram of aural processing (see Figure 1.3) is presented below so as to capture one aspect of aural, specifically, the notional link between live and imagined music, and to secure a view about the stages that operate in the active course of aural perception in response to the ideas presented

in the literature. Indeed, the diagram may be used as an explanatory tool to assist in the study of aural as a process.

The diagram represents principal stages of musical activity within which the notional place of aural is located. It additionally supports a base on which to identify those skills commonly associated with aural. The stages in the diagram abstract the processes that are involved from the point at which we receive musical sound to the level at which we are eventually able to develop musical outcomes. It does not, however, purport to include characteristics other than the processing of specific theoretical elements of musical sound: the resultant psychological reactions to music, such as the perception of expressive and affective elements like emotion and personal association, are subsumed within the whole. There are some comparisons to be made with Levitin's (2010) identification of several cognitive operations that he refers to in the creation of art, but he begins from the concept of the mental image that is represented in the mind and which is held in a mental form. This position is different from the 'physical aspects' which are prepared and from which the final object is subsequently constructed, rather than from the external source of the musical sound which applies in this diagram. This is a significant concept that, having developed an enlarged prefrontal cortex, humans are able to store mental images: in the case of music, it stores those sound memories that can be recalled and adapted for further creativity. A simple example can demonstrate the relevance of this point through pitch-assimilation in the case of tuning a violin, where sound made by the string to be tuned is related to the pitch-knowledge and the sound-character of a perfect fifth, for example, held in the mind, or 'inner ear'. Reference is continually made to both the note sounded on the string until it assimilates appropriately with the sound image.

Two major practical stages in the development of aural are reflected in the diagram: firstly, an *internalisation* process, which involves the hearing and listening activity that leads to the neural absorption of the musical sound, and secondly, an *externalisation* process, that concerns the reproductive and re-creative use of what has been experienced and understood. The principle at the root of this two-way process is similar to the theory promulgated by Zimbardo and Gerrig (2002) in which the above internalisation and externalisation processes relate closely in their study of cognition

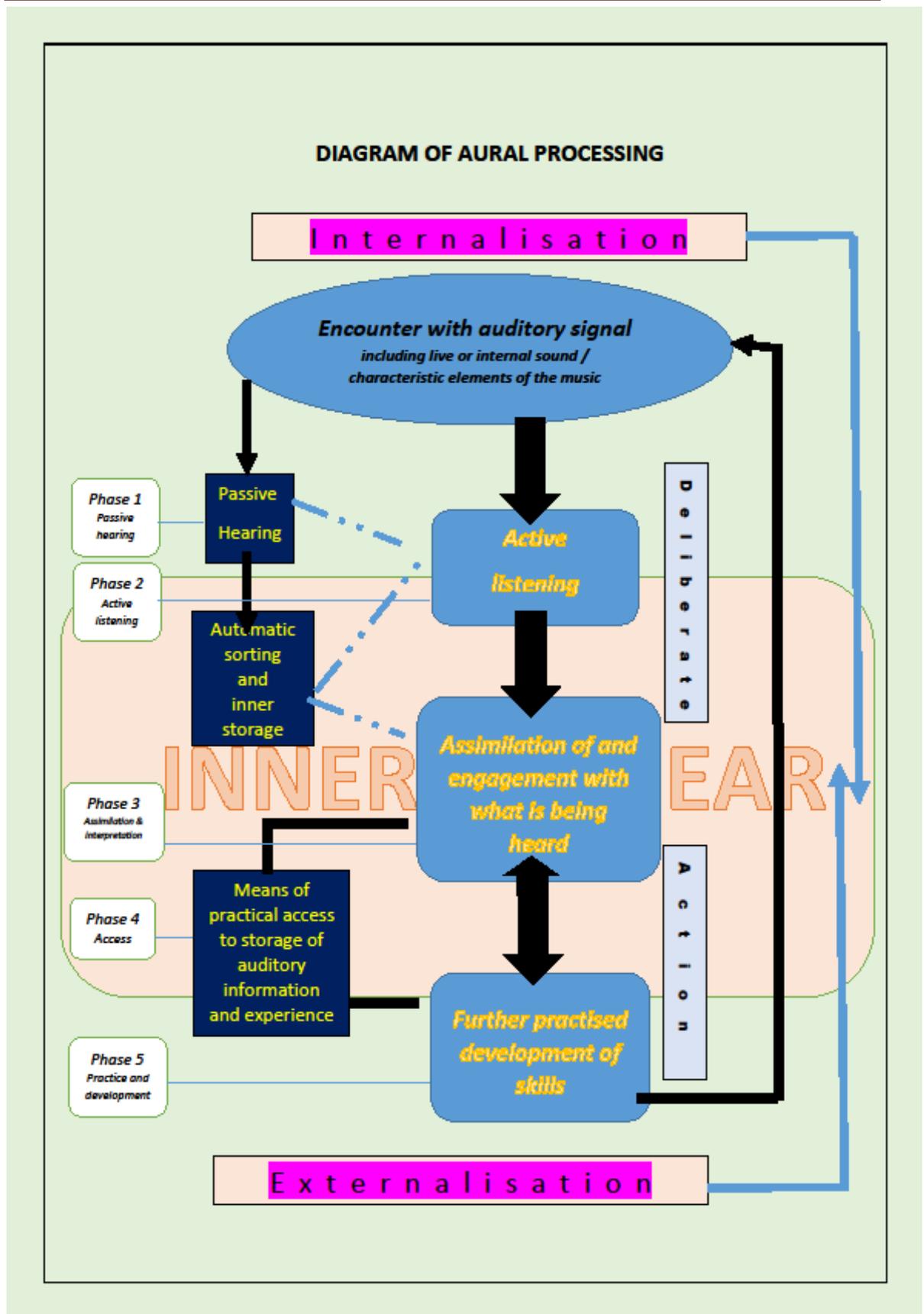


Figure 1.3 Diagram of aural processing – A new graphic representation of the principal practical stages involved

respectively to their top-down / bottom-up approach. In top-down processing, perceptive operations are influenced by the 'individual's knowledge, motivations, and expectations, and other aspects of higher mental functioning' (p. 145); perceptual reference is made to 'the information available in the sensory input' (by working its way) 'up the brain' (ibid). The authors refer to the influence of preconception in understanding an experience and to the sense of ambiguity in human perception, giving as an example, amongst others, Gleitman's (1995) duck /rabbit drawing. Imgur's (2015) cat-on-the-stairs image (see Figure 1.1) is a similar instance of this illusion to which reference has been made above in the context of the inner sensation of modulation between two keys. Zimbardo and Gerrig's views on the interaction between the individual's conscious access to inner thought and *vice versa* in order to progress a task relates closely to the backwards and forwards motion portrayed in the diagram above, used consciously or unconsciously by a musician in aural processing, who, having heard something musical, invokes the inner store of, say, theoretical knowledge to make sense of it. Indeed, the mental activity of aural perception needs to be supported by 'live sound' in the first instance for cognitive comprehending of the sound and at least some of the time if only for the satisfaction of hearing rather than imagining the musical experience.

Thus, the internalisation process entails the realisation and understanding of the music being listened to, the experience having been received and stored by the automatic neuronal organisation in different parts of the brain. The term is used as a means of representing the taking-in process of the musical material into the inner mind and memory, that is, the 'inner ear', for what effectively is a storage mechanism. Access is made to the stored information and available for reference in performance and practical usage, for example, in a similar way in which Zimbardo and Gerrig (2002) suggest in their diagram (see p. 140) in which 'percepts of objects are compared with memory representations in order to be recognised as familiar and meaningful objects' (p. 185). Together with repeated practice and the resultant development of skills, the activity forms the externalisation process. Zimbardo and Gerrig describe these processes respectively as 'stimulus-driven' or 'expectation-driven' in the same way that contact is made with the auditory signal through either active or passive listening in contrast to

the intentional accessing of stored musical thought for the purpose of composition, performance and other activities.

The internalisation process essentially involves the 'arrival' of the aural stimulus into the neural circuits of the brain whether or not it is heard consciously. Where specifically listened to, some automatic interpretation occurs, depending on the level of musicianship held by the recipient although it is likely that some of this process will happen subconsciously. In brief practical terms, the externalisation process constitutes the task of the accessing the complex memory recesses of the brain, the term being chosen for its direct equivalence to an outward motion, in contrast to internalisation. However, while the process occurs essentially from within the mind, it is also one of access to the 'inner ear' in order to extract the knowledge, for example, to create musical ideas. The internalising and externalising operation embodies an adaptive power that realises and develops the innovative and inventive nature of our stored sound images.

While in practice the passive hearing phase can be ignored as an element in the process, five distinct phases emerge overall from this breakdown. These can be described as follows:

- **Phase 1 [Passive hearing]:**
Unfocused physical contact with the music
- **Phase 2 [Active listening]:**
Conscious commitment of the music to the brain's storage of experience and formation of the 'inner ear'
- **Phase 3 [Assimilation and interpretation]:**
Assimilation and interpretation of the music's organised nature which becomes evident during listening
- **Phase 4 [Access]:**
Access to and creative use of the stored information for practical performance
- **Phase 5 [Practice and development]:**
Practice and development in the use of skills deriving from the stored experience.

The five phases, as shown, are divided across processes of internalisation and externalisation (Phases 1 and 2, 4 and 5 respectively) and a middle stage (Phase 3). It is the essential middle stage that enables each to operate with seeming independence, and which, ironically, though crucial to both processes, we may have difficulty in developing and influencing directly. This middle link incorporates what has been referred to as the 'inner ear' and what is effectively the information storage area into which it is necessary to gain access in order to develop our ability to reproduce and create music through performance, both live and mentally. It should also be made clear that the extent of the neural processing and the level of reaction to music depends greatly on the educational training and musical development of the individual. Also, the phases do not refer directly to the specific musical elements which are processed nor the outcomes of that processing: it is more a representation of the system within which the process operates.

Although the terms active and passive listening are also used by a number of authors especially in music therapy and other medical contexts (see Montello and Coons, 1985; Menon and Levitin, 2005), passive listening is alternatively used by Todd and Mishra (2013) to describe 'listening to music quietly without distractions' (p. 8), not in the sense employed in the diagram of aural processing where conversely it denotes the mere inattentive hearing of musical sound, the awareness of which is largely absent on the part of the individual. However, the importance of the difference between a conscious recognition and identification remains, especially the question as to the degree of meaningfulness of any experience. Clearly, while any perception may be a facet of recognition, to be able to identify it, nominally through speech or in written form, requires interpretation, generally through a reference to past experience or learning. As Gerrig et al. (2012) state, 'Identification and recognition attach meaning to what you perceive' (p. 150), underlining again the reference, as in the diagram, to the process by which a connection is made with the inner store of knowledge in order to understand the neural process in that part of a musical experience. The adoption of the term 'deliberate action' represents the fact that essentially the process of committing a listening experience to mind and the accessing of theoretical knowledge in musical inventiveness such as composition is purposeful and an attentive activity.

1.5 CONCLUSION

This chapter has provided a broad review of literature about aural in order to provide a sense of research understandings of the subject. After presenting preliminary definitions of key terms and outlining the scope and relevance of research on aural, the review concentrated on studies about aural in practice and then moved on to consider those about aural as a process. This division provided a useful overarching conceptual framework with which to understand perspectives on aural. It was noted that the terms aural, aural ability and aural skills tend to resist definition and, as such, there is confusion about their use and meaning.

While the chapter has gone some way towards clarifying the breadth of interpretation created by the range of views expressed about aural, the problem remains somewhat unresolved in that, given the range and nature of musical experience, no final uncontroversial understanding can be reached that matches the many circumstances in which aural features. Moreover, what is entailed by aural is dependent upon the context in which the term is applied and, for this reason, approaches to its meaning and application widely vary. The identification of standalone and integrated perspectives has exposed some divergent thinking about the skills involved in the development of musical expertise and the role aural plays in the progress towards this goal. Indeed, the shift towards more integrated perspectives on aural within the constitution of musicianship in recent years has further increased its confusion as an entity and in its importance among other elements that are considered appropriate in training and musical development. The standalone and integrated perspectives will be reconsidered in the later stages of the thesis when university music students' understandings of aural and their views about its place within the degree programme are evaluated as part of empirical work in this thesis.

Research on aural as a process exposed further issues relating to an understanding of the subject, including studies on imagery, representation and perception. A diagram of aural processing was used to draw together some of this research and to provide a novel

explanatory tool to define the workings of the 'inner ear'. Chapter 2 turns more specifically towards understanding aural in the context of higher education, as a precursor to the ensuing empirical studies.

CHAPTER 2

Aural: Educational Issues

2.1 PREAMBLE

As remarked in Chapter 1, only a relatively small proportion of literature appears to be concerned specifically with aural ability, and that little has been made in specific depth to aural skills themselves (see, for example, Karpinski, 2000a; Kinarskaya, 2009; Ilomäki, 2011, Hallam, 2013; McPherson et al., 2012; Parncutt and McPherson, 2002). However, considerable interest has been shown in recent years regarding the place music and musical ability hold within society at large and this has spilled over into discussion about the nature of the skills involved in musical activity and a breaking down of what appears to some people as mysteries of their acquisition: a ‘specialist activity requiring innate talent, musical literacy, and dedication to long-term practice’ (Seddon, 2011). The consequent implications for the study of music at higher education level are substantial and support the inclusion in this thesis of a review of how general changes in perspective and attitude to music affect the approaches to training and acquisition of aural skills in a music degree programme, whether they are generic (in terms of being applicable across many aspects of holistic musical study, such as performance and analysis) or domain-specific (where applicable, for instance, to such practical contexts as pitch-recognition in choral conducting or the inner processing of rhythmic pulse in listening).

The aim of this chapter, therefore, is to explore the place of aural in the context of higher education taking into account the changing background of British music education more widely. It is divided into four main sections: the first introduces broad socio-cultural considerations about British music education; the second reviews the general place of aural in British music education; the third focuses more specifically on aural in training and assessment; and the fourth concentrates on aural in British higher education and, specifically, university music degree programmes. As part of the final section, account is taken of shifts in aural teaching at the University of Hull, which is the institution of focus in the case study research as part of this thesis.

2.2 SOCIO-CULTURAL CONSIDERATIONS ABOUT BRITISH MUSIC EDUCATION

Although it may be a truism to state that the aural abilities of music students entering university reflect the outcomes of their development and training, this section considers the socio-cultural circumstances which have formed the background to students' study of music. Views in Britain about music underwent numerous significant developments during the later twentieth century and, in particular, a shift occurred towards viewing the subject of music education in much broader generic terms than hitherto, from one that assumed a principal focus on Western classical music to one that encompassed awareness of different Western and non-Western musical styles and genres. This shift arose in response to the growth of popular and commercial music and caused what Johnson (2002) terms its 'devaluation', though it could be argued that this wider spectrum has enriched the art. Green (2002) confirms the social preeminence of music and the dominance over classical music in that 'over 90% of global sales of music recordings consist of popular music and traditional forms such as folk and blues' (p. 4).

A quotation by Pitts (2005a) from Chanan's (1994) *Musica Practica* is particularly apposite as an introductory comment to the position of music in the current social climate: 'Music is with us all the time, but is made by relatively few, and most of it is not heard as live performance at all' (p. 13). Lamont (2011) strives to address the issue by considering how choices of music are made and recalls research by Sloboda (1999) which found that music is most often (50%) listened to 'as a reminder of valued past events', and interestingly, least often (2%) as a main activity. As an update to the previous study, Sloboda et al. (2009) have categorised listening events into six 'niches', representing environments covering travel, physical work, brain work, body work, emotional work, and attendance at live music. Whether this broadening of the circumstances of 'passive' or less attentive musical participation leads to a modification in the purpose and concept of music and the meaning and content of musicianship is, of course, a different matter but it has undoubtedly influenced the place of music within the framework of education at all levels, including university degree programmes, in the major change of emphasis and content that has occurred.

While it should be commented that Hallam (2013b) believes too much emphasis has been given to the attribute of aural skills and claims that ‘the whole notion of “musical ability” has been criticised in recent years’ (p. 120), the wide continuum described previously across which aural features in a variety of ways reflects the drawing of the subject into investigations of the broader concepts of musicianship, musicality and musical ability (and what is understood by these terms) in which aural is regarded as an integral component, perhaps for the very reason referred to above, that of its difficulty in definition.

Indeed, an inherent problem occurs with the concepts of musicianship, musicality and musical ability which, however, are not considered in any depth within the thesis but have a general bearing on the overall application of aural. Indeed, the ideas of musicianship and musicality are constructed upon sets of societal and educational assumptions; they are socio-cultural phenomena. To this end, writers have questioned what it means to be ‘musical’ (see Levitin, 2012; Pitts 2005a; Sloboda, 2005) and the title of Ilomäki’s (2011) book, *In Search of Musicianship*, indicates an inconclusiveness in its meaning. Can there be a finite state as such, or indeed, contrastingly, can a person ever be truly described as ‘unmusical’? Indeed, there are many terms to describe the experience and learning of musicality and musicianship and, as Boyle (1992) asks, ‘to what extent are musical aptitude, musical ability and musical achievement different from musical talent, musical capacity, musical intelligence, musicality, musical audiation and musical sensitivity?’ (p. 247). Hallam (2006) concurs that ‘overall, there are no universally agreed definitions of these terms’ (p. 44).

Levitin (2008) goes a little further to describe the difference between musical experts and everyday musicians as a chasm due to cultural influences ‘that has grown so wide in our culture’ (p. 194), somewhat due to the growth of ‘celebrity culture’ which the media has fuelled. Ericsson (1997) largely agrees, comparing the situation historically with other human challenging endeavours and declares that ‘in some domains of activity, many participate but few are expert, for example, chess, sport, music, visual

arts – only a small number reach the highest level of performance’ (p. 18). Lehmann et al. (2007) have produced a model in the form of a pyramid to demonstrate this fact (p. 16). The lowest stratum represents the untrained average member of the population, in the second layer are the musical novices who are able to perform at an amateur level, in the third and much reduced sector exist the ‘music experts’, those who have ‘sought and received extensive training with the goal of making music their professional careers as teachers, performers, composers, and so forth’ (ibid.). At the very apex of the pyramid are the ‘superior elite experts’, the international performers and composers of the history books, recognised by the rest of the population as having made an impact in some way in the field of music, and who display a higher level of metacognitive skills (Hallam, 2001a). Interestingly, only limited exploration, however, has been undertaken in research of the direct relevance of aural skills in musicians’ careers (see Jørgensen and Lehmann, 1997; Pearce, 2000; Green, 2002; Wright, 2012b).

Certainly, many view music as an enigmatic pursuit in view of the mysteries of sound and semiotics, a point made by Harper-Scott (2008) in that ‘work with notation lends study of music a distinctive edge over other humanities disciplines’ (p. 2), the view being implied in the statement that to participate in music, a person has to be one of a favoured group who can understand the intricacies of written music, as opposed to the study of say, art and architecture, where no hidden semiotic systems are involved. This applies particularly to the performing of music from notation as distinct from learning to play by ear. Bourdieu (1984) also claims that social privilege afforded to artistic endeavours in the past has led to what he terms ‘the aesthetic gaze’ (p. 22), where the rich nobility could show a pretentious power over the lower classes. To what extent vestiges remain of this in current society is debatable but Bourdieu goes on to say that by way of the ‘materialisation of its omnipotence ... artistic contemplation now has to include a degree of erudition’ (ibid.) The origins of this may lie in the role of the court musician being instrumentalist-composer who has indirectly shaped musical practice and led to the view of the elitist nature of musical performance and subsequent methods of teaching and learning.

In contrast is the evidence found in Hungary in 1988 by Sági and Vitányi (1988) that some form of inner musical representation is used by most people who 'produce music by themselves for one or two hours a day' (p. 186), indicating that many people have musical thoughts although, and this is the point being made by Bourdieu, that they may not be understood technically. An example is that while a detailed knowledge of the interval and relationships between notes can be observed by a trained musician, in non-musicians largely it is the entirety of the melody that is perceived. Musical activity, known to feature from early infancy, is, as McLucas (2010) confirms, a tradition 'that operates in the lives of ordinary humans, even those who do not see themselves as musicians' (p. 6). Indeed, Storr (1997) goes further to state that an adequate musical education in early life is likely to cause people to be 'better integrated in every way when they reach maturity ... and be both happier and more effective' (p. 124). This may be said to have manifested itself by many adults in adult life in the rediscovery of their interest in singing. Indeed, singing is a recurrent theme to emerge from this thesis and recurs particularly throughout this chapter.

The activity of singing, along with imagining music inwardly, is a universal human characteristic, its relevance and place within individual societies across the world varying considerably; singing is undertaken by most of the world's population. This is confirmed by findings which have been documented in the evidence collected from studies as above by Sági and Vitányi (1988) and more recently by Bailes (2004) and McLucas (2010). Bannan and Woodward (2009) hold that it seems that singing 'came first in human evolution, that the intricate neural scaffolding for coordinating and regulating musical expression and perception evolved to serve vocal communications of intentions, thoughts and feelings before the hands began to make music' (p. 466), fitting in with the view by Mithen (2005), that speech was a later development.

The close link that music has with the social context of life is demonstrated through the increased non-specialist place it has established in modern-day living, widespread within its commercialisation and use, for example, as simple representation of moods and places in advertising as well as a by-product of entertainment. DeNora (2010) describes the phenomenon of the emotional embodiment of music 'as a dynamic

medium in social life (which) has highlighted music's role as providing a structure or container for feeling' (p. 178). Not only can people choose from a selection of styles and genres but it is possible to effect a change in mood as a result of listening to a favoured song or work. Attitudes towards style and the social origin of musical activity (see Bourdieu, 1984) can affect the willingness to accept different musical experiences (as parents of teenagers have found in dealing with musical taste!) and this spills over into the level of preparedness to understand music: as Green (1997) asserts, 'not only the context in which music is produced and distributed but the context of its reception also affects our understanding of it' (p. 6) (also 2002, p. 39; 2010, p. 25).

Music has probably always been an essential part of any society but the dominance largely through technology of popular elements has emphasised the social diversity of style. Being an integral part of musical development, aural ability increases in line with the progress of general musicianship and it is important in the context of this thesis to emphasise the social backdrop to musical activity since it acts as the framework within which aural skills develop. Gembris and Davidson (2002) reiterate that most researchers agree on the importance of both external and environmental influences, and that the development of musical abilities is essentially an interaction between 'innate capacities and the environment' (p. 18). This is a fundamental issue raised by McPherson et al. (2012) who ascribe the term 'transactional syzygies' (p. 82) to these interactions which must be present to accomplish musical expertise, and include such areas as 'personality and temperament, present skills and challenges, teaching methods and styles, parental support, inspiring musical events, continued organisation of achievement, and aspirations' (ibid.).

While the social aspect of music and its wider appeal are indeed basic to its continued existence, at least as far as the present day is concerned, this fact as well directly affects the contextual nature of aural and raises questions about what kinds of skills should be considered as appropriate in higher education and any training that might be provided that takes account of the many social interactions during development. As we begin to know more about how the psychology of engagement and associated

mental processes operate, training can be geared towards the most efficient means of inculcating effective aural skills within the extensive process that takes place gradually from early childhood to accomplished musician.

2.3 MUSIC IN BRITISH STATE EDUCATION

To understand the situation relating to music and the place of aural in British higher education, a brief appraisal of the historical background of music education in the recent past is necessary to gain an appropriate perspective of current developments. The focus in this case is on state, rather than private, music provision so as to enable consideration of the public rather than the independent sector. This section considers the views about the importance of music as a discipline and the circumstances of its teaching in the curriculum with reference to aural learning especially since the latter part of the twentieth century. The place of singing is also discussed in relation to its influence on aural development.

British music education in state schools has been regarded for some decades by some (see Hennessy, 1998; Ofsted, 2012) as facing challenges in provision, even levels of inadequacy (see Elliott, 1995), and the subject of music has often had to fight for a place in the school curriculum. Hallam and Creech (2010) concur also that music has to be justified against other subject areas and that for educators it is a 'battle to maintain funding for musical activities which fall outside the curriculum' (p. v). Its role has been questioned even by some head-teachers who may not necessarily believe in its power to arouse people, with the consequence that insufficiently high priority has been allocated to music in primary schools (Ellison and Creech, 2010) with often little support for its inclusion in school timetables. In contrast, the transferable value of musical training is well documented: Corrigan, Schellenberg and Misura (2013) state that 'the prevailing bias is that music training causes improvements in cognition' (p. 1), and, as mentioned previously, that 'music learning is beneficial to the reading process' (Hansen and Milligan, 2012). Schellenberg (2006) cites Sergeant and Thatcher's (1974) research that 'children who take music lessons may have relatively

high levels of curiosity, motivation, persistence, concentration, selective attention, self-discipline, and organization' (p. 458). Although this may reflect their personalities rather than anything to do with pursuing musical activity, as has been stated above, Rauscher (2009) concurs, adding the power of reasoning to the advantages of musical instruction. Indeed, the transferability of 'soft skills' from musical participation and study such as confidence, determination and resilience is also well-documented (see Philpott and Plummeridge, 2001).

Philpott (2012) claims that the overuse of 'soft' justifications for its inclusion in the notion that 'music is good for us' (p. 48) has been at the expense of the more subjective elements of its emotional power. Indeed, his view that music is increasingly seen 'as servicing other areas of human understanding' (p. 49) has altered some of the objectives of school music lessons and the aims of the general curriculum teacher 'are very different from those of the specialist teacher' (Hargreaves, 1996, p. 148). Indeed, the quality of music provision in schools is enhanced in the first instance by avoiding the employment of non-specialist teachers (Ellison and Creech, 2010). Given the many possibilities of direction and the 'multilayers' of approaches, Stakelum and Baker (2013) believe there is a 'pressing need to find a collaborative approach to provision' (p. 151) so that the potential of young musicians is more satisfactorily realised.

One specific government report of note published in the mid-twentieth century which concentrated on music education ironically criticised music education of the period for its concentration on singing and its unsuitability for boys' voices (Hallam, 2012b). Known as *the Newsom Report* (1963) with a title of *Half our Futures* it looked forward in its recommendations and did help to liberate musical experience in schools from the limitations of music appreciation and radio broadcasts in music managed by non-specialists. By opening up opportunities to develop new approaches to teaching, it allowed ideas about creativity to be explored.

Creativity, after all, is an essential ingredient in all music-making and it is important at any time that opportunity is provided for all children to explore sound in a practical

way, though, as Hallam and Rogers (2010) maintain, providing opportunities 'to develop creative skills is not a cheap option' (p. 119). Children need the chance to investigate ideas that exploit the pleasures of discovery which are not necessarily tightly circumscribed by examination requirements. The work of Paynter and Aston (1970) took up the challenge in their work to promote creative music-making and this impacted upon the music education scene strongly to allow a much less restricted path to be taken up by several educators in their exploration of non-traditional approaches to composition.

Higgins (2012) believes it was the expansion of interest in popular and world music that gave rise to the concept of community music, the beginnings of which 'stem from the experimental music education ideas of the 1960s' (p. 43) and the growing notion of freedom from the restricted practices of traditional styles (see Blacking, 1973). Certainly the advancement of a sense of communal music evident at this time attacked conventional approaches to music education including, for example, the traditional classroom activities of singing and appreciation of music through passive listening. The movement thereby opened up new ideas of developing soundscapes based on fairly unsophisticated representations of scenes, emotions and stories in a way that brought music-making into the classroom as a pursuit in which all could participate, especially those without prior musical experience or any musical leanings. The trend, however, did little to support the grasping of technical skills in the classroom for those who wished to learn about traditional theory of music and to play a pitched musical instrument, and a second influential, non-government publication, which castigated the situation that had consequently arisen, made recommendations supporting increased funding for the training of professional musicians stating that the first priority was for musically gifted and talented children to be properly identified and encouraged' (Calouste Gulbenkian Foundation, 1978). Additional places were allocated under government funding within the five current music specialist institutions and the scheme continues to provide support for young musicians with established potential to progress as their abilities allow.

However, the later introduction of a centralised curriculum, launched as the *National Curriculum* in 1988, achieved negative progress in the distribution of musical skills to the general population particularly with such limitations arising from the imposition of mandatory requirements on the core curriculum where ‘musical activities are defined in terms of what can be taught and assessed, rather than in terms of what children might choose to do’ (Bannan and Woodward, 2009, p. 486). This approach may succeed with factual knowledge but inhibits creative participation.

But in the context of revised educational policy, however, a corresponding general increase also occurred in the perceived importance of core subjects such as reading, writing and mathematics, with the result that an expanded and continued emphasis placed on the national curriculum also marginalised arts subjects, pushing them to be part of the optional curriculum, and pupils who wished to pursue music often had to undertake such activities outside the school day. Coupled with the imposition of charges and the falling interest in classical styles amongst younger pupils, the consequent drop in the take-up of lessons on classical instruments in state schools was hardly surprising, a fact supported by recent research that found that ‘one third of children play a musical instrument compared with two thirds of their parents at the same age’ (BBC, 2010). My belief is that this statistic relates primarily to those who continue to learn an instrument past the initial stage compared to those children, where the numbers show an increase, who take lessons for a short time, as part of, for instance, the *Wider Opportunities* provision.

The approach to music education of course differs between primary and secondary education, the latter identifying the subject separately largely through the teaching being undertaken by practising musicians, though there is great variation between schools depending on policy governing curriculum management. The transition between the two levels often gives rise not only to a discontinuation of lessons on musical instruments (McPherson et al., p. 84; see also Pitts, 2012) but to a change in attitude by pupils towards its relevance in their lives, popular styles tending to dominate. The issue of curriculum continuity is taken up by Marshall and Hargreaves (2007) in their study of over 1000 pupils and found the experience to be very variable,

between schools as well as between the children. Partly as a consequence of the greatly improved liaison between secondary and primary schools over recent years (see Hargreaves and Galton, 2002) as a consequence of the introduction of open days, much of the anxiety experienced by many over the transition has been removed. It is significant that Marshall and Hargreaves (2007) also conclude that despite some discontinuity in provision, the adoption of a fresh approach appears to enable the transfer process to challenge, support and encourage growth in pupils, and to enable their interest to increase (p. 79).

Rodrigues, Rodrigues and Correia (2009) also bemoan what they describe as the atomistic approach to the teaching of music (which) 'has neglected the integrative or coordinating emotional, affective and communicational aspects of music' (p. 607). The consequent lack of freedom of individual flexible and spontaneous schemes of work in the classroom has not allowed the possibility to 'achieve a balance between encouraging, facilitating, responding and guiding and allowing the child freedom to explore independently, an essential part of the creative process' (Bannan and Woodward, 2009, p. 482). Too much emphasis has been placed on the 'banking concept' of education in which knowledge is transferred from teacher to pupil (see Freire, 1970). Restoring these qualities might perhaps eradicate the problem of 'undergraduates (being) ... the products of the political interventions in education that have characterised the late twentieth century, reducing all learning to measurable outcomes' (Pitts, 2004, p. 223). The potential influence of this approach on the design of the higher music education curriculum is an issue raised again below in the context of training particularly in the tendency in recent years towards describing the process of achievement in terms of specific learning goals.

To what extent former levels of music involvement in schools have been resumed in the twenty-first century to meet the challenges of current education philosophy, namely, as Pitts (2005a) writes later, to provide children with the 'opportunity to experience, create and enjoy music' (p. 21), is uncertain. However, Hallam (2010a) is more optimistic concerning current developments and believes music education in Britain is 'thriving' (p. 30). Education policy has at least appropriately attempted, as

suggested by the significant government-sponsored report, *National Plan for Music Education 2011*, to enlarge the role of musical participation and engage children in a wider 'variety of musical genres and activities' (Department for Education, 2011, p. 17). Its first recommendation is that 'Schools should provide children with a broad Music Education, which includes performing, composing, listening, reviewing and evaluating' (Henley, 2011, p. 32). The report led to the establishment of music 'hubs', the concept of which has been maintained through to the present day (for example, the Hull Music Hub, <http://www.hullmusic hub.org/>), in which local organisations interested in music education form federations to further children's experiences of music. The development was perhaps triggered by the *Wider Opportunities* initiatives five years previously which greatly broadened the provision of music education across Britain, although Young (2012) is not convinced of the success of the expansion professionally. Since then many local authorities have evolved plans that open up instrumental learning to all children. Described as a 'groundbreaking programme (which) has introduced more than two million children nationwide to the magic and discipline of making music, skilled tutors from local Music Services teach pupils an instrument every week for a year' (*The Love Music Trust*, 2013). However, the programme is said to have 'damaged both short and long-term music education in schools and as an extra-curricular activity' ('hhyouthjazz', 2013). Though almost identical in concept, it has been superseded by *First Access*, another whole-class instrumental teaching system, the success of which is yet to be confirmed.

Indeed, due to the relatively depressed level of funding for music (see Hallam, 2015) a number of organisations recognising the value of music education both to individuals and to society at large have grouped together to form a united force to combat the indifferent approach by government and have hopefully prevented further decline in the attention given to state school music teaching. A recent partnership of 136 high-profile organisations to support the restoration of previous standards of provision is the *Protect Music Education* movement (<http://www.protectmusiceducation.org/our-supporters.html>, accessed 9th April 2015) whose efforts to circulate and collect views from many musicians as well as from the organisations themselves resulted in the granting of increased funding for

music education during 2014/2015 of £17m and greater continuing support from government in the future.⁴ Another attempt to encourage music participation and urge government into greater support for music education was made in the television programme *Don't stop the music* led by the pianist James Rhodes who wants all primary school children 'to have the chance to play a musical instrument' (Channel 5, 2014).⁵

Participation in music requires at least some devotion to study and this remains somewhat at odds with a prevalent social leaning towards expecting immediate results and the tendency, as Hallam and Creech (2010) reminds us, for music to be taken for granted due to the widespread access to recorded music. Possibly Sloboda (2001) is correct in maintaining that 'classroom music, as currently conceptualised and organised, is an inappropriate vehicle for mass music education in 21st-century Britain' (p. 243) especially in view of the shortage of effective music specialists within the teaching profession. But it is important, as Seddon (2011) maintains, that opportunities are available and sustained for those who wish to follow a 'pathway to performance excellence in traditional institutions' (p. 202). Perhaps, as in other continental countries, music education beyond a specified level should remain a specialist area of learning that is provided by independently run institutions rather than as a response to a policy that attempts to supply the basic elements to every young person, some of whom will always remain disinclined to pursue music. However, it is preferable, I believe, that the system itself changes so that an opportunity is provided for some form of music education for all young people. This is of vital importance in the same way that learning a foreign language is appropriate in enabling an educational roundedness to be fulfilled as an area of human social capability. Perhaps the movements to bring music to more young people have already begun to effect this growth in participation.

⁴ As confirmed in a speech by the then Schools Minister, Nick Gibb, himself a former chorister, with a personal interest in music, at the Music Education Expo in London in March 2015.

<http://www.musiceducationexpo.co.uk/conference>

⁵ Broadcast on 9th and 16th December 2014

The situation, however, is difficult to overcome as demonstrated in research by Stakelum and Baker (2013), who review the matter from a realist perspective of a school curriculum in a project that investigated musical ability in the primary school (*MaPS*). They rightly claim that one of the main difficulties of the provision at this level is the lack of confidence of teachers and the view was reinforced from their project that, despite being a statutory subject, music was considered by generalist teacher-respondents in a survey to be too difficult to be taught by a non-specialist teacher, and that there was a strong element of needing to be at least an instrumental performer – with the implication of understanding the concepts and theory of music – in order to undertake the teaching role adequately. The findings suggested the view that ‘those who are musically knowledgeable tend to be more confident that music is teachable than those without musical experience’ (p. 148). The authors recommend a more collaborative approach to music teaching to provide support in formal music education at primary level especially for those children whose opportunities through the regular support mechanisms of home and private teaching are not available.

The difficulty lies in two areas: firstly the numbers of potential teachers who are confident and willing to pursue such a venture are limited especially in view of the current general shortage of school teachers and a reluctance encountered to undertake what are regarded as specialist activities; secondly, the financial resources are not currently available to train generalist teachers especially in primary schools where the greatest advantage to children could be said to be at its greatest to take advantage of their natural levels of interest and discovery.

Stakelum and Baker’s model of musical ability (p. 137), to which reference was made in Chapter 1, becomes more important in relation to how music undergraduates view the relevance of their degree studies and the applicability of their aural skills; whether the latter are enhanced during their degree programme or remain static at whatever level, is also a matter that becomes evident in Study 2 in which the views of current university students are sought (See Chapter 5).

As remarked already in several instances, singing is a fundamental activity in the development of musical skills which in turn enhance aural ability and it is appropriate at this point to highlight issues about singing in British music education so as to underline its importance. Singing, when related to musical theory, is particularly beneficial in this respect, and although schools were once very active in encouraging the pursuit of singing in class, the considerable decline of this activity during the latter part of the twentieth century has never been reversed. Saunders, Varvarigou and Welch (2010) describe the downturn as a 'gradual erosion of the centrality of singing in the primary classroom' (p. 73) and later refer (p. 80) to a recent Ofsted report which underlined the fact that singing in secondary schools was 'an area of relative weakness' (Ofsted, 2009, p. 22). Despite the widespread use in music education on the European continent of the voice through solfège as an effective system for developing the 'inner ear', it is perhaps because of the similarity in concept to what was regarded as the old-fashioned solfa system, there has been a reluctance to adopt singing in British music education despite its equal benefits in producing effective aural skills, and particularly the development of relative pitch and tonic-inference.

Indeed, the British exponents of tonic solfa such as Sarah Glover, John Hullah and John Curwen (see Rainbow, 1967; Cox, 1996) laid the foundations of later ventures in music education where singing operated as the mainstay of the teaching of music in British schools well into the twentieth century. The solfa movement offered great opportunities in Britain to enjoy music through singing and it might be said that the widespread expansion of music for the church in Britain and especially the growth and popularisation of music in the second half of the twentieth century, came about because of the introduction of the solfa system which provided a greater and wider understanding of the concept of pitch and tonal sensitivity than had been achieved previously (and possibly since!).

One musical advantage of singing is demonstrated by the training of choristers in English cathedrals in the development of the use of the voice from a young age in conjunction with the emphasis given by the associated schools to the frequent

reading of previously unseen music. The pursuance of the choral tradition has consequently led to a keen understanding and knowledge of musical experience and detailed appreciation of the sound relationship between intervals and notes of the scale in both aural and written form such that the musical training provided as a result is much valued by those who experience it, the pleasure brought by participation in singing remaining a favoured activity for life by many (see Mould, 2007).

As stated above, the position of music instruction in state schools has been variable for a number of years, the outcome being an adverse impact on the interest and attitude shown towards more formal types of music-making, although this was at last recognised to some extent in the early 2000s by the government of the day despite some uncertainty about its success in reversing to any appreciable level the trend that had evolved towards inactive participation in music. Its sponsored *Music Manifesto*, launched in 2007, and the establishment of the later *Sing-Up* programme, have formed part of a five-year vision and somewhat challenging aspiration to (once again) 'make Britain a singing nation', (www.singup.org, accessed 2010). Saunders et al. (2010) believe from their study of over eight thousand children during the first two years of the programme that it has been successful in restoring some recognition in recent years of the importance of singing.

However, where singing is included in state primary school activities it is often less for genuine musical purpose in concert, more likely to be part of a dramatic production where the entertainment element is often of greatest priority. In fact, it follows that it is important that a strong element of singing experience at primary school age or even preferably earlier is maintained, to enable musicianship to develop, reaffirming the link between accurate hearing of music and accurate singing (see Kinarskaya, 2009). Indeed, further benefits accrue later if a child takes up a musical instrument where a sense of pitch through singing has already been established. It has been found by Howe, Davidson, Moore and Sloboda (1995) that if a child is able to sing recognisable songs at a young age, this will tend to be an early indication of that child's later musical development and that singing at an early age might be an early predictor of later success as a musician.

Charities, also, have been established with an emphasis on singing, for example, the *Voices Foundation* which, through its training courses in association with local authorities and schools in both the state and independent sector, aims to ‘enable all children to realise their full potential through a singing-based music curriculum’ (www.voices.org.uk, accessed October 2013). It is clear that much has progressed since the recent turn of the century and in addition government and arts organisations such as the *Musical Futures* and *Creative Partnership* programmes have spawned a renewed emphasis on music education in state schools, both in instrumental playing as well as singing (see Hallam and Creech, 2010; Hallam and Gaunt, 2012b).

The funding of additional resources and teaching materials has led to redirecting attention once again in education to the value and importance of singing, though its success has been greatly limited by the lack, as mentioned above, of appropriate teachers and the lack of eagerness towards singing shown by young people. Contrarily, the level of interest in singing continues to be keenly demonstrated by adults though perhaps in a more informal manner. Examples are the singing groups set up by the self-described ‘choral animateur’ Gareth Malone in which the emphasis is given to items of music that are from a non-classical base and designed for simple performance and easy listening. Similarly, the music chosen by organisers of public events and occasions of general interest tend increasingly to adopt a popular approach to style. This was exemplified by the music selected for the opening and closing of the Olympic Games held in London in 2012 and the Commonwealth Games in Glasgow in 2014 which was conceived in terms of popular taste rather than attempt to represent a formal occasion whereas corresponding music taken from the classical canon would have been the case in previous decades. The nature of the Promenade Concert programmes (see BBC, 2015) has also changed with the increasing inclusion of non-classical musical items and audience singing participation. The relevance of singing as part of aural training is taken up in more detail below.

2.4 AURAL TRAINING AND ASSESSMENT

It has been suggested that aural lies at the heart of musicianship and, although the concept of what that entails is ambiguous and imprecise, any time spent in action to promote skills that underpin the development of musical expertise, such as aural skills, is valuable. This section focuses on various approaches to aural training and explores schemes that have been developed to improve inner musical processing. Reference is made again to the importance of singing, in this context as a significant element in aural development. Also considered are issues about the role of notation and improvisation in training and a brief investigation of the implications for assessment.

General musical development occurs over a lengthy period and entails a variety of relevant capabilities but it is the aptitude to mentally process musical thought that determines aural ability and, following training, leads to the eventual acquisition of aural skills. Whether the training process is efficient and productive is clearly of importance and given the range of activities that now come under the study of music particularly in higher education – such as performance, composition, analysis across different musical genres, (for example, jazz, popular, and classical), historical musicology, music technology – the need for specialisation is greater and the dependence on the earlier acquisition of basic skills of musicianship, including aural, becomes even more intense. The approach to training, therefore, at the higher education level is crucial and whether or not it is the case that specific skills – and aural is included in these – are less acute and widespread than what was regarded as a putative traditional standard in previous times, the circumstances of the changes in educational and social attitudes described above cannot be ignored.

Reference was made in Chapter 1 to researchers' understandings of aural, some of whom connected their views to the context of training. The matter is taken up again here from the perspective of exploring the practicality of such an approach. For example, in his integrated approach to training, Karpinski (2000a) refers to Schumann's belief that a perfect musician should be able to hear music in his head

on reading from the page and cites the similar words of Smith (1934) that ‘the musician must learn to “hear with the eye” and “see with the ear”’ (p. 3). Similarly, Gabrielsson (1982) reiterates the point that ‘when reading a score, one should be able to hear the music with one’s ‘inner ear’ (p. 505). Although this contradicts Hallam’s (2013) view that aural ability was perhaps over-emphasised as a factor in musicianship, this is not to say that the ability to mentally read a score as an integral part of aural skills development should not be encouraged (see Hallam, 2010b): its relevance in analysis is beyond doubt and the facility to read music silently is a very valuable asset of the trained Western classical musician.

As stated earlier, a major problem in aural training is not knowing just what a student understands by any musical sound that is being heard and analysed at any one moment, an issue that is confounded further by the added difficulty presented by the limited means by which the student is able to describe his/her experience. Whereas notation is clearly a vehicle of demonstrating this, it is by no means a reliable method and, especially in the absence of a keyboard or other live sound source, can only often be a trial-and-error attempt to match up with the ‘inner ear’. The application of knowledge, subconscious or conscious, through experience is vital in developing both the capacity for aural realisation during listening and the contextual awareness of the sound.

Indeed, it is possible that greater use could be made during training of the anticipatory aspects of imagery in music listening (see Bailes and Bishop, 2012), relating the process, for example, to analysis or error detection, particularly in the context of unfamiliar music which may or may not be used in aural training. Indeed, the application of imagery during music listening, an area explored by Bailes (2003a) and touched on earlier which, while not a central theme of this thesis, is a further means of advancing the various skills supporting music study at degree level. This further connects with the issue of memory and memorisation mentioned in Chapter 1, which, as Bharucha (1987) explains in relation to his own theory of ‘veridical expectancies’, act as ‘cues that enable us to anticipate or recognise the next event in a familiar piece and which underlie our ability to perform from memory’ (p. 430) (see

also Huron, 2001, 2006). The anticipatory aspect of listening is a major element in the general process of ear-training and, particularly, as acknowledged by Karpinski (2000a), in learning to assimilate the harmonic progression of tonal music.

Having expounded above on the importance of singing in music education, its direct application in aural training is consequently of vital significance. Indeed, whether or not it is taken up as a specialist area of study or pursuit in professional terms, there is little disagreement in research that singing is notably significant as a fundamental process of aural acquisition. In a valuable analysis of skill development, Sloboda and Davidson (1996) specify singing to be a significant component in the development of musical skills, which is fully enmeshed into the activities of the 'inner ear'. Kinarskaya (2009) also confirms the link between the 'inner ear' and singing: 'Accurate singing proves beyond argument that a person possesses an internal ear (p. 155) and Karpinski (2000a) agrees by citing White (1981) that 'singing is so important in the development of basic musicianship skills' (p. 192).

That a strengthening occurs through singing of the development of not just an awareness but also a cognitive sense of pitch (and of course to some extent rhythm which is also likely to be heightened) is a factor that has been widely written about since the nineteenth-century pioneers in music education, mentioned above, who used the tonic solfa as a basis for musical training. Indeed, the importance of singing and the consequent development of an inner voice also as a precursor to instrumental performance are features of three significant pedagogical approaches that have gained ground and universal acceptance over the past half-century as credible schemes of musical training and development. The ensuing discussion will focus on issues pertaining to these pedagogical schemes which, while not specifically designed as methods of aural training, involve the development of the 'inner ear', and are particularly relevant here since any group of university music students may contain a small number who have undergone these less traditional styles of musical upbringing.

The first of these schemes is the method advocated by Kodály (1974), a strong element of whose theory is in fact firmly based on the importance of singing, as stated by him in 1958: 'Sing in choirs often and this will help you to become a better and better musician' (Bónis, 1974, p. 190). Aural training in Europe was, and remains, based on the fixed doh of solfège, and is widely employed in music teaching in European mainland countries as a basis of aural training. Evidence shows that advances made in aural ability from the outcomes of this training are notable (see Sloboda, 2005; Apostolaki, 2013). Kodály's teaching and development of a system of hand-signs, however, was based on the principle of a moveable doh, inspired by his experience of the British tonic solfa system and in its generation of the feeling for the scale-degree. Although he maintained that 'singing or playing an instrument cannot be mastered unless solfège has itself been mastered first' (1974, p. 203), the implication is of the importance of the act of singing irrespective of the system of training adopted. Both an absolute and a relative system for understanding the concept of pitch are required to successfully function as a musician.

However, although mere singing will not necessarily develop musical understanding, it is effective in the storage of the sound image generated and provides advantages also for people without training in developing a sense of pitch. As supported above by Kodály (1974), singing is additionally a benefit in learning to play a musical instrument. Thackray (1978), indeed, criticises the lack of singing undertaken in instrumental lessons and although some teachers 'rightly stress the importance of singing as a preliminary or complement to playing, it is regrettable, however, that many do not' (p. 183). He further states that singing, 'independent of an instrument, is the real and profound schooling of musical abilities' (p. 190). The views of university students on their early experiences of singing in relation to aural training are considered later in this thesis but further study into the differences in aural skills between those with and those without early experience in singing would help to clarify the extent to which singing directly influences the development of aural.

While singing, which does involve, consciously or subconsciously, a reference to the 'inner ear', will not lead in itself to the development of musical ability, its link with

notation is held to be of vital importance in aural processing. As remarked in Chapter 1, the notion of the inner representation of sound remains a central focus in the understanding of aural ability, and the advantages of being able to store a visual image to convey a symbolic representation of the sound being heard appears to be a vital means of developing aural skills. Reading the note while singing supports the development of the concept of scale-degrees and as singing involves indirectly also the activity of listening, so the intervallic relationships are simultaneously linked with the visual stimulus.

The second of the pedagogical schemes is the Suzuki approach to musical development (see Behrend, 1998; International Suzuki Association, n. d.) and is instrument-based. However, the place of singing, in the advancement of an 'inner ear', while fundamental is not a directly central element. The main original goal in the 1930s of the founder, the violinist Dr. Shinichi Suzuki, is stated as being the desire 'to enrich people's lives and make them more understanding and sensitive human beings' (British Suzuki Institute, n. d.) rather than as a teaching method in itself. The concept is established on the principle of emphasising listening to music and it follows a firm belief in the process of playing from the 'inner ear' rather than as a response to the visual stimulus of the (printed) music, a precept advocated by many teachers of music as far back as Couperin and Rousseau who stressed the importance of the 'sound-before-sign' rule.

The extent to which the aural abilities of those music students who have had a Suzuki-based upbringing demonstrate a higher overall level does not, however, always follow as the training does not consciously incorporate symbolic representation – 'no printed music is introduced until the student has mastered basic playing skills' (Comeau, 1998). Indeed, as mentioned previously, the written symbol is often used both in traditional aural training and as the basis of aural skills assessment and the dependence upon such an approach is questionable, since students whose training has emphasised listening skills have sometimes omitted the theoretical aspects of aural ability to the extent that they are disadvantaged in assessment that relies on

written work rather than practical demonstration. Further reference is made below to notation in processes of assessment.

Indeed, it is notable that those students who have developed their musical skills via Suzuki training tend to have a finely tuned ear and their powers of playing by ear and creating music from their mind is more thoroughly developed. Conversely, their sight-reading ability is sometimes regarded as of a lower quality (see Behrend, 1998, p. 33), as a result of the initial stages of the approach, developed worldwide from the 1960s, involves learning to play without music (see Comeau, 1998). Much is due, however, to the early age at which Suzuki-nurtured players often begin their training, which is recommended to start before children are five years old and based on the principle of watching and repeating the playing of others.

The repeated listening and learning to play by ear by Suzuki students, as Comeau (1998) states, is 'no guarantee that they will develop a good cognitive comprehension of how music is organised or that any internal aural representation will be activated when music notation is later introduced' (p. 14). Unless a subsequent awareness of pitch and rhythm is related to notation, sight-reading may remain problematic although not all views support this assertion and Comeau goes on to claim (p. 17) that there is a positive correlation between the skills of playing by ear and sight-reading (see also other studies by Bernhard, 2004; Musco, 2010; Thompson and Lehmann, 2004). Hallam and Creech (2010) likewise make the point that although both sets of skills will be useful to musicians, whichever course of action is decided, it 'needs to be an informed decision' (p. 93). The extent to which different approaches to aural training, particularly in the early stages, might affect long-term aural ability is yet to be addressed systematically in research and while this thesis does not contribute specific answers, it does uncover the views of university students about their early aural training.

The third system of musical training, the Yamaha method (see Wagner, 1985; Yamaha Music Foundation, n.d.), established in Japan in the 1950s, adopts a similar approach of learning to play an instrument by ear, especially the piano. It also attempts,

however, by way of improvisation (see Morijiri, 2013) and the greater use of singing, to 'avoid the pitfall that rote methods often fall into: poor note-reading ability' (Wagner, 1985). Though similarly using musical thoughts in the 'inner ear' through listening to and inwardly assimilating musical phrases before attention is turned towards the printed notes, 'each new song is taught through solfège using proper syllables (*do, re, mi*), and this experience of singing a song in the fixed *do* (doh) is then easily transferable to keyboard playing' (Comeau, 1988, p. 13).

Systems of training the 'inner ear' continue to be published by way of new approaches to learning or with different exercises to enhance a musician's ability to assimilate and comprehend musical sound. It is not, however, the purpose of this thesis to examine systems of aural training but it is appropriate at this point to refer to schemes of work that have been devised to improve a musician's aural skills to support performance and further study, extending to their application in composition and analysis. A large number of specific graded aural training schemes have been published (see, for example, Damschroder, 1995; Kraft, 1999; Turnbull, 2010; Holmes and Scaife, 2011). One particular recent volume of note specifically exploiting aural skills to develop musicianship is that by Cleland and Dobrea-Grindahl (2010) which claims to be a 'comprehensive method for learning to hear, sing, understand, and use the foundations of music as part of an integrated and holistic curriculum for training professional musicians' (p. i). While the course is methodical and embraces all aspects of aural-based activities, its approach remains traditional and relies considerably on notation. Its claim as an integrated system of learning is due to its later reference to incorporating the listening to musical examples though this is not integrated within the early stages of musical development in the sense that is described in Chapter 1.

However, it is the commercialised growth of modern-day interactive aural development software and applications (apps) – see *Hofnote* (Hough, 2011), *Ear Conditioner* (Coker, 2010); Berriman, 2011; ABRSM, 2012a) – that has more recently visibly influenced the approach to musical development. This additional access for trained musicians and non-performers for personal development of aural and listening skills can be used on mobile phones as well as computers and though

generally associated with individual-based training, the programs are available at relatively little cost. But what is crucial is the amount of time devoted to the training process and the preparedness of the student to maintain motivation if the results at first are not successful.

Through the support of a systematic process of progressive learning, the software features what are regarded without dissent as those central musical elements mentioned above that underpin all musical activity. The programs are designed to instruct students in aural skills as a means of improving their understanding of musical practice and perception of pitch and rhythm through notation. The graded exercises / tests are generally divided into groups of skills involving pitch and intervals, rhythm and time, chord position, harmonic movement, etc. The extent of the emphasis on different elements across training and the order of introduction and management of material varies between systems but their relevance as support mechanisms for developing musicians is not disputed.

Indeed, many of the new apps are structured progressively to ease the burden of ear training although the extent to which the use of such programs are of practical benefit remains uncertain. Indeed, a drawback is the concentration in much of the software on the recognition of single intervals and melodic patterns and many target isolated testing away from melodic contexts without referencing the vital development of the tonal context. The software has tended towards being a short-term attempt to meet immediate demands in aural examinations rather than long-term improvement and its relevance as an integrated system of full training of the musical ear is limited. Such a view is supported by Karpinski (2000a), who doubts the usefulness of such atomistic programs of aural training where interval recognition is most frequent, claiming that they 'rarely provide efficient results' (p. 166). In the same way, Jersild (1966), before the advent of computers, had heavily criticised training that focused on music reading systems that concentrated on abstract intervals without reference to the tonal context and, like his near contemporary Ottman (1956), believed wholeheartedly in the value of learning to read musical

passages with an understanding of shape and to sight-sing with sensitivity to key centres and tonal direction.

The increase in such aids reflects the importance nevertheless that student musicians in many cases hold about aural ability as an alternative to scheduled aural classes or to improve ability in performance and analysis. Such provision has helped to sustain a tangible level of the importance of the 'inner ear'. Parncutt (2004) supports the use of computer-assisted repertoire analysis to improve theory learning as part of the topic concerned with the understanding of pitches, tuning and rhythms and considers the advantages of employing such a process to enhance a harmony and counterpoint course, for example, in the application of perceptual theory to determine what he terms 'pitch salience', that is the 'clarity, prominence and attention-getting power' (p. 103) of complex harmonic tones.

While a large number of training methods have thus come to exist, nevertheless, individual teachers are likely to carry a systematic process of instruction and set of ideas in their mind as to how musicianship should be developed and from the different exposures recounted above, it can be seen that the methodological approach to teaching aural skills varies enormously across the field. Kinarskaya (2009) recommends a more fundamental reappraisal of training by suggesting that teaching music should take account of the historical development of skills and that 'the order of appearance of the components in phylogenesis should be at the base of the methodological principles used in musical pedagogy' (p. 286). Although the corollary to this is not stated, it would seem that this implies an emphasis constructing an 'inner ear', primarily through singing, before devoting immediate attention to instrumental performance, a matter to which reference was made above.

The pursuit of performance without any notational aid has been referred to previously and to those who have grown up with jazz and popular music who may have bypassed the process of needing to read music in order to learn practical instrumental skills. The ability to use the 'inner ear' as a resource for both improvisation and performance from memory is well researched and it must be said

that there are many performers who may or may not be self-taught but perform 'by ear' with some fluency without the ability to read music or having had formal training in any way. 'Playing by ear' is, however, a misnomer in some respects since the activity is essentially a creative process using imagined musical thoughts which may be based on the recall of previously experienced music or develop as an ongoing improvisation. Much has been written on the importance of the 'inner ear' in playing and singing music, irrespective of whether a performance is undertaken from memory, and Parncutt and McPherson (2002) and McPherson (2002) also underline the fact that the development of 'the skill of playing by ear helps student musicians ... to perform on an instrument what they see in notation and hear or imagine in their mind' (p. 109) (see also Colwell, 2002; Davidson, 2004; Green, 2002; Jørgensen and Lehmann, 1997; Levitin, 2006; Lehmann, Sloboda and Woody, 2007). As Morijiri (2013) maintains, with implications for the advancement of aural skills, learning improvisation 'plays an important role ... in developing musicians' performing skills, their musical understanding and a comprehensive musical expertise' (p. 116). It is the ability to create from the 'inner ear' that is of importance in this respect and its relevance in aural training.

The possession of a competent level of aural skills is therefore necessary to successfully externalise these musical thoughts. The anticipation of the next note or phrase, adapting to unexpected changes in harmonic direction, knowing the appropriate formation of chords, correctly assessing and playing the right note in the recall of a melody, all circumstances that occur in playing by ear, crucially rely on the successful implementation of effective aural skills. These may involve the conscious or subconscious recognition of patterns in performance or anticipate progressions in the mind but rely on the skills that have been practised or already experienced. Deutsch (1982, 2013) refers in detail to the processing of pitch and covers many relevant topics in this context such as intonation and tonality, absolute pitch, performance and practice, with occasional reference to neurological aspects, though these are made based on the immediacy and speed of perception in the interpretation of melody and rhythm in performance.

Improvisation has been compared to the formation of language in their similar modes of generative processing and though distinct from the use of language to describe music (see Kramer, 1996), as Levitin (2006) observes, like improvised music, spoken sentences have normally never been said before: the process of creativeness is fundamental to both activities. The concern is that, although creativeness and improvisation are natural ways of externalising musical thought, it is the traditions of performance and its aspiration towards a professional level in Western classical music, as McPherson et al. (2012) write, that have come to be 'the *sine qua non* of instrumental playing' (p. 8).

On the other hand, Lehmann and Ericsson (1993) claim that the ability to sight-read 'does not increase with higher general instrumental skill' (p. 192) and although this may be true of professional solo pianists in technical terms whose objectives are different from, say, accompanists, it possibly holds true for those pianists whose good sight-reading skills are transferred, as a result of experience, to an improvement in speed and overall accuracy in the preparation of unseen music and in a general ability to analytically read a score. It should be stated, however, that Lehmann and Ericsson's study only covered pianists who specialised in solo performance or accompanying.

Indeed, Ilomäki's (2012) belief, like that of Dolan (2005), in the 'value of improvisation as a means of building aural skills' (p. 124) leads to this being an integral part of her approach to training. There is much to be commended in exercises for those students without previous experience in playing by ear as a means of emphasising their ability to form a mental image of musical sound and move away from the reliance on notation and pitch in pre-composed music. It is accepted that improvisation can enhance the facility of the 'inner ear', though clearly such activity is not easily included in general music training due to its specialist nature. But there seem few reasons other than those of time or inclination why some part of an individual instrumental lesson, whether on the piano or a monothematic instrument, cannot cover the art of playing by ear and development of the skill of improvisation.

It could be said, indeed, that the most efficient musicians are those who can both sight-read and improvise or play by ear. Williamon (2004) considers the status regarding the abilities to read fluently at sight and improvise to be paradoxical where 'on the one hand, they are highly prized and seen as indicators of great musical ability; on the other, they are often regarded as natural gifts that one either possesses or does not' (p. 5). While not wishing at this point to rehearse the debate about musical inheritance, the implication from this statement reinforces the importance of the need for musicians to possess a variety of skills, many of them, whether learned or naturally enhanced, being advantageous to specific pursuits.

Palmer (2013) is critical of 'students entering, and often leaving', conservatoires with little or no improvisation experience' (p. 271). Hallam (2013a) supports this view by drawing attention to the fact that improvisation is rarely practised and it is axiomatic that such a skill leads more successfully to higher all-round competence in performance and consequently to fulfilment as holistically trained musicians from this and other 'active engagement in making music' (p. 127). Campbell (2009) appropriately warns music educators of the demerits of omitting improvisation from music pedagogy and that potential music degree students would certainly gain from such activities as part of their musical development: 'Improvisation integrates the individual facets of a musician's training' (p. 133). The point must be emphasised, however, that whether emphasis is applied to memorisation in place of sight-reading, or improvisation in place of accuracy, the time spent developing the competence in one skill at the expense of another must surely affect the musical outcome of any student.

Related to an understanding of aural training is the issue of assessment. A significant development that arose in Britain (and USA) and which grew out of an interest in the psychological nature of musical ability was the growing desire to assess musical aptitude and, somewhat later, musical potential. In the University of Iowa, Seashore's (1919) *Measures of musical talent* were designed to assess innate musical capacity and included tests covering pitch, intensity, time, consonance, tonal memory and rhythm. The principle of testing for admission to further musical instruction gained

ground and led to the establishment of additional systems of testing in Britain, the most notable by Wing (1948, 1968), Bentley (1966) and Gordon (1965, 1979). Gordon went further to develop what he termed 'primary measures of audiation', and whereas many earlier tests had relied on memory and recall, he emphasised more the importance of the perception and cognition of melodic shapes and musical structures.

These measures, designed also to establish the level of achievement of existing musical ability, became popular with a wide range of music institutions who adopted tests that were intended to assess the musical potential of young people through their performance and musical knowledge, and to provide a means of offering equal opportunity to study music further. The Wing tests primarily used sight-singing, melodic and rhythmic dictation which involved some written work (see Young, 1973) whereas those by Bentley, though somewhat similar, were divided into pitch discrimination, tonal memory, chord analysis and rhythmic memory with less emphasis given to prior musical knowledge. However, these psychometric tests were somewhat confusingly associated with general intelligence and have since been shown to be unreliable as a diagnosis of musical potential as well as intellectual capacity despite their continued use even up to the present day. Indeed, the early tests established the tradition of aural assessment that is still today the basic format of testing alongside practical performance in graded examinations despite some controversy at times regarding their reliability and effectiveness as a means of evaluating musical ability. This approach entails those attributes of aural which are held to be characteristic elements such as pitch, rhythm, timbre, and the inculcation of skills through training that enable musicians to undertake effective interpretation of what they hear and read in notation.

In the definition of aural in Chapter 1, reference was made to the concept of aural as commonly being associated, at least to some extent, with assessment and its general understanding as a means of judging aspects of musicianship. Although it is not the intention of this thesis to comment on specific aural assessment systems and methods of training towards the achievement of explicit aural skills in order, for

example, to be prepared for graded examinations, the process of assessment remains an element of the overall discussion of aural ability and its constituent skills. There seems to be no question as to the occasional need to assess a musician's ability by way of examination or performance, yet the task of finding effective training schemes and appropriate assessment criteria remains a problem. Success has placed too much dependency on the association of aural with music theory and knowledge of notation in the past and it is also sometimes considered that too much emphasis is placed on the process of recording what one hears in written form in order to demonstrate an effective ear. Because one person cannot know another's musical thoughts the attempt to demonstrate it via notation as in words, as described above, is unreliable.

Reference has necessarily been made already to the areas which have been traditionally singled out as a means of detecting a person's aural ability, such as intervals and chords, melodic and harmonic recall, recognition from notation or notating of melodies, error detection (from listening or from a given notation), but, as stated previously, this is not a totally reliable indication of the deeper aural capacity of a musician. Whether or not there exist other possible ways to assess aural skills needs to be explored further and linked with training systems that allow appropriate flexibility in assessment. Music development, after all, continuously involves much of this kind of formative assessment, though often of an informal nature, using 'the immediacy of aural feedback' (Papageorgi and Hallam, 2010a, p. 142). Its relevance is well established in the attempt to improve skills through enhancing critical evaluation and the identification of weaknesses.

Training schemes that have been published often have in mind the preparation for assessment as well as aural development and, indeed, use degrees of assessment as grading mechanisms. With the growth of technology the capacity for interactive programs has considerably widened the scope for students to utilise such aids to enhance their current aural abilities, and use the system especially as a development tool. However, the programs do not seem to be able to compensate for the sheer repetitive practice and experience that comes from performance, particularly if the early formative years of musical development have been limited.

As a result of the influence of educational and socio-cultural changes on the higher education music curriculum, a revision of the approach to assessing musicianship might be necessary and for alternative methods that do not rely so much on traditional aural examining and written notation to be explored, one that is sufficiently fair and robust to be a totally reliable indication of the deeper aural capacity and musicianship of the student. The general question remains, however, as to how assessment of aural skills might be undertaken and the nature and content of that assessment, indeed, whether it is possible to suggest standards of aural by which levels of musicianship might be judged. Also, the task to explore new ways raises the issue about the extent to which training might need to adapt in order to meet new criteria. Clearly, any satisfactory system must be devised in terms of demonstrating the student's breadth of aural ability and one that is most convincing and reliable as reflecting a true level of skill. While the level of objectivity is aimed high, the disadvantage is in the time and cost of the ideal one-to-one context of assessment. While other possible methods of examining aural skills may be feasible, and perhaps preferable, any assessment needs to be linked with training systems and allow appropriate flexibility within the context of the degree programme. Equally, if testing of aural ability is not an obligatory part of a degree assessment then the level of attention attributed to aural skills by students is likely to be correspondingly reduced.

While for early and intermediate development the graded examinations used by *Trinity College London* and *ABRSM* should continue to exist as probably the most effective way for instrumentalists to measure their steps towards advanced performance, given, as outlined below, some revisions that now include matters of judgment, the continued influence of their syllabuses and the formalised assessment processes, especially that concerning aural, has been questioned. Indeed, as Hallam (2013b) asserts, the examination process is said also to 'influence the amount of practice undertaken and what is practised' (p. 127). Indeed, the preparation of aural tests within the system of graded instrumental examinations in Britain has evolved as the chief method of developing skills in mental processing of music for many years. Although the aural testing in the graded examinations has largely remained constant

in its format and content, some revision has taken place, as Pratt (1998) reminds us, so that less emphasis is placed on memory and more ‘requiring a level of judgement’ (p. 3). Since students – and the higher education institutions – rely heavily on the results of these examinations, research is needed to establish, given the social and musical changes that have occurred over the last fifty years, whether the assessment in this way is appropriate. The entire process of assessment, however, is a major topic outside the scope of this project and remains a further substantial area of future study and separate research.

At Grade 5, the aural tests for ABRSM (2015) piano examinations now, as revised, require the candidate to refer to features in a short piece, including its time-signature as well as to recall as before the pitch and rhythm of a melody, and to sight-sing a short passage. The Trinity examinations at the same level are similar in content and include the recognition of a cadence and an interval but omit the requirement to sight-sing (until Grade 6). In the Trinity practical examinations, aural tests up to and including Grade 5 act as one of two options as separate from sight-reading, improvisation and musical knowledge. While Trinity expresses its support for the aural testing as part of a candidate’s development of ability in the field of musical perception ‘by assessing their responses to carefully graded questions’ (Trinity College London, 2014, p. 16), ABRSM (2015) expresses its reasons for inclusion more explicitly emphasising the importance of listening which ‘lies at the heart of all good music-making; developing aural awareness is fundamental to musical training because having a “musical ear” impacts upon all aspects of musicianship’ (p. 22). Likewise, listening tests form part of GCSE and A-level curricula in that the music syllabuses of examining boards require candidates to recognise compositional and expressive musical features in extracts of musical works, such as cadences, rhythmic patterns, tonal, dynamic and textural characteristics (see AQA, 2014) and designed to assess, from their listening, candidates’ ability to understand ‘how composers have used the elements of music’ (AQA, 2012, p. 7). The listening and appraising component at A-level involves similar features but at a higher level as demonstrated by the OCR (2014) music examination. The emphasis on listening continues to be clearly evident in the proposed redevelopment of the examination for 2017, where

the objective of the component is stated to ‘analyse and evaluate music in aural and written form, using knowledge and understanding of musical elements, musical contexts and musical language to make critical judgements’ (OCR, 2015).

Aural training until recently has been dictated by this traditional perspective but with the recognition that the gradual effect of the growth of non-classical practice has questioned the efficiency of existing methods of training (and assessment). As Stakelum and Baker (2013) remind us, the importance of this type of perception testing ‘has clearly declined with a shift towards a vision of music education that is fully inclusive’ (p. 138). It is with the many strands identified above of influence on music education and methods of training that aural in higher education must be perceived and to take into account the many alternative prior experiences of undergraduates before entry to university. It is with this in mind that the following section specifically focuses on the place of aural in higher education and activities of training, exploring the influence of alternative approaches to aural training within the music degree curriculum such as the integration of aural within other musical studies and informal learning.

2.5 AURAL IN HIGHER EDUCATION

Although British music education in general at each level has normally referred to areas of aural skills in terms of syllabus and examinations, as stated previously, use of the word ‘aural’ itself does not appear often in publications. The benchmark statements published by the Quality Assurance Agency for Higher Education, (QAA, 2008) which provides guidelines for higher education in Britain, refer to a number of expected abilities by music graduates on completion of their degree. Three main areas are identified: Knowledge and understanding (intellectual skills), Practical skills and musicianship, and Generic and graduate skills. Many aspects of musical ability are included within the document as a whole but it is in the middle group that those criteria which most directly fall within aural skills that are identified. Both the

‘threshold’ criteria representing the minimum level of musical ability and the ‘typical’ (expected) level for graduates entail those elements of music that have come to be understood as closest to aural skills. While references are made to personal expression, communication, creativity, memorisation, performance, improvisation, reading skills, these are separate from the attribute of aural-based competencies which state that a graduate should be able to:

‘demonstrate the ability to recognise and identify by ear essential components of a musical language such as intervals, rhythms, modes, metres, and sonorities (timbre, texture, instrumentation, etc) and to notate them where appropriate.’ (p. 26)

The single reference to ‘aural’ is in another area in which the threshold for a graduate is to:

‘demonstrate the ability to recognise (analyse) musical organisation, whether aurally or by studying a written score’ (ibid.).

This approach to the breakdown of musical ability indicates the understanding of aural as a standalone element within a continuum of musical skills from the perspective of training and education but the statement does provide a clear expression of what skills are believed to represent the practice of music including the significance of inner thinking. The criteria match closely with recognised processes of musical training.⁶

The process of utilising the facility of the ‘inner ear’ within the wide range of activities that form a higher education programme of study in music has been traditionally regarded as an essential element of musicianship and thus in gaining a degree in music. Indeed, the fundamental relationship between general aural ability and the

⁶ Since publication, general revised statements have been issued (the most recent in January 2015), that align with the Standards and Guidelines for Quality Assurance in the European Higher Education Area but these do not affect the detailed references given above.

acquisition of musical skills (Karpinski 2000a) has led to the claim that the ability has consistently informed and underpinned study at degree level in composition, performance and the critical appraisal of music, including listening and analysis, and the value of the 'inner ear' in all these activities, including especially improvisation and playing by ear, underlie all aspects of musicianship. This wider application of aural that includes playing without notation, therefore, is not disputed, as attested by *McPherson and Gabrielsson (2002)* in their reference to the 'importance of ear-playing to enhance overall musical growth' (p. 109). Whether such activities can be assimilated into the university degree programme is questionable although the level of prior experience of students on entry is clearly of relevance. A further related matter is the extent to which the training of aural skills should be included within the programme, additional to those already achieved or as a means of developing them to a standard level, whatever that might entail, although the specific aspect of training and learning is an entirely separate subject and scrutiny of the various systems of improving aural skills and methods of approach is not a central focus of this thesis.

University music undergraduates come from a variety of backgrounds, having undergone previously in their musical development a wide range of training and practice styles and, having in mind the various combinations of background mentioned above on arrival at university, their studies at higher education level are likely to be based on not just their musical performance and knowledge but reflect in some measure the extent of their aural skills. Their previous experiences will also inform their approach to study and reflect their perspective on course content and include the opportunity for improvement in aural if desired as an element of that study. Their opinions about the importance of aural of course influence the emphasis that they believe should be allocated to it in the degree programme and it is the extent of these views about their understanding of aural and the place of aural in musicianship and in their studies that is represented by the data collected in Studies 1 and 2 as part of this thesis.

The main motivation of an individual who enters university as an undergraduate music student follows from a major preoccupation with and an interest in music, from whatever angle or experience. It is not always the case, however, that students are clear about what to expect from the degree programme, nor, indeed, in the context of this thesis, the extent to which their musical and aural training is appropriate for their studies. On leaving school or having returned to education as a 'mature' student, the new undergraduate on entry to higher education often does not necessarily have a specific ultimate goal of employment in mind, whether as musicologist, performer, composer, critic, composer, or teacher, although possibly part of the purpose of a music degree programme is one of individual development for such professional areas. Whether or not the individual skills dictate or direct potential musicians into specific careers is another issue. As Bennett (2008) states, the success of a musician is measured in terms of the 'variety of different roles that satisfy both personal and professional needs' (p. 5), confirming that It is likely that most music graduates go on to develop careers in teaching and performing (p. 78). It could be added that the confidence in those skills which have been accomplished, such as those associated with aural ability, would feasibly underpin their success in these roles.

Traditional teaching, including that at higher education level, has increasingly focused on technical improvement as the chief objective on account of the past increased emphasis on the assessment of measurable increments of determined musical criteria. In conjunction with the changes in educational teaching and social trends mentioned above, the teaching at university has increasingly in turn concentrated on elements that can be objectively examined, either in written form or practical demonstration, rather than referring to the assessment of the inner processing of musical ability through aural examinations. Thus, as Welch and Ockelford (2010) acknowledge, the focus in recent decades has been on 'an "outcomes-based" curriculum design' (p. 45), while the process of musical development, or what the authors describe as the 'pedagogical "process" (has become) subsumed into specified learning goals' (ibid). University programmes normally leading to examination have always had a final goal orientation – the degree – and probably the modular approach

has enhanced this approach to some extent, but the difficulties in the assessment of aural skills within this framework may have contributed towards the decline in their inclusion by their very nature of the need for practical demonstration.

Pitts' (2004) research into the cases of students commencing their music degree programme, in which she records a typical profile of a music undergraduate, leads her to report the 'need for closer links between schools and universities' (p. 223). She does not, however, make reference to the part aural training plays in a degree programme. With the many changes in external examinations, including music A-level syllabuses, over the past quarter-century, the traditional levels of attainment on leaving school have increasingly been incompatible with the existing higher education music curriculum. Attitudes towards study and the different approaches to academic work at university compared to those at the secondary education stage form a substantial portion of the text and one of Pitts' early points is that often music students are already seen in their earlier life as experts in their subject due to the fact that few pupils at school proceed to A-level music and their abilities, particularly if manifested in performance of any kind, even if not exceptional, are viewed as notable.

On arrival at university, their musicianship, including aural skills though no longer explicitly demonstrated, is ranked alongside that of the many others in that year-group. Pitts (2004) provides an account of the data arising from interviews with final-year A-level students and first-year undergraduates whose reflections are sought about how they perceived themselves as musicians and how their thinking affected their expectations of their university study. Students in the survey (11 from a Derbyshire school, 9 from Sheffield University) confirmed their enthusiasm for music which was 'a busy and rewarding part of their lives' and each had reached 'a high standard' on one or more instruments (Grade 6 to 8 in the case of the school pupils, and Grade 8 or above in the undergraduate group) upon university, indicating therefore a proficiency in both theory and aural, according to the standards required to pass examinations at this level.

As stated above, the constitution of aural within musicianship is a central focus of this thesis and it is significant that, as Pitts (2005a) reports separately, that students perceived the term 'musician' to be value-laden and were 'tentative about their own right to claim such a title' (p. 13). What, I wonder, are the reasons for their holding back, given the specialist context of their studies? Perhaps, as Pitts suggests, the strength of the distinction between professional and amateur status enhanced by the tendency of the western social tradition to 'privilege expertise and employability over engagement and enthusiasm' (ibid.) is at the root of this approach, the possible corollary being the reaction against the disciplined practice, or 'deliberate practice' as termed by Ericsson et al. (1993), that is needed in the preparation of musicianship especially for those to whom the process does not come easily. Possibly, as a higher level of competence is reached, the level of self-concept strengthens as with the conservatoire students in the study by Long (2013).

Pitts (2004) also makes a valuable observation about the influence of objective evaluation of course content and the problem of not providing a sufficiently broad vision of music in education in both secondary and higher education. The area of establishing what is accepted as a standard of music in universities is one where little existing literature seems currently to exist, and some further investigation of this is necessary to place this present study in context. Solis and Nettl (2009) see one of the problems as 'the force of the canon' – the 'imaginary museum' as Cook (1990b) calls it – and the traditional orientation of 'efforts towards the study of musical works' (p. 9) that has dictated and been the focus of the content of music degree programmes, a matter that should be questioned (McPherson et al., 2012). Rodrigues et al. (2009) also criticise the undue focus given generally in music teaching to technical improvement at the expense of constructive 'artistic confidence' and recommend that 'the teacher's job is to engage the student in a 'creative reading of the musical score' (p. 597). The extent to which a music degree programme should reflect an evolving world outside is the essence of Barnett and Coate's (2005) point about the curriculum mentioned above and that the pursuit of knowledge and skills without relevance to how students will activate that information and aptitude in their lives after university is an outdated principle.

Triantafyllaki and Anagnostopoulou (2013) consider the context of undergraduate music students' experiences rather differently in terms of their potential role in community settings since 'universities are well placed to connect with local communities' (p. 65). In some instances, specific modules designed to develop student activities outside the institution have arisen, one benefit being the opportunity for aspiring teachers to engage with young people in music-making activities, gaining experience in the process of leadership and collaborative work as well as practical musicianship, another being the 'openness towards diversity' (p.78), an important advantage in the current socio-economic circumstances.

Reference has already been made in the previous chapter to a more integrated approach to understanding aural and there is some indication that this may be reflected in music teaching at higher education level whereby aural training can be absorbed within the work contained within other activities, such as analysis and performance (see Butler, 1997), as reported below. It could be argued that the development of aural skills provides the very foundations of a rounded musician and that all practical activities, whether analytical, historical, or practical, for example, are necessary in the study of music.

Indeed, for Ilomäki (2012), the focus in training has moved from isolated technical tasks towards the analysis of authentic musical examples, the aim being to develop the skills of discriminative listening as a means of combining the visual recognition of written sound with the analytical processing of musical elements (in line with the approach taken at GCSE and A-level). The role of a student conductor equally depends on listening and the vital application of mental skills: his 'primary musical instrument is his own mind' (p. 1) (Prausnitz, 1983). The same could be said about the position of the student composer: Kinarskaya (2009) expresses it the other way around in that the 'ear of the composer is motivated by the very roots of musicality' (p. 196) and confirms the importance of the musical ear in communicability which 'seemingly continues the sensitivity of his aural perception as a whole' (ibid.). The Schenkerian analyst must similarly call upon his 'inner ear' to produce and read

structural graphs, and, as Karpinski (2000a) reminds us, to ‘auralise’ the music symbols represented. It is surprising therefore that so little mention is made in the literature of the central place of aural skills in music study particularly at higher education level and that even with a book with such words as music study in the title (Harper-Scott and Samson, 2008) and which purports to provide ‘an introduction to the principal areas of study’ that no reference to the subject of aural is included in the main contents or index.

That aural training should not be separate has received a growing level of support in recent years (see Pratt, 1998; Bergby (2007); Campbell, 2009; Hallam, 2013b), and it is the benefit of its integration alongside other musical learning in the music degree programme that might be relevant to this project. As mentioned previously, *Ilomäki* (2012) is of no doubt that aural skills are best learned and developed as a guided process alongside performance and practice rather than as an isolated activity: ‘The integration of aural skills learning with performing can be supported by educational theories that maintain that human thinking, perception and intellectual skills develop in constant interaction with the environment and through the internalisation of cultural resources’ (p. 1).

Karpinski (2000a) agrees that it is important ‘to contextualise the materials used in aural skills training as much as possible’ (p. 179). That is all very well if the skills in question do advance consequently as a result of the individual’s musical activity, although as McPherson et al. (2012) have found this does not necessarily take place without an attentive teacher being proactive in fostering a student’s eagerness to improve and devotion to study and that it is vital that ‘circumstances, encounters and opportunities shape and mould interest and engagement’ (p. 91).

Green (2002) considers the more tangible practical elements of musicianship and puts forward the principle of encouraging learning of music outside the traditional framework. She distinguishes from the outset the process of music-making from music listening, especially, despite an ongoing social divide, the growing overlap between classical music and other strains (jazz, pop, folk, blues, etc), and, what is

relevant to this research, the issue of formal (music) education and informal learning processes. In addition to the commercialisation of (mostly non-classical) music over the past three decades, she also refers to the development of activities in British state education and outside school time, plus the rise of graded examinations in jazz and rock, that have radically altered the balance between traditional and contemporary perspectives of music across the country and beyond, in turn affecting the content of higher education music study.

Green's reference to the dichotomy between the way popular musicians have learned their musical skills and traditional methods of teaching has an increasing bearing on the curriculum of a music degree. Whereas popular musicians have learned to play or sing through pleasurable activities, with less attention paid to the discipline of individual rehearsal and reading notation, their 'learning practices rely upon and therefore improve their aural skills' (p. 121). When students reach higher education there is often some difficulty of matching skills with what traditionally had been expected of a musician in terms of notational competence and in the considerable experience of performing, especially classical music. Reference is also made by Green to the danger of what is sometimes described as the 'dumbing down' of musical quality (see p. 200) and to others' opinions (in the classical music world) of the 'downright crudeness' (ibid.) of some of the music produced and played which will 'lead to the degradation of the ability to tell good from bad' (ibid.). Green concludes, however, on a more optimistic note, that with a greater proportion of the population experiencing music, many closely involved in a practical way, these more informal methods of gaining musical pleasure and which 'heighten enjoyment of music-making' (p. 215) (see also Blood and Zatorre, 2001) provide some balance away from the formal music education which has 'recognised and rewarded only certain aspects of musical ability so that only a minority appear to have ability' (p. 210).

Conversely, learning may well take place informally without being set out as a deliberate intention with the incentive to rehearse, for example, arising from shared interests. The creative spirit is an enervating incentive and the enabling through careful planning of a degree programme that takes account of students' passions and

interests is likely to be for them a more satisfying experience than the formality of lectures and presentations about historical facts and events that can be obtained from the vast sources of information that are now freely available. Somehow, though, it might be the case that the pursuit of the highest artistic endeavour for its own purposeful human achievement has been lost along the way.

Baker (2013), reporting on his *Ear Playing Project* that arose from the *Musical Futures* initiative, refers favourably to the positive approach of incorporating informal methods into musical training and notes the enhancement of aural skills by the students involved whose musical development activities were based on their use of popular music. He nevertheless states his concern about the educationally exclusive 'one-approach-fits-all' vision in music pedagogy of the intense focus on notation which was not applicable to these students. Kinarskaya (2009) agrees that society as a whole, in retaining a conservative concept about musical ability, 'puts too much weight on the accuracy of pitch perception and musical memory' (p. 74). Only a few aural skills teaching schemes include what is useful, for example, for conductors, solo coaches and choral directors, that of error detection and correction, and Karpinski (2000a) cites the findings of Pembroke and Riggins (1990) that in the context of USA instruction this is the 'least practiced activity in aural skills classes' (p. 130). He alternatively considers the situation from a different angle, criticising current methods: 'so much aural skills training is focused solely on rhythm and pitch that it seems to stand across a wide abyss from the actual world of musical performance' (p. 187). Lehmann, Sloboda and Woody (2007) consider the matter from the opposite perspective, and although this refers back to the point made above concerning the emphasis given to playing from music, they concur and comment freely by giving direct examples from their research on the varying levels of ability among music students to transfer musical thought to notation: 'Suffice it to say that the notations were rather deficient' (p. 110). Paradoxically, the emphasis on reading notation does not result in the ability of many to develop their 'inner ear', and I believe it is because the emphasis is placed on notation at the expense of an understanding of the sound that leads to the problem in aural development.

As stated above, Karpinski (2000a) emphasises the fundamentally important aural skill of tonic inference, but there are few places (in aural training) where it is mentioned, or even developed (p. 92), a point which I share with the author. He maintains nevertheless that while notation is ‘an important tool, it is frequently inadequate in determining perceptual and cognitive problems’ (p. 62). Karpinski goes further to state that ‘An eventual goal in aural skills training is to develop listeners to *shadow* the music they hear: that is, they should eventually be able to hear, understand and visualise notation for music as it sounds in real time’ (p. 89).

This experience of listening is taken further by Levinson’s (1997) theory of ‘concatenation’ (p. 36) that could again have relevance as an off-shoot for aural training in higher education since it is his belief that ‘a listener who follows a piece comprehendingly is typically disposed to inwardly parallel the music as he listens’ (p. 24). Indeed, musicians commonly follow music in the mind notationally as well – even, as mentioned above, to the point that it is considered as one of the achievements and marks of musicianship – thereby confirming the importance that notation holds in the development of the ‘inner ear’. This is of course a further laudable objective though one amongst others and not at the exclusion of other advantages such as the facility to identify performance errors in a choir or orchestra, even in the use of non-traditional notation, for example, or the recognition of advanced harmonic structures.

Alternatively, Kinarskaya (2009) maintains, as part of the process of aural training, that reading notation does not necessarily inculcate a sense of rhythm (see also Teplov, 1947), but that in performance an effective internal ‘clock’ is important (Povel and Essens, 1985), a fact gleaned from performances by student musicians who have achieved good technical competence but in which the perception of metre is clearly absent or lacking. This is a further but separate element in aural skills, described by Kinarskaya (op. cit.) as ‘deeply subconscious and reflexive’ (p. 86), that requires specific practice but which insufficient emphasis is frequently omitted in early pedagogy. Further research in its development in young musicians is needed, for without effective metrical perception, performance remains loose and uncontrolled.

Ironically, however, when a melody is remembered, Kinarskaya interestingly finds that children 'first recall its rhythm' (p. 87), further underlining the logic of commencing aural training with listening to music and feeling the rhythmical sequence of the sounds before introducing notation.

The approach to aural training in higher music education has thus gradually changed over the past several decades: no longer is it universally accepted that teaching should be primarily based on existing traditions and inculcated to student musicians and that, in the context of aural ability, these are the main standards and criteria by which to measure musical success. Music is a dynamic entity – not just in the sense of being a temporal art – but that training must reflect movements in attitude that have moved on from earlier fashions in, say, performance and composition, as well as social interests and participation. That aural skills are often left to develop without specific or specialised training is, as already stated, perhaps due to the fact that traditional teaching has emphasised the importance of performing music from notation – other than for top-level concert situations in which memorisation is of paramount importance – and has brought about the limited practical roundedness of some instrumental players, particularly insofar as it may lead to a circumscribed advancement to later professional musicianship.

The circumstances as experienced first-hand at the University of Hull support this observation and it was with this situation in mind that partly prompted Study 2 to investigate the opinions of current music students. Indeed, all the factors discussed above have affected the approach to the music curricula in higher education and emphasise the potential for alternative methods of training and learning at this level. Indeed, the approach to aural training at the University of Hull was similar to the methods described above until 2006. The exercises within aural classes were as traditionally based on dictation from repeated listening to a set passage with the outcome that a sort of trial-and-error situation would occur where students would by way of a number of attempts achieve an accurate rendition on paper of the passage played or as close to the original as possible. The task was highly linked to notation and aimed to reconcile the sound heard with the written symbol, a

technique that had been in use for decades. The point made above by Karpinski (2000a) regarding the relationship between inaccuracy in dictation and poor sight-singing skills is particularly apposite and the significance of the link between the two led in part to challenging experiences in dictation tasks within aural examinations by some students.

As an instructor in aural at this institution, an attempt to address this situation was undertaken during later aural training classes (2007-9) through simple singing exercises read from notation, a method picking up from the notion of the importance of relating sound with the symbol mentioned earlier, and the value of tonic inference. The system, however, was received by the students with some reluctance as few were experienced in singing and the activity was generally disliked. Unfortunately, the process had been commenced too late in the musical development of many students for the advantages to be other than small. Listening with scores had been one of the components of the aural class training for many years using a published selection of extracts from major works and these also formed part of the aural examination. It was uncertain as to how much students' mental processing of the music was built on the already formed sound images of music and could relate to the written score of music with which they were already familiar.

Having been a system carried over from many years before, the format of specific aural classes had remained largely constant, consisting of playing exercises based on recognition of intervals, dictation of melody and a four-part passage, and error detection. The method was based on the premise of learning from guided experience and discrimination by repetition, the system of trial-and-error mentioned above, rather than always through positive direction, given that it was unworkable to more than briefly advise each of the dozen or so members of the class.

With the rise in the proportion of non-classically trained music students at the institution and evidence of alternative styles of music learning prior to university, greater difficulties were experienced by some students in notation-based tasks and the consequent consternation caused by the dissimilarities and imbalance in

experience and ability led to discontinuation of both the classes and written aural examinations. The adoption of the interactive aural training program, *MacGamut*, (initially a mandatory requirement), provided an alternative means to students of attending to their aural development, but aural was no longer an examinable skill. Other software has also since been made available to students (see Berriman, 2011) although an analysis about its effectiveness has not yet been undertaken.

Also, in line with other institutions in the UK, aural teaching at the University of Hull has now become more fully integrated into other areas of study in the music degree programme, effectively absorbed within core modules at level 4 (first year). Students are required to engage the ear critically to understand how melody, harmony, counterpoint and rhythm function, but are not trained to respond to specific tasks such as interval recognition and dictation as undertaken previously. Aural is thus used to inform theoretical activities rather than exposed as an activity of itself, although no evidence is yet available as to whether any change in the level of development in aural ability has occurred, or indeed, whether there needs to be.

In discussing the background to aural development in higher education and the circumstances of the music degree programme at one British university, the focus of the thesis is brought to the central issue: to investigate the extent to which there might be a connection between aural ability and success on a music degree programme, and, moreover, to explore current university students' views on both the topic of aural and its relationship to degree success. The empirical studies that follow in Chapters 4 and 5 investigate these issues fully.

2.6 SUMMARY

This chapter has explored the broader socio-cultural context of British music education and the place of aural within it, including at higher education level. The presence of music across an enlarged orbit of circumstances has in the last half-

century greatly broadened its boundaries to encompass a multitude of styles and access by a much wider spectrum of the public than ever before, despite, however, remaining for many largely an untrained activity. Notwithstanding the extensive pleasure brought to many by musical experience, technical skills and knowledge prevail in a relatively small proportion of the population although participation in singing and listening to music has produced a relatively unrealised ability of many people in their encounters with music that penetrates many aspects of modern life. As stated, the social context of music is a vital element in its existence although aural skills specifically have varied widely given their uncertain place in general music education and their acquisition reflecting a tendency towards marginalisation in educational contexts.

This reflection of changing attitudes and fashions in music further underlines the gradual change in the background to musical study. What is important is that to retain freshness and acceptance ‘music educators need to understand the context within which we are living and working from a sociological perspective’ (Wright, R., 2012) to enable music learning styles to reflect the dynamic nature of society. The situation is compounded by the wide range of musical genres in which the population at large is immersed, mostly by listening only, and as stated above, for the moods and emotions evoked by all styles of music to be enjoyed, a person needs only a modicum of aural ability.

The importance of both personal and environmental influences has exposed the nature–nurture issue and its significance especially in the context of musical ability. Whereas Kinarskaya (2009), in her exploration of the place of talent in music, reminds us that ‘no scientific evidence has yet cancelled the inborn nature of talent’ (p. 22), Hallam (2014) presents the case with lucidity by suggesting that ‘whatever genetic inheritance an individual may have is enhanced by a musically enriched environment’ (p. 13). It is thus the combination of inherited characteristics with environmental opportunities presented by parents and teachers, together with the opportunities and desire for training and development of skills from an early age, that form the

basis of an enthusiasm and affection for musical experience. Indeed, as shown above, the importance of singing has been raised as a significant influence in this respect.

However, as previously stated, there has been a level of stubbornness in the way that the actual relationship between specific aural skills and their practical role in musical development continues to prevent a clear definition and explanation being presented. Assumptions about the relevance and application of aural skills have remained on the margin in the literature, perhaps because of the deeply personal nature and the near indefinability of the constitution of aural skills. Moreover, a number of short-comings have been identified in aural training at the higher education level and until recently its process had become increasingly isolated and unstructured. In this light, it seems to be given low priority with little time specifically spent on it, much being left to 'natural' development. In the context of modular structures within the curriculum, aural has possibly been 'crowded out' by the many other absorbing pursuits of the music degree programme, not least the importance of technology and the growing tendency, as described above, to provide some preparation for career. By becoming a laborious chore for some with limited success, the dedicated aural learning process has come to be disliked and perceived as difficult and the problem has been exacerbated by the concentration on easily assessable musical elements.

The extent to which the aural skills of students are adequate and appropriate for the level of work encountered in the music degree programme stimulated the creation of this thesis. The fact that in the case of some students, for example, the ability to notate music from listening or from the 'inner ear' was not assured, the aim arose to investigate the summative results of students' aural tests and their final examination scores led to the two empirical studies (see Chapters 4 and 5). From this followed, as stated in the Introduction, the perceived possibility of a relationship between the development of aural skills and success within a music degree is thus to be scrutinized.

The research and studies in musical development referred to in this review nevertheless indicate clearly that there is considerable breadth in the contexts in which aural ability features and that detailed research and investigation is ongoing across many aspects of musicianship, both in interdisciplinary terms and in separate subject areas. The processes and skills involved in the progress of musical development from early stages of musical experience to professional performance have captured the interest of researchers from many perspectives with some studies touching on the issue of aural ability, though far fewer on aural skills themselves, clearly of importance to this thesis.

Many references nonetheless demonstrate that aural ability and associated skills lie at the heart of musical practice at every level and that without their perseverance from early stages to a level of proficiency, the pursuit of music to the point of expertise would not be possible. The fundamental place of aural skills within a continuum of musical development underpins the two empirical studies undertaken as part of this thesis, the methodology and accounts of which are described in the chapters that follow, along with further debate about the issues which have been raised in the review of literature and which arise from the data collected.

CHAPTER 3

Methodological Issues:

The Two Empirical Studies

3.1 PREAMBLE

Details about the background to this thesis were given in the main Introduction together with an explanation of its aims and objectives. Following extensive review of the literature on aural in Chapter 1, whereby an overarching framework was used to conceptualise discussion on perspectives on aural in practice and aural as process, it was reiterated that the term itself resists clear definition. Moreover, within the changing landscape of British music education as described in Chapter 2, specifically pertaining to higher education, it emerged that it is an appropriate point to explore university students' views on aural and its relationship to degree success. Two research questions were established:

1. Is there a correlation between the aural ability of university music students and their degree success?
2. What are the views of current university music students about their understanding of aural, its importance in a music degree programme and its relationship to degree success?

This chapter concentrates on methodological issues concerning two empirical studies that were carried out to collect data as part of a case study to underpin the thesis. It will describe the organisation of the different approaches that set out to address the research questions and provide an explanation of their designs.

These two research questions, acting as a unifying thread throughout the thesis, form equally the central focus of the two studies which aim to establish the place of aural in the context of the music degree programme and current students' views about their relevance and importance. The breadth of the thesis and the nature of the two research questions necessitated a separate approach to the data collection for each study and the paths entailed the collection of first quantitative and then qualitative data using a mixed methods approach. This chapter discusses the reasons for adopting the specific methodology to gather the data and includes a review of the overall appropriateness of the design of the two studies.

3.2 RESEARCH METHODOLOGY

There are a number of views about how research should be conducted and a variety of terms that describe the process and it is important to first discuss the interpretative framework in which this study has been conducted. The twofold nature of the empirical studies has given rise to a mixed research paradigm that adopts characteristics of several perspectives given the varied nature of their strategies and fields of enquiry. While opinions vary as to the definition and precise functions of research paradigms, two main philosophical concepts exist as the chief systems of dealing with research methodology, namely positivism and anti- or post-positivism (see Rossman and Rallis, 2012; Dill and Romiszowski, 1997), the latter otherwise known as constructivism or naturalistic inquiry. Positivism is associated with independent and objective quantitative research in contrast to that of the second type which concerns an observational and subjective qualitative approach.

The attempt to analyse human behaviour through social science research to understand the interactive processes of society and gain knowledge from the experience of the senses, for example, has been established as a significant element of scientific study since the nineteenth century when the French philosopher Comte, the founder of sociology, wrote on the theories of humanism and the tenet of what he termed positivism (see Lenzer, 1998). The importance of his scientific methods was, however, contested by later theorists who believed his systematic structured view of the world did not take account of the individual realities of human beings and that knowledge is built upon variable experiences which can be interpreted: the mind is not a *tabula rasa* in which knowledge and experience represent the accumulation of definable and controlled elements of human development, more an unfolding series of communal reciprocations in which the multilayering of phenomena give rise to potential diverse and meaningful explanations. Indeed, Pinker (1997) cleverly metamorphoses the term from its meaning of 'blank slate' to 'plastic slate' (p. 74) to more precisely indicate the malleability of the brain to constantly absorb new creative thought and practice.

While the approach to this study as a whole is partly exploratory in that there is a good deal of uncertainty regarding the place of aural ability within student attainment and even across the spectrum of other musicians' opinions about the subject, the main research paradigm in this study is one where the initial standpoint is from the perspective of a practitioner within music where both quantitative and qualitative investigations reflect largely descriptive accounts.

Given the nature of the subject to be explored, its breadth as well as the independence of the two major strands governing aural skills on the one side as part of the degree programme and their perception by students on the other, it was therefore considered appropriate to acknowledge that a variety of avenues could be used to investigate the matter. Approaches such as case study research or experiments using live aural tests (rather than investigating previously achieved results) might be possible in investigating this subject but the main rationale for the decision to adopt the current approach described above is one of immediacy and directness: firstly, to access previously stored student results from past students; secondly, to interact with current students.

The use of an action–research project involving music students was considered an alternative strategy especially as the students themselves could provide joint assistance in reaching conclusions about the most effective forms of their own training. As a cyclic process that investigates through, for example, planning, acting, observing and reflecting, the term is said to have been first used by Lewin (1946) and adopted in social sciences and health analysis (see Reason and Bradbury; Meyer, 2000) and classroom practice (see Ilomäki (2011); Koshy, 2010; Kolk (n.d.) (accessed 08/09/2014)). The main feature of an action–research method, as O'Brien (2001) states, is that in addition to the study of a system, a dual commitment is an integral part of the process that requires 'collaboration of researcher and client in changing [the system] in what is regarded as a desirable direction' (p. 1).

In view of the retrospective nature of using data from past students, the action–research method was felt to be unworkable and therefore inappropriate. The difficulty of gathering students for aural testing when it was not a formal requirement of their

degree programme, irrespective of the problem of their availability in sufficient numbers to enable validity of data, discounted this approach, especially as the research process could not of itself effect any change in the provision of training. However, to consolidate the quantitative data of Study 1, a further project, Study 2, was organised in the form of a set of focus groups with current student musicians to ascertain their views about the place and application of aural and aural ability according to their collective experience. Information was needed that help, as Krueger and Casey (2000) confirm, to 'shed light on quantitative data already collected' (p. 24). Although a mixed methods approach is in fact sometimes seen as a separate third system in its own right (Bryman, 2008), as opposed to the single approaches using just quantitative or qualitative data, it has become popular as a means of taking advantage of both approaches despite the risk of omitting details through under-explanation and insufficiency in justification. Information about this combined approach for the two separate studies is therefore provided in some detail.

It became clear that while the numerical character of Study 1 in which the students' results led logically to the choice of a quantitative approach, such a path for Study 2 using focus groups might also iterate (rather than complement, given the observation made below) the qualitative-based nature of the students' general comments that aimed to obtain evidence about views on aural and aural ability.

Taking these issues into account in the decision to opt for a combination of methods to investigate the above research questions, this range of methods met the requirements of the hypothesis well in its own binary attributes and it should be confirmed that the two studies developed from early deliberations on the role of aural in the undergraduate degree programme as well as the need to establish the *raison d'être* of aural skills as part of musicianship and the inclusion of their training in music studies at higher education.

Tashakkori and Teddlie (2008), bring together from several sources many positive reasons for using a mixed methods approach and form a collection of seven possible objectives, namely 'complementarity, completeness, developmental, expansion,

corroboration/confirmation, compensation, diversity' (p. 103). However, they question the validity of selecting a mixed methods approach for the purpose of providing mutual corroboration and confirmation or for completeness of evidence and that, if selected for the former reason, as in the case of this thesis, the method's purpose should be known from the start. Indeed, all these reasons could be claimed as being at least partly if not fully met by the outcome of the methods employed in both studies in this thesis.

Indeed, it was considered that a collective advantage of the approach would be the interlinking similarity between the two studies and, in addition to some complementarity and reinforcement, the facility, for example, to refer to the commonality of the results of the interviews with students in conjunction with the data of Study 1 would provide extra weight to many of the interpretations made in the thesis. In the event, this triangulation process was less effective with the quantitative data of the students' results but it did enable occasional connections to be made by means of contextual relevance between the correlation tests and the coded responses. Hammersley (2008) outlines the value of triangulation but points out the dangers of adopting it if it is for the purpose of checking the validity of an interpretation of data. Whether the term is appropriately transferred to social science research is another issue especially in view of its seemingly diluted application in such a project as this. In other words, the approach is used more to check results than to produce them as in surveying and navigation. A further relevant point is made that there is a fundamental assumption being made below the surface of such an approach that 'there is one reality and that this is knowable' (p. 30), a situation relating to aural that is very far from the truth.

The multi-layered approach nevertheless permitted a balance of evidence across the data collected and the mixture of the qualitative and quantitative paradigms offered a framework that enabled a structured clarification and organisation of the data. A mixed methods approach, while retaining some uncertainty about what constitutes good practice and correctness in principles of interpretation, does allow for some freshness in its creativity and a lower level of prescriptiveness in design.

A further problem outlined by Bryman (2008) is for him the lack of agreement in the use of language to explain a mixed methods approach despite its adoption in research over a period of 20 years or more, similar to Hammersley's (2008) questioning of the appropriateness (as in this case) of using quantitative data reporting procedures for qualitative studies. Indeed, the combination of both quantitative and qualitative approaches has made for some complexities in explaining both the data collection and the discussion of results while at the same time ensuring that some consistency remains in the approach to the two studies and appropriate evidence is produced. Greene, Caracelli and Graham (1989) and Hammond (2005) both find in their research about mixed methods that combining quantitative and qualitative approaches does give rise to greater range of outcomes than anticipated although Bryman (2008) believes that this is largely due to the unpredictability of the outcomes using such an approach and in his own study of researchers found they had little awareness of exemplarity in mixed method schemes (p. 98).

The achievement of a balance is both useful and important in that a quantitative paradigm enables an objectivity in the data that is less possible in qualitative inferences and although the data is replicable and has, as Blaxter, Hughes and Tight (2007) maintain in an adaptation (p. 66) of Oakley (1999), 'a stable reality', this is counteracted by the interposing of the researcher and the potential corruption of that very objectivity that describes quantitative assessment. Conversely, the qualitative paradigm opens up a wider range of interpretation despite the potential subjectivity that is characteristic of such an approach and while the orientation towards a process-based activity involving thematic analysis, for example, may give rise to the potential contamination of data and views can also be affected by the experiences of the data analyst, a broader spectrum of behaviour and experience can nevertheless be observed.

However, as Bergman (2008) asserts, the need no longer arises for researchers to claim that 'it is impossible to separate researchers' focus from that which is researched' (p. 18): that this is an accepted element of research methodology. Of course, both sets of paradigm can overlap with the other and it is partly with this aspect in mind that the

mixture of methods of both the fieldwork of the qualitative approach as well as the deskwork coordination of the quantitative method was selected to address the aims of this thesis. Conversely, Bergman goes on to state that ‘mixed methods research cannot claim to bridge the unbridgeable gap between positivism and constructivism’ and is comparable to a concern expressed by Hammersley (2008) that the very notion of mixed methods research preserves the quantitative–qualitative division even while seeking to bridge it’ (p. 32). Consequently, it has been attempted in the individual studies to be as logical and authoritative as possible with all data, including those which are quantitative. This is in contrast to the constructs established to explain concepts such as the development of aural skills in musicians which rely on a rather less tightly organised set of phenomena but which are shared by many despite their continuing to remain very ill-defined.

3.3 DESIGN OF THE TWO EMPIRICAL STUDIES

Although, as stated above, the empirical studies each refer individually to specific parts of the two main elements of the thesis and maintain a close link with the central issue of aural in a university music degree programme, they remain quite separate in construction. However, some reference is made in this chapter to methodological issues that apply across both studies and these are considered in turn in this section, such as the approaches to general design, statistical matters and techniques governing interviewing. Some reference is made to the population and sampling frame and data collection but these are largely facts of procedure and are unique to each of the two studies and covered in the respective chapters.

The longitudinal-based first study concerning the examination of students’ results was considered to be the chief task in the overall collection of data since this addressed the central issue about the possible predictability of success of a music degree student. The longitudinal perspective enabled not only a comparison to be made over several years but the limitations of a snapshot of just a single year or small number of students could be avoided and the advantage gained from a greater amount of data having been collected. The second study, however, concentrated on the relevance of aural

according to the opinions of student–musicians using live focus groups, a process that represents an experience-based method. While this project involved only a small number of participants (17 students), the focus group approach allowed a more personal opportunity to explore more deeply the responses of participants and issues as provided in greater depth in the analysis of results (see Chapter 5).

Study 1 attended to the first research question concerning student achievement in the music degree programme and took essentially a single-moded quantitative approach. The method used for collecting the results was a straightforward process of extracting appropriate data from an existing source and using statistical tests to establish correlations between students' first year and final results. Data were collected across several years of undergraduate results that compared early pretests and aural examinations attained in Year 1 with final degree results and these were analysed using correlation, cross-tabulation and regression tests.

Study 2 addressed the second research question and concentrated on the more complex issue of the application of aural as viewed by the student–participants, the qualitative data, in which thematic coding enabled views to be summarised and analysed, being collected in responses to focus group discussions with music students. The choice of strategy for this project was determined by the need to establish the strength of views on aural as well as exploring the opinions of participants. No statistical tasks were involved in Study 2, and the analysis of the qualitative data was centred where possible on the convergence of opinions, but referred copiously to individual comments.

The use of focus groups as a means of ascertaining the views of students was considered the most effective given the exploratory nature of the task and the need to gain collective opinions agreed by several through discussion, rather than merely obtain a set of single views that emanated singly from individual experience. The discussion in such a format allows participants, as Roulston (2010) states, to 'make sense of topics, and the kinds of issues they see as relevant' (p. 38). Although there is a danger that participants orient their views towards what others believe, open

discussion does help to bring a collective view into focus rather than the dialogue remaining as a series of discrete individual opinions that fail to coalesce. As Krueger and Casey (2000) maintain, the purpose of the session is to obtain a 'range of ideas or feelings that people may have' (p. 24) but confirm that the purpose is not ostensibly to produce a final consensus.

Although Robson (1993) in his research is referring to users of surveys, the point applies equally to focus groups, namely of the danger of untrustworthiness in that findings may be subject to the lack of involvement by respondents 'whose answers owe more to some mixture of politeness, boredom, desire to be seen in a good light, etc. than their true feelings, beliefs or behaviour' (p. 125). Perhaps because of the personal nature of focus groups and the physical presence of both researcher and participant, this described danger is greater and the issue of trustworthiness has to be assumed to meet some level of reliability and validity of the responses. This point is raised again below (see Sections 3.8 and 3.9) and in the discussion of participants' responses in Chapter 5. The issue of confidentiality is also relevant and this is particularly important where participants know each other and talk together outside the focus group. While this can assist in breaking down initial inhibitive shyness or uncertainty within the group dynamic, there is a risk that discussion after the focus group has formally closed may continue and disclose private information.

Another aspect of focus group sessions which has to be taken into account is the degree of involvement of the leader/moderator in the subject of research and, being on the inside, so to speak, the extent to which an objectively formed perspective is achievable, and the level of what is sometimes referred to as social distance. This emic view does to some degree help to obtain trusted results from the student–musicians because of the extent of reflexivity of the moderator as researcher in his/her understanding of the circumstances and experiences of the student–musician. An etic approach would be restrictive in knowing what questions to ask as well as being less able to empathise and comprehend similar processes in life and the musical practice of, say, training and development through which the participants have moved to have accomplished the skills that are the subject of the research. The risk of leading the

discussions and drawing conclusions about the participants' backgrounds and observations about music that are influenced by one's own familiarity and reasoning, the so-called 'Hawthorne Effect' (see Parsons, 1974), is to be avoided although the main danger in this context is an unawareness that it is taking place.

Both the process of asking questions of the students and the conversation that takes place in response to the topics raised need to encourage a natural and unstressed relationship that not only demonstrates that what the participants are stating is reliable as evidence but that the interpretation and coding of the remarks has been undertaken without bias or prejudice. Clearly in such a situation as these focus groups are conducted, the aim was to obtain opinions that were unaffected by subjective attitudes and conclusions and as close to an objective assessment as possible. Though referring specifically to interviewing, Hughes (2002) provides several positive reasons why the process is an effective means of obtaining information. In focus groups as well, 'large amounts of expansive and contextual data (can) be quickly obtained' (p. 209), and the advantages of face-to-face dialogue can 'facilitate access for immediate follow-up data collection for clarification and omissions' (ibid.). Little is mentioned, however, about a matter that is probably of the greatest benefit to focus groups and interviews, namely, that of the opportunity to probe areas that provide particular interest to the researcher and the subject and which might also be of subsequent import in the later analysis.

By having a semi-structured session with a set of predetermined questions that are asked of all participants, a clearer systematic outcome about each topic raised is achievable especially when, as in the project, categories were selected in advance. Whether the fact that student–musicians were not known to the researcher is a point of interest since Kane (1990) in referring to interviewing is supportive of a personal relationship: 'the closer the interviewer is to the respondent in class, sex, age and interests, the greater chance the interviewer has of being successful' (p. 68). This close relationship does have some drawbacks in that by promoting an informal interchange of information the researcher might sometimes be guilty of speaking unduly and putting forward points rather than listening to a participant's response. The

importance of maintaining a level of neutrality, despite a probable level of agreement, is also crucial in avoiding leading comments and thereby undermining the real views of the student–musician.

Clearly, the involvement with a small number of participants, which is usually the situation due to transcription and coding time constraints, does place an undue dependence on the equally limited range of evidence collected, and the process is generally very difficult to replicate, but the personal interaction does provide an opportunity to obtain from the benefits of reading body language a realistic sense of commitment and genuineness on the part of the participant that is less possible, for instance, in a survey, especially if conducted impersonally via mail or by electronic means. Despite the pros and cons of the personal approach described above, it was believed that knowledge about the essential personal nature of the learning and development of aural could be best achieved in this way and that the relevance of the combined opinions about the importance of aural and aural ability would produce positive information.

As has been stated previously, the major purpose of the focus groups was to obtain a trend of opinion, expressed by the student participants using their own experience and perspective, rather than to formulate and establish an incontrovertible assessment of aural ability. The different year-groups met the need for a greater cross-section of student–musicians and although some of the emic and etic issues referred to in the context of the discussions were equally applicable, the method allowed them to offer views that could not be influenced unduly by researcher obtrusiveness. Despite the inevitability of a potential lack of honesty, the opportunity to capture both quantitative data in Study 1 and qualitative data in Study 2, though from a limited bank of general opinion, about the wide spectrum of aural was considered worthwhile and desirable given that the initial impetus for the thesis had emanated from a desire to establish the current view about the place of aural within the music degree programme.

The sessions allowed some explanatory comments to be made about aural and a smooth flow from personal facts to individual views with some variety in style maintained momentum for completion.

3.4 LOCATION OF THE EMPIRICAL STUDIES AND SAMPLING ISSUES

As stated above, both studies were conducted at the University of Hull, an institution founded in 1927 that gained its royal charter in 1954 allowing the award of its own degrees. From the approximately 1000 students in the mid-1950s, the total number across all disciplines now reaches over 22,000. The subject of music was initially offered during the second half of the twentieth century through a standalone department which more recently merged with drama. It is now provided as part of the School of Drama, Music and Screen within the Faculty of Arts and Social Sciences. The various music degree programmes available include BMus (all modules in music) and BA Music (where students have the option to take a free elective in another subject outside of music) as well as BA Jazz and Popular Music, BA Popular Music and BA Creative Music Technology. In addition, postgraduate programmes include one taught Masters (MMus) and several research degrees (MA, MPhil and PhD in music, composition or performance). Normally, around 15 students register on each programme at the start of each academic year. The typical admission profile of a music undergraduate is 280 to 320 points from 3 A-levels, which should include Music, or the equivalent. For the purpose of this research, the focus was on BMus students in Study 1, then BMus, BA Music and postgraduate students in Study 2.

A breakdown of the opportunity sample in the two studies is provided respectively in Chapters 4 and 5 and these can be summarised as follows:

Study 1 (Student results): 7 year-groups of BMus undergraduate students
($n = 100$)

Study 2 (Focus Groups): 4 groups of BMus undergraduate students and 1
group of postgraduate students ($n = 15^7$)

⁷ This total number of participants excludes the two involved in the pilot group.

A number of sampling strategies exist including those described as falling into groups that demonstrate probability or non-probability but in the case of each of the two studies the selection of participants was based largely on the design method adopted to most satisfactorily match the aim of each study. It was felt that the sample frames in each instance were satisfactory to gain appropriate data and covered the target population as defined in each study.

In the case of Study 1, the results of all music students were initially available for analysis from university central records. The sample field was reduced to BMus students to provide the most consistent of the various sub-groups that offered inspection to meet the first part of the hypothesis as provided in Chapter 4. It was not believed that the excluded students would unduly alter the statistical outcomes of the various tests. A similar situation applied to Study 2, where students provided a sufficient cross-section of student–musicians to obtain appropriate data. Of the undergraduate students participating all but one were following a BMus programme, (one was a BA student) and the remaining four were postgraduates. The combination of different year-groups and background enabled a variety of views to be obtained based on a range of experience and skills. Further details about the rationale concerning the selection made are given in Chapter 5.

3.5 DATA COLLECTION

The separation of the two individual studies determined that chronological order was not critical. The quantitative data collected in the first study involved the collating of student results for each year-group from a central university data-bank system, the final analysis being delayed until the results of the last student year-group were available.

The qualitative data from the second study were extracted from an analysis of five focus group sessions that were conducted over a period of three weeks in December 2014 in which student–musicians were asked questions about the importance of aural and aural ability and the place and influence they held in their own development and

studies. (A copy of the questions raised in the focus groups is provided in Appendix C). A pilot process (see Section 3.10 below) of asking the prepared questions was run in a preliminary focus group of two students, following which some minor changes were undertaken as described in Chapter 5. The data from Study 2 were transcribed and analysed as discussed below.

The procedure overall concerning data compilation and analysis of the two studies took place as follows:

- Study 1: Collection and analysis of student results (Chapter 4)
- Study 2: Collection and analysis of qualitative data from Focus Groups (Chapter 5)

3.6 DATA ANALYSIS

Details of the data analysis process for each of two studies are given respectively in the next two chapters but for Study 2 a coordinated system of thematic analysis was adopted that established data sets to reflect the epistemological areas that had been determined prior to the compilation of questions but also during the early stages of transcription of responses to deductively address the second research question, that of student–musicians’ experience and opinions about aural and aural ability. Indeed, the adoption of thematic analysis as a means of compiling evidence from the qualitative data corpus was considered the only effective strategy to deal with both the range of topics covered by the mixed data and the consequent generating of common themes within those data sets in response to the questions posed.

Thematic analysis covers a number of stages but essentially involves the labelling of recurring themes, its main benefit said to be its flexibility (see Braun and Clarke, 2006). In the context of this thesis, a number of processes of thematic coding were proposed governing aural as perceived by participants in the focus groups in terms of definition and understanding. As stated in the Introduction, having been involved in the teaching of aural skills, my own personal familiarity, both with the subject as a musician and with the data, (an aspect considered influential by Braun and Clarke, 2006), assisted in the process of coding in each study. With the diagram of aural processing, presented

in Chapter 1, having already been devised, some broad consideration about the processing of musical thought had already been made that prepared the setting up of the focus group questions and the proposed analysis. The thematic coding, however, remained a separate exercise and the diagram was used solely as an explanatory tool in the initial defining and categorising of the qualitative data.

Having encoded the important categories, noting the frequency of their appearance, and interpreting the context, a final report of the responses was moulded into a structured format. The focus group questions were formulated with themes already in mind and it was possible therefore to anticipate some of the outcomes despite some variations in emphasis offered by the diverse views expressed, as Ely, Vinz, Downing, and Anzul (1997) state: 'If themes "reside" anywhere, they reside in our heads from our thinking about our data and creating links as we understand them' (pp. 205–6).

Braun and Clarke (2006) also differentiate between the analysis of 'experience, meanings and the reality of participants' (p. 9) and what is the more constructivist approach of these conditions occurring in society. They also refer to the importance of underlying ideas that shape the 'semantic content of the data' (p. 207).

Thematic analysis is particularly useful for large data sets and its flexibility enabled alternative epistemological approaches to be formed across the varied data. On the other hand the established themes do not contextualise views according to individual students' experiences and neither do the emphases placed on certain nuances of language used by them, nor those aspects highlighted by their experience, come through fully in the final interpretation. In the circumstances of the thesis as a whole, however, this was of lesser importance.

Some aspects of grounded theory (see Strauss & Corbin, 1998) were considered when devising the questions such as the significance of assessment and education in overall training and development, and the dichotomy between memorisation and musical

literacy. While this prepares the way for a later theoretical base, the process was primarily a directed thematic analysis (see Hsieh and Shannon, 2005).⁸

Whereas the factual basis of responses eliminated the direct application of Interpretive Phenomenological Analysis (IPA), there were occasional instances within the coding and analysis of responses that entailed a subjective interpretation of participants' concepts and views in their focus on perceptions of their human experience as musicians. As Smith, Flowers and Larkin (2009) warn, 'access to experience is always dependent on what participants tell us about that experience' (p. 3) and of course the limitations that that entails. This was, however, not a central element of the focus group study although it cast a strong light on the student–musicians' approach to their own and others' learning of aural. This key ingredient of phenomenology was available in the study since participants were invited by way of many open questions to explore their own thoughts about definitions and applications of aural ability as experienced in their own lives. Whereas a partly pre-existing concept of the coding in the form of the diagram of aural processing was used to help formulate responses into appropriate categories, the analysis in both studies relied on both inductive and deductive strategies within the data where interpretations and assumptions outside as well as from within the data were created.

3.7 INSTRUMENTATION

The content of the research questions is clearly of great importance in the decisions about design strategy but also in describing the rationale for measuring the outcomes from the studies, that is, the choice of instrument. The term is generally applied in literature on research methodology to the context of scientific experiment rather than in social science research where *Materials* is a more precise designation but the principle of confirming how a study is conducted in terms of how the measurement processes function is just as essential to verify the relevance and applicability to the hypothesis of any device that purports to provide assessment of any kind. In Study 1,

⁸ Some responses of students from the focus groups, however, did develop fresh themes not initially envisaged.

the various statistical tests formed the foundation of analysis and inferences drawn from the results.

In Study 2, the focus groups were set up and structured by the researcher based on a variety of open questions that allowed participants to express their views freely, sometimes encroaching on areas outside the topic in question. A small amount of additional personal information about age-range and musical experience was also asked that was not requested verbally in the focus group sessions.

3.8 VALIDITY

The validity of the different procedures is clearly of vital importance to ensure that the design of the measures meets the requirements of the research questions and that the tests, whether quantitative or qualitative, statistical or interpretative through thematic analysis, are appropriate for the thesis as a whole and for each of the individual studies. In the case of the quantitative elements represented in Study 1 by the numerical character of student results, the correlation of early marks with degree results along with the involvement of other inferential tests are straightforward in concept. Despite in this context the specificity of one main particular body of students, those preparing for BMus, the tests examining seven sample year-groups provide the potential of at least some generalisation across all music undergraduate groups, though perhaps less so in the case of those students who have experienced informal styles of learning.

The issue of validity in research is crucial for transparency and subsequent verification especially with regard to quantitative data, and a common purpose of studies, as in the first part of this project, is to 'establish a cause-effect linkage between specific variables' (Brewer, 2000, p. 11), the independent variable of the aural examination results in this context influencing the dependent variable of the final degree result. The internal validity of the conclusion reached by the statistical tests is solid in its purpose though one has to be careful not to associate the correlation with actual causality. In qualitative research the situation is different and many factors can influence outcomes as is amply demonstrated in the development of aural skills,

whether their accomplishment is due to environmental or human impact. Some researchers (see Lincoln and Guba, 1985) do not agree that validity is an appropriate concept to apply to qualitative data and that because of the constructivist perspective outlined above, it is not appropriate to attempt to undermine the individuality of human experience by prescribing and pre-empting processes of interpretation that cannot precisely be anticipated.

It could be maintained alternatively from the open questions in the focus groups and interviews with students, though dependent on appropriate coding of responses, that these do provide sufficient common ground in their responses to make clear assumptions about a range of topics covering the relevance of aural in their musical experience and development and these also back up the statistical outcomes of the quantitative-based data. In this way external validity is achieved and a good deal of the commonality of students' responses confirm many of the generalisations made.

However, while the studies attest to some verification, insofar as the data of Study 1 exist as fully representative of the abilities of music students, in Study 2 the responses merely remain perceptual to a large degree on the part of the individuals concerned since they have not undergone any aural examinations themselves as part of the project. The validity of this mixed methods approach thus meets its requirement to sufficiently preserve the reality-base of qualitative data.

3.9 RELIABILITY

The reliability of the different procedures is also of considerable consequence in ensuring that as much care as possible is taken when adopting the various measures of both quantitative and qualitative nature that the processes perform as designed and that errors in the transcription of results into statistical programs, for example, and inappropriate interpretations of the coding, are avoided. A frequently quoted requisite element of reliability is that repeated tests give the same results and although a range of statistical tests can normally support this claim, with qualitative

data this is more difficult. However, as previously stated, the aim of the thesis is to indicate the relative significance of aural in the context of the music degree programme rather than a precise level, and the measures adopted provide this, it is believed, to a level of satisfaction. Consistency is additionally vital as a component of reliability and some importance has been attached to the wording of questions so that participants respond to issues raised with understanding and coherence and that the transferability of their comments to reliable coding analysis is transparent and consistent. In addition, in line with current practice, two independent researchers viewed and checked the coding system to verify its reliability as an instrument of analysis.

3.10 THE FOCUS GROUP PILOT

Having established at the outset of Study 2 that the purpose of the research was to explore the views of current students about their understanding of aural, in particular its relevance in a degree programme, it was believed to be imperative as a preparatory task to run a brief pilot session with students to confirm that the proposed focus group activities would succeed in generating appropriate data. The task provided an opportunity to test reactions to the questions asked and issues involved, and to give an indication of the extent of applicability of the topic to those who participated. One of some minor changes was to insert a task of 'card sorting' in which the participants were requested to place their views about aural in an order of importance. Further details of the pilot and this task are provided in the report in Chapter 5.

3.11 ETHICAL CONSIDERATIONS

Since each of the studies involved the collection and analysis of data, the role involved participation by others in some way. Confidentiality was maintained at every stage and no statements or results were attributable to any individual in the presentation of results and subsequent discussions. Despite the reference to and quotation of respondents' statements, full anonymity was thus preserved.

Whereas in Study 2 participants were invited to take part, Study 1 concerned only the compilation of results extracted either by computer from a restricted database or from written examination papers where personal involvement was not required. This task did not entail any explicit individual selection process, the data concentrating only on one category of students who were identified solely by their choice of the BMus degree.

The data in each study did include the reference to some personal data, which, in the case of Study 1, also involved the association of achievement in year 1 with the level of success as a finalist. In the other two studies, participants were free to include whatever information they wished to express and the opportunity to refuse to continue in the focus group was available at any stage, although particulars of age-group, aspects of musical experience and module choice were requested and provided. It was not felt that the questions asked within the focus groups nor the content of the responses by musician students posed any risks to participants' physical or emotional well-being and culturally sensitive issues were avoided. Indeed, many participants enjoyed the opportunity to speak openly about their background in music and look back on their past experiences with pleasure and a level of satisfaction.

Approval was granted by the University Faculty of Social Sciences Ethics Committee to enable the extraction of results data to proceed and no issues arose that required permission to undertake publication of any information.

3.12 SUMMARY

The above discussion of the main issues involved in the consideration of the methodology of the two studies indicates each would be managed as a separate task with discrete data and objectives. The following two chapters are devoted to each study respectively and provide a more detailed description of their individual aims and objectives together with results and discussion of the outcomes.

CHAPTER 4

STUDY 1:

Aural Skills

and the

Music Degree Programme –

A Quantitative Investigation

4.1 INTRODUCTION AND CONTEXT OF THE DATA COLLECTION

It is generally believed that to undertake any activity in music an individual requires a certain level of aural ability and the skills which are developed, in many cases from an early age, underpin a range of musical activities, including performance, teaching, studying and direction. According to Lehmann, Sloboda and Woody (2007) 'students who played well by ear also tended to sight-read and improvise better, and so forth' (p. 21). While the exact nature of those skills remains largely weak and loose in definition, there is nevertheless an overall agreement by researchers who have undertaken studies in the field (see, for example, Deutsch, 1982; Sloboda, 2005) that a basic level of aural ability is vital in underpinning general musical ability and that a person's musical understanding, interpretation and creativity are circumscribed by the skills achieved. Also, as Lehmann et al. (2007) state, such skills 'are embedded in specific cultural contexts' (p. 18).

From my own experience in teaching music the assumption arose that at degree level, in order to satisfy the requirements of the syllabus, undergraduate music students would need to utilise their aural ability in various ways as part of their performing, creative and analytical studies and that those whose skills were more acutely developed would fare better and perhaps obtain a higher degree result. This chapter deals with data which are collected from a cohort of undergraduate students which address this claim. Indeed, no previous research has been found that relates specifically to this, although Pitts (2000, 2002) and Burland and Davidson (2004) have addressed the matter of music students entering higher education as undergraduates and Karpinski (2000a) states that 'many universities, colleges and conservatoires report that entering students often suffer from deficiencies in aural skills' (p. 7). Whatever the reasons might be for this – the failure of training, poor instruction, lack of opportunity, parental or societal misguidance – the details are not investigated here although reference has been made previously (in Chapters 1 and 2) to some of the issues that underlie circumstances in which students on a music degree programme might find themselves and which thereby affect results. The data used for the analyses in this part of the thesis represent actual results rather than attempt to examine the

conditions that surround their achievement. The qualitative data generated in Study 2, the analysis of which is provided in the next chapter, were devised to form a supportive element and follow-up to this study.

4.2 AIMS AND OBJECTIVES

It is believed that the level at which music students undertake their studies must be dependent upon the use of their existing musical skills. Moreover, as part of that process of study and in their attempt to improve instrumental technique, for instance, students call upon their aural ability, particularly those aural skills that have been developed in their musical training up to that time. For example, in performance practice, students who hear errors or tuning problems in their playing correct them readily; in composition, students may be able to rely upon internalised sound rather than reference to sources; and in musical analysis, scores can be read by students more easily by means of direct processing of material in the ‘inner ear’.

The purpose therefore of Study 1 was to collect and examine data which might offer some indication that there was a link between students’ aural skills and through their studies to their final degree result. The following research question was thus established in relation to this study in the collection of the quantitative data which represent the subject of this chapter:

Is there a correlation between the aural ability of university music students and their degree success?

Although it was considered that the data collected might be subject to other minor influences, to which reference is made below, it was also considered that the factor of the students’ pathway of study might also influence final success in some way. A further sub-question consequently arose from the analysis of the data which was considered to be relevant:

Is there a relationship between these results and module choice?

The objective was to ascertain the extent to which such a claim could be supported using results achieved by students as part of their ongoing degree work, specifically

the marks obtained in the Aural examination in Year 1 and their Final Degree result. This chapter describes the analysis process to establish the measure of any correlation between results.

4.3 HYPOTHESES

Although the background to the thesis was stated earlier in the Introduction at the beginning of this thesis, for this part of the project, the overriding hypothesis was formulated that music students who enter university with a higher level of aural ability will achieve greater success in a music undergraduate degree programme than those with a lower level of aural ability and that their module pathway has some influence on their final results. (Clarification of this target group was given in Chapter 3.) This general hypothesis was subdivided into five specific ‘sub-hypotheses’ on which analyses in this part of the study were conducted. These are:

- H₁ Students with higher aural tests scores will achieve a higher final degree result
- H₂ Students will achieve similar results in their Aural Pretest and Examinations
- H₃ Students pursuing practical modules in performance and composition will achieve higher aural test scores than students pursuing historical-based modules
- H₄ Students achieving a first-class final degree result will achieve higher aural test scores than those achieving second- and third-class final degree results
- H₅ Mature students who achieve higher aural tests scores will achieve a higher final degree result than they might otherwise have done

4.4 METHOD

This retrospective study involved the collection of quantitative data from a UK HE establishment over several years. The data were based on results that specifically related to aural skills that students had achieved as part of their studies within

compulsory core modules in the first year of their music degree programme, and their final degree result. The three examinations / results are labelled in this thesis as *Pretest, Aural 1, Aural 2, and Final Degree Result*.

While the numerical nature of the data is irrefutable, as stated above, it should be noted that a number of factors may have had a minimal bearing on the details of the figures themselves. These include:

- a. some variation in staff undertaking the instruction across the seven year groups;
- b. some alternative approaches in the instruction itself across the seven year groups;
- c. some flexibility in the number of sessions provided or attended by individual students;
- d. possible placement of a small number of students after the Pretest into what was for them an inappropriate group and one which might not fully suit their specific ability and extent of development, thereby affecting their preparation for Aural 1 and 2 examinations;
- e. circumstances where the results obtained may not be a true reflection for any reason of a student's actual ability;
- f. the case of the most recent year group (2009/10) where only one semester of instruction was offered followed by a single examination.

It is appreciated that a number of exogenous factors might have also influenced to a small extent the results of any student within each data set such as the following:

- a. students may have been unwell or not responded honestly at the time of the test / examinations
- b. students may not have understood the questions set or were not prepared sufficiently to respond as expected to the tasks required, for example, where the student was from overseas and unfamiliar with the kinds of tests administered

- c. tension and stress caused by the examination context may have unduly affected students' responses (see, for example, Kenny, 2011; Kokotsaki and Davidson, 2003; Simoens, 2012);
- d. students may have followed a combination of modules that in practice avoided the application of aural ability (see 4.6 below);
- e. the mark allocated might reflect some small subjective interpretation by the marker in the responses to some questions in the Pretest or Aural examinations;
- f. the final degree result of students might have been affected by external factors such as late submission, misunderstanding of requirements or other penalties that adversely affected the student's 'real' musical ability;
- g. the circumstances where a student, after Year 1 in which the Pretest and Aural examinations were taken, has been especially hardworking and made considerable improvement in the studies undertaken or, contrarily, has lost interest and failed to maintain any application to course work.

Even with these possible influences, it was considered that a general trend could be obtained and that it was appropriate to collate the individual results of those students following a BMus programme over the designated seven-year period.

4.4.1 Design

The quantitative design of this part of the research, which constituted the first of the two major empirical activities in the thesis as a whole, involved the retrospective collation of student results in a BMus programme across seven academic year groups between 2003/4 and 2009/10 inclusive. These data were obtained from the University Academic Information System (AIS), ethical approval having been sought and granted prior to the collection of the results. Information was also obtained about the students' module choices so that links could be established between their chosen module pathways, aural results and degree results.

Data consisted of the marks obtained from a series of aural tests, specifically a Pretest (undertaken in the first week of the academic year), Aural Examination 1 (undertaken at the end of the first semester) and Aural Examination 2 (undertaken at the end of the second semester). Consequently, one set of aural examination results only was available in 2005/6 and 2009/10. These examinations formed part of a module in practical studies. In addition, the students' Final Degree result was recorded at the end of their third year.

In addition to these four main data sets (Pretest, Aural 1, Aural 2, Final Degree Results), further variables were added and labelled as follows: Module Choice, Year Group, Gender and Student identification, together with the division of each of the four main data sets into quartiles (Lowest, Middle 1, Middle 2, Highest). Finally, two further groups of student were identified, namely, those who gained a First-Class degree, and Mature students (those aged 23 and over).

A number of inferential tests were devised to extract relationships between the students' Pretest and Aural test results and their Final Degree Results, specifically to ascertain the predictability of the earlier results on the degree class achieved.

4.4.2 Sample / Participants

Four main Student Groups were identified for analysis as follows:

- Group A BMus students (aged 18–22) completing all three aural tests and gaining a final degree result ($N= 100$; 44 male, 56 female);
- Group B BMus students gaining a final degree where results for Aural 2 are not available or do not exist ($N= 70$; 31 male, 39 female);
- Group C BMus students completing all three aural tests and gaining a first-class degree ($N= 8$; 4 male, 4 female);
- Group D BMus students (Mature students aged 23 and over) completing all three aural tests and gaining a final degree ($N= 10$; 7 male, 3 female);

The division into data sets provided uniformity of student profile to maintain credence in the various analyses undertaken. Emphasis was therefore given to the main Student

Group (Group A) in which the results used for analysis were confined to students falling within the following criteria:

- a. students aged 18–22
- b. students following BMus degree only (i.e. where all modules are taken within music)
- c. students completing the BMus degree over a normal three-year period (students repeating a year for whatever reason were discounted)
- d. students who had completed three aural tests (Pretest, Aural 1 and Aural 2 tests (with the exception of year-group 2005/6 where only Aural 1 test results were available, and year-group 2009/10 where only one aural test was undertaken by all first year students, the data for these year-groups adjusted accordingly).
- e. students who comply with the criteria given above, but for whom results are incomplete, apart from the two year-groups (2006/7 and 2009/10) where Aural 2 results were not available.

The breakdown of numbers for each year-group in Student Group A was as shown in Table 4.1. It should be noted that there were approximately 70 further students in total across the seven year-groups who followed the BMus programme who did not fully meet the criteria referred to above in one or more ways and were therefore ex-

Table 4.1: *Breakdown of numbers in each year-group*

Year Group:	2003/4	18
	2004/5	10
	2005/6	19
	2006/7	15
	2007/8	11
	2008/9	12
	2009/10	15

cluded from any of the Student Groups indicated above and were therefore not included in the study.

4.4.3 Materials

The Pretest was given without preparation during the first week of the semester and intended to be essentially a rough measure of students' general ability rather than a detailed assessment of their aural skills. Its purpose was primarily to sort the aural full year-group into smaller cohorts to facilitate an appropriate level of aural instruction that would follow in preparation for the two examinations at the end of Semesters 1 and 2. Though not completely identical for the full seven-year period of the study, the test paper retained a similar format and remained comparable in standard across each year group, containing only marginal alterations between years.

The Pretest contained standard written tests of a preparatory level with which new music undergraduates would be expected to gain average marks and with which they would be familiar such as questions on intervals, dictation of melody, discrimination of errors, recognition of chords and identification of given melodies. This outcome, however, was not always the case as can be inferred from the data sets, since, in practice, the range of results for each year-group varied widely.

The Pretest was necessarily of a less complex nature than the later aural examination(s) which though also following a similar format each year contained a variable content based on identical questions. These consisted also of written tests to determine intervals, cadences, chords, recognition of errors, rhythmic and melodic dictation. Each was conducted by a member of staff either playing the tests on the piano or, as was the format in the later years (from 2007/8) using a pre-recorded CD. The Aural examinations formed 10% of the overall Practical Studies module along with other activities such as conducting, instrumental studies and performance participation. Marks for each component of the module were aggregated as a final percentage although it should be noted, however, that marks from the first year of the undergraduate programme do not count towards the final degree mark. Students'

scores had been converted to percentages for the purpose of recording totals for the module in question and could be adopted without change and used as data. Copies of a typical Pretest (September 2008) and aural examination (January 2009) are provided in Appendices A and B respectively.

Students in each cohort from 2003/4 to 2006/7 received tuition on a weekly basis during semester and fortnightly thereafter following changes to the delivery of the module. The chief objective of the tuition was to assist students in improving their aural ability and as preparation for the aural examination though sessions were not intended to be exclusive: it was expected that the development and maintenance of skills would be continued beyond the training sessions and also integrated within the degree programme as a whole to form part of the students' actual musical pathway of study. The skills would continue to be further absorbed within other modules pursued by students. Students from 2005 were additionally offered the facility of additional development by way of an aural training program which from 2008 became a mandatory part of the Practical Studies module of which the aural training and examination was part.

The teaching approach was essentially traditional, based to a large extent on exercises that replicated written questions that the students would face within the aural examinations. In the later years, an increased level of singing was introduced as this was believed to be important in developing a student's application of the 'inner ear'. The instruction sessions perhaps also provided to the students themselves an indication of their potential achievement in the subsequent aural examination(s). Students were able to elect to follow groups of modules that reflected their particular interests, and for the purpose of collating evidence to support the above hypothesis (H₃) concerning module choice, students' preferences have been grouped into four categories, expressed in the analytical tests under *Module Choice* as *Performance*, *Composition*, *Both Performance and Composition*, *Neither Performance nor Composition*.

4.4.4 Procedure

As stated above, the quantitative data were systematically retrieved from computer access to student results from the University AIS as a retrospective procedure. To confirm, all students undertook three aural tests in the first year (Pretest, Aural 1 and Aural 2 Examinations, referred to as data sets), and completed a BMus degree involving the fulfilment of core and optional modules in order to obtain the Final Degree result. Data concerning earlier students was already available and obtained at the start of the study in 2009 while for those thereafter the publication of results was awaited. The information was recorded into a spreadsheet in preparation for data analysis.

4.4.5 Data Analysis

Analyses were completed as follows using a statistical program concentrating on Cross-tabulation, Correlation, Regression and One-way ANOVA commencing in (a) below with an initial descriptive assessment of the four main data sets of Student Group A (*Pretest, Aural 1, Aural 2, Final Degree Results*); ($N = 100$ unless stated otherwise) followed in (b), (c), (d), (e) and (f) by a number of analytical tests relating to the sub-hypotheses identified above:

- a. Main data sets (Student Group A) – Descriptive Analysis (4.5.1)
- b. *Sub-hypothesis 1*
Pretest, Aural 1 and Final Degree Results (Student Group A) (4.5.2)
Pretest Quartiles, Aural 1 Quartiles and Final Degree Quartiles, (Student Group A) (4.5.3)
- c. *Sub-hypothesis 2*
Pretest Results and Aural 1 Results (Student Group A) ($N = 100$) (4.5.4.)
Aural 1 Results and Aural 2 Results (Student Group B) ($N = 70$) (4.5.4)
- d. *Sub-hypothesis 3*
Module Choice and Year-groups (Student Group A) (4.5.5)
Module Choice, Aural Mean Quartiles, and Final Degree Results (Student Group A) (4.5.6)

Module Choice, Aural Mean Quartiles, and Final Degree Quartiles (Student Group A) (4.5.7)

Module Choice with Pretest Quartiles, Aural 1 Quartiles, and Final Degree Quartiles (Student Group A) (4.5.8)

e. *Sub-hypothesis 4*

First-class Students (Student Group C) ($N = 8$): Aural 1 and Final Degree Results (4.5.9)

f. *Sub-hypothesis 5*

Mature Students (Student Group D) ($N = 8$): Aural 1 and Final Degree Results (4.5.10)

In the analyses, overall emphasis was given to Aural 1 data since these were deemed to be the best guide to students' ability, given that data were complete and represented a formal part of the degree programme as a whole. Also, the uncertainties of any students not understanding aspects of the Pretest could consequently be avoided. Where tests involved Aural 2 results, only the data for those seventy students for which marks existed were used.

4.5 RESULTS AND DISCUSSION

4.5.1 The four main Data Sets (Student Groups A and B)

The Standard Deviation and Mean of each of the four main data sets (*Pretest, Aural 1, Final Degree: $N = 100$; Aural 2: $N = 70$*) are given in Table 4.2.

Table 4.2: *The Standard Deviation and Mean of each of the four main data sets*

	Mean	Std. Deviation
Pretest	40.21	20.729
Aural1	48.64	17.757
Aural2	42.01	16.722
FinalResult	58.352	9.707

The descriptive statistics revealed that the results obtained by students occurred across a very wide spectrum though forming in each data set a normal distribution curve. The Bar graphs (see Figure 4.1) confirm this for the Aural 1 and Final Degree Results. It can be seen that Final Degree results are concentrated in a smaller range with the outcome that most students, as anticipated, achieved a 2nd class degree, the convergence at this level due to the narrow band used for such marks: a First is equivalent to 70% and above, 60–69% representing 2:1, 50–59% 2:2, 40–49% a third-level pass, and below 40% a fail.

The Pretest was a formal assessment in so far that it was held under examination conditions and the results designed to differentiate the differing levels of students' aural abilities, primarily for division into appropriate learning groups. Because of the circumstantial aspects of students' uncertainties expressed above, priority was allotted in the analytical tests to Aural 1 results due to its formality as a record of a student's attainment. Being the closest to the students' entry to the course (after the Pretest) and being complete for all the 100 student-strong data set, the Aural 1 data, though a minor component of a student's programme of study, also comprise part of the full appraisal of students' first-year examination profile.

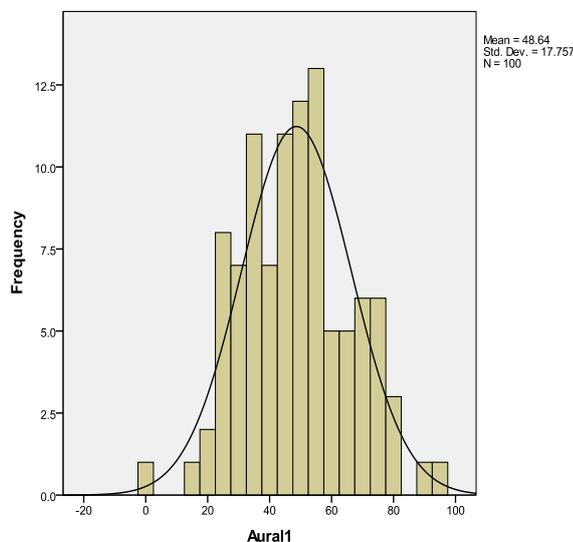


Figure 4.1a: Bar graph showing the distribution curve of Aural 1 (Student Group A)

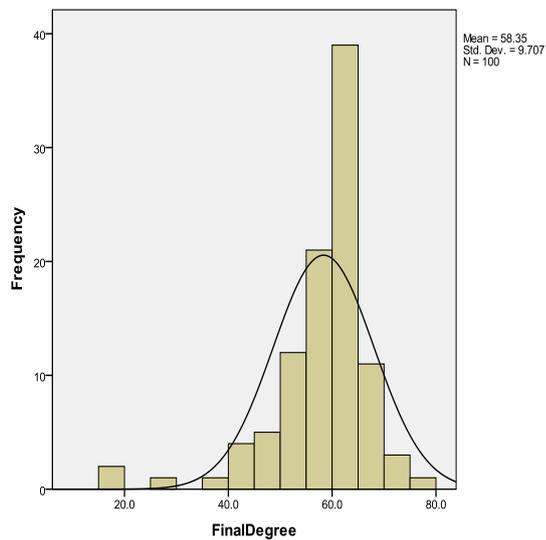


Figure 4.1b: Bar graph showing the distribution curve of Final Degree Result (Student Group A)

4.5.2 Relationship between Aural Tests Scores and Final Degree Results

(Sub-hypothesis 1) Pretest / Aural 1 Results with Final Degree Result (Student Group A)

With the predictors Pretest and Aural 1 and the dependent variable the Final Degree Result, the correlations test of all three data sets indicated that there was a moderately significant positive relationship between both Pretest and Aural 1 Results and students' Final Degree Results ($r=.36$, $p < 0.001$, in each case).

However, perhaps for the reasons outlined above, it should not be surprising that the aural results of students do not show a fully reliable prediction of their later Final Degree result. Nevertheless, a small positive relationship between the earlier and later results is valuable as a general principle given the proviso that it cannot in this particular project be taken as incontrovertible evidence due to the limitations described above.

Regression analysis suggested a linear positive relationship with no evidence of a curvilinear relationship despite a wide range of outliers. For the Pretest results the unstandardised regression coefficient was .168 and the intercept was 51.605. For Aural 1 this was .198 and 48.73 respectively, confirming the relative comparability between each of the two earlier tests and the Final Degree Results.

The following equations are represented by Y^1 being the best predictor of Pretest and Aural 1 results and X an individual's final score respectively:

$$\text{Pretest: } Y^1 = 51.65 + 0.17X$$

$$\text{Aural 1: } Y^1 = 48.73 + 0.20X$$

Thus it is possible to predict to some extent the Final Degree result from Pretest and Aural 1 marks and the scattergraphs below underlined the close positive relationship of these two data sets with immediate clarity. Confirmation was given that only little variation existed in the slope of the two regression lines between the Pretest results and Aural 1 results against the Final Degree results, in each instance the slopes differing significantly from a horizontal line (see Figure 4.2).

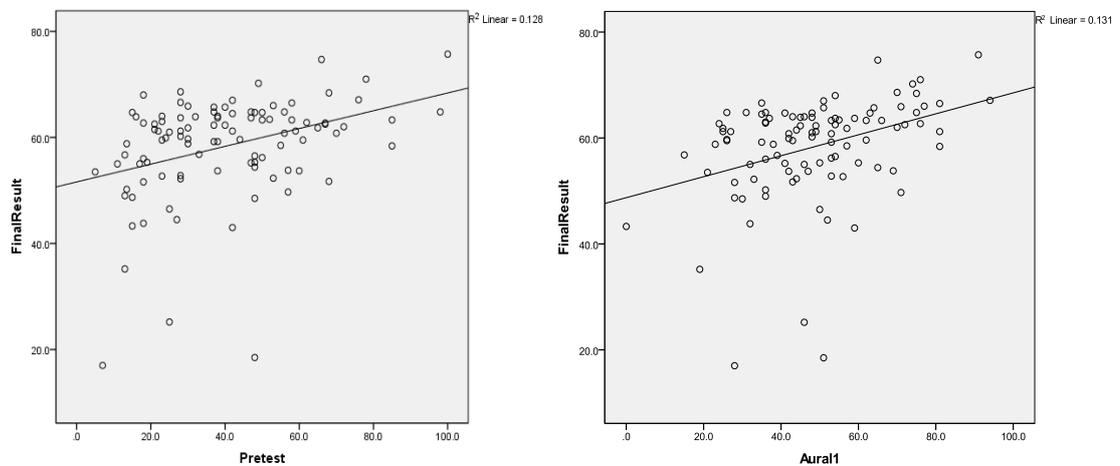


Figure 4.2: Scattergraphs showing the positive line of relationship between (a) the Pretest and (b) Aural 1 results against the Final Degree Result respectively.

However, due to the formal inclusion of Aural 1 examination as an integral part of assessment in Year 1 of the degree programme, it is considered appropriate to draw more emphasis on these results compared with the Pretest results. It might also be expected that students would feel more prepared for the individual tests within the examination than they may have been for the Pretest that took place during the first days of their entry to the degree programme, the likelihood being also that the Aural 1 results present a realistic reflection of students' concern to obtain the highest mark.

Table 4.3: *Stepwise multiple regression of predictors of the Pretest and Aural 1 Results*

Variable	Multiple R	B	Standard Error b	Beta	T	Significance of t
Aural 1	0.40	0.12	0.01	0.28	17.29	0.001
Pretest	0.42	0.17	0.01	0.19	11.70	0.001

It is also notable, from the stepwise multiple regression analysis (see Table 4.3), that when both variables (*Pretest* and *Aural 1*) are applied together there was no appreciable increase in the level of predictability than when carried out singly. Aural 1 results in this instance were entered first and explained 16% of the variance in the Final Degree Result ($F_{5833} = 1102.55, p < 0.001$). Pretest results were entered second and explained only a further 2% ($F_{5832} = 136.95, p < 0.001$). This would indicate that the two results combined do not significantly provide additional prediction, confirmed by the t -values in Table 4.3.

4.5.3 Relationship between Pretest Quartiles, Aural 1 Quartiles and Final Degree Quartiles (Student Group A: $N = 100$) (Sub-hypothesis 1 ctd)

To obtain a broader perspective of the situation, the results in each data set (*Pretest*, *Aural 1* and *Final Degree*) were grouped together into quartiles (*Lowest*, *Middle 1*, *Middle 2*, *Highest*). While the outcome from various analytical tests suggested only a limited relationship in several instances with readings showing a negative value especially between the early and later results, cross-tabulation analysis between quartiles revealed some moderate relationship between several corresponding quartiles (see Table 4.4a). Values, apart from the Middle 2 quartile, were a little more than or the same as in other quartiles and the cross-tabulation table, in which student numbers of significance are noted in bold in each case, revealed that the greatest number appeared to correspond in many of the quartiles. However, the tests showed

Table 4.4a: Cross-tabulation between Final Degree and Pretest Quartiles

FinalDegQuartile * Pretest Quartile Cross-tabulation

		Pretest Quartile				Total
		Lowest	Middle1	Middle2	Highest	
FinalDegQuart	Lowest	9	6	6	4	25
	Middle1	7	7	6	5	25
	Middle2	6	6	5	8	25
	Highest	3	6	8	8	25
Total		25	25	25	25	100

a considerably more striking association in the Aural 1 Quartiles (see Table 4.4b), where corresponding quartiles ranged between 9 (36%) and 13 (52%) of the 25 in each quartile.

Table 4.4b: Cross-tabulation between Final Degree and Aural 1 Quartiles

FinalDegQuartile *Aural1 Quartile Cross-tabulation

		Aural1 Quartile				Total
		Lowest	Middle1	Middle2	Highest	
FinalDegQuart	Lowest	11	5	6	3	25
	Middle1	6	10	6	3	25
	Middle2	4	6	9	6	25
	Highest	4	4	4	13	25
Total		25	25	25	25	100

The results in Table 4.4 were placed in a bar graph in each case (see Figure 4.3) to indicate graphically the relationships between the Final Degree Quartiles and the Pretest and Aural 1 Quartiles respectively. Further examination indicated that, for example, students in both the lowest Pretest and Aural 1 quartiles achieved results in the lowest Final Degree quartile, and, though this was less supported in the Pretest results, those students who achieved results in the highest Aural 1 quartile also succeeded in gaining a result in the highest Final Degree quartile. The analysis confirmed that some difference was evident between the Final Degree quartiles and

each of the other two quartiles but that there was consistency in the comparability between them especially, as stated above, in the middle two quartiles.

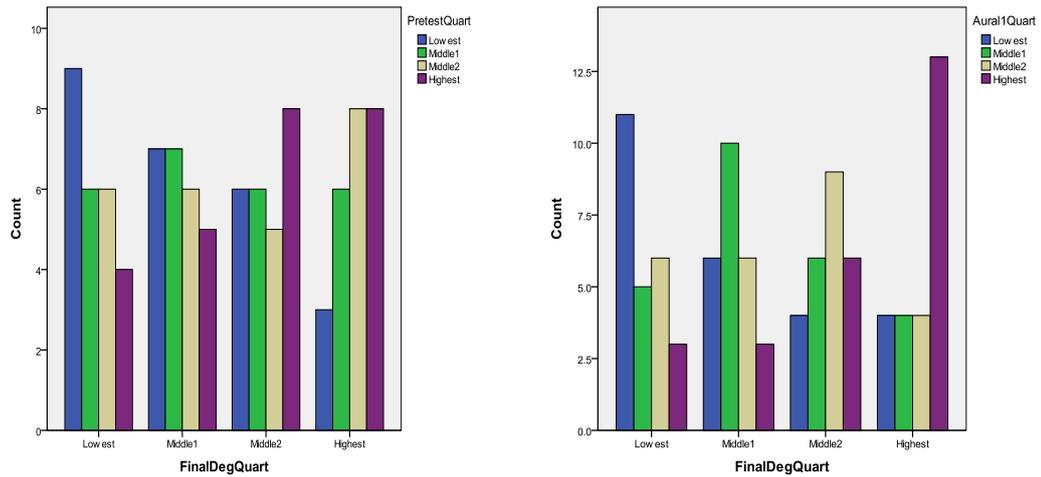


Figure 4.3: Bar graphs showing the relationships between the Final Degree Quartiles and (a) Pretest Quartiles and (b) Aural 1 Quartiles

The Chi-square test between the Aural 1 Quartiles and the Final Degree Quartiles is consistent with the above cross-tabulation test indicating a moderate association where $\chi^2 = 21.28$, $df = 9$, $p > 0.11$.

4.5.4 Relationship between Pretest and Aural Examination Results (Sub-hypothesis 2)

Pretest Results and Aural 1 Results (Student Group A) (N=100)

Analytical assessment of the relationship between the Pretest and Aural 1 results confirmed that some divergence existed between the two sets of results for many students and it is impossible other than to speculate the reasons why these results might vary so much in the case of several students.

To establish the extent of the relationship between the Pretest and Aural 1 results, a simple regression test was undertaken and this provided further support to the principle of the use of Aural 1 results in preference to those of the Pretest. The unstandardised regression coefficient was .572 and the intercept was 25.642. The

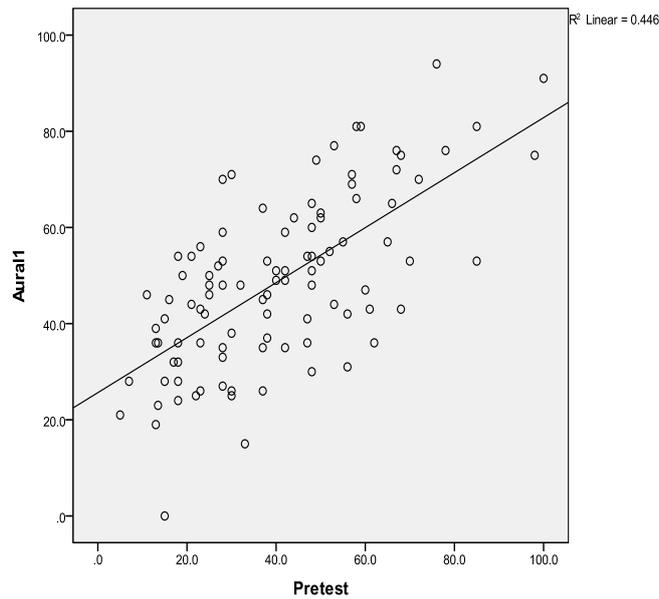


Figure 4.4: Scattergraph of the relationship between Pretest and Aural 1 results

95% confidence interval for the slope of the regression line is .44 to .70, the slope significantly differing from a horizontal line, as displayed in the scattergraph (see Figure 4.4). There was a generally moderate positive relationship between the Pretest and Aural 1 data sets ($r = .67$, $df = 98$, $p < 0.01$), despite indicating clearly, however, that there also was some variation in the marks for some students between the first two tests. The scattergraph (see Figure 4.4) of the relationship between the Pretest and Aural 1 results confirmed the positive relationship of the two data sets.

Aural 1 Results and Aural 2 Results (Student Group B: $N = 70$)

The correlation and regression tests concerning the two sets of Aural results ($N = 70$) showed supportively that the majority of marks gained by students where they undertook two Aural examinations were closely aligned. The two examinations followed a very similar format and content and were largely at a comparable level of difficulty. It should be added that in the full data set (Group A), results for Aural 2 have been imputed equivalent to Aural 1 where those results were omitted in the Aural 2 column due to no longer being available (2006/7) or to the non-completion of a second examination (2009/10). These results have not been included in any data analyses referred to above.

The correlation between Aural 1 and Aural 2 results reported as 0.832, the slope as illustrated in the scattergraph below (Figure 4.5) significantly differing from a horizontal line. The unstandardised regression coefficient was .789 and the intercept was 4.402. The 95% confidence interval for the slope of the regression line was .66 to .92. There was a strong positive relationship between the Aural 1 and Aural 2 results ($r^2 = .69$, $df = 68$, $p < 0.01$), indicating that the marks in the two Aural examinations were comparable for most students, the scattergraph confirming this by producing a significantly diagonal slope.

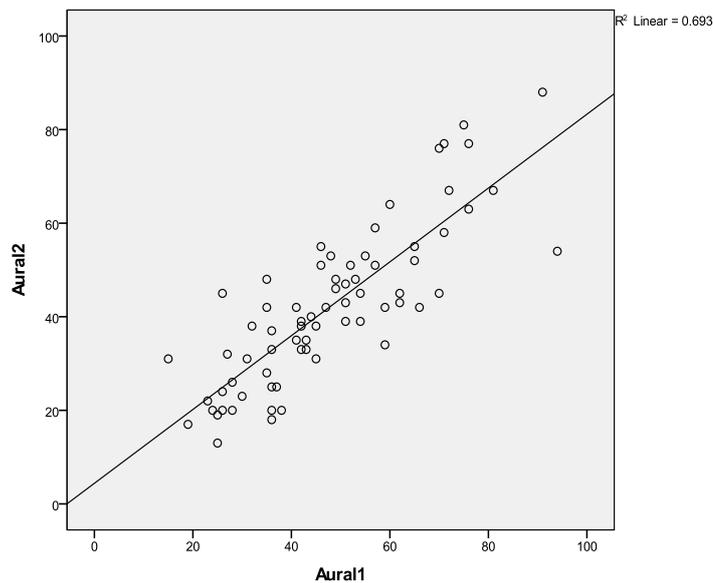


Figure 4.5: Scattergraph of the relationships between Aural 1 and Aural 2 results

4.5.5 Relationship between Module Choice and Year-group (*Sub-hypothesis 3*)

There was a general comparability across each year-group in the number of students used in the data and, given that this was not part of the main hypothesis and partly due to the difficulty of defining influences, it was not deemed appropriate to quantify the variability of aural results across the year-group spread. However, it was noted that a greater proportion of students selected *Performance* as their preferred choice of module especially in the earlier year-groups, though this could be attributed to the consequence of the more limited available options at the time. A bar graph (Figure 4.6) shows the student options for module choice against the individual year-groups and confirms that there is no consistent relationship evident between Module Choice and Year groups and that due to the lack of any real association between students'

results and module choice, the relevance of year-group remains unimportant in the project as a whole.

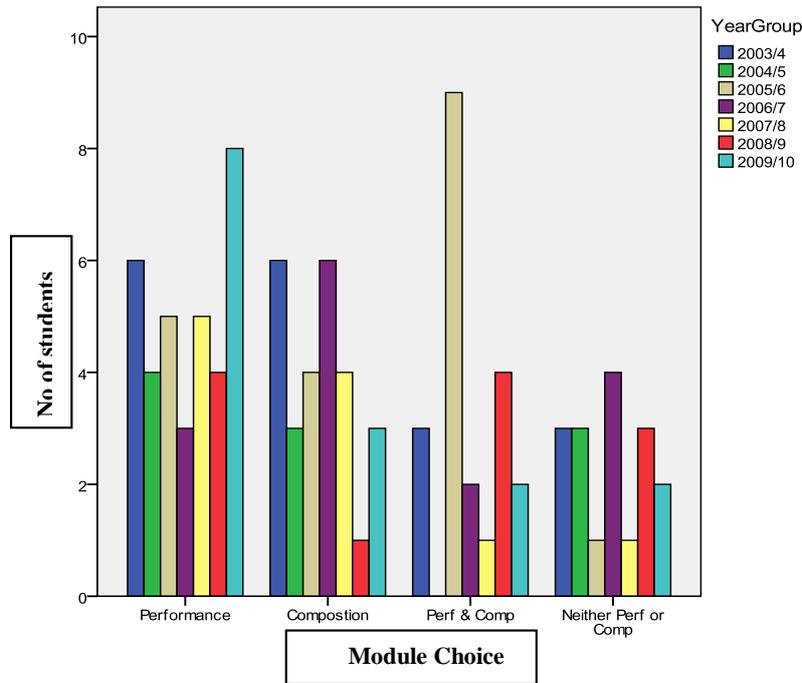


Figure 4.6: Module Choice according to Year-groups

As might be expected, the module pathways of individual students varied widely due to both the choices available, particularly as the years progressed, and to the slight increase in total student numbers per year that expanded opportunities, but no general trend was evident to indicate any link between pathways of students and their results at any stage. No close examination of module choices was undertaken.

4.5.6 Relationship between Module Choice and Pretest, Aural 1 and Final Degree Quartiles (Sub-hypothesis 3 ctd)

The possibility was considered that there might be a correlation between students’ aural skills and their actual selection of modules in Years 2 or 3 and that this might also have a bearing on their final degree result. This was found not at all to be the case, most analyses confirming that only a fairly weak association could be made from any of the data sets with the choice of module. Indeed, some tests showed a negative reading and no regular pattern in a bar graph, indicating a fairly even spread of aural ability across all programme choices. The analysis does show, however, that of the 17% of students who chose neither *Performance* nor *Composition*, their aural was

moderate. However, an undoubted preference (35%) for a *Performance* module is evident by students across the seven year-groups and this may account for greater measure of representation of this overall preference for *Performance* in the higher Final Degree results marks. It is also noteworthy that in the highest aural mean quartile, 12 students (48%) selected *Performance* as their chosen module (see Table 4.5). These outcomes were further supported by the chi-square test for *Pretest, Aural 1* and *Final Degree Quartiles* against *Module Choice* (see Table 4.5) where the one-tailed level of significance was low ($p=.286$, $.2748$ and $.129$ respectively). The lack of any significant link between Module Choice and both Aural Mean Quartiles and the Final Degree Quartiles was underlined by the results of the cluster bar graphs (Figure 4.7) from which it could also be inferred from a comparison of the two graphs that module choices in Year 1 (using the Aural Mean Quartiles data) were not maintained by some students by the time they reached Year 3 (Final Degree Quartiles).

The issue of module choice in the context of aural ability is actually one of greater importance than at first realised since a path through the degree programme can be steered that, if wished, any modules, such as performance and composition, where some dependence on the 'inner ear' is vital, can be avoided and with effective study in less practice-based components a good degree result may be achieved. It is arguably similar to the situation in GCSE Music where reading music and theoretical aspects of the subject are not always necessary to gain a Grade C or above. The matter can only be referred to here in the context of the data available but once again the issue is raised about the content and purpose of a music degree if it is not essentially about the specific practice of music.

A correlation test between the ordinal data of the three sets of quartiles (*Pretest, Aural 1, Final Degree Quartiles*) and *Module Choice* revealed that, as with the numerical results, the Pretest and Aural 1 quartiles correspond moderately ($r^2 = .61$) while the relationship between either of these two data sets and the Final Degree quartiles was less pronounced ($r = .22$ and $r = .34$ respectively, $p < 0.001$). The correlation between the data sets and *Module Choice* gave a mostly negative reading, indicating that there is no connection between the various quartiles and the module preferences of students, between Aural 1 and Module Choice neither positive nor negative at zero.

The following cluster bar graphs (Figure 4.7) generally concur with this, but show interestingly that the majority of students in the highest Aural 1 Quartile also gained a place in the Final Degree Quartile.

The cross-tabulations of Module Choice with the quartiles of the three main data sets cross-tabulations (see Table 4.5) show that values varied widely but that there was some overall consistency over the three data sets. However, in a Chi-square test that, for example, cancelled out students' greater preference for Performance, no regular associations between the Module Choice categories and the corresponding quartiles within each of the three main data sets were evident. The results for Pretest, Aural 1 and Final Degree Quartiles against *Module Choice* indicated $\chi^2 = 10.85, 11.02$ and 14.81 respectively; $df = 9$ in each case, $p.286, .274$ and $.129$ respectively.

Table 4.5ab: Cross-tabulations of Module Choice with (a) Pretest and (b) Aural 1 Quartiles

ModuleChoice * PretestQuart Cross-tabulation

		PretestQuart				Total
		Low	Mid1	Mid2	High	
Module Choice	Performance	9	8	6	12	35
	Composition	5	10	8	4	27
	Performance and Comp	8	3	4	6	21
	Neither Perf or Comp	3	4	7	3	17
Total		25	25	25	25	100

ModuleChoice * Aural1Quart Cross-tabulation

		Aural1Quart				Total
		Low	Mid1	Mid2	High	
Module Choice	Performance	6	12	6	11	35
	Composition	10	4	10	3	27
	Performance and Comp	6	5	4	6	21
	Neither Perf or Comp	3	4	5	5	17
Total		25	25	25	25	100

Table 4.5c: *Cross-tabulation of Module Choice with the Final Degree Quartiles*

ModuleChoice * FinaldegreeQuart Cross-tabulation

			FinalDegQuart				Total
			Low	Mid1	Mid2	High	
Module Choice	Performance		4	10	11	10	35
	Composition		10	4	9	4	27
	Performance and Comp		6	6	1	8	21
	Neither Perf nor Comp		5	5	4	3	17
Total			25	25	25	25	100

4.5.7 Relationship between Module Choice, Aural Mean Quartiles and Final Degree

Results (*N=100*) (*Sub-hypothesis 3 ctd*)

There was a slight negative relationship between the Module Choice and Final Degree Result ($r = -.099$, $p < 0.001$) indicating that the choice of module by students has no effect on their final degree result.

A one-way ANOVA showed that when Module Choice was covaried out, the effect on the Final Degree Result was not significant but since the *F-ratio* for Module Choice was 4.128 and the probability of this *F-ratio* was 0.029, being less than the critical 0.05 value, it was therefore of some moderate statistical significance.

4.5.8 Relationship between Module Choice, Aural Mean Quartiles and Final Degree Quartiles (*Sub-hypothesis 3 ctd.*)

Close examination of the cluster bar graphs below (Figure 4.7) reinforces the point that there was no significant link between Module Choice and both Aural Mean Quartiles and the Final Degree Quartiles, although those students who chose Performance as their favoured module did appear to be those students who had the highest overall aural skills when the weighting cases procedure was adopted.

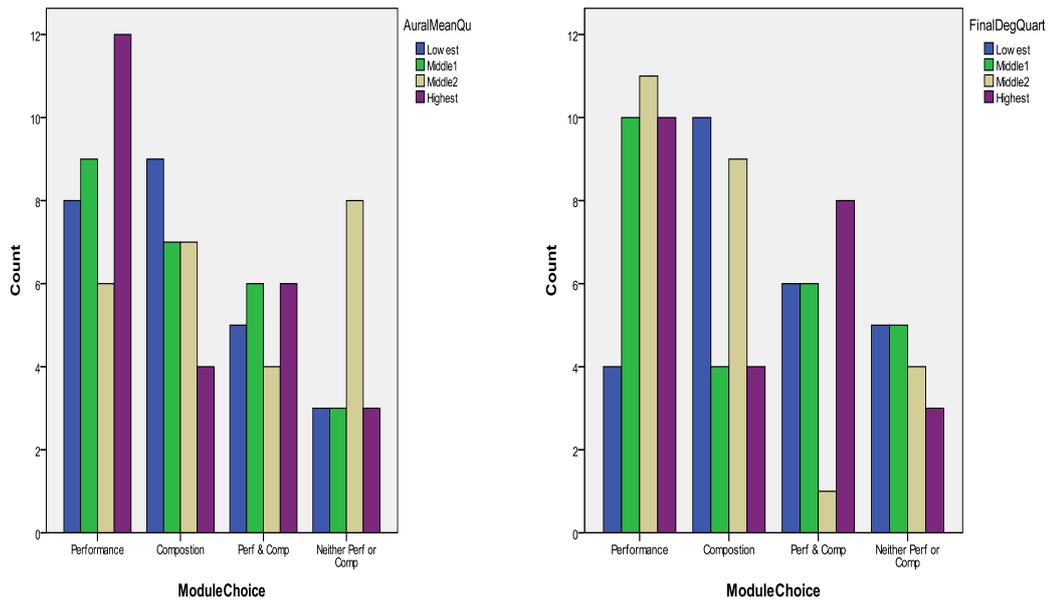


Figure 4.7: Bar graphs showing the associations with Module Choice of (a) Aural Mean Quartiles and (b) Final Degree Quartiles

4.5.9 Relationship In the results of First-Class Degree Students (Student Group C) (N=8) (Sub-hypothesis 4)

It was felt useful to consider whether the results of the small group of First-class degree students who went on to achieve a first-class degree might show an indication of their potential success in their earlier results and whether a correlation could be

Table 4.6: Standard Deviation and Mean of First-class degree students

	Mean	Std. Deviation	N
Pretest	71.75	20.748	8
Aural1	70.75	20.728	8
Aural2	68.63	19.500	8
DegreeResult	72.85	2.0515	8

established between their aural ability and the eventual high level in their final degree result. The Standard Deviation and Mean of each data set of this small group of

students (*Pretest, Aural 1, Aural 2, Final Degree*) was obtained and shown to vary little (see Table 4.6).

Aural 1 results and Final Degree results

Although the number of students gaining a First-class degree result is small ($N = 8$) the correlations test indicated that for those eight students there was little relationship with their Pretest results ($r = .13, p < 0.001$). In the case of Aural 1 and 2 results, the relationship between the two aural tests was a close match ($r = .92$) while with the Final Degree Results, like the Pretest, the relationship was confirmed to be weak ($r = .28$ and $.35$ respectively).

A regression test of the relationship between Aural 1 results of the First class students and their Final Degree results suggested a linear positive relationship although conclusions remain unreliable due to the fact that Aural 1 results featured across a large range despite a small number of students. Prediction of the Final Degree result from the Aural 1 was not reliable, the equation being represented by $Y^2 = 70.88 + 0.03X$ where X is an individual's final score and Y^2 is the best predictor of their Aural 1 mark. There was no evidence of a curvilinear relationship and consequently with such a wide range of outliers it was confirmed there was no consistent outcome of the Aural 1 marks for students who were eventually to gain a first-class degree and therefore no support for sub-hypothesis 4.

Thus the analyses undertaken revealed no distinct evidence that there was overall any strong connection between students' earlier results (Pretest or Aural) and the Final Degree result, despite some small correlation as indicated. Conversely, the Aural 1 and Aural 2 results reflected a very close comparison, the congruence of which was reassuring. Though this might be expected, the comparability could be interpreted that first-class students were quite clear about the requirements of the aural examinations and though were unsure initially on entry about requirements and content, their general musical ability across other activities supported their development towards a first-class degree. Notwithstanding, data in each category show wide divergence and the inconsistency makes any prediction unreliable. However, it is relevant to remark that the three students (37.5%) who proceeded to

the highest degree result had achieved a mark in the highest quartile of the Aural 1 examination results.

4.5.10 Relationship in the results of Mature Students (Student Group D) (N=10) (Sub-hypothesis 5)

Consideration was also given to the results of a separate small group of mature students, who were excluded from the main data sets for the reason of being over aged 23, to establish whether their later commencement on the degree programme than at the regular student age might provide an indication of some correlation between results, which primarily might be attributable to their greater experience of music (and perhaps of life in general). The Standard Deviation and Mean of each data set (*Pretest, Aural 1, Aural 2, Final Degree*) was obtained and shown to vary little (Table 4.7).

The tests did reveal evidence that there was a moderate relationship between Mature students’ Pretest results and the Final Degree result, but this fell away significantly with their Aural 1 and 2 results. This indicates perhaps that the students were familiar with lower aspects of aural ability as measured in the Pretest but, having had less recent experience in or less contact with aural skills in general, found the Aural 1 and 2 examinations to be more challenging and became less successful as a consequence.

Table 4.7: *Standard Deviation and Mean of Mature students’ results*

	Mean	Std. Deviation	N
Pretest	45.7	27.793	10
Aural1	49.8	22.697	10
Aural2	45.3	26.42	10
Final Result	62.14	8.8047	10

As mature students they perhaps had a greater aptitude to study, the outcome being that of the eight of the total ten students gaining less than 55% mark in their Aural 1

examination, four (40%) gained a high second or first class degree result. Also, resembling the First-class Student Group, the Aural 1 and Aural 2 results reflected a close comparison between each group, again a reassuring comparability that could be interpreted that mature students quickly picked up on the requirements of the Aural 1 examination and were well prepared for Aural 2. Notwithstanding, data in each category show wide divergence and no consistent prediction of the Aural 1 marks for Mature students with the Final Degree result could be established. These data effectively provided no further support to sub-hypothesis 5.

Aural 1 result and Final Degree result

The correlation test indicated that, for the ten mature students, there was a moderately significant relationship between their Pretest results and their Final Degree Result ($r = .64$), and equally with their Aural 1 and 2 examinations results ($r = .56$ and $.66$ respectively, $p < 0.001$). There was a strong match between the two actual Aural examination results ($r = .89$) but surprisingly the relationship dropped considerably with the Final Degree Results ($r = .10$ and $.38$ respectively, $p < 0.001$).

Regression analysis of the relationship between Aural 1 results of the Mature students and the Final Degree results suggests a linear positive relationship. Prediction of the Final Degree result from the Aural 1 was not reliable, the equation being represented by $Y^2 = 60.28 + 0.04X$ where X is an individual's final score and Y^2 is the best predictor of their Aural 1 mark. As with the First-class students, the wide range of outliers confirmed that there was no consistent outcome of the Aural 1 marks for Mature students and consequently no evidence of a curvilinear relationship. A scattergraph did not show any appropriate relationship.

4.6 CONCLUSION

The study set out to assess any link that might be evident between music students' aural ability and their final degree result, more specifically, to establish the integrity and veracity of the main hypothesis that a correlation could be established between the marks obtained by music students in aural assessment in Year 1 of their degree

programme and their final degree result, and, whether, as a corollary to this, there was a measure of predictability of students' degree result from the level of their aural skills on entry to the music degree. The various statistical tests were undertaken with this overarching objective in mind with an additional aim to ascertain any connection that existed between results and students' actual programme of study, expressed in the tests as *Module Choice*. Attention was given also to two additional minority groups, namely, those students gaining a first-class degree, and those aged 23 and above, to discover whether there was any additional correlation between Aural 1 and Final Degree Results within these two specific groups.

Referring to the division of the main hypothesis into the five sub-groups above, the following summary conclusions were reached, that

- H₁ there was a small but positive indication that students with higher aural tests scores will go on to achieve a higher final degree result
- H₂ results in students' Pretest showed close comparison with those in the Aural examinations
- H₃ no consistent association existed between any of the students' results and module choice, and that consequently results of students pursuing practical modules in performance and composition did not differ from those pursuing historical-based modules
- H₄ no strong connection occurred between the Final Degree result of First-class finalists and their earlier aural test scores
- H₅ no consistent outcome was evident for Mature students in their Final Degree result who achieve higher aural tests scores

Clearly of fundamental importance within this study have been the correlation and the level of significance of the data within the context of the varied factors that operate during the degree programme as a whole. In each of the initial tests with the full data sets (Student Group A, $N = 100$), a positive relationship did exist between the earlier Pretest and Aural examination results and the Final Degree Results but that the element of predictability was not strong.

Even having restricted the main data sample to BMus students, who, perhaps, it might be thought as more strongly reliable in their aural skills as a result of their

specialisation in music, the range of scores achieved by students on entry to the music programme and in their first year aural examinations was surprisingly variable. Whereas it might be anticipated that aspects and requirements of the Pretest might not be fully understood, such an argument would not be so appropriate to explain the difference between the Pretest results and the Aural 1 and 2 examination results by which time students would have had a chance to work on deficiencies and improve their skills. It is speculated that the main reason for this was the moderate increase in difficulty of the Aural examinations by comparison with the Pretest.

A number of further factors, however, might be responsible as was partly raised in the Introduction above (see 4.1):

- a. the limitation of opportunities within the available time, the facilities or work-load that might enable improvement
- b. the lack of enthusiasm of students relating to the proportion of time and emphasis required to gain marks in what constituted only 10% of one of usually six modules studied in Year 1
- c. the lack of interest and motivation in what for some was a difficult practical area of music
- d. the inadequacy and/or ineffectiveness of the small number of aural training sessions.

All or any of these and perhaps other possibilities could have a part in bringing about lower than expected aural examination scores achieved by students in Year 1. On the other hand, this circumstance could be reversed by some students where their earlier levels had been poor so that by the end of the third year their Final Degree Result did not in any way reflect their level of aural ability, accomplished or not. Indeed, some might have compensated by studying in musical areas in which aural ability was not significant or, on the contrary, students raised their skills to a more appreciable level through training in related activities such as performance and listening analysis by means of which they prospered effectively and moved to a higher degree mark.

Alternatively, it must be conceded that those students who achieved a high result in their Pretest or Aural examinations had probably already established a commitment to their musical studies, insofar as to have even achieved the level they had reached, and had shown an interest and been encouraged by the success in their studies up to this time. Thus, students are likely to use those skills constructively and appropriately in their enthusiasm to gain good marks in their chosen module with the consequence that the selection of preferred modules holds an influential place in the student's decision dependent on whether their aural skills feature as an appropriate adjunct to their studies, and possibly their views on their later prospects of employment.

This raises the issue of whether separate aural training is preferable given that students can choose whether or not to concentrate on their aural development using interactive training programs but are likely to absorb aspects of aural ability as they follow their module pathway through to the final degree. Certainly some students need a greater amount of help to understand their 'inner ear' than others and perhaps a minimum level of ability, however that might be done and whatever the content might be, should be established as a general marker of a student musician. As stated previously, it is unlikely that full agreement could be reached as to what that level should be and to some extent, the aural examinations acted as a kind of guide in that way. Whether students would gain enough alongside their studies in other modules is questionable and further research is needed to compare students who have received specific aural training with those who have generally absorbed skills through related musical activities. However, this contradicts the belief stated at the outset that performance and composition, for example, rely on aural skills to reach an optimum level of skill in those areas: either one needs the skills to undertake a process or the process can develop those skills – only one of these is possible. It has to be added, however, that with the advent of music programs such as *Sibelius* and *Cubase*, the level of music creativity may have little or no dependence on the use of inner aural skills.

As stated previously in the Introduction, much has been written on the difficult nature of ascertaining aural ability specifically, and very little can be found in the literature on its relevance in a university music degree programme. It cannot be denied, therefore, that much depends on the extent and content of aural tests as a means of quantifying

that ability, and perhaps as an outcome of the training that is provided. The Pretest and Aural examinations given to Year 1 music students, for example, contained the standard testing components as detailed above, and these have not been questioned here. Indeed, this is an area for further investigation: do the results from these tests / examinations fully provide an appropriate and exact representation of a student's aural ability? For the purpose of this thesis, nevertheless, the results in the data used in the study were deemed to be acceptable as far as these specific year-groups were concerned but that any future project where aural ability were to be highlighted as a musical entity which reflected or influenced performance and other musical pursuits would need to assess more deeply the concept of aural skill itself.

Notwithstanding, all the analyses undertaken in this study show that there is a correlation, albeit slight in some instances, between students' aural test results in Year 1 and their Final Degree result, although the level of predictability remains insignificant. The limitations of the statistics and the several conditions that overlay the analysis processes demonstrate that reliance on just the results of students provides insufficient evidence to verify the hypothesis but that clearly, though the correlation is small, it cannot be fully dismissed in the overall assessment of various statistical outcomes. A general trend is thus apparent across the seven-year period of the BMus undergraduate programme and supports the main finding that aural ability has some role to play in the overall musical development of music students though its influence on the achievement of their final degree result may be either negative or positive.

Given the issues raised in the light of these results, the ensuing Study reported in the following chapter of the focus groups follows up the main hypothesis concerning the link between aural ability and degree success in two main ways: the first in the discussion with students about their views on the matter including the possibility of influence on their module choice, and secondly, by showing two extracts of the data and exploring their reactions to these two aspects in the data. The opinions expressed in this second study further provide alternative angles on the importance of aural according to students currently studying on music degree programmes.

CHAPTER 5

STUDY 2:

Music Students'

Perspectives on Aural:

A Focus Group Study

5.1 INTRODUCTION AND CONTEXT OF THE DATA COLLECTION

This chapter deals with the views of current music students regarding the relevance and importance to them of aural and aural ability during their degree programme. Moreover, these students were asked to comment on the findings of the data obtained in Study 1 to provide a contemporary student perspective on the relationship between aural ability and degree success. An analysis of the responses of those student–musicians who participated in the focus groups is given below, together with some of the issues arising from their views and experience.

The second research question stated in the Introduction was thus applicable to this study in the collection of the qualitative data which represent the subject of this chapter:

What are the views of current university music students about their understanding of aural, its importance in a music degree programme and its relationship to degree success?

The purpose therefore of Study 2 was to collect and examine data that demonstrated the experience and views of students about aural from the perspective of their own musical development and work.

5.2 AIMS AND OBJECTIVES

The aim of this study therefore was to contextualise the data from Study 1 and link the findings with opinions about aural and aural ability of current music students, particularly in the light of the difficulties of defining these terms in Chapter 1, and the curriculum changes to the music degree programme described in Chapter 2. The aim included specifically to find out what they understood by 'aural' and 'aural ability' as well as to explore their thoughts on its content and practice. Furthermore, the study aimed to probe current students' views on the relevance of aural across different musical activities and within their undergraduate degree programme, the key objective being to theorise about their understanding and application of aural, but also to

establish the extent to which the data in the previous study was supported by the students' views through specific reference to a selection of the findings from the first study. It was also felt appropriate where it arose to draw out any marked differences in opinion between different year-groups.

5.3 SUBSIDIARY RESEARCH QUESTIONS

Four subsidiary research questions formed the central focus of this study and reflected the aims outlined above:

1. What do current music students understand by 'aural' and 'aural ability'?
2. What are current music students' views on the relative importance of aural for different musical activities?
3. How do current music students understand the relationship between aural ability and success on a degree programme?
4. How do current music students understand this relationship taking into account module choice?

In addressing the third and fourth research questions for this study, current music students were asked to review the findings of the quantitative study, particularly with reference to the following hypotheses for Study 1:

H₁ Students with higher aural tests scores will achieve a higher final degree result

H₃ Students pursuing practical modules in performance and composition will achieve higher aural test scores than students pursuing historical-based modules.

By directly referring back to these sub-hypotheses of Study 1, the connections between the data extracted from Study 1 and the circumstances concerning current students now following their degree programme could be addressed as an integral part of Study 2 and provide a strong link between the conclusions in each case.

5.4 METHOD

5.4.1 Design

This study involved semi-structured group discussions with current music students at both undergraduate and postgraduate level in order to explore their views on aural. The use of focus groups was chosen because this research technique represented an effective way to elicit students' views in a non-threatening environment. As Kitzinger and Barbour (1999) state, focus groups 'are ideal for exploring people's experiences and opinions, wishes and concerns' (p.5) and this approach was directly appropriate in meeting the aims of the study. While the sessions were semi-structured with set questions, participants were able to express their views freely across the topic area and occasionally due to fairly flexible time constraints to digress into related issues and 'to generate their own questions' (ibid) where appropriate. By creating a 'permissive environment that encourages participants to share perceptions and points of view' (Krueger and Casey, 2000, p. 2), the format of a focus group was regarded as a suitable setting for the study.

The purpose of the study having been clearly identified and the questions reflecting its aims having been arranged in a sequence that anticipated a smooth flow of responses from the participants, the format was the most appropriate to gather their insights and perceptions on the identified topics. Although researcher and participants were not previously acquainted, but having previously made electronic contact, the location was established in rooms in the music corridors with which students were familiar, the purpose being to reduce initial shyness and nervousness that might ensue from a more formal setting. The sessions could therefore be got underway with little hindrance from initial apprehensiveness given the constraints of there being a single session and the uncertainty about openly expressing views. In several cases, participants in the focus groups were known to each other and this was another factor in lowering anxiety at the start in order that the resulting data might be as reliable and relevant as possible.

The informality of the focus group, it was considered, would provide a forum for a fluent exchange of views from participants and although some 'awareness of any preconceptions of the topic being researched' (Gillham, 2009, p. 7), was present on the part of the researcher, it would remain an aspiration to avoid leading questions and comments. A measure of self-detachment that was expected from such an arrangement would also be maintained in order to retain a condition of leadership during the discussions.

One major advantage of focus groups is that the ideas and views of others are put forward and add an extra dynamic to the flow of responses. While there is an opportunity for disagreement, the breadth of opinion provides a valuable source of data compared especially to an individual interview. Gillham (2009) adds that focus groups offer the possibility of a 'range of ideas, experiences and proposals ... (and) there is a greater role for speculation' (p.67), all of which can enlighten the conversations and enrich the data.

5.4.2 Participants

Undergraduate music students on the BMus degree programmes at the University of Hull as well as postgraduate (taught and research) music students who had completed BMus or BA degree programmes at the same institution were invited to participate in the focus group study. Following the pilot session with two students, in response to this invitation, a further 15 music students (N=15) volunteered to participate in the five focus groups (known as Groups A,B,C,D,E) and did so willingly, according to availability, signing a consent form. Students displayed a variety of experience and practice of music through performance, composition and other musical activity and although information about modules that had been pursued was collected for the purpose of possible further analysis, the participants' particular interests in performance or composition were not investigated. Participants (identified in this report as S.1, S.2, and so on) consisted of 6 females and 9 males, four groups (Groups A, B, C, D) consisting of undergraduates all aged 19-21 (mean = 19.91) and one of postgraduates (Group E), one student of whom gave the age as between 25-30, another over 30. Their precise

ages were not requested. The division into these five groups, mostly representing specific year-groups, with the detail of the initial pilot group for reference, is given in Table 5.1 showing also a gender breakdown.

Table 5.1 *Details of Focus Group Participants*

[Pilot Group	Mixed u/g's	2 Students (comments not used)	1f, 1m]
Group A	Year 1	3 Students: S.1, S.2, S.3	1f, 2m
Group B	Year 2	2 Students: S.4, S.5	2m
Group C	Year 3	2 Students: S.6, S.7	2f
Group D	Mixed u/g's	4 Students S.8, S.9, S.10, S.11	3f, 1m
Group E	Mixed p/g's	4 Students S.12, S.13, S.14, S.15	4m

All participants were performers, the majority taking or having taken practical modules and achieved grade 8 or higher; experience varied from classical to jazz, some musicological analysis and criticism to studio technique and film. All undergraduates were BMus degree students except one who was a BA in music, and the mixed undergraduate group comprised three students from year 2 and one from year 1; the postgraduates formed an equal mix of MMus and PhD. Over half of the participants had singing experience as soloists or in choirs. Of the two participants in the Pilot focus group one was from year 2, the other from year 3, and since two changes were made to the earlier questions data from the discussion has not been used in the analysis.

5.4.3 Materials

The focus group questions consisted of a core of ten core questions that were grouped into four sets that related closely to the subsidiary research questions for this study identified above. These explored students' views about the understanding of aural and aural ability (Set 1), on the importance of aural and aural ability in different contexts (Set 2), on aural ability in relation to degree success and module choice, especially their views on the quantitative data from Study 1 (Set 3) and a final question about aural in its association with singing (Set 4), addressed by the four undergraduate groups only.

Table 5.2 *Focus Group Questions*

Set 1	<ol style="list-style-type: none"> 1. What do you understand by 'aural' in a musical context? 2. What specifically do you understand by 'aural ability'? 3. Please write down one word or statement on each one to reflect what you think aural ability is and put these into order of importance (<i>5 mins allowed for each group only discussion</i>)
Set 2	<ol style="list-style-type: none"> 4. How important is 'aural' and 'aural ability' in general musicianship? 5. How important is 'aural' and 'aural ability' in making your module choices? 6. How important is 'aural' and 'aural ability' in your music degree programme? 7. Is there a difference in the importance of 'aural' and 'aural ability' for performers, composers and musicologists?
Set 3	<ol style="list-style-type: none"> 8. Do you think that there might be a relationship between music students' aural ability (as defined in aural test marks) and their success on a degree programme (as defined by overall degree result)? 9. In evaluating past music students' aural test scores and overall degree results, I have found that there is a significant positive correlation... what are your views on this? 10. In evaluating past music students' module choices and overall degree results, I have found there is no significant correlation...what are your views on this?
Set 4	<ol style="list-style-type: none"> 11. What are your views on singing in relation to aural and aural ability?

The individual questions are shown in Table 5.2. The prompting questions were structured in a way that helped the discussions to proceed in a manner that was as informal and relaxed as possible and, following initial clarification about ethical issues, for the dialogue and situation to become settled before tackling the rather more demanding philosophical issues about the definition and application of aural and aural ability as a measure of potential degree success.

Further details of participants were obtained for reasons of contextual continuity to form a completed background of participants and to ensure appropriate interpretation and understanding of their perspectives and circumstances in their responses. As a

result of the initial pilot session a brief explanatory introduction to Question 2 was inserted that better prepared the participants for considering the distinction between aural and aural ability, and a short group activity was added as Question 3 to obtain a more collective view of the students' understandings about the topic. The pilot and five focus groups were all video-recorded.

5.4.4 Procedure

The focus groups were each conducted in an identical way. Following initial introductions and explanation of the purpose of the sessions, clarification was provided of the application of the research and confirmation of the anonymity of participants. A brief form was completed by each participant to confirm their consent to take part in the discussion, for it to be video-recorded, that they were free to withdraw from the study at any time and that sufficient information had been provided to them about the study. A request was further made for confidentiality and personal truthfulness in the discussions and responses to the issues raised.

As suggested by Morgan (1999), to stimulate their thinking on the topic, participants were given a few minutes prior to the start of the discussions to briefly note down their own thoughts about the subject of aural. It was considered that this task would help to reduce the risk of unthought-out views or statements that might subsequently be unrepresentative of the participant's considered opinion and could minimize hesitancy in responses and maximize the use of time.

5.4.5 Data Analysis

Following transcription of each of the focus groups dialogue, the data were analysed using the principles of thematic analysis in view of the areas of discussion that were anticipated from the questions posed and the earlier development of the diagram of aural analysis described in Chapter 1. This process was therefore used in preference to the conventional approach to content analysis, which, as stated by Hsieh and Shannon (2005), alternatively allows 'the categories and names for categories to flow from the data' (p. 1279). The process of extracting the frequency of specific words across all

responses was discounted in the analysis as a valid method to indicate emphasis due to its unreliability and high level of meaninglessness in the context of the discussions. Also, partly as a result of the wide-ranging nature of the topics raised in the discussions, it was believed that the task set as question 3 to show the participants' views of their understanding of aural reflected more precisely the importance attached by participants to their understanding and practical implications of aural.

As stated above, the focus groups were designed to capture a variety of opinions as to the relevance of aural particularly in the students' musical development although it was anticipated that opinions about the range of context of their application and level of usefulness would vary considerably. Though an exploratory project, each focus group was semi-structured and the set of open-ended questions intended to allow exploration into areas that were possibly unique to the student–musicians but which had a bearing on the totality of the relevance of aural ability in their musical development to date.

Following transcription, four stages of coding were established and undertaken rigorously. Because of the complexity of the subject, a large number of themes arose from the discussions, but to avoid isolated references to single points mentioned by participants in their responses to specific questions, the analysis concentrates on those significant topics that are raised that relate closely to addressing the research questions for this study. The first stage extracted the many themes that were touched upon in participants' responses, which were then collected into common topics as stage two.

Stage three was concerned with a further reduction of those topics into thematic categories under major sub-headings, followed by a final division of the responses into super-ordinate categories, represented by the five main thematic headings 1 to 5 given in Table 5.3. For a chart showing the breakdown of these headings into the topics and themes discussed in the analysis see Figure 5.1 below.

Table 5.3 *Division of the analysis into the five main thematic headings*

1.	Understanding of aural and aural ability (qq.1,2,3) (Section 5.5.2)
	i. Mental processing of aural
	ii. Practical application of aural
2.	Attitudes towards aural and aural ability (qq.1,2,3 ctd) (Section (5.5.3)
3.	Aural in different contexts and roles (qq.4,5,6,7,8) (Section 5.5.4)
4.	Views on the quantitative data from Study 1 (qq.8 (ctd),9,10) (Section 5.5.5)
5.	Aural and related issues (All questions) (Section 5.5.6)

5.5 RESULTS AND DISCUSSION

5.5.1 Overview of Analysis

There was an inevitable overlap in the responses given by students and a small level of digression which was checked did occasionally occur but to allow the report to be precise and to maintain reference to the thematic coding some adjustments were deemed necessary in the presentation of the responses. This would enable the proposed research questions to be logically addressed. While the reporting of the analysis has largely adopted the order of the four sets of questions, some tweaking of the analysis has been necessary to correspond to the thematic groups arising from the coding process. It was hoped that this would allow the analysis and discussion of the data to maintain clarity and avoid duplication. Also some of the categories are used more exhaustively at different points in the analyses depending on the questions that had been asked. A breakdown of the themes arising from the focus groups is shown in Figure 5.1 below.

The first of the main thematic headings, *Understanding of aural and aural ability*, is divided into two sub-headings, *Inner Processing of Aural* and *Practical Application* which differentiate the stages of musical inner thinking and practice. The section as a whole refers firstly to the extensive nature of musical experience from the initial reaction to listening and the elementary understanding of musical experience, whether attentive or passive, and secondly to its inner processing, to the practical application of musical thought, subsuming the process of the simple knowledge and recognition of theoretical elements – pitch, rhythm, harmony, style – and the communication and interpretation of inner musical deliberations.

It was perhaps inevitable that participants would reflect on their own experiences when asked of their views and the second main thematic heading entitled *Attitudes towards aural and aural ability* covers those areas that reflected the expression of a range of opinions about aural in the students' lives and their musical development, from the realisation of the importance of aural as a skill and its relevance to feelings of dislike and inability when encountering aural situations as indicated in Figure 5.1. As stated above, the contextual nature of aural was an important factor in the discussions and the third main heading, *Aural in different contexts and roles*, takes account of this by identifying various circumstances in which students referred to their experiences with aural. This heading includes the analysis of the students' views of aural in the degree programme, the discussions about the three contexts of performance, composition and musicology, and addresses the issue of module choice. These understandably emerge frequently in the responses to questions 4, 5, 6 and 7, and also occasionally in 8. (See Figure 5.1 for the topics covered.)

The fourth main heading entitled *Views on the quantitative data from Study 1* concerns the reactions of participants to the data taken from Study 1 about the relationship between aural results and degree success and between aural results and module choice. Reference is made to some preliminary comments made by the participants detailing their views on the possible relationship there might be between aural ability and both degree success and module choices (see Figure 5.1) before moving on to the actual presentation of the data. To explain the origin of the statistics, a brief

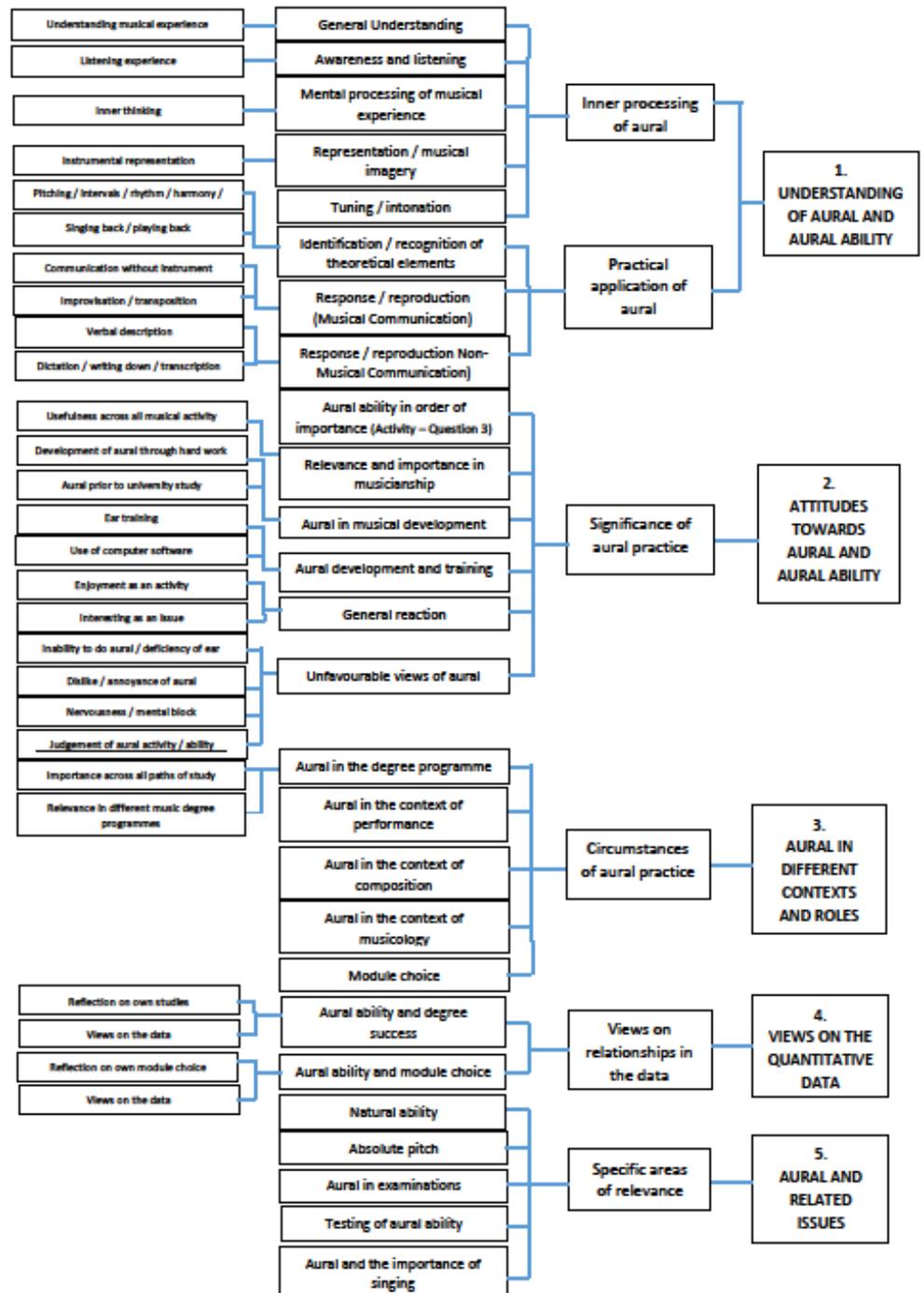


Figure 5.1 Chart showing a breakdown of the five main thematic headings into the topic areas

introduction to the data was given prior to the discussions (see Appendix C) which identified the content of the aural examinations which previous students had encountered and how the cross-tabulations between the aural marks and both the degree results and module choice were calculated. A copy of the handout containing tables and graphs from Study 1 shown to participants is provided in Appendix D.

A number of additional thematic areas arose throughout the focus group discussions and these are considered to be of importance in the overall assessment of students' views about aural. Of these the frequent reference to graded examinations is regarded as a source of much experience of aural for students and an assessment of the role of singing as viewed by students in response to the final question is also included. Other topics covered are natural ability, absolute pitch and the testing of aural ability (see Figure 5.1).

These major divisions into five thematic areas largely reflect the order that the questions were directed to participants, but use the thematic categories identified and adopted in the coding process to discuss the participants' comments. The analysis below demonstrates the wide-ranging nature of the discussions by students in each group in their exploration of aural and aural ability.

Indeed, students' understanding of aural in a musical context was not just overwhelmingly wide in the descriptions they put forward but there was a good deal of initial hesitation and uncertainty, almost confusion, about the difference between aural (as a topical activity in a musical context) and aural ability itself. The looseness of terminology was also evident in line with current conventions where distinctions in the usage of aural in both its sense as an ability and skills were less distinct and reflected in many instances a lack of conscious awareness about the subject as a whole.

This underlines the point raised at the outset of this thesis (see the Introduction) and confirms the ambiguity of the use of terms by musicians in practice. As it was anticipated that this would continue to be a problem after holding the pilot session, students were helped to clarify their views, as stated above, by way of an introductory

statement before asking Question 2 although the brief sentence consisted essentially of just an emphasis on the distinction between the entity of aural and the ability to carry out the activities that they had identified as constituting aural. A further reference to the varied use of the terms by the participants is given in the Conclusion below (see Section 5.6) but for the purposes of clear usage in this study and the analysis, a reminder of the application of terms in this thesis is given as follows:

- Aural – a general term to refer to the activity of processing musical sounds via inner musical thinking and the application and evaluation of that processing in music-making
- Aural ability – a general term to refer to the overall capability of an individual to undertake aural (as defined above).
- Aural skills – the specific competencies and techniques required to demonstrate aural and aural ability (as defined above)

It was apparent that many participants had not considered the concept of aural as a specific ability and again, as a result of the uncertainties experienced by those in the pilot group, it was felt to be useful for the students to discuss the matter between themselves and arrive at a sort of consensus. This, it was felt, would act as a means of drawing out their individual opinions as well as the possibility of assembling a collective view as written evidence which inevitably in turn would raise the status of the data. Students were requested therefore to undertake a practical task as the third question which was based on the collective requirement for participants to organise their views about aural into an order of importance. The students were left to discuss on their own for about five minutes and it was noted that some of the original confusion was broken down by the end of the brief debate and that some convergence of opinion between participants in each group was achieved, though the nature of the responses remained greatly varied between groups. A separate analysis of the actual results of this exercise is given below.

5.5.2 Students' views on the understanding of aural and aural ability

i. Inner Processing of Aural

General understanding

The most outstanding factor arising from participants' comments about their understanding of aural and aural ability was the sheer variety of views and the contrasting approach to the issue held by the students. Some students remarked on the multifarious approaches that might be taken in general to the topic and that 'there are a lot of strands' (S.4). One participant believed the issue to represent a 'massive question' (S.5), a second, that 'it just seems too broad a thing to sum up like a single ability' (S.14), the same thought expressed rather differently by another that 'there are a lot of different parameters [in] what you're working with' (S.12). Indeed, one student posed the searching question as to 'When does aural exist first?' (S.4) though it was not taken up by the others in the group. One participant noted perceptively in more abstract terms that 'It's a cognitive understanding of sound within the mind and linked to the perception of physical sound' (S.4), but put rather more simply by a student in a different group as 'You can only hear what you know' (S.12).

Awareness and listening

The conversations in each group demonstrated that although there was a clear overall awareness of the importance of internal thinking as an essential part of aural ability 'Yes, I think it is aural awareness' (S.2), some had not identified it as a specific process while for others it could be subsumed in the comment that 'Actually, it's all about the ear and listening' (S.8). Some participants initially saw aural from a simple listening perspective, being 'about listening skills and vocal skills' (S.10) and particularly related aural to the context of tests that accompanied graded examinations, further reference to which is made below. Clearly, most students perceived aural and its ability more than just an awareness through listening and a number remarked upon the importance of understanding what was being heard and listened to as part of their notion of aural though not necessarily highlighting any specific technical area.

Mental processing of musical experience

The analysis brought out observations made by students about the general processing of musical sounds and musical experience, though views about the mental process, that is, the activity that involves the 'inner ear', were less frequently voiced than references to the importance, to the participants, of the process of access to the stored knowledge necessary in the practical application of aural responses. References that were made included one succinctly put by one student in that it 'combines your ear and your brain' (S.13). Another claimed the importance of inner thinking 'because that enables you to access music more easily' (S.4) and two students agreed that it's 'in the mind' (S.5), and 'it's a mental thing' (S.4). The process of attentive and interpretative listening was inherent in the comment in a different group that aural equates to 'the ability to take something you hear and internalise it' (S.4), indicating a realisation that aural is part of musicianship and that 'it is essentially the interpretation of different musical sounds' (S.5).

Musical imagery

There was clearly a strong implication of the use of inner processing in the observation that aural is 'recognizing music without seeing it' (S.7) and though there seems to be no question in each group that it involves 'hearing and knowing inside your head' (S.14), one group pertinently pointed out the confusion of whether or not 'there are conscious and unconscious elements: what are they? And what's more important, in some cases they change' (S.4), although they did not go on to address this question. Another group discussed the importance of the inner processing in practical music-making: 'It's already having that image or sound even before you create a sound' (S.2). Indeed, the representational aspect is a significant facet of such mental processing in that instrumental images appear alongside the sound images: 'you get like a visual representation bearing in mind which instrument you play' (S.12). A guitarist in the group agreed: 'I can most times visualise it in my head doing it on the fret-board' (S.13), and it is certainly true, as reported elsewhere in this thesis, that in, for example, harmony dictation or composition, pianists often form the spacing of chords in their head, even also their digital muscles, when writing notation.

Tuning / Intonation

A different group linked the reference to mental processing to the importance of tuning, one student demonstrating more graphically by physically touching his head to show a 'point on my head [where] I can feel that I am in tune' (S.4). The issue of intonation and tuning, though essentially separate but nevertheless a significant part of aural ability – 'I think definitely about tuning' (S.5) – and its perceived link with the inner processing of sound, was also discussed for its role not just in performance but in tuning instruments: 'even if I'm just practising on my own, you have got to think about the intonation' (S.5). Its significance as an element in aural ability was acknowledged by students: 'definitely intonation was important' (S.6), 'because intonation is where it starts' (S.7) and that a problem will arise 'if your ear isn't so tuned' (S.9). The issue of being in tune is of course inherent to some extent in the phrase 'using your ear' and while intonation as a term was not actually used by some participants there is some understanding of the association with intonation in the reference to 'a workshop the other day, in that we relied greatly on the ear' (S.9). Another participant in the group expanded the topic to include 'musical direction; in this module I've got to conduct, and that's completely using your ears as judgment. That one relies heavily ...' (S.10).

ii. Practical Application*Identification and Recognition of Theoretical elements*

The main emphasis, however, in the views of the focus group participants on what they understood by aural and aural ability centred on the theoretical elements that form the tangible aspects of aural (see the themes in the final column of Figure 5.1) and a large proportion of students across the five groups referred to aural in this way. Reference was made particularly to rhythm, melody, harmony, in general, and what was called by several as pitch-singing⁹ and intervallic relationships, two typical examples being that 'When I think of aural I think in terms of pitching and the

⁹ This was a term used by some students to mean sight-singing. (See also footnote 6 on page 215.)

difference between different pitches' (S.14) and 'being able to identify things just by listening, intervals, cadences' (S2).

In fact, it was this practical application of aural and the recognition of theoretical aspects that most groups began with as their initial thoughts in discussing their views and each group believed that a substantial role of aural is in identifying theoretical elements and in the process of recognising the components of musical sound, a practice confirmed by one student in reference to a task recently undertaken in which it had been required 'to listen to a piece of music and add something to it: obviously that's completely aural-based' (S.6). As one student claimed, 'I completely agree with the ideas of the different elements of it' (S.11) and although perhaps it is the inexperience of the younger undergraduates that prompted the view that 'I think of aural as theory based stuff' (S.1), someone with more experience might alternatively consider looking back on their own development that 'if you're not as strong, you might think, ah well, this is a theory class' (S.15).

References were also made by participants to the facility of aural to help 'to understand pitches' (S.2), 'to be able to recognise harmonies' (S.1), and for example, the manner in which 'you should have been playing these notes, or these chord progressions' (S.12). One participant highlighted the importance of being 'able to recognise a beat' (S.9) and though another student in the same group thought 'people do use rhythm and harmony a lot more than pitching' (S.10), this might be debated, particularly insofar as, with the exception of music for untuned percussion, pitch as an element of musical expression, is fundamental to all melody, and while not normally existing without rhythm, it might do so. The tendency is possible that novice pianists are less conscious of the significance of pitch salience in cases where, for example, their greatest attention is largely devoted to technical fluency.

Response / reproduction through musical communication

In many cases participants drew on their recollections of their need to address test and examination requirements of playing or singing back. This of course refers back to the mental processing using memory and accessing inner musical thoughts, and some

uncertainty about the link between the practical application of aural and the 'inner ear' was displayed by one participant: 'Is it the ability to hear something and play it back?' (S.7), though a postgraduate student accepted that it was 'also your ability to perform that or sing that through whatever your medium is' (S.14). It might involve a variety of practical responses and students referred to a number of musical elements and circumstances in which they might be called upon to exercise their aural activities, for example, 'if you were played a melody and are asked to sing it back in pitch and rhythm, can you process it and regurgitate it?' (S.15). It would be necessary 'to recognise pitches and sing it' (S.7) 'so that it's accurate and an appropriate sound' (S.5), with a reminder of the risk of failure in an examination, for example, 'if you don't have the ear to be able to immediately sing something back' (S.9). Indeed, students saw singing back as a means of displaying aural ability and many linked it closely with aural training and assessment, referring to its use in examinations (about which more is written below), particularly where it might be necessary to demonstrate some element of musical memory to recall a musical passage and 'relay it through your voice' (S.5).

Some students considered the repetition of a melodic phrase from memory or from the 'inner ear' from the opposite perspective, preferring to extend the concept of aural ability to one in which the communication of musical ideas was undertaken without access to instruments: 'your skill is outside an instrument, like, what you can do without an instrument' (S.3) and 'it's like that internal recognition of where you're away from that instrument or whatever you can hear' (S.12). This is taken still further through the principle of composition, at least to some degree, as put forward in one comment, that (in effective aural ability) 'you've got to have a strong feeling, more like a feeling in terms of composition' (S.15), another student also alluding to composition as a means of understanding aural ability: 'I think of the compositional element just to hear the structure of music and sound' (S.4).

Although the actual benefit of using singing in aural activity is raised below in more detail in section 5.5.6, clearly this is a medium utilised in aural practice since, as explained in Chapter 1, the voice is a direct means of demonstrating inner musical thought and although it may not always be a reliable indicator, its use in aural

assessment has been widely adopted. As reported below, not all students in this study agreed with this usage but clearly singing was in the minds of many participants and was referred to with a good level of acceptance as being about 'repeating a musical phrase, so that you can sing it back' (S.10).

Improvisation, transposition and singing harmony

This concept of the use of aural might be extended to the use of improvisation in which the identification of pitches came to mind of one student (S.1) and another made a passing reference to transposition (S.4). One reference was also made to another instance where the student felt aural ability might occur such as 'singing harmony with someone' (S.4).

Response / reproduction through non-musical communication

While singing or playing back are ways to demonstrate aural ability, the verbal description of a passage of music which has been heard are frequent occurrences within a one-to-one situation such as a performance examination, as confirmed by two comments - 'you describe what you hear' (S.12) – and on stylistic features, the situation experienced when 'maybe listening to a piece of music and having to say what period it was from' (S.7). Only one group¹⁰ considered other circumstances in which reproduction was likely such as dictation and written assessment, one such identifying 'exercises, solfège and rhythmic, melodic dictation - that's what I initially [thought]' (S.13), and the ability being that 'you can listen to something and be able to write it down' (S.15). The application of the ear in other musical activities was also remembered by one group 'when we had to transcribe that vocal thing' (S.9) and 'yes, a lot of the orchestration uses pitch' (S.10). One student found the process of arrangement interesting in 'knowing which notes work best for different instruments, and the relationship between the voice parts' (S.3).

¹⁰ The possible implication is that only those who have in the past experienced the activity of dictation thought of this circumstance and that this process is not undertaken any longer. It is interesting to speculate how different the current students would view the task of aural examination in the format undertaken by former students, details of which are given in Study 1 in Chapter 4.

Summary

Despite the variety of views, clearly participants regarded aural as important but were very ambiguous in their statements about their understanding. There was no real consensus on its essential qualities and while references were made to both the processing in the 'inner ear' and to the practical application, for example, in examination situations, participants varied in their depth of conceptual understanding and awareness through experience. Indeed, the majority of participants viewed aural in terms of its practical role, especially depending on whether individuals were performers or composers, and related their views closely to their experiences, in many cases to their development and training prior to their university entrance, with the exception of the postgraduates who referred back to their studies as undergraduates.

5.5.3 Students' attitudes towards aural and aural ability

Significance of aural and aural ability

Aural ability in order of importance (Activity - Question 3)

While the results of the task set as question 3 demonstrate little consensus between groups and indicate yet further and quite emphatically the discrepancy held by the student–musicians in their understanding of aural and aural ability, the exercise was valuable in obtaining views totally unaffected by the researcher and represent each group's own collective understanding of aural and aural ability. Moreover, the wide-ranging results display a variety of approaches to the issue and provide a particularly interesting and valuable insight into the views about the subject from fellow musicians. Indeed, the only basic word to appear more than three times is 'recognising' or its abstract equivalent 'recognition', from four of the five groups, thereby implying a concept of a mental processing operation by way of accessing or extracting existing knowledge. Otherwise, the next most frequent word, adopted three times in total by the groups, was 'harmony' or its derivatives, although this never appears higher than the third in importance. If one links together pitch, intervals, tuning and intonation, this commonality in concept of pitch is mentioned five times, often in first or second

place in importance, which indicates a general tendency that the concept of pitch is uppermost in many of the participants' views. Only one group referred each to rhythm, instruments, memory and transcription, indicating overall very wide-ranging views about what constituted aural in the minds of the students. It must be said, however, that the abstract concepts put forward by the postgraduate group do imply both a mental and practical application of aural activity although they are not converted into the more tangible notions of the undergraduates.

Quotations taken from the responses to the first set of questions, including the task posed as Question 3 and conversations held during the activity, show that students fused their concepts about aural in general between its practical application and the implied skills involved. It was not until participants had written down their collective thoughts about aural and arranged them into an order of importance that some consensus within an individual group was in fact reached (see Figure 5.2), and as indicated above there was only a limited commonality in the deliberations and the resulting choice of words and phrases between focus groups that summed up their views. In the event, the majority of views were concerned with the practical element of aural and the context in which it had impacted upon their musical development.

In complete contrast, the postgraduate group perceived the issue totally from an abstract perspective, selecting none of the above specific areas of musical practice, preferring to divide their perceptions into five processes, interestingly, on similar lines to the diagram of aural processing promulgated in Chapter 1. The five areas were defined as 'Acquisition, Recognition, Application, Communication and Maintenance', indicating a mature view gained from experience and an advanced level of understanding of the importance of aural in the development of musicianship.

Relevance and importance in musicianship

Many students talked about their experiences in various circumstances with aural, some positive about its relevance in their development as musicians, many, in contrast, giving negative comments about their difficulties in examination situations and their reactions to the problems they encountered. Indeed, the perception of aural as

important was not totally absent in any group and several references were made during conversations to its overall significance as part of a positive opinion about its usefulness and application in the development of musicianship, one student claiming that 'if you can't do that, you've got no hope in music' (S.1), another with clear personal experience that 'without it, how can you, internally, recognise what the music's actually doing?' (S.14). The realisation of the importance of its future benefits was expressed by the same student, being described as 'an important instrument to have' (S.14) and in terms of professional value by a student who 'knew it was helping my musical career' (S.8).

GROUP A	
1.	Recognising pitch and intervals
2.	Understanding / identifying stylistic features
3.	Harmonic awareness
4.	Recognising instruments
GROUP B	
1.	Memory – of a sound / aural entity
2.	Tuning – mind
3.	Harmonisation – the conception of hearing tone within another tone
4.	Transcription – paper to mind, mind to paper
GROUP C	
1.	Intonation
2.	Understanding intervals and relationships in music
3.	General awareness and appreciation eg stylistically
4.	Recognising music without seeing it (ie score)
GROUP D	
1.	Rhythm,
2.	Pitch
3.	Harmony
GROUP E	
1.	Acquisition
2.	Recognition
3.	Application
4.	Communicate ideas
5.	Maintenance

Figure 5.2 Views about aural ability in order of importance given by individual groups

All groups agreed on the importance of aural either as a skill or in the development of musicianship – 'I always viewed aural as musicianship' (S.4) - as reiterated by the following students to be a 'vital part of general musicianship' (S.2), 'I think it's pretty important' (S.6), 'it's really important for me' (S.11) and 'it kind of almost is the foundation of a musician whether you're analysing a rhythm or analysing a piece, listening to something' (S.9). As stated above, its presence across many areas of musicianship was repeated following earlier questions in that 'aural crops up everywhere' (S.3) and that to be a musician 'you need aural, yes, you do' (S.10).

Interestingly, as stated above in connection with the Activity of question 3, the discussion in the postgraduate group tended towards greater objectivity, one student declaring that 'we consider aural from a western perspective' (S.12) although the view was not taken further in the group's discussion. The others concurred that 'aural is an exciting thing' (S.13, S.14, S.15), in that it enables the resolution of puzzling aspects though one did proceed to qualify this opinion by describing the skills also as a 'kind of a frustrating thing' (S.14) when they were less successful in resolving problems.

Aural in musical development

Participants also regarded the subject in terms of its general relevance in musical development, either earlier in their lives through musical training or through performance and associated musical practice. 'You play an instrument, that's where it starts' (S.5) although full realisation of its relevance may not be evident until rather later, in the case of one student not until studying at degree level: 'I don't think I've even thought about it actually' (S.9). A similar view was held in another group that aural and performance were not separate entities and that the process 'kind of just blends into one; you're not really aware' (S.7), whereas another spoke of this fusion of practice and processing being limited by the extent of one's own aural skills in musicianship in that 'it limits their application of what they have musically, without that aural kind of awareness of what is going on' (S.14).

Indeed, it was noted that relatively few students had thought about the relevance of aural to their development as musicians as opposed to their experience as part of

practical examinations, since this was how they had gained experience of it. This is perhaps due to the lack of time and emphasis placed on the acquisition of aural skills during general instrumental lessons¹¹ and the not uncommon reference to graded examination preparation being the only context in which aural is practised: 'the extent of my training was the AB grades' (S.11) and that to achieve an examination pass it would be expected that 'You would always have to do more aural' (S.6). Some students declared their acceptance of this openly in that 'I think aural is going to help everything'; I just 100% agree with that' (S.2) and that 'I don't think you can avoid it' (S.6): 'it's something you have to do' (S.5), one participant considering it from the opposite angle that 'there's a lot of crossover in music: you know, if you can't do this you'll struggle' (S.1), even to the point of inadequacy: 'If I took an aural test now, I'd fail it' (S.9).

Development of aural through hard work

Perhaps it is in the problematic nature of aural, especially the difficulties of not knowing another's inner musical thoughts, that though there is realisation by many that aural is beneficial in overall development, it is not always undertaken: 'I did regret it: it was something I should have kept building up but I never did' (S.8). Despite the realisation that methodical work can achieve results, effort and time are not always devoted in sufficient amount: 'You can practise your aural skills in the same way as to practise your pieces, but you just don't' (S.10).

Notwithstanding, there was no doubt in some students' views that aural can be developed, one stating that 'I think it's a skill: it just needs work' (S.2), indeed, devoted work is required if success within aural is to be achieved – 'I do think it can be equated to just hard work' (S.14) - that 'even just developing yourself, your musicianship, getting your musical ear, it's quite important' (S.9). A student from the same group went further by stating that 'the more you do, the better it's going to be' (S.10).

¹¹ Trinity examinations have for some years allowed candidates to choose options other than aural from examinations up to Grade 5, a facility that I believe does no service in the longer term for instrumentalists and later musicianship.

Aural development and training

While it was evident that from the experience of the focus group discussions that as they progressed through their degree programme students became more aware of the application of their mental resources in their various studies, there was clear evidence that many had not thought of their aural ability as a specifically separate entity nor fully considered its place as a vital element of musicianship. As shown above, the students' responses to Question 3 confirmed this wide variety in understanding and application.

Mention was made by some groups also to the circumstances in which aural might feature in practice and training, as part of the development of musicianship, and the maintenance of musical skills that might be supported most effectively by aural exercises. In one group a student was accustomed to practising aural skills and reported that 'I had software on my computer' (S.10), while another referred to piano lessons in which the teacher unusually organised the time so that 'half of it would be my lesson on my instrument and half of it would be aural' (S.9). Indeed, the importance of repetition was remarked on by one student who believed that practice (through repetition) of aural exercises is valuable in building up many aspects of musical practice, that aural is 'tied up with idea of repetition ... if you are doing exercises, warming-up exercises, so for example you go up in thirds, fourths or fifths, or something like that, you get accustomed to hearing those notes next to each other' (S.13). The statement by the same student earlier in the discussion had been that 'my initial thoughts are about ear training' (S.13), clearly supported its representation as a systematic development of the ear, a view also held by a student in another group who likewise claimed that 'I've got down here about ear training' (S.11). Interestingly, these references to ear training were considered only by students in the two most experienced year-groups though the subject itself did not receive any further exploration.

Aural prior to university study

With their advantage of hindsight, the postgraduate students also believed that where students had problems with aural, the difficulties had begun earlier – 'it's a pre-

university problem' (S.12) – and while another student in the group had 'had a little bit of training at school, and it did put me in good stead' (S.15), a younger participant, who shared the view that more needed to have been learnt prior to university entry, declared that 'a lot of it is the basics you got before you came, because, for myself, I don't have a lot of skills' (S.8). Another thought similarly that 'I came here without it; even in the first year it wasn't difficult, but there was a lot of work' (S.4). Indeed, for some, hard work may be necessary, that 'you have to put the work in' (S.6), and that 'when you look at aural skills I honestly do agree that being apathetic will get you nowhere' (S.10).

Much of course depends on the personality of the individual and as one participant claimed, 'I do think that a key part of it is what you do when you come to university' (S.8). But another group asserted that where students are fortunate enough to have received good training or have some developed their ability (irrespective of whether it might be conceived as being natural¹² or cultivated), the advantage is that 'when you have that aural ability, composition and performance become almost innate' (S.4).

General reaction

Indeed, two students in the postgraduate group expressed further positive feelings about the activity of aural, one their enjoyment (possibly because of the rapid progress which had been made) – 'for me it was the best part' (S.12) – another, the thrill of improvement – 'I think it's quite exciting!' (S.14).

Unfavourable attitude towards aural

Most adverse views of aural were based on students' experiences of tests undertaken as part of graded examinations which cause one student to 'feel sick whenever I do it and my nerves completely take over!' (S.9), a common effect of the challenging situation being voiced by another student in the group who agreed that 'despite practising it so hard, I've given myself this mental block' (S.11). Comments relating to such feelings are reported under the reference to related issues below (see section

¹² See Chapter 2 for a reference to the nurture–nature debate

5.6). However, one younger student found aural unfavourable for a completely different reason; because of its apparent remoteness (to that participant) from actual music-making, aural activity, usually in the context of training, was considered arduous and too theoretical: 'I think it's because it's not creative, it's, like, rudimentary' (S.3).

Summary

As previously stated with regard to the understanding of aural and aural ability, participants were equally diverse in their attitudes toward the activity. The several references to unhappiness with its inclusion in graded examinations, caused a palpable level of overall negativity during some conversations about its importance and place in students' own musical development, and indeed, it was clear from the general agreement at times that the skills, on which you draw in the study of music, should have been developed prior to university entry, a factor that links closely to this thesis and about which mention has been made in Chapter 2. Statements to the effect that training in music does not always cover the development of aural ability were made but all groups accepted its relevance and significance in all musical roles despite the belief expressed by some that where individuals had problems, the situation could be rectified by hard work, though this was not accepted in all groups. Overall, attitudes remained positive about the importance and usefulness of aural but that it was not always given the attention necessary to develop the skills.

5.5.4 Aural in different contexts and roles

Aural in the degree programme

Students made frequent reference in their discussions concerning the importance of aural and aural ability within the degree programme particularly to their experiences on it and to their personal paths of study. Indeed, participants were inclined, in many instances, to identify particular musical activities and while initially there was a broadness in the approach to the issue of the relevance of aural in different musical roles, there was also some divergence in views across each group and within groups.

The complexity of differentiating between musical roles was enormous as suggested by one participant who shrewdly asserted that 'there's no right or wrong answers for this, is there?' (S.1). Another student questioned the concept of aural as a 'separate entity' (S.9) which is 'used in different ways' (S.3) and 'depends on the person' (S.7), but most groups on reflection and through the discussion understood the value and applications of aural across those musical roles that were identified. 'It is just an important skill all round' (S.12), stated a postgraduate and while one student thought that aural was the same in each musical role - 'No, I don't think it's any different' (S.11), in another group the opposing view was held that 'they are three totally different things' (S.5). On the one hand aural encompasses many aspects but to interpret music fully and understand 'everything that's happening ... you are needing more than aural' (S.5), not only 'to do with pitch and stuff, just knowing about instruments, using different rhythms' (S.8) and, for example, 'using the harmonic series: I know that as a musician' (S.4).

The postgraduate group also reflected on the situation of their own undergraduate programme a few years previously and expressed some disappointment that 'not much emphasis was placed' (S.13) on the provision of aural and that 'there was nothing really offered in terms of aural skills' (S.14). A similar view, interestingly, that the subject of aural was not discussed more recently in the degree programme, was shared by two year 3 students: 'You don't really talk aural and capabilities' (S.6). Though not specifically mentioning it, one student did imply that to improve aural was a reason to study music, that students have 'got three years for their degree: they've come to develop their musical ear' (S.10), a statement that appears to recognise the value of aural ability as a support to the music degree. Despite the benefits that aural might bring as 'a traditional way of teaching and everyone knows the benefits ... it's been neglected' (S.12), the result being that specific aural training within a music degree programme, of which the data in Study 1 provided a part, but was regarded now as an outmoded form of musicianship development, was consequently discontinued, though, on the other hand, as the same student went on to say, it would be unfair 'for it to have an influence as a marker for your degree, if you have had no exposure to it in your three years' (S.12). Another postgraduate did not feel his group to be

sufficiently qualified to collectively respond since, in respect to aural training in the degree programme, 'there was no real emphasis on that ... I mean, if there were, then I would feel more qualified to answer that, because I feel there hasn't really been any: it's a question I can't answer' (S.14).

An alternative viewpoint was put by one student in the reference made to the need for aural skills in order to successfully study the subject at the standard required to gain the degree. It was thought that there may be some students who are insufficiently adept at aural to fully study up to the requirements of the set modules. The point was made apropos of aural that when students arrive at university and 'come to degree level, they are missing skills' (S.10). The issue returns directly to one of the central cores of this thesis, that of the question about links between aural and its potential to influence degree success though the matter was not explored any further in that group's discussion. It is taken up again in the final chapter.

A participant in a different group confirmed a practical effect of the lack of provision in his own circumstance: 'I could definitely say my aural ability three years ago was better than what it is now' (S.7). Clearly changes had come about in the approach to aural when participants in one group expressed dismay (and fright?!) at the suggestion during their subsequent discussion when assessing the data from Study 1 of being shown an aural examination paper which previous students had sat as part of their degree programme.

Importance across all paths of study

Before addressing the differences in aural relating to specific musical roles, it was significant that there was a general realisation by the youngest undergraduates of the importance of aural across all degree paths: 'I would say the better you get at it, the more all-round better you are going to be at the modules' (S.3), another participant fully agreeing that aural ability 'would help in so many different ways' (S.2). In fact, the differences in musical ability had been raised earlier in the focus group discussion by one participant who realised that in that group 'you might have a very good performer, a very good musicologist, and then a composer, but they all might be equal in their ability as a musician, but just not in the same field' (S.9), the implication being that this

would reflect equally in differences within the constituents of their musical ability. The same student later consolidated the earlier comment in the context of aural ability that 'it's clear it plays a significant part in everything else' (S.9). Indeed, all groups considered in some depth the issue of the differences in the importance of aural within performance, composition and musicology and especially the effect of any difference.

Relevance in different music degree programmes

Participants made some comparison of abilities that were felt to be needed to pursue specific music degree programmes especially between those who followed a classically oriented route compared with those who were studying jazz and popular music. Students in several cases were clear that the improvisatory skills of the latter group gave them better aural skills - 'I always think an improviser will have good musicianship and aural'. (S.15) - while classical training provided greater notational and reading skills, one participant putting forward the suggestion that 'I imagine I have better techniques, whereas their transcription skills are better' (S.6). This was a view supported by another participant who shared the challenges of transcription, agreeing that jazz-experienced players perform more from their head and that in the use of aural for transcription 'their capabilities or by far and away better' (S.7). The postgraduate group considered that in musical performance such players are 'not thinking in terms of relationships, they're just trying to keep their minds clear so they can just react' (S.13); they have 'learnt it (from the sound), not thinking about playing a "flat nine"' (S.12).

It is perhaps not until later in development that the realisation occurs that limitations are evident: 'You go on to A-level and you start to think about that in more depth' (S.5), or even later at degree level as felt by a postgraduate student with hindsight: 'My aural skills ... in my undergraduate years were quite undeveloped' (S.14). The awareness of aural for some was quite unconscious and a number had become musically proficient without any realisation of the importance of their 'inner ear' as a separate entity. Indeed, the discussion itself had drawn attention to the awareness of aural for one student who now realised 'I've been using much more aural skills than I thought I was' (S.9).

Aural in the context of Performance

All groups believed that the context of performance was an area in which aural skills were utilised, one participant maintaining that for 'the best performance, for a sufficiently high standard, you need to be good aurally' (S.4) and another that it is of great importance to make 'a reaction rather than just playing fast as a solo' (S.13). Not only, quite simply, does aural help 'to understand pieces on your own instrument' (S.2), but it is necessary when 'it comes to the final stages of performance together, to make it all fit' (S.6). The involvement of aural in performance is inherent where 'you have to think where the music is going ... we're starting to modulate here' (S.5).

The relative importance of aural in performance, as opposed to the other two identified areas of composition and musicology, was a source of much debate and agreement was not always reached regarding its level of individual application. In one group a student stated that 'I would say it is important in composition' (S.3), strongly contrasting with the views of two others in the group: 'I would say performance' (S.1), 'performance, yes' (S.2). On the other hand, composition was felt to be as equally important an area where aural was necessary, endorsed by students in another group, one of whom 'imagined that composition to be heavily kind of aural based' (S.6), another that 'if you're going to take compositional modules, I think aural is a great aid' (S.5), 'because the best composition comes from your mind' (S.4). The latter student, however, went on to state that aural was essential in both areas: 'I think if you don't have aural and you, say, take composition, performance, it's a big risk' (S.4).

Aural in the context of Composition

A student in a different group believed 'you need aural to compose' (S.10) while another member of that group agreed that greater significance should be attached to aural since, 'I probably use aural skills, more in composition, if you specialise in composition, more than any other area' (S.8). This comment implies that aural is particularly needed where composition is seriously studied, a point made by a participant in a further group that it was possibly more important than in other musical

activities: 'perhaps more in composition: very important' (S.13). One student was clear that 'I think definitely for composers, aural is part of it but also the imagination' (S.7), although whether what was in the mind of the student in the reference to imagination was mental processing rather than the richness of invention is not certain. There was also some naiveté by one participant in a reference to Beethoven that despite deafness 'he was a prolific composer – he used to be able to write a melody and he would then be able to imagine that melody' (S.5), a view that seems to display surprise that this was unusual and that aural was in fact involved in composition.

One participant saw the relevance of aural in composition from the contrasting perspective of enhancing his existing skills and felt that 'probably my aural ability is getting better through composition without me even realising it' (S.9). The issue of the availability of computer programs aiding composition was also raised in two groups to balance the argument that aural might not necessarily be required – 'they are a massive aid' (S.5), and provided the opportunity that 'anyone can compose but ... the real skill comes from ... writing specifically for the instrument' (S.6), support for this view being shown by another who had 'worked with Sibelius and the sound was never the same' (S.7). The implication in these last statements is that successful composition required at least some aural experience and technical knowledge as borne out by one student's attempts at composition who becomes 'frustrated as a composer, though, because I have ideas in my head ... so it then takes me ages at the piano to figure out what it is' (S.9).

Aural in the context of Musicology

The uncertainty in the importance of aural was also extended in the conversations about the differences between composition and musicology - it was 'different for musicology' (S.9) - and views in some cases changed during the discussion. 'Well, my initial thought was that musicologists, they don't need it ... but it is quite important ...we need it to understand it enough to write about it' (S.3). Those in another group, however, agreed that 'vital is the correct term' (S.6) to describe the importance of aural for musicologists as 'they are looking at how something is written down, and where

things progress to and writing about that' (S.5). One participant believed 'musicologists will go really deep into it' (S.1) to ascertain special effects while in contrast, another student maintained the view of the lesser relationship between aural and musicology: 'I think in musicology you can get away, not without it, but you don't need it at the highest level' (S.4).

Notational skills of course occur in both composition and musicology, but participants in another group also raised the point that 'for musicology, it's about listening' (S.9). Further differentiation between roles was inherent in one group's discussion involving the use of aural in mental processing and interpretation that 'if you are performing and listening you're more using your aural skills to listen to what your other parts are doing, whereas as a composer you want to be thinking about how you want to be writing' (S.1), and that 'for composers and musicologists there is more room for error; it will take longer to process it rather than be ready to do it' (S.10) as is necessary in live performance, for example.

Module Choice

The situation regarding the influence of aural on students in their choice of modules in the degree programme varied and the participants similarly showed differences of opinion about the level at which aural played any part. In the case of the first year students, the issue was possibly mostly related to the lack of awareness of aural, mention of which has been made above. Two students believed little association was attached to aural in selecting modules, the first claiming that 'no importance I would say; little to none' (S.1), the other student agreeing, though feeling that the involvement was not so much 'in choosing them (but) I think it is important in succeeding in some of your choices' (S.3), a view agreed by the third participant in the group and a point which has been implied above in other statements about aural in performance and composition.

Reactions voiced in another group were that aural was 'quite important' (S.6) in selecting modules and acknowledged its relevance in decision making: 'I would say it

influences my modules' (S.10) although the student went on thought-provokingly to claim that 'modules influence my musical ear' (S.10). No further explanation was offered in support of the statement but another student in the group did believe that aural 'influences your modules without you even realising' (S.9). Indeed, there was perhaps a level of unawareness in the module selection process of one student and that the challenges of aural subconsciously affected choices: 'arranging modules I stayed away from, and stayed away from composition, so maybe that had an effect' (S.6), whereas another student was more convinced that aural ability may be a hidden criterion in module choice: 'it's an unconscious decision' (S.5). In another group a participant felt the need to circumvent what was considered to be an aural-associated component in a performance module 'because of the sight-singing¹³ element of it' (S.11) while another concurred that 'it's not there this year so I jumped at the chance to do (the performance module)' (S.9). A similar reaction was voiced by another participant who admitted the implied challenge of aural was a hindrance: 'Yes, I struggle with composition, so I've never really got down that route' (S.6).

Aural was not a conscious issue in the case of some other students as one confirmed: 'I don't think of aural as I'm not going to take it' (S.6) especially, as compared with the degree programme in earlier years, as stated above, it was no longer a module area provided. A postgraduate student, looking back believed 'in terms of my own aural skills, it didn't affect any of my choices' (S.15). Specific criteria were foremost for some, however: 'I kind of chose my modules because I was good at performance' (S.7). Another group had a different perspective, that it was not aural which had any influence 'but you choose a module because it's something that interests you' (S.5) and that 'what makes the difference ... is having the drive' (S.4). One student who chose a module for a rather poor reason in which aural ability probably had no part in the

¹³ Some confusion was apparent over the use of the term sight-reading in which I believe students had intended to mean sight-singing or to imagine the notes that are read to be heard inwardly, as in the comments '*I think sight-reading has to come into it to some extent*', (S.3), and that '*it is the most difficult area [of aural]*' (S.3).

decision declared 'I'm only doing Performance II in the second semester to fill a space' (S.10).

Summary

No clear agreement on the way aural was applied to different musical activities was reached nor on the relative importance of aural in any role. The three contexts of performance, composition and musicology had been identified in the questions led participants to consider each field of study, some participants, indeed, altering their opinions as a result of the discussion. There was an implication that unless students undertook dedicated additional work, their general level of aural ability might not improve, and even deteriorate, and without the attendant skills not all aspirations could be achieved. The postgraduates, with the facility to look back on their own degree paths, especially regretted that no aural training was provided within the wider programme other than offering free access to ear training software.¹⁴

There was nevertheless a general consensus that aural ability would be beneficial in all musical study but that there were differences in application, the distinctions highlighted by some participants between those skills used in jazz and popular music, where improvisation and playing by ear was common, in contrast to classical training which concentrated on the performance of composed music where reading notation and perfection of technique were of greatest significance.

Most participants also agreed that aural was not a component in making their module choices, at least not a conscious factor, though there may be some indirect influence according to the level of ability and the confidence of some students to undertake modules which they perceived might call upon their 'inner ear'.

¹⁴ The ear training program, *MacGamut*, continued to be the main source of aural development for those students who wished to take it up once formal training sessions and examinations, the data from which was the subject of Study 1, ceased in 2009. This has since been replaced by different software.

5.5.5 Students' views on the quantitative data from Study 1

Views on relationships

Aural ability and degree success: reflection on own studies

This section links closely with the first study that sought to establish correlations between aural examination results and degree success and is designed to explore the reactions and views to this data by current students, the participants in the focus groups. However, before reference was made to the data from Study 1 participants were asked about whether they themselves believed there might be any relationship between aural ability and degree success. While students understandably based their responses on their own experience, the conversations in the various groups explored different paths and levels of relevance of aural but digressed in many cases to refer to specific contexts of activity. There continued, nevertheless, to be a prevailing agreement across all groups, already stated in response to previous questions, that aural was an important factor in musicianship and therefore studying for the music degree in general. The discussions had already caused participants to think more deeply about the role of aural and on responding to the later question (q. 8) about the possible relationship between aural ability and degree success, students in several cases reiterated their earlier statements of the importance of aural in the degree programme.

Indeed, the attendance in the focus group had made other students also realise the relevance of aural in their studies too: 'I literally had no conception of aural and even when I came here last year, it was so bad: my aural wasn't great' (S.4); 'So yes, I can see that it is more important than what I thought' (S.7). Another participant repeated the point made previously that 'you really do have to have good aural skills to be a successful musician' (S.10), and you need to know what's in your head: 'I would agree with that, I really would' (S.5). This was acknowledged by a postgraduate student

looking ahead to later career prospects that 'it will equip you better for when you actually leave university'¹⁵ (S.13).

Aural ability and degree success: views on the data

Views expressed by students concerning the data that related aural results to degree success showed some correlation between aural results and degree success were mixed, some participants displaying an affinity with the data presented: 'I could understand it; yes, I don't like the idea of it, but I can see where it's come from' (S.11). A participant in the same group also accepted the conclusions of the correlation in that 'I think I would agree to have good musicianship, you'd get a great degree' (S.10), the same student suggesting by pointing in the air to a slanting upwards line that 'if you had a scatter diagram, like success, there might be a general line' (S.10), indicating that a clear understanding of the data had been gained.

There was some reluctance on the part of some participants to accept that there was a connection between aural ability and degree success, one student (S.4) while agreeing that it was interesting to see the data in written form (somewhat implying a level of uncertainty about the hypothesis), others in different groups, not appearing to fully accept the data, said 'I wouldn't have expected it to be that direct' (S.3) and 'I think that's very surprising' (S.6). Another student, also a little sceptical about the conclusions, provided a different perspective insofar as 'music being such a wide subject ... a number of things come into it, to help you, not just aural marks that make you a good student' (S.3) and therefore lead to success in the degree. An explanation was supplied that there were indeed a number of conditions that might influence the data – illness, unfamiliarity with or misunderstanding of questions, tension during examination, penalties affecting the final degree mark such as late submission of work, etc (see Chapter 4) – and that the statistics were suggesting a broad principle of a correlation rather than direct evidence. A student proceeded to confess that, having

¹⁵ In a separate study, professional musicians corroborated this comment that aural skills had been a significant element of their success in their career as teacher, composer, conductor etc. (See Wright 2012b)

been weak in aural and on consideration of the statistics, 'I see in this, my degree's been hindered by it' (S.6), echoing a comment from another participant who, having realised their own inability, that 'it means I must buckle down in my aural!' (S.1). Although it was explained, however, that the statistics did apply to past students and that participants should not unduly worry about any direct application to current circumstances, the other youngest undergraduates did agree that aural 'is one of those things that if you don't work at it, then ... you aren't going to do as well as someone who has thought about it and taken the time with it' (S.2)

Relationship between aural ability and module choice: views on the data

Aural ability and module choice: reflection on own module choice

Again, this section refers back to Study 1 and the final aim to explore the possibility of a correlation between aural examination results and the choices made by students in their music degree modules. Generally speaking, participants, having now discussed the overall role of aural in the degree programme and deliberating over the relative significance of aural ability in different musical activities, linked the possible variation in aural skills between the three musician roles of performer, composer and musicologist with the choice of modules taken during the music degree programme. However, the discussion in groups also considered the wider spectrum that overall in aural, stated one student, 'I would say that the better you are, in marks, the better you are, not in the whole modules, but the use of it in modules' (S.3) thereby implying that aural skills are applicable across the whole degree programme and that if the student already has aural ability, this will positively influence study in any module. A similar point was reiterated in other groups about the universality of aural that 'if someone comes in and has aural ability, that it is at a professional standard, their degree becomes (clicks finger) that much easier' (S.4), and 'whatever, like, modules you choose for your degree, you're going to have to have some aural capability' (S.7). It was clear from previous discussion that several students believed there to be a correlation

between aural and success: 'I think so' (S.11), though it was not an outright acceptance and it 'depends on their modules' (S.6), 'what they choose' (S.7).

Indeed, these last two participants went on to discuss the relative importance of aural, as they thought, in musicological activity, one maintaining that 'if it's an essay-based one, and you're doing, like, historical stuff, and analysis, you could probably get away with it not being very good at aural' (S.6), the other, not fully agreeing since in 'writing an essay on Beethoven, you're going to have to listen to music ... (and that) it would definitely help whenever it comes to giving people criticism, about what's happening between the band and the instruments' (S.7). Some differences in the importance of aural skills were considered by other groups, one participant supporting the view that 'if you do a performance module you are likely to have better aural skills' (S.10) and another asserting that 'I definitely use different aural skills when I perform as to when I compose' (S.4). Participants, however, did not go on to identify the nature of those differences and in many cases it was apparent that such views were not founded on specific evidence, rather on unexplored reactions to an initial consideration of the matter. Moreover, whether students' knowledge about how good they were at aural affected their choice of modules, or whether it was because they were good and assumed their aural was at an equal standard, remains uncertain.

The student who had previously expressed concern at the judgements made in aural tests again reiterated the view that 'I don't think that represents their aural ability fully, if you would then look at their performance skills, their composition skills, and their ability to conduct, or do rhythm or whatever' (S.9) though this same student a short while later did accept that 'I can completely see why, why it is higher in performance' (ibid). On the other hand, another member of the group also referred back to the comparison with jazz and popular music students that though they may be following the same modules 'their skills are something on another level compared to mine' (S.8).

Aural ability and module choice: views on the data

The focus group discussions now nearing the end and participants having now considered the topic of aural in some depth, many yet remained somewhat perplexed when presented with the data comparing aural results with module choice and the conversations in some groups, especially those involving younger undergraduates, became more sporadic. One student ventured that 'it's quite surprising that there isn't a correlation' (S.6), but found the notion in the data thought-provoking that 'neither performance nor composition is kind of interesting, because the people that scored in the two lowest, maybe they thought, I'm not very good, I'm just going to do some essays' (ibid). The clear implication was that musicology needed fewer aural skills, a point supported by another student who had thought that the 'number of performance and composition ... would be highest' (S.9), and similar to the view about aural in composition 'because I think it would be the most useful in that module' (S.3). The realisation by one student was especially noteworthy, that as a consequence of the discussion in the focus groups, the decision about the choice of module for the following year might need to be revised: 'I would have chosen composition, but it looks like I would struggle with this module in this table' (S.3).

Summary

Students understandably based their opinions throughout the focus group discussions on the evidence and extent of their own experiences, although in regard to exploring the relationship between aural and degree success, the undergraduates could only surmise about the influence of one on the other whereas the postgraduates could reflect directly on their own circumstances and the study preparations that led up to their final degree result. It was accepted that any examination results would be a reflection to some extent of the training and experience gained by students prior to university entry and that the variety of abilities would have a bearing on the scores particularly if students had already had practice in written aural tests.

Although there appeared to be general acceptance of the conclusions drawn from the first set of data from Study 1 that there was some correlation between aural and degree results, there was also surprise, partly because several participants had not

previously considered the connection or even that aural as a distinct component in musical study might have influence in any way. It led to the conclusion of a small number of participants that perhaps they had better take greater note of their aural ability.

In terms of module choice the postgraduates and older undergraduates could also speak with hindsight to the time they had prepared for studies in the years that followed, each group reaffirming the belief that their success (or failure) in any module chosen may have been affected by their level of aural. Though the views were less consistent across the groups about the conclusions that could be drawn from the data, indeed, there was uncertainty about drawing any of their own conclusions, the students accepted generally that there was a need perhaps to take some account of aural ability when selecting their paths of study.

5.5.6 Aural and related issues: specific areas of relevance

Natural ability

Although as stated above, misunderstanding and some uncertainty as to the essential role of aural was evident in many of the students' statements, a variety of other issues was raised from time to time in the focus groups which are valuable to this analysis and are collected under the heading of Specific areas of relevance. The first of these is the reference made by those across most groups to natural ability or what has been termed in previous chapters of this thesis as the Nature-Nurture debate. Some allusion has already been made above to the views of some students in their belief that aural ability, though having been formed partly through genetic make-up, like any other cognitive-based skill, can also be learned. One participant thought that 'it's there from a young age, you were kind of born with that' (S.6) while another claimed that 'with aural: it's a certain thing that you are born with it or not, some type of ingredient' (S.12).

Indeed, several references were made by students to the variation in abilities across musicians and these were sometimes used both as a means of gaining some understanding of it and to compare their aural ability with that of others. One participant considered that in the application of aural skills it 'depends upon who you are and what sort of person you are ... everyone's different' (S.5). In regard to musical development, 'innate interpretation through performance will change over time as you change ... (and) comes from life's experience' (S.4). The view that 'it all depends on the sorts of musician' (S.12) equated to a similar statement that aural ability varies in 'degrees of importance depending on what it is you do' (S.13), expressed rather more succinctly in another group by 'if that's your level, that's all you've got' (S.12). This partly returns to the issue of natural ability which both these participants had already raised following the earlier set of questions, now spoken in response to the question on musicianship, in one statement expressing some mystery in the attribute of aural skills that 'you can never explain how (people) do things, but they just do it' (S.5) and that 'to some degree people will have it' (S.12). However, the previous student then somewhat contradicted this view in conveying the belief that 'you can build on aural' (S.5), and that it can be improved through training. Students in two other groups concurred that 'it's a skill you're always building' (S.6) and that where the incentive is present 'you can get better in certain ways if you need it' (S.3). However, the goal of achievement was acknowledged to involve dedication and hard work with the need for drive, and that even if 'you have to do ten times the amount of work, you will get there if you're dedicated' (S.5).

A student from a different group also believed in a natural personal musical ability in the view that 'I was naturally born with that' (S.4), implying that a naturally arising specific mental configuration occurs from birth that supports musical processing, an issue that was explored in depth in Chapter 2. The extent to which aural ability can be learned varied between groups where the matter was discussed and there remained overall some hesitancy over how much is based on an inherited readiness. 'I think it's kind of looking back to the aural skills that you were born with or acquire over time' (S.14) was a typical view and, as another member of the same group spoke about the acquisition of language skills, that we learn to associate the word 'cat' with a specific

type of four-legged animal, so we are also able to associate musical sounds to verbal and non-verbal labels.

Absolute pitch

This discussion spilled over into a reference in three groups to the attribute of absolute pitch though there was uncertainty about its overall advantages in musical practice, as one student stated 'some people do have perfect pitch; not everybody has got that, whether that helps or not' (S.12), while a reference was made by another student to a piano teacher that 'he's not got perfect pitch, but he just knows what the notes are' (S.5). One student asked perceptively, 'what is perfect pitch and what is memory?' (S.5) though the question was not taken up by others in the group.

Aural in examinations

Across all groups the overriding context in which the application of aural was consciously apparent was in examinations, one student making a further reference to an earlier response to the importance of aural in musicianship on the challenges they encountered in such circumstances: 'it's always the bit that I struggle with in graded exams' (S.6). The discussions in one group led to an expression of intense dislike for aural: 'I used to get quite cross because I can't do aural at all, it's horrible, I hate it!' (S.9), the same student particularly feeling sufficiently aggrieved to repeat their disagreement with the content of aural in examinations despite being able to 'understand its importance' (S.9), that judgement was being made more about their inability to sing back correctly than their instrumental performance: 'I just didn't like being exposed and then judged on something that was definitely not my speciality' (S.9).

Another student in the group agreed by making a similar comment about what was described as pitch-singing that 'I don't think it is as important as the emphasis that is put on it' (S.11), although the same student also accepted that 'it's really important for me, even though I hate it'. This comment expressing dislike was partly due to the perception expressed in this group only of its application as an seemingly unnecessary

test of a different skill, that of singing, as opposed to what was regarded by the students as the purpose of graded examinations: the musical performance of set pieces: 'I'm doing an instrument grade, surely I don't need to be singing for five minutes at the end of it' (S.8).

This lack of success in aural was regarded particularly negatively by one student as a cause of achieving a lower mark in the graded examination than what was perceived to be worthy of a higher level of musical ability: 'it makes me quite annoyed that that seems to the judgment of my musicality' (S.9). Another student in the group felt similarly aggrieved that 'It would always affect whether I'd get merit or distinction all the time' (S.8), although no other group raised the specific issue of ill-feeling towards the role of aural in examinations. Indeed, to some extent it was perhaps the inability in vocal skills that had been the cause of the problem according to a later comment from students in the same group who 'just couldn't sing what I heard' (S.9), or who 'really struggled with sight-singing' (S.11). Pitch-singing has been referred to previously but inabilities in this area of aural activity were supported by a student in another group who could 'hear it in my head but I don't know which note it is' (S.1).

Testing of aural ability

One student believed that that the broadening out of music degree programmes to include the study of jazz and popular music (JAPM) would have to take account of a wide variation in skills such that any assessment would be problematic: because 'JAPMs have come from RockschooL where they have had good aural aspects ... the test would then become unfair' (S.10). Another in the group perceived that the situation had given rise to 'two very different kinds of aural ability' (S.9) and questioned the basic idea of an aural test, maintaining that 'I don't think that an aural test is a fair representation of someone's musical ability' (S.9). These last comments are well-made since it raises the issue as to the validity of the original aural results irrespective of the contexts in which they can be correlated with any other results. The point, having been discussed more fully in Chapter 3, is taken up again in the Conclusion below (see Section 5.6).

Aural and the importance of singing

Since singing had been a frequent theme running through the topic of aural, it was considered appropriate to ask students finally their views also on the role they thought singing played in aural and the extent to which it had influenced their own musical development.

Participants believed their involvement in singing from a young age had brought about benefits in instrumental playing: 'yes, definitely, before violin' (S.7), and 'piano from a very early age, six' (S.6). A positive outcome from singing for a participant previously studying for A-levels was that 'until I had done it, it didn't improve; it changed, like, how I was doing in my grade' (S.2). Another participant in the same group now following a performance module agreed with the advantages of singing and the link with the 'inner ear' that 'when you're playing a piece or listening to it you need to hear a result when you have learnt it from the singing side: you hear it in your head' (S.3).

The role taken in music may also be influenced by the way aural is applied in different ways, according to one student who believed that it was 'a bit different for me as a singer rather than an instrumentalist' (S.11), and clearly there are different emphases placed not just on the differing place of aural in vocal performance, but in the varying range of instrumental practice, especially, for instance, the need for attention to intonation for non-keyboard players, in contrast to the enhanced significance of harmony, for example, for pianists and organists. In contrast, the point was made that solo singers, because they perform from memory and are inclined to have had less experience with reading notation, were sometimes weak in sensing rhythm, as confirmed by one participant who works 'with a lot of singers, and they are really bad at counting ... (unless) they play an instrument' (S.6). Although both students in the group agreed that such singers tend to be poor sight-readers, singing itself can provide a good grounding in pitch sense; 'because I have sung in different choirs, you have had to learn the intervals, different harmonies: I think that definitely makes a difference!' (S.7).

The issue was nevertheless fairly briefly discussed due to time constraints and the question could not be addressed for this reason to the postgraduate group. One participant in an earlier group, however, remarked 'it's interesting, that the first question when you first asked us what we thought aural was, that the first thing we thought about was singing' (S.10). Indeed, most participants agreed on its relevance in the development of aural ability: 'Yes definitely it's important' (S.7) Merely 'singing in choirs' (S.6) is an advantage, stated one student, and another who, having only recently joined a choir and now understanding the powers of its influence, claimed that 'I didn't realise how much my aural skills would improve ... that my overall aptitude in pitching completely changed' (S.2). Singing had significant usefulness beyond the degree programme according to a further student: 'thinking beyond modules in the university, as, like, a career musician, I think it's important coming to choir' (S.11). After all, 'if I'm not very good at aural skills and I don't practise it, how could I stand in front of a group of singers or an ensemble or an orchestra and, say no, that's not quite right?' (ibid).

Summary

Of the small number of side-issues that arose in the focus group discussions, three areas were of significance. The reference made by students to inherent ability in music, though a complex matter that has been raised earlier in Chapter 2, was used largely in explaining their own ability in comparison with that of others rather than as a philosophical matter that was involved in the general development of musicianship, but it was interesting that a number of participants regarded aural to include an element of genetic ability and that though it can be developed to some level, the skills are partly attributable to a natural ability, even gifted in the case of those with absolute pitch, which students thought was an advantage in musical activity. In many cases where the discussion continued on whether aural can consequently be developed was not explored fully and the matter was left unresolved as a phase in human development that was encountered in different musicians.

The final separate question was raised about singing as this, as explained in an earlier chapter, was believed to have considerable influence on the development of aural and related skills. Indeed, the matter had been raised earlier in some groups' discussions in the context of graded examinations as part of what was for some their only experience of aural. In response to the first set of questions relating to participants' understanding and relevance of aural, reference was made to the activity of singing in the aural component of the examination after the performance of set pieces, some students expressing strong negative feelings about what they believed to be an unjustified inclusion though when further discussion ensued that explained its relevance in the development of musicianship, the realisation of its importance in the development of the ear became evident. At the point at which the specific question 11 on singing was raised, participants who previously had questioned its use were less inclined to criticise its presence in the assessment of musical ability. Being the final question and having now reached the end of the available time, deeper development of the issue in the focus group discussion was not possible.

5.6 CONCLUSION

This study set out to address the second main research question of this thesis relating to the views and perceptions of current students about the importance of aural ability in the undergraduate music degree programme. This linked closely as a follow-up to the data collected in Study 1 which had addressed the first main research question seeking to explore the correlation between students' aural examination results and degree success and module choice. Reference was made at the beginning of this chapter to the two hypotheses, H_1 and H_3 , from Study 1, which have been taken up as the basis of this study to create the four research questions quoted in section 5.3 above. These in turn led to forming the actual questions asked in the focus groups, which were designed, as previously shown, to extract opinions about students' understanding of the topic, the relative importance of aural in different musical contexts and their reflections on the presentation of data from Study 1 that correlated aural test scores with degree results and module choice. The supplementary question

on singing was added, this being a topic to which particular attention has been raised in the thesis and which was felt to relate in some way to the participants' understanding of aural.

The following conclusions from the extensive data from the focus groups which address the four research questions in turn indicate above all else the variety of opinion that students hold about aural in the many contexts with which it is associated in both its understanding and application. Although it was initially apparent that several students had not thought about the subject as a separate entity before, by attending the focus groups many had become more acutely aware of its relevance in musicianship and begun to realise its overall importance in undertaking their studies.

Subsidiary Research Question 1: *What do current music students understand by 'aural' and 'aural ability'?*

Within the wide variation of approach in their responses to each question concerning their views on aural and aural ability, most participants understandably referred to their previous experience of aural, mostly that of the aural tests in examinations, although essentially, it was felt the specific skills themselves were not always clearly identifiable by the students. Though some people clearly possessed them, whether or not as a result of natural ability or training – and this, they believed, clearly gave them advantages over other musicians – many believed that aural skills, if not totally learnable, could probably be improved. However, for those who believed their skills were weak, the prospect of extra training at tertiary educational level resulting in the burden of additional work was challenging and the questionable benefits that such devoted effort might bring was thought to outweigh the value to their own existing musicianship (despite the fact that most believed in its universal applicability and that ideally aural training should run alongside performance practice from as early an age as possible).

On undertaking question 3, which asked participants to collectively decide on what they believed the most important aspect of aural ability to be, it was significant (particularly with regard to the essence of this thesis and the point made in the

Introduction about the indecisiveness of musicians in their definition of aural and aural ability) that each group arrived at a unified different set of words / phrases that represented aural to them (see Figure 5.2). No clear distinction was apparent, however, in terms of definition and use of terminology and participants tended to fuse their understanding of aural with the general ability to respond to tests and use in various circumstances and it was not until the progression into the deliberations about importance, analysed in the next section, that consideration of what was involved in different activities, that is, the skills (though this word was not always used), that participants began to break down their conceptual understanding of aural.

Subsidiary Research Question 2: *What are current music students' views on the relative importance of aural for different musical activity?*

As the discussions progressed, the participants focused more intently on the different applications of aural and the implications of their presence and absence in musical activities. Students were aware in some groups of the variations in aural used for different musical purposes and apart from differentiating the types of musical processing for performance, composition and musicology as perceived by the participants, also particularly singled out were the distinctions in aural ability that were recognised between classically trained students and those pursuing mostly performance-based study in jazz and popular music. The facility to improvise, perform from memory and play by ear were sometimes thought to be of greater value in overall aural perception in contrast to the notational-based skills and sight-reading proficiency of participants, although whether either set of skills is more beneficial to the musician than the other is a debatable issue. To have skills in both fields would be ideal.

Overall, students were able to clearly distinguish the roles of performer, composer and musicologist even if uncertain regarding the extent that aural skills were involved in each of those activities. As commented above, the postgraduates, in their assessing the importance of aural more in terms of abstract entities and with greater objectivity, demonstrated their advanced experience of musical practice. In fact, this characteristic, perhaps unsurprisingly, applied generally to the group's whole deliberations in contrast to the uncertainty frequently displayed by earlier year groups

due to the latter participants' general absence of training beyond solo and ensemble performance, with the exception of students from year 3 who were able to assess the importance of aural based on their wider studies in a more balanced and open-minded way.

Subsidiary Research Questions 3 and 4: How do current music students understand the relationship between aural ability and success on a degree programme, and between aural ability and module choice?

The reactions to the data presented from Study 1 were largely undecided by many participants and although it seemed that all the implications of the statistics were understood, some uncertainty remained concerning the applicability to current music students given that both aural training and testing no longer took place and that the range of modules used in the data was not closely analogous to the current choice. Participants also felt a certain ambivalence towards the data relating to module choice, anticipating, after the previous discussions about the different aural requirements of performers, composers and musicologists, that the data would be more supportive of the first two of these types of musician. The hesitancy in the discussion that followed the presentation of the data and lack of keenness to make comment was indicative of uncertainty and undecidedness in each group and although a greater allocation of time might have allowed the encouragement of greater response, only some participants were sufficiently confident with their views to offer them verbally.

Other topics raised

The discussions in individual focus groups occasionally digressed to topics of specific interest to the students in that group and in some cases that topic would reappear in response to a later question. Examples are the references to the unfairness of aural tests in graded examinations, personal experiences, elements of music, individual preferences in study, etc. Moreover, in some cases, one or two participants would speak at length and at the expense of others in the group and this had to be checked from time to time to allow the opinions of other members to be expressed. A variety of other less directly relevant topics was occasionally raised and although these had

some bearing on students' opinions about aural and aural ability, such matters as the use of computer software for training purposes, teaching methods, memorisation and the content of aural tests in graded examinations, for example, it was regarded as more important given the limited time available that the focus group discussions should concentrate on the production of data relating more closely to the responses to the questions put to the participants.

Although the topic of training was raised and the development of aural ability as part of the degree programme mentioned by two postgraduate students, it is regretted that more exploration could not be undertaken of the participants' opinions about aural learning as a form of study within the general content of the degree programme.

Endpoint

Overall, the questions were answered with apparent trust and personal integrity, such that the data collected from the participants was believed to be genuine and that students had expressed views honestly about aural and aural ability. Moreover, some had recognised that they may need to devote some effort to improving their aural skills if they intend to follow certain musical activities, others to take the matter into account when deciding on their future modules. The study was believed to be also of benefit to the participants in that greater awareness was made of the element of aural in musicianship. This was summed up reassuringly by one student who thought 'that it has been very interesting to consider the implications of aural and musicianship: very interesting!' (S.5).

CHAPTER 6

Conclusions

6.1 PREAMBLE: THESIS SUMMARY

The thesis set out to assess the importance of aural in a music undergraduate degree programme by way of examining the potential correlation that might exist between aural marks and degree result and the understanding and importance attached to aural according to the views and perceptions of current music students. It became clear following an exhaustive review of literature in Chapters 1 and 2 that the subject of aural was not covered separately in the literature by many researchers but tended to be subsumed in the extremely broad area of musical ability or musical development. Whether the definitions of aural, aural ability and aural skills suggested in Chapter 1 represent views of other musicians also remains uncertain at this point but is a matter taken up further below. In order to examine the place of aural in the music degree programme comprehensively it was considered necessary to explore the social and educational background of music study as part of the contextualisation of its provision in higher education. Because aural touches upon so many areas it was not possible within the confines of the project to explore each aspect of the subject to the depth that was desirable to question and examine conceptual views of musical practice other than to describe the conditions under which aural skills have been incorporated into musical development over the past half-century. Reference has therefore been made across the thesis to a relatively broad cross-section of the topic to place the presence of aural, aural ability and aural skills in the context of the higher education curriculum and, by reviewing the background to the provision, to examine the circumstances of the undergraduate music degree programme of one university.

Against this background, two research questions were thus formulated and stated at the outset:

RQ1 Is there a correlation between the aural ability of university music students and their degree success?

RQ2 What are the views of current university music students about their understanding of aural, its importance in a music degree programme and its relationship to degree success?

The thesis as a whole has covered a wide range of issues that impinge upon these two main questions and has explored several investigative avenues that relate to the place of aural within the undergraduate music programme. It has addressed the aims as a major integrated task by way of two linked empirical studies, Study 1 addressing the first research question and Study 2 the second. The first study as reported in Chapter 4 further broke down the matter of the putative correlation between aural test marks and degree success into five sub-hypotheses while the findings from the second study, detailed in Chapter 5, concerned primarily the analysis of students' views about aural and its relevance in their music studies. Students' reactions to data from the first study were also sought. The two studies were therefore both closely associated with the overriding topic of the aural ability of music undergraduate students with particular attention given by the two studies together to understanding its importance and relevance in the context of a music degree programme.

An overarching conceptual framework was used to examine the various research perspectives on aural in Chapter 1, enabling an understanding of the subject to contextualise this research. The framework highlighted aural in practice through the importance of listening, standalone and integrated perspectives, and then aural as process, via consideration of imagery, representation theories and perception. The definitions and perspectives of researchers on aural provided a basis from which to consider students' views on the subject. Furthermore, the diagram of aural processing was devised as an explanatory tool to assist in the understanding of the skills and the processes involved in its practical applications. While the stages established in the diagram clarified the distinction between the internalisation and externalisation processes, the diagram was additionally valuable in the establishing of thematic coding in the analysis of data collected from the focus groups. Though not applied specifically, the stages determined in the diagram laid out the divisions between the inputting of the musical signal and the accessing of the inner mind in the contexts of, say, performance and composition.

Although the diagram is simple and notional in that aural skills are not sited in any specific area of the brain – musical experience activates nearly every region of the brain

(see Levitin, 2006, p. 85) – its design acts more as a graphic illustration of a process of mind, facilitating the isolation of those characteristics that comprise aural skills as a separate entity from other activities that are involved in the overall experience of managing musical thought, from the initial exposure to the sound to the potential creative manipulation of inner musical ideas. The analysis of the data in each of the two empirical studies thus benefited from this initial clarification of the process, the concept of which was by chance also supported in principle by the postgraduates in the focus group sessions, their conception of the aural process in abstract terms closely matching those in the diagram. Further details about their views are given below.

6.2 SUMMARY OF THE RESEARCH FINDINGS

6.2.1 Aural and Degree Success

In addressing the first research question concerning the possibility of a correlation between aural ability and degree success, the first study, as reported in Chapter 4, refined this question more specifically into whether a correlation existed between the marks obtained by music students in aural assessment in Year 1 of their degree programme and their final degree result.

The analysis did establish a positive correlation between students' aural examination marks and final degree result. By devising a set of sub-hypotheses a number of tests were undertaken that supported the overall direction of a positive relationship between aural examination marks and the final degree results indicating that students with higher aural test scores are statistically likely to go on to achieve a relatively higher degree result. This being so, a number of further factors, adversely influenced the outcome to the extent that the correlation was not straightforward and direct and that there were (and probably continue to be) ways in which those students with weaker aural ability might still be able to achieve a degree at a high level.

One of these factors, referred to in Chapter 4, is the discrepancy in experience of aural tests between the hundred students in the seven year-groups on which the data was based and the confident response in which some but not all accepted what might be the challenging content of the tests. Students had only the short time of one semester containing ten weeks of instruction to prepare for the first aural examination. The extent to which more than a slight improvement to their basic aural ability had occurred becomes a substantial question. What is possibly likely is that the students were better prepared in understanding the questions in the aural examination and that their answers reflect this.

The limited extent to which individual results might be influenced by the aural training sessions is an issue not explored in this project, but it represents a further variable that might undermine the exact assessment of a student's aural ability. The results of the pretest and aural examinations did demonstrate the wide range of abilities of students and the inclusion of aural training as part of the degree programme at that time reflected the belief in the importance of tailored training in aural skills. By containing the conventional testing components of intervals, chords, error recognition, rhythmic and melodic dictation, such ability in these areas was considered appropriate for music study though these were becoming less so with the social and educational changes described in Chapter 2. The content of the aural examination had remained fairly constant for many years but, as stated below, the very fact of holding an examination as a method to assess aural ability needs to be questioned, particularly in the light of the views expressed about the undue emphasis placed on notation, as suggested in the literature review in Chapter 1.

Also, in considering the role of assessment, the question arises as to whether any form of assessment prior to university entry is appropriate and which has the potential to securely predict the suitability of students on a music degree programme. Aural ability and theoretical knowledge, especially based on notation, are clearly not the only aspects to be taken into account and, as Wolf and Kopiez (2014) state from their research, 'the entrance exam in music theory proved not to be an ideal assessment of their potential as university students' (p. 241). McNeil (2000) goes further in this

respect and reports that her findings establish that the aural tests may not be a reliable way of demonstrating musical ability in that ‘aural marks only marginally, though statistically, discriminate between good and poor performers’ (p. 254), though this may be more to do with the subjective criteria of effective musical performance. It raises again the question concerning the extent to which entry to a university music degree programme may be reliant on the results of graded examinations where, for example, aural may not feature as a high-point in the practical examinations of a potential music student.

Issues therefore remain about the ways that aural ability can be assessed not just in terms of graded examinations, auditions or selection to courses but as a guide to any skills accomplished. While this is a further area of research outside the scope of this thesis, clearly if the standard of aural skills is an issue in the study of music, especially at the higher education level, it follows that methods should be accessible by which those skills could be determined.

Apart from the fundamental need to consider the best ways of testing a student’s aural skills, indeed, whether there are areas that efficiently address the objectives of such assessment, the question remains as to whether the results from such tests and examinations provide an exact representation of their ability. Further investigation and research is needed to establish the extent to which any form of aural skills training within the undergraduate programme could benefit degree outcomes and, in the light of changing educational and social values of degrees, the extent of preparation for later employment and career prospects that the degree programme should provide. It is hoped that in defining the concept of aural ability and considering the nature and constitution of aural skills, that the thesis nevertheless has clarified the purpose and role of aural in terms of musicianship and its significance for music undergraduates. The implications for training as part of the degree programme are further discussed below.

Another significant factor that could be said to have influenced the correlation is the hard-working individuality and personal motivation of students which might in some

cases supersede any reliance on their aural ability, thus discounting any major effect of aural ability on their degree outcome. The means by which this could possibly be achieved by the strategic choice of modules is taken up below. This reason may contribute to the outcome concerning the views of students in Study 2 about the data from Study 1 which was presented to them in order to establish their responses to the data analysis. The data demonstrated that several of the students remained unconvinced that a small relationship was evident between aural marks and degree success, but that most accepted the positive conclusion that had been drawn.

It must be stated, however, that the claim is not being made that effective aural skills by definition help to achieve a good degree; it is more likely, though this is partly a subjective interpretation, that the experience of music and the collateral progress made in the development of aural skills may lead as a matter of course to a greater ability to pursue the studies on the degree programme and therefore result in a higher degree mark. Such aspects cannot be extrapolated from the analysis of the data and can only remain as conjecture.

No real comparison with views expressed in the literature about the relationship between aural ability and degree success can be made due to the absence of any direct previous research on this subject, although, as discussed in Chapters 1 and 2, many writers refer to the importance of aural skills along with a number of other competencies that lead to musical expertise and form what is generally understood by musicianship. The strong implication is that there is little question of the significance of aural skills in fulfilling the requirements of a music degree although the extent of this and any influence on success cannot be directly measured against other research in this field. Indeed, much more research is available regarding the types of training that are believed to be effective in generating aural skills, especially in recent times, and notably, those systems that integrate learning among other musical activities.

6.2.2 Aural and Module Choice

One sub-question in Study 1 arising from the main research question about the correlation between aural ability and degree success included the matter as to whether aural marks had any influence on students' module pathway within the degree programme. Data collected thus extended towards establishing the extent to which there might be a potential correlation between aural ability and module choice. The analysis, however, underlined the disparate nature of music students' skills and experience such that no clear categorisation of abilities and interests within the music degree programme was possible. While each student remained free to choose a module pathway, the choice was not necessarily a simple combination as this may be a reflection of personal attributes and musical skills. The conditions further hampered any attempt to demonstrate the predictability of just the one major variable, for example, the results of an aural test or examination in the first year of the degree programme. Indeed, any resolution of the issue was subject to complex interactions between a number of factors; some relate to the individual student's circumstances both prior to entry to university, as mentioned above, and during the first year of study. The level of aural training in preparation for examinations, or students' earlier learning environment, the style, teacher guidance, their strength of commitment and ambition: all these components influence choices in the programme of study and thereby create difficulties in forming a defined judgement about relationships between results.

The final question in the focus group activity of Study 2 requested participants to comment on the data referring to the correlation of aural marks with module choice. Their views harmonised with the analysis thereby reinforcing the conclusion that had been drawn that no direct link could be found between the aural and module choice results, and that while there was a possibility that students might subconsciously veer away from activities that might depend upon aural-oriented practice, little further discussion was undertaken nor was any research literature available that contradicted this overall view.

The conclusion might nevertheless be drawn that the choice of module does depend indirectly in some ways on the level of aural skills of undergraduates and that a breadth of relevance and value exists, though perhaps not an indispensability, in their usefulness and application for a chosen pathway. From having discussed the matter, several students observed that perhaps greater account of aural ability should be taken when selecting their paths of study. A further corollary to this might be that greater awareness by curriculum managers of the aural ability of students might be useful in the programming of modules in a music degree programme.

While there could be no question as to the validity of the original aural and degree results as data irrespective of the contexts in which those results were assembled, the data, having been collected and analysed, demonstrate that such a mobile construct as the prediction of success from earlier results is far from straightforward. The number of variables that influence the outcomes of aural tests and degree results are too many for the findings to be fully reliable although, as stated previously, the analysis does provide evidence of the trend towards a correlation between the two. Notwithstanding that the level of predictability of success of music students in their degree results as finalists at the end of their undergraduate programme remains variable, it appears that those who have good aural skills are likely to achieve a higher result, although those with lower results initially may be also able to acquire a result at high level with prudent selection of modules. Whether their practice of musicianship is at an equally high level, however, is a matter for further explicit research. Indeed, the issue remains as to whether the skills of music students are adequate and appropriate for the level of work encountered in the music degree programme, and if not, what can be done about it? What might be the precise level of aural skills that are required to support the gaining of a music degree qualification – or at least a more transparent representation of the minimum?

There is thus some evidence that the level of aural ability on entry to university is not a reliable predictor of later degree success although the aural skills of an undergraduate do have an effect on the study of music on the degree programme, depending on the module path chosen by the student. These issues indicate that there

is much more research required into the appropriateness of aural at degree level and the extent to which aural skills play an active part in music study in higher education, matters that may need to be taken into account in the general design of modules within a music degree programme.

6.2.3 The Understanding and Meaning of Aural, Aural ability and Aural skills

An attempt was made at the start of Chapter 1 to define how the terms aural, aural ability and aural skills, are used in this thesis and the point was made that the explanations and usage may not be representative of the views of all musicians. To underline this, the literature review explored the various approaches made by musicologists to understanding aural and its place in musicianship and musical development. It was demonstrated that views about the meaning of aural – from its role as a form of musical activity like playing by ear, or a testing mechanism in, say, an instrumental examination, to a component of musicianship – varied between musicians whether writing as musicologists or practitioners. A growing number of writers saw aural from a wider perspective than its traditional, rather limited concept as a training and testing process and that aural skills were for some merely one of a group of various attributes that supported the development of musical expertise. The literature was considered in terms of aural in practice and aural as process, with the viewpoint of listening, standalone and integrated perspectives being discussed therein. Indeed, the epistemological aspect of the research opened up many avenues of discussion that question the parameters of aural, aural ability and aural skills, not just within the confines of the university music degree but in the social and educational contexts in which students develop their musical ability before entering higher education. That there are also implications for the world of the professional musician is a corollary that has not been included in this thesis but it is clear that the composition of the skills involved covers a broad spectrum of experience and accomplishment commensurate with whichever level of musical expertise is in question. Similarly, a continued opaqueness in the definitions and meanings of musicianship and musicality between musicians prevails in contrast to the consistency of thought that emanates

from the investigation about the fundamental importance of aural ability across all facets of musical activity and musicianship.

As part of the ongoing exploration of the understanding of aural, aural ability and aural skills in Study 2, the aim of the second research question was to establish how current undergraduate and postgraduate music students understand these terms and the importance they attach to them in the context of their studies. The views of students were examined in the light of current trends in educational provision and training and it is notable that by comparison with the opinions expressed in the existing research of musicologists, those of the music students were equally varied. Not only were they widely variable about their interpretation of its meaning and about the significance of aural to them as musicians but some participants identified specific areas of skills, where others defined them holistically. Some believed the skills were inherited at least in part, while others thought they could be learned or improved, though little evidence was put forward by students to substantiate their views. This mixed outcome of views thus concurred with understandings expressed in the literature in that aural ability within the context of general musical development is subject to both environmental circumstances and training styles as well as natural ability and family traits. The main difference arose from the limited experience of aural by students largely through graded examinations and that only limited thought was evident that students had considered the concept of aural skills as a major component of musical ability. In contrast, the postgraduate respondents displayed a more philosophical concept of their applicability due to what might be considered their more sophisticated progression of musical study and appreciated the value of the inner ear in their work at the higher education level.

This variation in students' views concurred to some extent with the standalone and integrated perspectives of aural in practice discussed in the literature review of Chapter 1. The elemental aspect of aural was identified more strongly by the first-year undergraduates than students in the other focus groups in that their own experience of aural was largely confined to their experiences in graded vocal and instrumental examinations. Some of the other undergraduates agreed with this perspective of tests

within an examination and were at slight variance to those expressed by musicologists in the literature. Many, however, viewed the topic more broadly in line with the researchers' viewpoint of a combination of different skills and in the importance of listening and internal thinking and this further underlined the divergence of opinion between students.

The postgraduate students, on the other hand, had built on their knowledge of musical theory and practice to the extent that they viewed aural more clearly as a part of their own learning experience and thus matched their perspective with the more integrated approach of musical development. This concurred with the concept put forward by Hallam (2013b) that the development of musicianship depends considerably on the many educational and social influences which are experienced earlier in musical training. They similarly isolated various stages they believed operated during aural processing, such that their thoughts about aural ability were primarily cast in abstract qualities and described the processing stages from the acquisition to communication of skills, remarkably close to the principles put forward in the diagram of aural processing (see Figure 1.3). The distinction between the experienced and less experienced students in the focus groups is reflected in the greater emphasis given by the former to an understanding of aural as process and integral to music practice than by the latter who tended towards an understanding of aural as a standalone pursuit. This division was somewhat in line with the differences found in musicologists' views where those who saw aural as a discrete activity was more in terms of training. This contrasted with others who viewed the role of aural skills as part of the wider process of musical development. Most participants in each focus group nevertheless agreed with the main premise in the literature of the importance of listening as a fundamental aspect of aural activity.

Whereas musicologists had had time to establish their views about aural, one of the tasks for the focus groups in Study 2 required the participants to arrange only after a short discussion their understanding of aural into an order of importance. It should be taken into account, however, that the resulting indecisiveness of their collective views reflected to some extent the fact that students had had no opportunity prior to the

study to consider their views and to consolidate their thoughts. By viewing aural from the circumstances of their own educational opportunities and personalities, students inevitably matched its relevance or inappropriateness to their own experience and studies. Because of their personal standpoint, the inconsistency of opinions about the value of aural in their own studies was increased, the postgraduates realising more vigorously with their advantage of hindsight of its significance in their more advanced studies. Indeed, undergraduate students' views demonstrated that they thought less in the importance of aural and its associated skills than expected prior to the study and the contrast with the opinions of the postgraduates who realised the applicability of aural more comprehensively and beneficially in the light of their own continuing study of music was noticeable. No consensus however, was shown regarding the advantages or disadvantages of integrating aural learning within non-designated modules within the degree programme; indeed, some viewed aural as essential to their own development of music learning, others saw it as a peripheral skill that had or had not been acquired in earlier years irrespective of whether they might be improved with further practice at higher education level.

It would seem that the understanding of what constituted aural skills in its rather narrower interpretations of the twentieth century had moved on to take account of the realisation that there are many other congruent aspects to musicianship and that though aural ability remains at the root of musical activity the issue is a complex phenomenon in flux. The literature indicates equally that musical thought manifests itself in many forms and is dependent on many conditions in which an individual experiences it through human mental processes.

However, the opinions of the focus group participants and researchers referred to in the review of literature were largely of a single mind that in terms of definition and usage, there was no one overall understanding of what aural stood for, nor of its general application in musical activity, as identified in the definitive explanation and understanding of the terms expounded in Chapter 1 and the theoretical usage by researchers. While there was evidence that students in some cases had not thought about the matter at all and that because it did not feature highly in their musical

development there was no conflict in their limited reference to and understanding of aural, others had realised its functional relevance and arrived at the conclusion that it was part of their emergent musical ability but that purposeful attention paid to further training of it was not necessarily warranted. This contrasted with most musicologists' stated opinions that aural ability was necessary for progress in musicianship. The attempt to clarify the terminology and the interpretation of aural in terms of the distinction between general ability and the skills associated with it in development and practice, the point made in the Introduction, that there remains a comprehensive inconclusiveness about usage and understanding, is therefore upheld.

6.3 AURAL IN OTHER CONTEXTS

6.3.1 Aural as part of Musical Development

The many contexts in which aural ability occurs across musicianship indicates a breadth of involvement and application that underlines the importance of the skills associated with it and the variety of ways these skills can be used to enhance many forms of musical activity from performance, composition and analysis further gives justification for its continued attention in the overall development of musicianship.

While it is clear that aural is an integral part of musical practice, both the literature review and focus group findings confirmed that there remains a considerable diverse opinion about the extent to which aural skills represent musical aptitude and whether musical ability is innate or can be learned. The question is particularly relevant in this thesis in view of some recent writings on the subject (for example, Hallam and Gaunt, 2012; Stakelum, 2013) that imply that the potential to learn is greater than previously thought but that in other research the extent of environmental influences on a nascent musician is substantial and crucial (see particularly McPherson et al., 2012). The question as to whether or not the genetic history of a young musician is more dominant in its influence than domestic conditions and teaching circumstances also persists with much ambivalence and uncertainty. The synergies between those who assist in the provision of musical instruction and support, together with the syzygy of the

psychological and physiological disposition of the emergent musician, all make for variable conditions under which musical development may advance. While it is axiomatic that all can learn music, the level at which we attain competence is massively dependent on the combined outcome of all these elements. The added fact that we may be predisposed towards specific learning styles from our environmental influences and also conditioned as a species by genetic proclivities underlies all learning success; where music education received as a young person provides opportunity at an apposite moment it would appear, from the literature, that musical development leading to accomplished musicianship is likely to follow.

While the claim in this thesis that aural skills are an essential part of the development of musicianship, the development of an 'inner ear' that enables musical understanding and creativity to flourish and become established is, as with many other aspects of educational progression, dependent on individuality of circumstance. Both an interest and effort are required to realise the potential in any sphere, and learning at a young age, unsurprisingly, is critical. This has been borne out by the many references throughout the thesis to research projects and to the data in Studies 1 and 2, the latter of which recounted many original experiences of respondents. On the other hand, many musicians, especially in recent times, have developed their skills independently from the structures of formal education and through experimentation and enthusiasm have learned to create music, often of a popular nature, by systems of trial and error and modelling on other performers. The extent of creativity and informal learning styles outside the normal structured academic route has been underestimated as a valid alternative and one, ironically, that has proved valuable in many instances in the acquisition of aural skills by many musicians outside the classical genre. Such enterprising ventures have in very recent years also been supported by advances in technology that have allowed a weak level of technical knowledge to be supplemented, for example, by digital recording techniques and equipment, accessible music notation programs, by apps that help to improve listening skills and aural ability, and other measures that both enable musical interests to thrive and allow access to be afforded to what was previously limited only to those already with formal musical opportunities.

Indeed, the breadth of musical experience for all now extends a long way beyond the confines of the concert hall but the single fact remains that to achieve the requisite competence and expertise requires devotion and discipline, practice and perseverance, without which, like other practical human skills in sport and art, for example, the goal of expertise cannot be attained. This is also largely confirmed by the respondents in the focus groups, that an undergraduate student of music depends on such factors, especially on the inherent interest in musical creativity that stems from the expressive heart of the individual as much as from the dedicated hard work that is necessary to achieve that expertise. That much of the success is the consequence of aural ability is a matter that has been at least initially and partly satisfactorily demonstrated in this thesis and a phenomenon which further underlines the significance of aural skills as an inclusive element of support in a university music undergraduate programme.

6.3.2 Singing

It is the importance and involvement of singing that has come through in this thesis as a fundamental basis for both the development and the training of aural skills. Singing is of critical importance at every age, but particularly early, and needs to continue throughout training and be part of the higher education music curriculum. Clearly the relationship which singing has to the body, to the mind and in its resonance in production as a means of understanding pitch and feeling for tonality has been well documented but as an element in aural training singing has often been overlooked. Singing in general as part of musical development has been found to be of great significance, but especially in the enhancement it gives to aural skills. Evidence has been referred to in other studies and research (see Karpinski, 2000a; Kinarskaya, 2009;) that bear out strongly the significance and vital role played by singing in aural skills development, particularly at an early age. Other writings, for example by Sloboda and Davidson (1996), Karpinski (2000a), Kinarskaya (2009) and Malloch and Trevarthen (2009), and the work of Kodály (1974) and the *Suzuki* methods of training, show support in the importance of singing in the potential growth of musicality and point to the need to incorporate singing to be more firmly embedded as an essential element

of aural training. Singing from an early age has a lasting effect on the 'inner ear' of a young person especially on the unconscious pitching of notes. A further spin-off from early association with singing is the advantage it brings to the novice instrumentalist who establishes an 'inner ear' before attending to the techniques of performance. Reference has been made to the benefits at a later age in communal singing and it is gratifying that attempts to reengage the population at large in singing is succeeding to eradicate to some extent the previous low esteem of singing in the wider educational curriculum and social community.

While some participants in the focus groups were aware of the advantages of singing, several had experienced little personal involvement in the activity and were uncertain about its benefits. Indeed, as mentioned in the analysis in Chapter 4, they did not find the process of linking singing with notation as relevant nor indeed particularly pleasurable. This may have much to do with the lesser importance attached to singing in their general educational curricula as well as the emphasis, mentioned in Chapter 2, that is applied in instrumental teaching to accuracy and technique over aural development.

6.3.3 Aural Skills Training within the Music Degree Programme

The implications for educators responsible for compiling undergraduate music programmes might lead to the inclusion of a capacity within the timetable for aural skills development particularly for those students whose ability lacks the rigour and necessary application in, for example, the study of performance and musical analysis. Should any form of aural session be included in an undergraduate music degree programme, irrespective of whether sessions are part of a dedicated separate training course or integrated within, for example, the modules covering theoretical and historical analysis or performance? The research has provided a rationale for ensuring that aural skills are not viewed as merely a value-added component of music ability.

Conversely and curiously, while the importance of training in aural skills was not specifically disputed by researchers or musicians in the studies – Pratt (1988) summarises the principle well of how ‘important these skills are to practising musicians’ (p. 5) – neither was there any evidence that participants in the focus groups believed there to be a need for guided aural training as a prerequisite for achieving expertise and competence as a musician. Many of the students did not receive dedicated aural training in their early development apart from some minor guidance in order to be prepared for examinations. The question therefore remains open and unresolved in this thesis that there is an extent to which the development of aural skills has no real dependence on specific training: is there a likelihood that many musicians who begin the experience very young absorb the essential characteristics of ‘inner ear’ operations both naturally as part of their personal growth and generatively from immersion in musical experience? Does this imply a separation of those whose aural skills grow in line with their musical experience from those who rely on dedicated training? If, as this study has suggested, that aural skills are a central element of musical activity, where does that take the issue of training and the different ways of learning? These are matters for further research and need to be addressed as forerunners to any systems of skill development, matters that have not yet been fully addressed in the literature. The evidence points to the fact that aural training, where provided, is largely lacking in formal structure, and as an area of specific development, it is overlooked by many within general music pedagogy.

As far as alternative forms of training are concerned, certainly any contemporary method of instruction of aural skills needs to be readdressed to take account of the recommendations for the inclusion of improvisation and the activity of singing, to incorporate technological aids where greater use of apps, ear training programs and other computer technology might be implemented that can provide guidance in listening and in the facility to respond musically to melodies with reduced emphasis on the use of notation. Research is also awaited in the notion of the feeling of key change and the existence of some switching mechanism that exists in our brain that converts the qualia of scale-degrees and the pull from one tonic to another key centre in one’s head which effectively allows us to follow harmonic movement from notation as well

as during live sound. The issue of tonic inference in aural training and the link with the sensation of relative spatial awareness in the context of harmony require to be more fully explored, the latter a musical entity which arises largely as a consequence of the temporality of music.

Further study is needed to provide evidence that alternative approaches to training and different modes of instruction are of greater advantage to the student compared with current methods. Confirmation is required that such approaches can be feasibly incorporated into undergraduate programmes. This is especially the case in the increasing contextualisation of aural skills training which is believed by many to be of greater advantage to undergraduate students compared with separate training (see Hallam, 2013b; Stakelum and Baker, 2013; Kinarskaya, 2009; Plummeridge, 2001).

Certainly, a wider variety of approaches to aural skills training possibly with increased sources of activities is needed than is presently the case and although this aspect is not a major component of this thesis, clearly any recommendations involving the topic must take account of the elements that comprise the skills. The diagram of aural processing, described in Chapter 1, though not specifically referring to the individual skills that make up the ability overall, nevertheless demonstrates that, in line with the varied responses suggested by the focus group participants about their understanding of the concept of aural, that the different stages can be addressed as separate skills alongside the revised approaches of recent research. In other words, a revision of methods can be offered that not only takes account of some of the concerns expressed above but that might better reflect the varied accomplishments and skills of undergraduates on entering university. Examples are activities of singing and greater use of solfège that might more effectively assist in inculcating a sense of tonality and pitch; responding to melody through repetition might help to concentrate more on the elements of the musical sound, and additionally avoid the emphasis on notation; and increased reference to known music – particularly where the score is available – can lead to improved harmonic relationships. Although how these might fit into the changing character of degree programmes is another matter, and possibly at the expense of other modular content, but it would be hoped that the past conceptual

characteristic of aural skills training being in the view of many students a chore, irrelevant and over-challenging, could be avoided.

A breakdown of the individual components of aural as viewed by current students was given in the report of Study 2 in Chapter 5 and, as stated previously, it is not the purpose of this thesis to formulate recommendations about how those separate aspects that make up aural skills should be organised in training. Specific schemes and methods are available that already attend to this and the recent advent of apps will supplement the provision alongside the music instruction programs highlighted that might be used in association with undergraduate degree modules. While mention has been made about such programs as being atomistic and limited in scope in their lack of attention to the expressive nature of music, some students with weaknesses in aural skills or notational knowledge have found such programs to be of great benefit in raising levels of aural ability and these should be part of the supportive provision made to undergraduates if required, especially where a minimum standard of aural skills is mandatory.

The problem of bringing together the variation in students' existing aural skills raises the predicament of providing a universal form of training that is appropriate for all students, and 'makes for a difficult teaching situation' (Domek, 1979, p. 55). It is also hard to imagine the enthusiasm for maintaining or reintroducing aural skills as a complete or separate part of a module in an undergraduate programme. The current view of many students of their irrelevance, the difficulty in making distinctive improvements in the short periods available for instruction to be made available, and their dislike due to often the high possibility of failure – irrespective of the issue about whether or not to include an examination of skills – are all valid reasons for questioning the inclusion of separate aural training. Whether it is appropriate to require students to attend separate aural classes in preparation for an examination is an issue for the consideration of managers of music degree programmes. Moreover, where dedicated aural training had been provided in earlier years, it was felt that the process had

unfortunately been commenced too late in the musical development of many students for the advantages to be other than small.¹⁶

6.3.4 Aural Skills Training: Recommendations for Revision

The question remains, therefore, as to what form the training of aural skills should take, as part of the music degree programme but particularly also earlier in musical development before university entry. The undermentioned points summarise ways in which a possible revision of the process of training in aural skills might be executed, taking into account the circumstances of the wider process of musical training also at earlier stages. Recommendations include:

1. An enhancement of structuring and grading aural according to individual needs
2. Consistent aural training ideally beginning at a young age
3. Aural training to be seen less as an adjunct to performance examinations
4. Greater participation in singing and in choirs to be encouraged in order to produce effective pitch awareness
5. An overall higher priority and proportion of time to be allocated to aural training
6. Less emphasis to be placed on the use of notation in aural training and assessment
7. The scope and content of aural training to be widened.
8. Aural training to be made enjoyable!

6.3.5 Preparation for Career

That the extent to which the purpose of a music degree should be directed also to the specific preparation for professional development is an additional issue that to some extent at least has a bearing on both the former points and, as discussed in Chapter 2,

¹⁶ One of the focus group postgraduate students spoke of his recognition of its relevance and felt that despite the small number of classes held, they had nevertheless been valuable in his own musical development.

is a pressing issue in the light of sociological and political changes affecting employment opportunities that have come about in recent years. Whether there is a different requirement for those students at universities following a more musicologically-based programme with some performance content, as opposed to those at conservatoires and specialist music colleges where, generally, the emphasis is the other way round, despite the reported changes in the curriculum of both types of institution, also remains uncertain at the present time.

Notwithstanding that the analysis of the data from students' results and from the focus groups have provided some evidence that there is a correlation between aural skills and music success, graduation does not automatically lead to a career in the specialist subject areas studied. Nor does the acquisition of the degree reflect the extent of the achievement or prerequisite of aural skills, especially where greater numbers are attending university than before. Moreover, as a result of higher fees, students are more able to dictate the conditions and content of what they study and wish to learn, and it is difficult to imagine students electing to study elements of their chosen subject which have lesser appeal or appear to have limited relevance. These are important factors to be taken into account and requiring further research but which remain speculative and outside the confines of this thesis.

6.4 LIMITATIONS OF THE RESEARCH

Although this thesis has explored new ground by investigating the relevance of aural in a university music degree programme and students' views on the subject, one of its major limitations is the focus that has been given on the music students of just one university, so the evidence and views cannot be said to be representative of all students pursuing music at higher education across the country, especially those who specialise in performance at conservatoires. Indeed, by concentrating on state provision of music education only passing reference has been made to private instrumental teaching and non-university organisations concerned with musical development at the higher education level which nevertheless are responsible for a large proportion of

performance-based music teaching in the UK. A further limitation relates to the relatively small number of students reported in the focus groups who may represent a bias or weakness in representation given that the students who responded to the invitation to participate may have a greater interest in the topic of aural than those who did not take part.

However, it must be borne in mind, as stated at the outset of the first study reported in Chapter 4, that because of the nature of the project, using existing statistical material of past years and the number of factors that might have an influence on figures, the results of the analysis based on the extracted data could only act as a strong guide towards supporting the hypothesis of a direct correlation between aural ability and degree success. The robustness of the analysis has to be balanced with the reliability of the marks obtained from the aural tests to represent the students' actual aural ability given the conditional elements referred to in the analysis.

6.5 DIRECTIONS FOR FUTURE RESEARCH

The thesis has shown that much is yet unexplored in the many areas of aural skills within musical development. One particular area not fully appraised is that of school external examinations, another the exploration of software and apps that provide instruction in the improvement of aural skills. Indeed, a huge range of possible topics have arisen from the thesis that might be taken up in future research, a central focus being directed towards an investigation into just how aural skills should be managed in a university undergraduate music curriculum, especially the extent to which skills development, and particularly in the light of this thesis, aural skills pedagogy, can be incorporated within the whole degree programme. Students should be aware, or made aware, that aural skills are fundamental to a greater or lesser degree in all musical pursuits at higher education level. If aural skills are weak there is little advantage in following a music degree programme, certainly where employment in which music is a major objective or a substantial feature. Staff who are responsible for programme content should not expect students to fulfil criteria for modules for which the

prerequisite is a level of performance and analysis that cannot realistically be achieved with weak skills, nor assume that the skills themselves will follow without guided support and provision. A range of alternative approaches to training are possible and although skills may not be required to be assessed through examination, this does not relinquish the duty of staff to check that aural skills are sufficient to deal adequately with the module requirements.

Apart from the variety of teaching styles used in the study of music and, where provided, in aural skills training, greater exploration would be valuable into the ways in which aural skills are learned and inner processing operates. The writing has only touched upon the aural experience of musicians outside the traditional classically-oriented forms of training and from other cultures but a wider study of the subject is needed to take account of other approaches to music which use alternative scale and notation systems and principles of performance including playing without notation to gain a more global perspective of the role of aural in music. Further expansion of the topic to include the views and experience of music students in other types of institution and across other countries would provide a more universal perspective of each of the main issues raised, such as teaching and learning styles, the extent of aural training of students, attitudes towards skills development, and the inclusion of aural within higher education curricula.

The thesis has exposed the suitability of aural as a subject for considerably more research and the following points represent major suggestions for future development:

- a. The context needs to be broadened to take in systems of training and learning in other institutions in higher education across the world as well as the UK and to investigate how it features in degree programmes at all levels in order to gain a full picture about how aural training and learning might be best structured;
- b. Further scrutiny of the correlation between aural ability and musical success might also be undertaken that reduces the variables experienced in this research;

- c. The establishment of a definitive transparent aural learning paradigm would assist in clarifying more precisely what role educational institutions should play at different levels of music development to reinforce the relevance of the 'inner ear' in all musical pursuits, whether practical or theoretical;
- d. There is a need for a configured framework of music education at higher education level so that objectives and modes of development are clearly identified;¹⁷
- e. Opportunities for further research might lead towards a greater precision in the definition of aural skills, and in their constitution and application, including the investigation of ways that alternative methods of aural training, particularly at initial levels of learning, might influence later aural skills;
- f. Aural skills should become an inclusive topic in discourses about university music programmes as a skills area that has the capacity to influence outcomes and affect students' results in many areas of musical activity, whether in performance, analysis, or composition;
- g. Account needs to be taken of new approaches to aural training provision, so that systems reflect changes in the social inclusion of music and that technological advances facilitate more informal methods of learning; this will enable the establishing of what is appropriate for a music undergraduate programme in both content and pedagogical presentation;
- h. With the emergence of creativity in non-art music, a reappraisal of alternative approaches to musical endeavours may reveal enlightened knowledge about how the 'inner ear' can be used more effectively in training young people to become musicians;
- i. The anticipation of continued neurological research to discover new insights about the function and organisation of aural skills in the brain will lead to

¹⁷ While the QAA (2008) attempts to define the 'threshold level' and 'typical level' (pp. 25-27) of skills in music at HE (see Section 2.4.1 in Chapter 2), the recommendations described as benchmark statements, remain very generalistic and no mention is made of specific levels of ability despite references to aural-based competencies.

alternative and perhaps more effective ways of training and learning aural skills;

- j. Greater clarification of aural skills is necessary to allow dedicated attention to follow in the assessment of aural skills in specific terms, not necessarily through traditional examination methods;
- k. Further investigation of the role played by external graded music examination systems and the influence on assessment of music as a whole and aural skills specifically, in particular their reliability as measures of aural ability in preparation for university music degree programmes;
- l. Systematic reappraisal of the pedagogy of formal music education as opposed to informal processes and an investigation of the benefits of private music education over state provision, particularly the content of school lessons in the context of aural skills acquisition;

6.6 ENDPOINT

It can be seen from the several areas of possible future development raised by this thesis that many further emergent issues exist beyond the resolution of matters relating to aural, aural ability and aural skills within the undergraduate music programme and that some of the current shortfalls in aural at different stages of music development and training have been exposed. Despite an underlying personal anxiety within the thesis about the need for university students to be given adequate preparation for music study (and later professional work), it is nevertheless with optimism that current curriculum trends will continue to recognise the importance of using traditional as well as innovative tools to develop standards of aural ability that are appropriate for study on a music degree programme. However, further research is needed to compare the difference (if any) in the development of aural skills between a standalone or integrated approach in the music degree programme, that is, through tailored modules focusing on aural skills alone as opposed to ones that embed aural training within other music modules.

As Esslin-Peard (2015) writes, to cope with the blurring of formal and informal practices, 'new models of musical learning are needed' (p. 451). The learning and experience of potential musicians vary enormously from one individual to another, from an early age through higher education and on to professional expertise, and it is important, having recognised that aural skills underpin so many musical activities, that a positive response is made that whatever specialism a music undergraduate wishes to follow, adequate preparation is made available to develop the 'inner ear' to the highest possible level.

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APPENDICES

APPENDIX A: Aural Pretest (Example)	307
APPENDIX B: Aural Examination Paper (Example)	309
APPENDIX C: Focus Group Questions	315
APPENDIX D: Focus Group Handout	316

III. DISCRIMINATION OF ERRORS

1. Identify **THREE** pitch errors in the following melody (**played twice**). Please circle the three incorrect notes, and state which notes were played instead:

2. Identify **ONE** pitch error and **ONE** rhythmic error in the following two-part melody (**played twice**). Please circle the errors, and state which note/rhythm was played instead:

IV. FOUR-PART DICTATION

Complete the following four-part extract (**played three times**):

APPENDIX B
Aural Examination Paper (Example)

University of Hull
Department of Music

Level 4 Examination

January 2009

25121: PRACTICAL STUDIES I (AURAL)

Wednesday 28 January 2009, 10.30 a.m.

Duration: 1 hour

Answer all questions on the examination paper. Please write your answers clearly and legibly in pencil. Do not open or turn over this examination paper, or start to write anything until told to do so by the Invigilator. Starting to write before permitted to do so may be seen as an attempt to use Unfair Means.

Section	A	B	C	D	Total
Mark					
Available marks	9	26	25	40	100

Candidate's Registration Number:

--	--	--	--	--	--	--	--	--	--

Candidate's Registration Number in words (one word in each box):

--	--	--	--	--	--	--	--	--	--

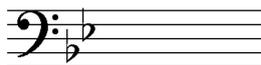
SECTION A: Intervals

1. Name the following intervals (e.g. major third). Each interval will be played twice.

- a. _____
 b. _____
 c. _____

(3 MARKS)

2. Notate the following intervals on the stave below. Each interval will be played twice after the key chord is given.



(6 MARKS)

SECTION B: Cadences and Chords

3. Describe the cadences (e.g. perfect) which occur at the end of the following two-bar phrases. Each cadence will be played twice after the key chord is given.

- a. _____
 b. _____
 c. _____

(3 MARKS)

4. Describe the triads you hear. They may be major, minor, augmented or diminished. Each triad will be played twice.

- a. _____
- b. _____
- c. _____

(3 MARKS)

5. Describe the chords you hear. They may be a major, minor or dominant 7th chord. You should also describe the inversion of the chord, (e.g. Major, root position). Each chord will be played twice after the key chord is given.

- a. _____
- b. _____
- c. _____

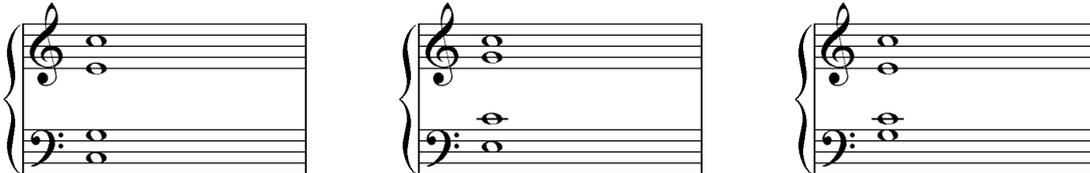
(6 MARKS)

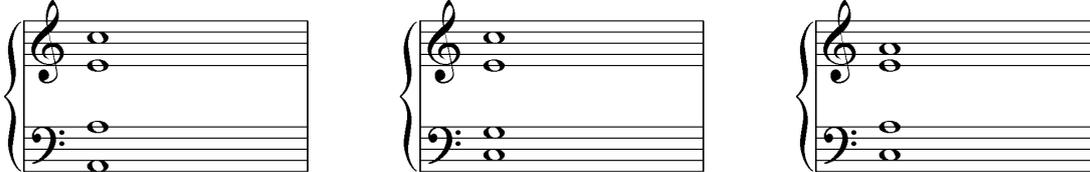
6. Describe the following chromatic chords. They may be a diminished 7th chord, a Neapolitan Sixth chord, an Augmented 6th chord (Italian, French, or German) or the Tristan chord. Each chord will be played three times after the key chord is given.

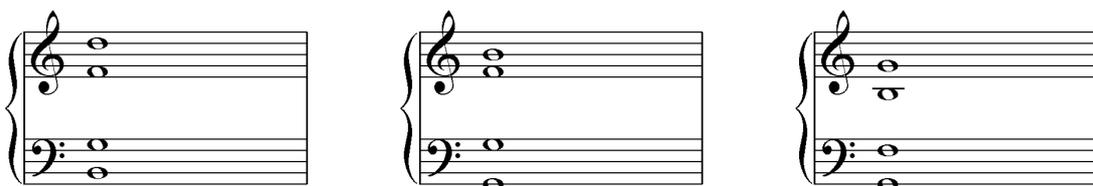
- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

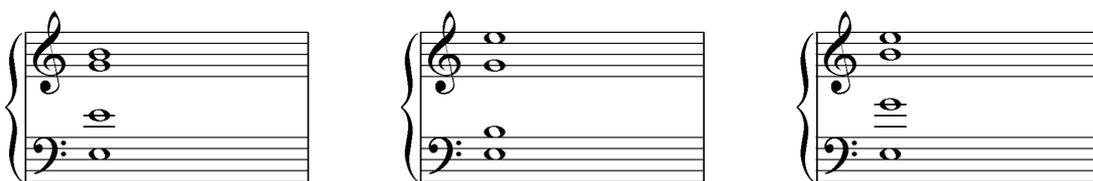
(10 MARKS)

7. Identify which of the three notated chords you are hearing by circling it. Each chord will be played twice after the key chord is given.

a. 

b. 

c. 

d. 

(4 MARKS)

SECTION C: Recognition of Errors (Intonation, Pitch and Rhythm)

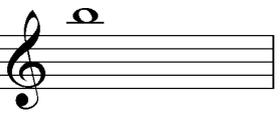
8. You will hear two renditions of the printed note, one after the other. You should state whether the second rendition is flat, the same, or sharp in comparison to the first.

a. 

Flat, the same, or sharp? _____

b. 

Flat, the same, or sharp? _____

c. 

Flat, the same, or sharp? _____

(3 MARKS)

9. You will hear the chord that is notated below, but one note is out of tune. Identify the note that is out of tune, and state whether it is sharp or flat. You will hear each chord twice.

a. 

Note out of tune:

Sharp or flat?

b.  Note out of tune:

Sharp or flat?

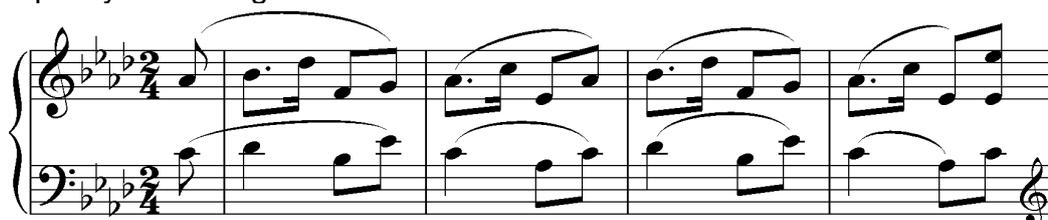
c.  Note out of tune:

Sharp or flat?

d.  Note out of tune:

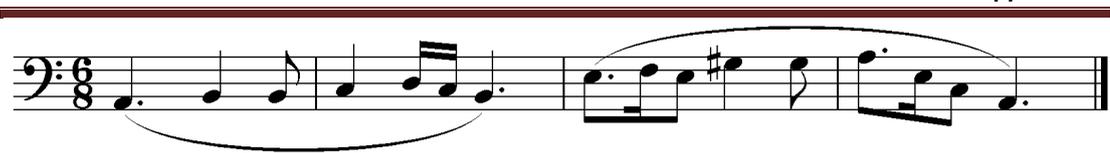
Sharp or flat?

10. The following extract will be played three times. **THREE** pitch errors will occur in the *second* and *third* playing. Please circle the errors and specify the wrong notes. (8 MARKS)




(6 MARKS)

11. The following melody will be played twice. **TWO** pitch errors and **TWO** rhythmic errors will occur. Please circle the errors and specify the wrong notes/rhythm.



(8 MARKS)

SECTION D: Dictation

12. Dictate the rhythm of a two-bar phrase on the line below. The rhythm will be clapped twice.



(10 MARKS)

13. Dictate the following extract on the staff below. The extract will be played three times.



(10 MARKS)

14. Dictate the following two-part extract on the staff below. The rhythm of the upper voice part is shown above the staff. The extract will be played four times.



(20 MARKS)

APPENDIX C**FOCUS GROUP QUESTIONS**

1. What do you understand by 'aural' in a musical context?
2. What specifically do you understand by 'aural ability'?
3. Please write down one word or statement on each one to reflect what you think aural ability is and put these into order of importance
4. How important is 'aural' and 'aural ability' in general musicianship?
5. How important is 'aural' and 'aural ability' in making your module choices?
6. How important is 'aural' and 'aural ability' in your music degree programme?
7. Is there a difference in the importance of 'aural' and 'aural ability' for performers, composers and musicologists?
8. Do you think that there might be a relationship between music students' aural ability (as defined in aural test marks) and their success on a degree programme (as defined by overall degree result)?
9. In evaluating past music students' aural test scores and overall degree results, I have found that there is a significant positive correlation... what are your views on this?
10. In evaluating past music students' module choices and overall degree results, I have found there is no significant correlation...what are your views on this?
11. How important do you think singing is in developing aural?

Introduction to Handout / Explanatory information

"Past music students were given aural tests at the start, middle and end of the first year of their music degree programme. The aural tests included recognition of intervals, cadences and notated chords, errors in intonation, pitch and rhythm, and dictation of a rhythm and of a two-part melody. The marks of the students' aural tests were then compared with their final overall degree result (weighted average). These tables/graphs show the findings."

APPENDIX D
FOCUS GROUPS HANDOUT
Statistics from Research

Table 1a: *Cross-tabulation between Final Degree and Aural 1 Quartiles*

		Aural1 Quartile				Total
		Lowest	Middle1	Middle2	Highest	
FinalDegQuart	Lowest	11	5	6	3	25
	Middle1	6	10	6	3	25
	Middle2	4	6	9	6	25
	Highest	4	4	4	13	25
Total		25	25	25	25	100

Table 1b: *Bar-chart showing the same cross-tabulation between Final Degree and Aural 1 Quartiles*

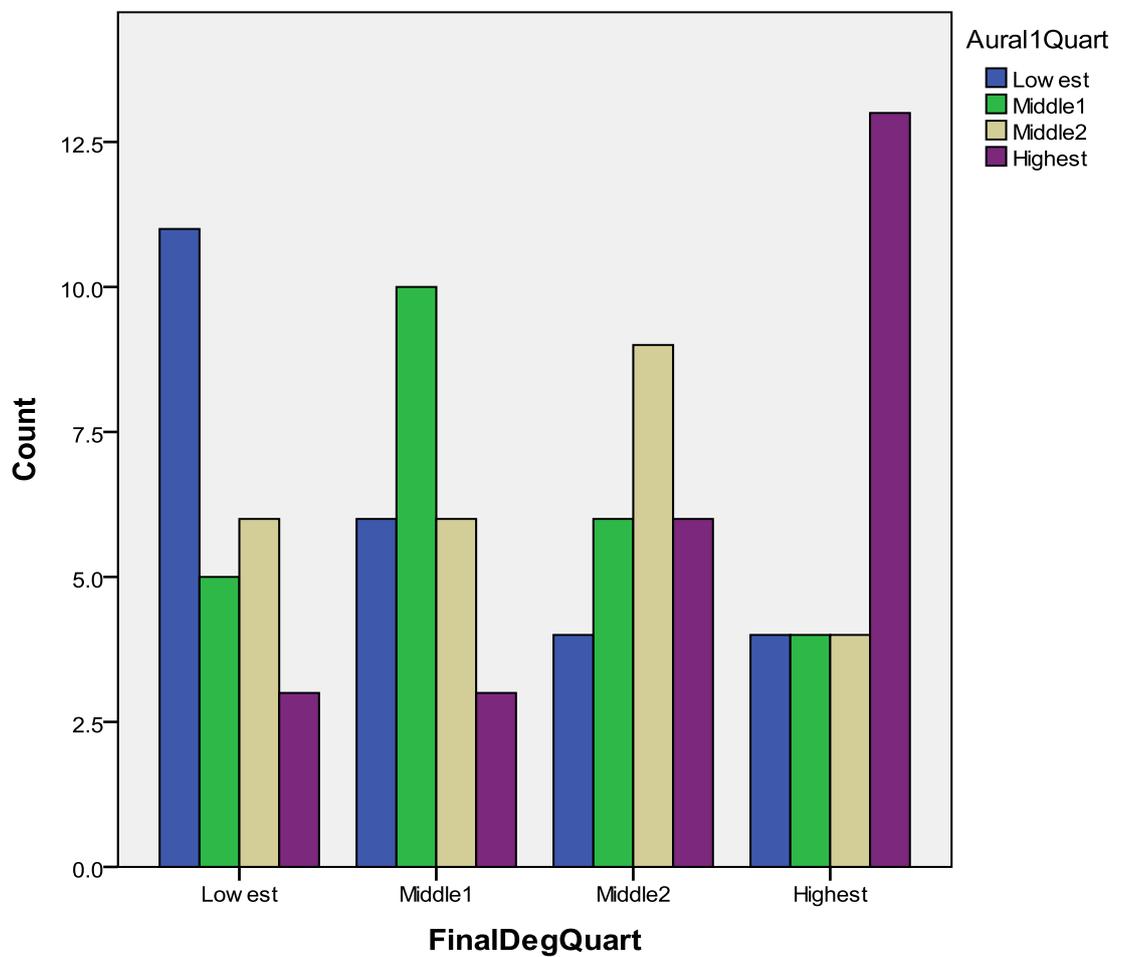


Table 2a: Cross-tabulation of Module Choice with the Final Degree Quartiles

ModuleChoice * FinaldegreeQuart Cross-tabulation

			FinalDegQuart				Total
			Low	Mid1	Mid2	High	
Module Choice	Performance		4	10	11	10	35
	Composition		10	4	9	4	27
	Performance and Comp		6	6	1	8	21
	Neither Perf or Comp		5	5	4	3	17
Total		25	25	25	25	100	

Table 2b: Bar-chart showing the same cross-tabulation of Module Choice with the Final Degree Quartiles

