1 Introduction

This book presents our view of the current state of the study of musical development. As researchers and writers who have studied, worked, and researched in the fields of development, education, and music, we have gathered together the current state of knowledge and given our perspectives on what has become a diverse and wide-ranging field of enquiry which is of importance and interest to musicians, educators, psychologists, students, and all those concerned with the effects and impact of music in our lives.

The forerunner of this book – *The Developmental Psychology of Music*, by David Hargreaves (1986a) – was published more than thirty years ago, and was intended to be a first attempt to delineate this field as such. One reviewer of the original book proposal pointed out at the time that 'the book is more about what the developmental psychology of music might become than about what it is', and this was a fair comment which reflected the original aim of mapping out the field for the first time. In the intervening years, development has become well established as one of the main sub-disciplines of contemporary music psychology along with the cognitive psychology of music and the social psychology of music. So many developments and changes have occurred since 1986 that there is a clear need for a completely new account of what the field has become. These changes are so wide-ranging and profound, covering not only basic theoretical perspectives but also different areas of content and new methodologies, that this is considerably more than just a second edition of the earlier book: we have wiped the slate clean, and started as if from scratch. In this first chapter, our primary aim is to set out the key developments which have characterised the past thirty years of research and investigation on musical development, but before we can do that we need to look more generally at the recent history of people's engagement with music, and indeed with the changes that have taken place in music itself.

Developments in Music and Musical Engagement

The nature of music itself has changed dramatically, particularly over the twentieth century: the pace of change has accelerated, and is still accelerating right up to the present day. In Western classical music, musicologists have documented many

revolutions and dramatic changes: the 'new' music of Beethoven, Wagner, Debussy, Stravinsky, Schoenberg, and Messiaen, to name just a few, revolutionised the ways in which future composers worked. After World War II, developments in electronic sound production opened up entirely new musical territory for composers such as Stockhausen, whose vigorous discussions with other iconoclastic composers including Pierre Boulez and John Cage became part of the post-war modernist movement in the arts. The subsequent postmodern turn in classical music included what has become the minimalist tradition, notably the work of composers such as John Adams, Philip Glass, Michael Nyman, Steve Reich, and Terry Riley, who reacted against the perceived elitism, intellectual complexity, and dissonance of atonal modernism by producing music with simple textures and relatively consonant harmonies.

Alongside the increasing pace of change, it is the move away from modernist ideals in music that characterises the changes that have taken place since 1986. Composers in classical music have been openly influenced by popular music, jazz, and world ethnic musical traditions, while others, most notably John Cage, challenged the prevailing standards of beauty and objectivity that were a fundamental part of modernism. Within popular music, the powerful influences of the blues, rock'n'roll, the Beatles, punk rock, and many subsequent styles have diversified, cross-fertilised, and reached a point at which the plethora of available genres and styles have become increasingly difficult to distinguish: similarly, in jazz, the succession from bebop to hard bop to fusion music and 'free jazz' has led to a point at which European free improvisation and folk music are all potential parts of a much richer tapestry than in the past. In this context it is easy to see that the distinction between 'serious' and 'popular' music, and the relative evaluation of them, has blurred considerably within the last few decades. It is widely recognised today that the use of the former term to refer largely to Western classical music is an anachronism, and that musics from many other cultures and continents should be given equal status.

Technological Developments and Their Effects

Going back to 1586, probably about when William Shakespeare wrote the famous poem in the Preface, the only way to hear music would have been by attending live performances. The range of musical styles and instruments to be heard would have been very limited: listening to music would have occurred much less often, and most people would have heard particular pieces only a few times in their lives. This situation persisted through to the late nineteenth century, when a seismic revolution occurred in music listening with the invention of sound recording. Pioneered by Thomas Edison, this was quickly followed by the mass production of recordings which were sufficiently inexpensive as to be accessible to a wide range of listeners. These developments had a profound influence on the nature of music listening, which was changed still further by the advent of radio and television, and the growth of the mass media.

In a children's Ladybird book *The Story of Music*, published in 1968, Geoffrey Brace wrote that

> '[T]oday, by means of the radio or a record player, we can hear any music we choose from any period, in any style, played by the finest musicians in the world. What is more, with a record we can hear it as often as we are like, and this has completely changed the part music has taken in our daily lives. Perhaps we have too much music now – and because it is so easily obtained, we make too little effort to listen to it. An enormous amount of music on radio and records is often regarded as just a background to talking, eating or housework. This may make us forget that there is a great deal of music that is meant to be really listened to with all our attention.' (p. 50)

Brace's view of music listening reflected the enormous changes that had occurred, as well as expressed a tinge of sadness about the disappearance of some of the qualities of what has now become known as 'live' (as distinct from recorded) musical experience.

The pace of change accelerated still more sharply with the digital revolution of the 1980s. This has had profound effects on many aspects of people's lives, including not only music listening but also the ways in which music is produced, recorded, and transmitted. Due to technological developments that derive from the digitisation of music and its transmission via the internet, 'being a musician' today involves far more skills than it did only twenty or thirty years ago: it might now be considered by some to include some arranging or improvising skills, and/or a working knowledge of music hardware and software. However, technology has also facilitated involvement and engagement with these processes: a single composer can 'perform' an entire symphony or 'play' all the parts in a band with relative ease, and without thousands of hours of practice at the instruments. The introduction and rapid growth of personal computing and the growth of the internet means that digital music files are easily accessible and transferable within the music business, as well as for members of the general public.

In addition to recording, two more recent technological changes have been very influential. One is the development of relatively inexpensive but high-capacity portable digital music players, the best known of which is probably Apple's iPod: these enable individuals to carry their entire music library with them wherever they go, and to listen to different selections from it in many everyday situations. The second change concerns how people obtain their music. The traditional practice of purchasing vinyl or CD records is rapidly being overtaken by downloading and streaming of digital music from internet sites, such as Apple's iTunes, onto personal music players. Furthermore, the ways in which music is distributed and shared between people have also been powerfully influenced by the growth of YouTube, Spotify, and other such music websites, and by the sudden and massive growth of social networking sites including Facebook and Twitter. Technological change has contributed to the ubiquity and portability of music, as well as to its demystification and globalisation. Another effect, as we shall see later in the book, is that people's music listening is becoming more functional, chosen to meet their particular needs in particular situations.

Table 1.1. Brown's (2016) 'meaningful creative engagement matrix', with exemplary musical activities in each cell

	Appreciating	Evaluating	Directing	Exploring	Embodying
Personal	Listen, Read, Watch	Analyse, Select	Compose, Produce	Improvise, Experiment	Practice, Play
Social	Share files	Discuss, Share playlists	Conduct, Lead	Jam	Rehearse, Record
Cultural	Attend events, Patronage	Curate, Publish reviews	Promote, Manage	Publish research	Perform

Source: Table 11.2 (p. 212) in Brown, A. R. (2016). Engaging in a sound musicianship. In G. E McPherson (Ed.), *The child as musician: A handbook of musical development* (2nd edition, pp. 208–220).

Andrew Brown (2016) has summarised the general effects of these changes in terms of what he calls the 'technoculture': children can now access the internet via touch-screen mobile devices, and use them to play games and make video calls to their distant family members all around the world at a very early age. Given these changes, Brown suggests that we should reinterpret the nature of musical experience, and he uses his own three-dimensional framework in order to do this. First, he proposes that there are five 'modes of creative engagement' which can describe present-day musical activities: these are 'Attending – paying careful attention to creative works and analyzing their representations; Evaluating – judging aesthetic value and cultural appropriateness; Directing – crafting creative outcomes and leading creative activities; Exploring – searching through artistic possibilities; and Embodying – being engrossed in fluent creative expression' (p. 210). Each of these five modes of creative engagement is seen by Brown as taking place in three different types of context, namely the Personal (the intrinsic enjoyment of creative activities), the Social (the development of artistic relationships with others), and the Cultural (the feeling that one's creative actions are valued by the community).

By combining the five modes of creative engagement with the three contexts, Brown emerges with what he calls a 'meaningful engagement matrix', which is shown in Table 1.1: he has populated the cells of this matrix with illustrative examples of typical activities in each case. Brown then goes further in using this framework to broaden the definition of musicianship along the lines that we suggested earlier. Brown's suggestion is that what he calls 'sound musicianship', which is broadened to cover all the facets demanded in the technocultural age, has four main components. These are: the sonic component, which concerns the exploration of sound from an acoustic point of view; the psychological component, which deals with people's cognitive and emotional engagement with music, which is the main focus of this book as a whole; the embodied component, which concerns the inextricable inter-relationships between music and human movements, such as physical gestures and motor synchronisation with aspects of music, and with other aspects of the performance environment; and the cultural component, which includes the social, political, and economic contexts in which music-making occurs, and all the ideas, customs, and habits which are associated with them.

Personal Music Listening and Control

An important consequence of these recent technological advances is that people now actively *use* music in everyday listening contexts. They cannot avoid their exposure to it in shops, restaurants, and other everyday environments, but they actively *control* its use in the home, in the car, on public transport, and in many other everyday situations in order to create certain mood states or to moderate their levels of arousal (see North & Hargreaves, 2008). Data from experience sampling studies, in which people's everyday experiences are randomly sampled over a particular time period (Csikszentmihalyi & Lefèvre, 1989), have shown that adults are exposed to music around 37–53 per cent of the time (Greasley & Lamont, 2011; Juslin, Liljeström, Västfjäll, Barradas, & Silva 2008; North, Hargreaves, & Hargreaves, 2004; Sloboda, O'Neill, & Ivaldi, 2001), and children, as we shall see later, experience over 80 per cent of their waking hours with music (Lamont, 2008).

The critical factor in personal music listening, absent in public listening, is the degree of control that the listener has over the listening situation, and the rapid and recent rise in personal music listening is changing the ways in which people do it. Mehrabian and Russell's (1974) model of environmental psychology (M-R) suggests that people respond to particular environments by showing approach and avoidance behaviours. Environmental factors affect their emotional states, such as their levels of pleasure or arousal, which lead them either to approach or avoid particular environments. There are four aspects of approach/avoidance behaviour, namely (a) the desire to physically stay in (approach) or to leave (avoid) the environment, (b) the willingness to explore (approach) the environment or to avoid interacting with it, (c) the willingness to communicate with others in the environment (approach) or to avoid them, and (d) the increase (approach) or decline (avoidance) in satisfaction with behaviour in the environment. Individuals' tendency to decide to approach or avoid the environment depends on their emotional response to it, and this is determined by three different dimensions, namely pleasure, arousal, and dominance.

We deal with pleasure and arousal in much more depth in Chapter 7, but attention has shifted towards the notion of *dominance* in some recent research. Following the M-R model, Amanda Krause argues that dominance (i.e. control) should lead to more positive listening experiences. Devices that offer more control over listening (e.g. MP3 players or personal computers) seem to promote contentment and further motivation to listen (Krause, North, & Hewitt, 2015), and selection methods with more control (e.g. choosing a specific album or a personal preselected playlist) have similar positive effects (Krause, North, & Hewitt, 2014). Confirming many other findings, Krause, North, & Hewitt (2016) found that music heard in private spaces and locations was liked more and given more attention than that heard in public spaces and locations, in which people felt less in control (or were less dominant, in terms of the M-R model).

In summary, the choice of listening device is important in public, as people's use of mobile devices allows them to exert control. This means that the listening

context includes location and also the device through which music is played, which supports the M-R contention that dominance can be important, and that listener control may well be an index of this. Listeners can be seen as active consumers rather than as passive ones (which, incidentally, coincides with the view of listening as a creative musical activity proposed by Hargreaves, Hargreaves, & North, 2012). These results overall provide support for the notion that individual choice of music exerts a strong influence over the ways in which it is perceived. This is in line with other findings from the field of music, health, and wellbeing, in which it is now well established that control of music affects feelings of wellbeing and health, and in particular people's reactions to stressors and physical pain (see further in Chapter 8).

Advances in Developmental Psychology and Music Psychology

Alongside these changes in music and technology, there have been corresponding changes in the academic disciplines on which we need to draw in explaining musical development, which now go well beyond psychology to include sociology, neuroscience, music theory, education, marketing, and communication. In 1986, the developmental psychology of music was an emerging sub-discipline, alongside cognitive and social music psychology. The subsequent growth of all of these, as in other areas of music psychology, has been phenomenal, such that the multidisciplinary connections of music psychology are now very extensive. We can identify another emerging field which might be called applied music psychology, in which the findings of the discipline are applied in the areas such as broadcasting and the media, education, health and wellbeing, consumer behaviour, social inclusion, and musicianship itself.

The Current State of Research in Developmental Psychology and Education

Towards the end of the last century, Western developmental psychology was characterised by the 'grand theories' of human development proposed by Jean Piaget and Sigmund Freud, the twin influences of behavioural and cognitive psychology, and the ecological or perceptual–development theory of James Gibson (1979/2015). Since then, three further theoretical approaches have had a profound influence on the explanation of human development. The first derives from the work of Lev Vygotsky (1966, 1978), whose work was translated and made available in the West from the 1980s onwards. Vygotsky emphasised the fundamentally social nature of learning and development, along with the basic idea that children's learning is mediated by what he called 'cultural tools', the most prominent of which is language. He emphasised the powerful influence of the social and cultural context in which development takes place; recent developments of these increasingly influential ideas have collectively become known as the *sociocultural* approach. The second approach comes from the rapid growth of cognitive neuroscience over the

last decade or two, aided by the relatively recent development of brain imaging techniques. Developmental neuroscientists have developed two different but complementary approaches in trying to explain the mechanisms of cognitive development and learning. These are *neuroconstructivism*, which investigates how neural structures become increasingly specialised in response to children's choice of activities, and *connectionism*, which uses computer modelling to predict the effects of the repeated activation of neural networks. The third is a recent upsurge of interest in the self, and self-theories: this has taken the form of investigations of self-regulation and metacognition, as well as of identity and the self-concept.

In addition to these approaches, three further ideas originally identified by Hargreaves (1986a) are still important today. The first of these is the idea that the child is an active agent in its own socialisation: in parent–child relationships, for example, the child is seen to influence the parent to at least the same extent as vice versa. The notions of *reciprocity* and *intersubjectivity* in adult–child relationships are now very well established in developmental thinking. The second feature, closely related to the first, is the emphasis on what might be called a cognitive approach. The 'cognitive revolution' of the 1980s (see e.g. Gardner, 1987) was specifically interested in the processes going on within the 'black box' of the mind: phenomena such as attention, memory, planning, and creative thinking represented the essence of this approach. This perspective has now been taken in a different direction to incorporate the study of emotional development, and the social and emotional aspects of learning, including Harris's (1989) research on children's understanding of the emotional and mental states of others and Gardner's (1999) identification of inter- and intra-personal intelligences. This is particularly significant for the study of musical development, since emotional communication and expression is one of the central functions of music, as will become evident later in the book.

The third feature is the significant increase in methodological sophistication. Sophisticated sequential methods (see e.g. Schaie, 1965, 1983, 1996) have enabled the traditional strengths and weaknesses of longitudinal and cross-sectional approaches to be overcome by incorporating aspects of both, taking account of the differences between age effects, cohort effects, and time-of-measurement effects. Ongoing advances in technology have also expanded opportunities to collect and analyse different types of data, and in the areas of infant research, everyday engagement with music, and in neuroscience, technology has continued to help advance the fields of research that apply to musical development.

We shall return to these theoretical perspectives and different features of developmental research in more detail in Chapter 2, along with two further features of the contemporary study of musical development: its interdisciplinarity, and its applicability to real-life practical issues. Music psychology as a whole has many applications in a wide range of areas, as we shall see, but perhaps the most obvious area of application of the developmental study of music is in its influence upon education. In the Preface we mentioned the concern about the relationship between theory and practice which existed in the 1980s: in the intervening years, the links between theory and practice in music education have strengthened considerably,

to the extent that it is worth considering how current developments in educational research might have influenced the study of musical development.

It turns out, perhaps not surprisingly, that the main new directions in educational research have a great deal in common with those in developmental psychology, which illustrates how theory and practice have come together. All three of the important new theoretical directions identified above have clear parallels in educational research. To take them in order, the current predominance of sociocultural approaches is apparent in educational research as well as in psychological studies of development: one very interesting example of this, which may derive directly from Vygotsky's emphasis on language and social 'talk', is the rise of interest in classroom dialogue (see e.g. Howe and Abedin's 2013 review of the past 40 years of research in this area).

Egalitarian dialogue is that in which each participant's contribution is considered according to its quality and validity rather than by the status or power of that participant. This principle has been used in *dialogical education* by Ramón Flecha (2000); Mercer (1995) and Alexander (2008) have also emphasised the importance and educational benefits of dialogic teaching and learning. Some of the techniques that have been developed in this approach, such as *dialogic literary gatherings* (DLGs), involve discussions between teachers and pupils, in this case about classic works of literature, in which the views of each individual are given equal status, thereby removing the usual power differential between teacher and learner. Such techniques have been shown to exert powerful positive effects on pupils' literacy acquisition as well as on their emotional and social development, and it is interesting that they also have some features in in common with the use of informal methods in music education, as we shall see in Chapter 5.

It is also very clear that the rapid growth of cognitive neuroscience, our second important new approach, now exerts a powerful influence on educational theory and research. In Chapter 2 we will describe how developmental neuroscientists are constructing new approaches to the explanation of cognitive development and learning, and that these have important practical implications for teaching and learning. We identified the third important new direction as the recent upsurge of interest in the self and self-theories, which has led to new investigations of self-regulation and metacognition. These also form an important new direction in educational research, and one particular area of interest is in studies of children's wellbeing. In the UK, these arose in part from the UNICEF (2007) Report *Child poverty in perspective: An overview of child well-being in rich countries*. This report, which received considerable publicity, placed British children at the bottom of the league table of rich nations with respect to their emotional wellbeing and happiness. Similarly, Layard and Dunn's (2009) *A good childhood* – the report of The Good Childhood Enquiry – stimulated a national debate about the possibility that 'toxic childhood' could be an unfortunate aspect of contemporary life: that the pressures on young children from educational institutions, from their parents, from their peers, and in particular from the images and concepts they gain from the media have become intolerable, such that children cannot cope and either drop out or turn away from

this pressure. It is also worth noting here that one important new direction in music psychology is in the positive effects of music on stress, coping, health, and wellbeing (see e.g. MacDonald, Kreutz, & Mitchell, 2012a, and Chapter 8).

The Growth and Diversification of Music Psychology

There has been an explosion of interest in the psychological basis of musical thinking, behaviour, and development over the last two decades or so which shows no sign of abating. The specialist journals in the discipline such as *Psychology of Music*, *Music Perception*, *Psychomusicology*, and *Musicae Scientiae* are healthier than ever before.

Before the 1980s, music psychology had been characterised by a preponderance of psychometric and acoustical studies. This approach was very clearly represented by Seashore's (1938) book *The Psychology of Music*, which placed a strong emphasis upon the objective measurement of auditory sensory abilities, with very little interest in the investigation of musical behaviour as such. A new era was ushered in by the publication of two more books entitled *The Psychology of Music*, by John Booth Davies (1978) and Diana Deutsch (1982, 1999, 2013): although these adopted very different styles and approaches, they both broadened the horizons of the discipline, and had a strong grounding in cognitive psychology. The cognitive psychology of music deals with the internalised rules, strategies, and operations which people employ in musical behaviour, and early research in this field included studies of the effects on listeners of tones, intervals, and scales; of the perception of and memory for melody; and of the internal representation of harmony and larger-scale aspects of musical structure.

The cognitive psychology of music was cemented by John Sloboda's (1985) *The Musical Mind* (see also Sloboda, 2005), representing psychologists' first attempt to deal with problems and issues of real musical concern. Although the cognitive tradition continues in contemporary music psychology research, and indeed provides the foundation for many other specialisms, some of its early research was subsequently criticised for the artificiality of some of its experimental tasks and 'laboratory' testing situations, for the unrepresentativeness of its participant groups, and because many of the experimental stimuli employed bore very little relation to actual musical materials. Some challenges came from musicology, which provided a counter-perspective of understanding structural relationships within and between different musical works (see e.g. Clarke, 1989) and often claimed more subtleties in interpretation (e.g. Margulis, 2005; Temperley, 2003).

A new approach, zygonic theory (Ockelford, 2006), attempts to combine the concerns of musicology and cognitive music psychology, and this has recently been applied to developmental issues; we discuss this more fully in Chapter 2. Empirical musicology (Clarke & Cook, 2004) and systematic musicology (e.g. Honing, 2004) are both recent brands of more inclusive and broader adaptations of traditional music theory. Correspondingly, the psychology of music has now developed to include much more complex and ecologically valid questions about musical

behaviour and understanding, such as the nature of musical expressiveness in performance; the effects of music on listeners' emotions and aesthetic responses; the creative processes involved in composing and improvising; and practical issues for musicians such as sight reading and practice techniques.

The social psychology of music has also become much more influential, particularly in the European tradition (Hargreaves & North, 1997, 1999; North & Hargreaves, 2008). Research has begun to explore the social functions of music for individuals, for small and large social groups, and for society and culture as a whole. The social functions of music seem to be manifested in three main ways for both musicians and non-musicians alike. Firstly, music plays a clear part in the growth and expression of *self-identity*, as we shall see in much more detail in Chapter 6. Historiometric research suggests that composers express their distinctive identities and world views through their music. Furthermore, research on adolescence shows that young people join some musical subcultures, and reject others, as a means of defining themselves. The second social function of music concerns establishment and maintenance of *interpersonal relationships*. Musical preference judgements in adults as well as in teenagers reflect a desire for acceptance into particular social groups: they can provide a means of defining ethnic identity, for example, and the affiliation with one style or genre rather than another can even mediate the perceived characteristics of others, such as physical attractiveness or personality (see Chapter 7). Thirdly, there is clear evidence that music can provide a means of *mood management* in everyday life. Research shows that musical taste is mediated by the immediate listening environment, and so reflects situationally determined and situation-specific goals. Adolescents use music to adapt their mood to specific situations: and 'applied' research shows that music can be used to alleviate pain, or to influence customers' behaviour in shops and stores (Chapter 8).

Finally, the developmental psychology of music, the main topic of this book, is another sub-discipline which has expanded considerably in recent years. Some of this development stems from the impetus within developmental psychology to explain the emergence of different processes in more depth. Experimental researchers might carry out studies which compare infants' musical and speech perception skills, for instance, or which shed light on important genetic and environmental influences in early development. Researchers also make comparisons across developmental stages, such as between infancy, childhood, and adulthood, to establish the skills and abilities that result from experience in general and from training in particular, and to understand more, for example, about how the damaged brain might process music.

The range and diversity of the topics covered in this book give another clear indication of the way in which the study of musical development has expanded almost beyond recognition in the last few decades. The breadth and depth of current research on perceptual and cognitive aspects of musical development in Chapter 3, for example, vastly exceeds what was known in 1986. The same is true of the range of theoretical models of musical development which are reviewed in Chapter 2, of our detailed knowledge of different aspects of the social, emotional, and affective