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How do people communicate using music?

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Introduction

Music is a fundamental channel of communication: it provides a means by which people can share emotions, intentions, and meanings. Music can exert powerful physical and behavioural effects, can produce deep and profound emotions within us, and can be used to generate infinitely subtle variations of expressiveness by skilled composers and performers, such that highly complex informational structures and contents can be communicated extremely rapidly between people. Music is something we do with and for other people, and which through its communicative properties can provide a vital lifeline of human interaction for those whose special needs make other means of communication difficult.

The rapid technological changes that have taken place over the last two decades or so have led to equally rapid changes in the diversity and availability of music, and in the ways in which people engage with and 'consume' it. The digital revolution, and the corresponding developments in miniaturization and portability of music recording and playback equipment, mean that virtually any music can now be heard at any time by many listeners around the world, some of whom can carry their entire music libraries around wherever they go. These changes also mean that many more people have the means of composing, recording, and performing their own music than at any time in the past.

The ubiquity of music in everyday life, and the corresponding diversification of musical behaviour, probably explain why there has been an explosive increase of interest in music psychology over the last two decades or so. We have described elsewhere how the discipline has expanded and diversified into several sub-disciplines (Hargreaves *et al.* 2002): the contemporary cognitive, developmental, and social psychologies of music each have their own theoretical

PROLOGUES, EMPYRICAL RESEARCH, and Practical applications. Our present focus on musical communication in this volume cuts across these traditional divisions: our central interest, as the title indicates, is on how people use music to communicate with each other. The search for answers to this *how* question, and to the related question of *why* people communicate using music, form the subject matter of the rest of this book. The authors of the forthcoming chapters use a variety of theoretical approaches, covering many areas of empirical research, carried out in many different contexts, in trying to provide some answers.

These primary 'how' and 'why' questions immediately raise three others, however, which we need to tackle at the outset in drawing up our agenda in more detail: these are the 'what', 'who', and 'where' questions of musical communication. In establishing *what* is communicated, we need to be clear about the parameters of what we mean by 'music'. Most people have a common and consensual view about the different genres, styles, and idioms which constitute music, and we shall return to this issue in more detail later in the chapter. Having said this, it is also worth considering John Cage's argument that chance and random events, or even silence, could be construed as 'musical' if they occur within an artistic context. It is the artist and the listener who ultimately decide what is and what is not musical, even though their views might not necessarily coincide. Different sounds (or the absence of them) become musical when people collectively imbue them with musical meaning, and an important aspect of this is the social and cultural context within which those sounds exist.

In this book we adopt a very broad view of our subject matter: we conceive of musical communications as ranging from an infant's response to its mother's song, or the beginning attempts of an elective mute to move in time to a rhythmic stimulus, to audience reaction to recorded and broadcast music, or to a complex group improvisation involving interactions between performers and audience, as well as to talk about music. This view also implies that the contents and functions of different musical communications can vary widely: Cross (this volume) points out that music is inherently ambiguous, and 'has a sort of "floating intentionality" ... it can be thought of as gathering meaning from the contexts within which it happens and in turn contributing meaning to those contexts' (p. 30). Musical meanings could therefore include political messages, social conventions and ceremonies, nationalistic pride, altered states of consciousness, interpersonal signals, commercial messages, as well as aesthetic pleasure, deep emotional states, and complex ideas. Specific considerations of the broader social context should enable us to develop our understanding of the referential complexity of musical meanings.

This broad view of what constitutes music leads to the fourth question, namely *who* are the communicators and recipients of musical meaning?

Here again, our view is very broad: as we have suggested earlier, it goes well beyond professional musicians, working in artistic contexts, to include situations in which the composer and the performer, who may indeed be one and the same person, are not formally trained or skilled musicians – they might be children, therapeutic clients, or indeed chanting football crowds. Each of these groups uses music to communicate specific physical, cognitive, social, and/or emotional messages to its audience. Animals also communicate using musical sounds, of course, and Olivier Messiaen's use of bird song in his work illustrates their immense subtlety and complexity: but as Merker (2000) and Cross (this volume) point out, music appears to play a unique role in the individual and social development of human beings, and the predisposition to engage in musical activities seems to be a biological adaptation, acquired through evolution.

Our approach to the fifth question, namely *where* does musical communication take place, should by now be apparent: we move well beyond most traditional models of musical communication, which typically deal with 'art music', presented in artistic contexts, by encompassing the numerous forms of music that we encounter, often involuntarily, in everyday life. Musical meanings can be context-specific, as we have seen here, and we follow Hargreaves and North (1997) in our focus on the specific places, times, and other people present in situations involving music, as well as on the broader historical and cultural contexts of musical behaviour.

The attempt to deal with the contexts of musical communication, as well as with all the participants involved in the process, sets a very broad and ambitious agenda. To summarize, we might define the aim of the book as being 'to explain the musical, social, and cultural processes that underlie the eventual realization of the acoustic performance event (by the composer, performer, arranger, and all others involved), the means by which they lead to the listener's response, and thence to short and long-term effects upon arousal level, cognition, emotion, and subsequent behaviour'. We see the specific link between the performance event and the response as the defining property of communication: there are different theoretical views of this link, as we shall see in the next section.

Contextualizing musical communication

Most models of musical communication have been influenced by the information transmission model of communication, which was initially formulated by Shannon and Weaver (1949). This model, which is illustrated and described in more detail by Cohen (Chapter 4, this volume) is based on the view of a communicator who uses a channel to send information to a receiver; the sender, the channel, and the receiver can take many forms, but

the central characteristic of the model is that the information moves in one direction – from sender to receiver, and not vice versa. Cross, Cohen, and Juslin, in their chapters in this volume, discuss some of the issues involved in applying this model to music, most of which revolve around the idea that a good deal of musical communication is much more interactive and re-creative than is suggested by the idea of information being passed from one person (e.g. the performer) to another (the listener). This view implies a kind of power relationship in which the performer takes the active role, and the listener is purely a passive recipient: this is not the case in many forms of musical communication, since the 'listener' may well play an active role in shaping the content and meaning of the message.

The development of psychology within the 1960s was largely dominated by the 'cognitive revolution', with an emphasis on information processing models of memory, attention, and thinking. These analysed the flow of information through the human cognitive system, attempting to specify what goes on between the input to the system (usually a stimulus) and the output from it (such as a behavioural response). The mechanisms proposed were directly analogous to those employed by the computer in coding, storing, and processing data, and in making some kind of output. This cognitive influence was clearly apparent in music psychology in the 1980s, which was dominated by laboratory-based studies of the effects of stimuli such as isolated tones, intervals, and harmonies. This history may partly explain the continuing influence of transmission models on the study of musical communication, though more recent developments in music psychology have moved well beyond the laboratory in trying to deal with complex musical behaviour in real life contexts. The time seems right for a reconceptualization of musical communication which adopts this broader theoretical approach, which views traditional transmission models in a new, broader context. Let us briefly consider some of these models before we deal with the broader perspective.

Johnson-Laird (1992) focused on the ways in which communicators use symbolic codes to transmit messages to their receivers. They 'code', or construct some kind of representation of the message they wish to communicate, and then transmit the representation in such a way that the receiver can decode the message, so that the transmission of the message is dependent on their mutual understanding of the symbolic coding system. Kendall and Carterette (1990) have formalized and developed this idea by proposing a three-stage model of music communication (shown in Chapter 18 of this volume, see p. 385) which attempts to show how those musical meanings which are encoded by the *composer* are transmitted via the *performer* to the *listener*. This model suggests that the performer decodes these meanings, recodes them within the

performance and thereby transmits them to the listener, who needs to undertake another decoding. Each of these processes is dependent on the shared implicit and explicit knowledge of all three participants in the chain, and is influenced by the context and environment within which the process takes place – although the model does not specify the latter in any detail.

Juslin (Chapter 5, this volume) has proposed a clear and explicit summary of this view in his illustration of the process by which emotion is communicated in music (see p. 87). He follows Kendall and Carterette (1990) in showing a 'communication chain' in which the composer has a causal influence on the listener, and in which communication occurs when the expressive intentions and meanings encoded by the composer are eventually decoded by the listener (as an affective response). The chain moves from the composer's intention (usually encoded in the score), to the performer's intention, which gives rise to the acoustic features of the performance; this results in the listener's perception of those features, including the detection and recognition of relevant patterns in them, which may or may not ultimately result in an affective or emotional response, i.e. the induction of a new mental state. Juslin is also keen to emphasize that the communication which occurs in this hypothetical chain goes further than musical expression, in that the composer exhibits the *intention* to express a specific concept or state, and that the listener is able to *recognize* this intention.

Our proposed move beyond transmission models, and towards locating the study of musical communication within complex real life situations, means that we need to look more closely at the ways in which individuals interact with other people, objects, and situations in their immediate environments – and especially those relevant to a particular domain of activity such as music. This leads us to a consideration of social cognitive theory, and Bandura's (1986) approach provides an excellent starting point. Central to Bandura's approach is his view of the nature of human agency – 'how people exercise influence over what they do' – which leads to the principle of *triadic reciprocal causation*. This transactional view of the relationship between self and society is based on three major classes of determinants – behaviour; internal personal factors (cognitive, affective, and biological events); and the external environment. In Bandura's view, each of these three determinants exerts a mutual influence on each of the others, such that the whole system is 'reciprocally deterministic', and in a constant state of dynamic change. People themselves create social systems – but are themselves influenced by those systems in turn, so that human behaviour is a product of both social influences and internal psychological factors.

Social cognitive theory led Bandura (1997) to develop his views of self-referent thought, and with a particular emphasis on *self-efficacy*: 'Knowledge structures

...providing the cues and strategies of effective action serve as cognitive guides for the construction of complex modes of behavior' (p. 34). These self-efficacy beliefs remain grounded in social and contextual factors, however: some situations demand individual effort and skill more than others, and individuals' perceived self-efficacy varies accordingly. Business executives may place a high value on their entrepreneurial or money-making skills and place little importance on cultural values and learning, for example, whereas university professors may prize the latter whilst devaluing their abilities in everyday practical matters, or indeed in money-making! This highlights the important implication that self-efficacy is not a general or non-specific personal belief, but is grounded in particular contexts and domains.

The related ideas that human agency and knowledge exist within the social world, that they are domain specific, and that they are mediated by internal constructs such as self-efficacy, forms the basis of our own attempt in this chapter to develop a new contextual explanation of musical communication. We propose that there are three major determinants of the musical communication process, as we defined it earlier, namely the characteristics of the music itself; those of the people involved (i.e. the composer, performer, and/or listener); and those of the situation in which it occurs. Grounding our model in the specific domain of music limits the wider psychological applicability of our predictions and insights, of course, but we are nevertheless able to incorporate Bandura's principle of reciprocal determinism, suggesting that each of these three major determinants exerts a mutual influence on each of the others. The idea that musical experience depends on the interrelationships between the person, the music, and the situation is not new in music psychology, of course, but it has not previously been applied systematically to the analysis of communication.

The incorporation of reciprocal determinism, which we have operationalized as 'reciprocal feedback' in our model, is the first main feature of our attempt to contextualize the explanation of musical communication. The second is our adoption of broader definitions of the three determinants – of the people involved, of 'music' itself, and of the social contexts within which it occurs – than has hitherto been the case.

Most previous models of musical communication have been conceived with reference to a live art music performance in which a skilled performer plays pre-composed music to an audience – i.e. in effect, to musical performance in the Western European art tradition. As we suggested earlier, our definition of the performer goes well beyond this: we consider that musical communication can be said to take place when the 'composer' and 'performer' may not be trained, skilled, or professional musicians, and we consider that musical communication takes place outside of the artistic contexts of the concert hall

or recording studio, which could include recorded performances, such as those in broadcasting, the media, and cinema, or even listeners' reactions in everyday situations such as shops, leisure environments, or the workplace.

We shall return to examine these issues in more detail when we consider which characteristics of the person, the music, and the situation influence musical communication, and how they do so. More generally, however, we concur with Juslin (this volume) when he concludes that 'most previous research on expression, perception, and induction of emotions has neglected the *social context* of musical emotion, including everything from the situation in which the musical activity takes place to the wider socio-cultural context' (p. 106), and contend that contextual models of musical communication will need to extend the notion of transmission in adopting this broader perspective.

A reciprocal feedback model of musical communication

Our 'reciprocal feedback' model is created by combining two parallel component models: one attempts to specify the main personal, musical, and situational variables which give rise to a musical *performance*, and the other attempts the same task to explain the *response* to music in a specific situation. The two components are combined such that musical communication is conceived of as occurring at their interface, so that the critical link, or 'spark' of musical communication, exists when a specific performance event gives rise to a listener's response. The resulting model is intended to represent a view of musical communication which goes beyond previous transmission models (a) by taking into account the many relevant personal, musical, and contextual variables, and (b) by virtue of its incorporation of the reciprocal causal influences of all its components. This first attempt will inevitably neglect some of the relevant variables: but it nevertheless represents a preliminary mapping of some of the main developments in current research within the psychology of music.

Musical response

Figure 1.1 shows a more elaborate and detailed version of the musical response model outlined by Hargreaves *et al.* (2005): it describes the various different determinants of a specific response to a given musical stimulus at a particular point in time. The *music* itself can be analysed, and for experimental purposes be seen to vary, in many different ways. A full exposition of this is the subject of music theory, of course, an account of which is way beyond our scope here, but we can nevertheless indicate some of the main factors which are of interest from the point of view of the study of communication.

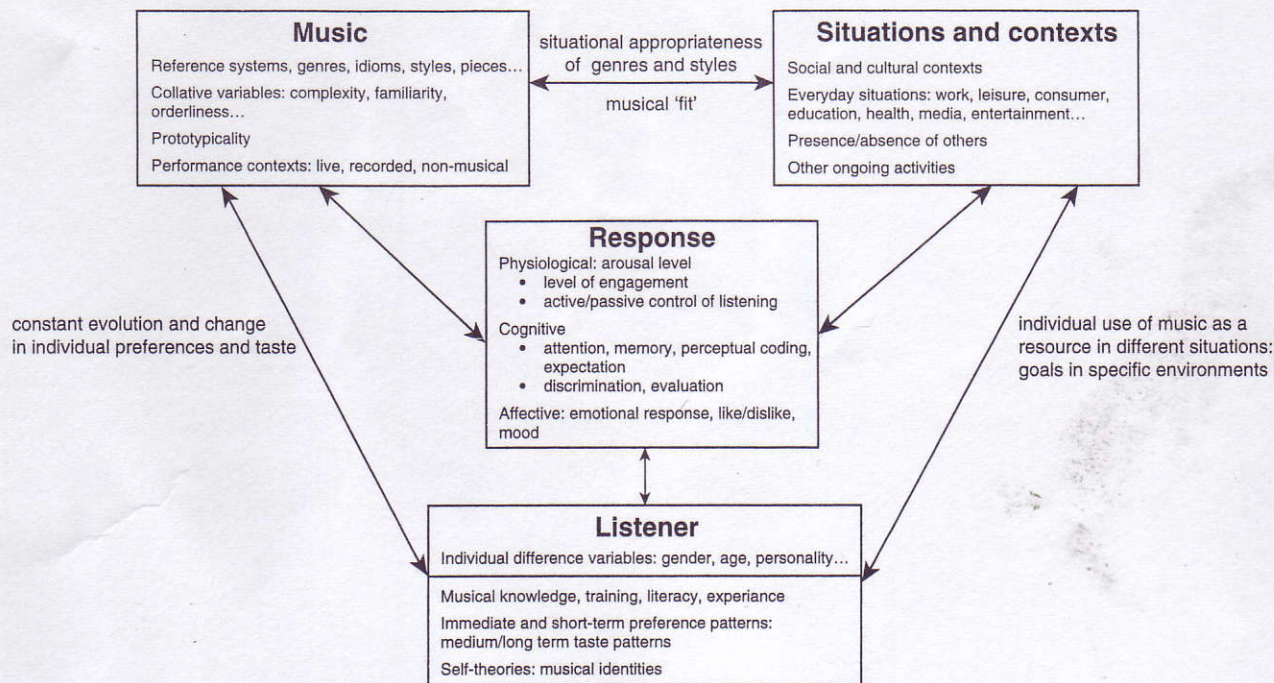


Fig. 1.1 Reciprocal feedback model of musical response.

First, we can conceive of the concept of musical style or genre in terms of several different levels of generality, and music theorists have suggested various ways of conceptualizing and classifying stylistic phenomena. Nattiez (1990), for example, proposes six different levels of musical style which range from the very culture specific – a specific work by a particular composer – through to the completely non-culture specific – the universals of music (e.g. pitch, rhythm) – via a series of intermediate levels (a style during one phase in the life of a composer, intermediate genres and idioms, and systems of reference within which styles are defined (e.g. tonality). This is a useful conceptual framework, though empirical research on the perception of musical styles and people's preferences for them (see e.g. Hargreaves and North 1999) is fraught with methodological problems, not the least of which is that the extra-musical influences on many popular genres and styles, notably those from the media and the fashion industry, mean that they are subject to constant and increasingly rapid redefinition.

Second, an extensive body of psychological research has been conducted within the approach of experimental aesthetics, a good deal of it deriving from the theoretical background established by Daniel Berlyne (see e.g. Berlyne 1971). Berlyne suggested that the listener 'collates' the different properties of a given musical stimulus, such as its complexity, familiarity, or orderliness, and that these 'collative variables' combine to produce predictable effects on the level of activity, or arousal, of the listener's autonomic nervous system. The level of arousal is related to liking via an inverted-U function according to which liking is highest at intermediate levels of arousal, and correspondingly lower at both low and high levels. Berlyne's arousal-based approach was challenged in the 1980s by another group of researchers (e.g. Martindale and Moore 1988) who argued instead that preference is determined by the *prototypicality* of different stimuli, i.e. by the extent to which a particular musical piece is typical of its class. Their explanation, in terms of neural network models, was that more prototypical stimuli give rise to stronger activation of the salient cognitive categories in people's mental representations of music, and that this is the main determinant of aesthetic preference. North and Hargreaves (2000a) have proposed a reconciliation between these two views: whilst the detailed issues are beyond us here, there can nevertheless be no doubt that the properties of the music itself exert important influences on musical response.

The performance contexts in which music can be heard are far more varied now than at any time in the past: whereas live performances were the only way in which music could be heard in the nineteenth century, the development of the mass media and more recently of global digital communication mean that music – live, broadcast, or recorded – can be heard in an almost infinitely wide

range of settings, in the developed world at least. The development of the Walkman, of the internet, and of high capacity MP3 portable players mean that listeners can carry their entire music collections with them wherever they go, so that music has indeed become a 'sound track to life': two recent studies have suggested that well over one-third of the everyday lives of many people in the UK involve music in some way (Sloboda *et al.* 2001; North *et al.* 2004). Furthermore, both of these studies found that very few music-listening experiences take place in the absence of any other activity: the vast majority of music listening takes place while we are involved in other activities. This makes understanding the sensitive interplay between the musical and extramusical phenomena that occur during musical communication all the more important (Carlton and MacDonald 2004).

This means that people's experiences of and uses of music are much more varied than in the past, and that its evaluation in terms of traditional artistic or aesthetic criteria may not be appropriate in many cases: music is heard and used in 'non-musical' contexts, and listeners' responses to style, genre, and quality are inevitably affected. This leads on to the reciprocal feedback relationship between the music and the listening context: as illustrated in Fig. 1.1, different styles and genres are seen as appropriate to varying degrees in particular listening situations. Research on music and consumer behaviour (see Chapter 19 of the present volume) shows this very clearly: a shop selling fashion wear to young people will typically play loud pop music, whereas an up-market furniture store may discreetly play Vivaldi or Mozart.

The creation of appropriate 'in-store ambience' by retailers, which is designed to increase sales by priming the appropriate cognitive networks in customers, leads to the idea of the musical 'fit' with specific products and environments: sales are maximized when this 'fit' is high.

Situations and contexts can vary in many respects, of course, and some of the key variables are shown in Fig. 1.1. Broader cultural influences might derive from specific regional or national institutions, such as the particular music which is associated with sports clubs, political movements, or national figures. McNair and Powles' analysis (present volume) of the role of music in sustaining particular subcultures is a good example of this, and Folkestad (2002) has undertaken an intriguing analysis of the role of music in national identity.

An increasing body of research in the social psychology of music is beginning to show how specific social or institutional contexts can exert a powerful influence on the responses to music within them (see North and Hargreaves 1997*a,b*). Adrian North and David Hargreaves have carried out a series of experimental studies in everyday settings including restaurants, bars, banks, shops, computer assembly plants, exercise and relaxation clubs, and on-hold telephones.

This work shows that music fulfils many different cognitive, social, and emotional functions by demonstrating that it has the power to influence behaviour as diverse as consumer product choice and shopping behaviour; work efficiency; time perception and the preparedness to wait in queues; speed of eating and drinking; efficiency on cognitive tasks; people's moods and emotional states; their attitudes to different surroundings, and the likelihood of their staying in them. These behavioural effects are also influenced by other associated features of the listener's immediate situation, including the presence or absence of others and/or simultaneous engagement in other ongoing activities: we shall return to this issue when considering the performance model in Fig. 1.2.

Our proposal is that people in contemporary society use music as a resource, such as in managing situation-specific emotional states or moods: we use music in order to achieve certain psychological states in different everyday situations. This illustrates the reciprocal feedback relationship between 'situations and contexts' and 'the listener' shown in Fig. 1.1. North and Hargreaves (2000*b*), for example, have shown that people have specific arousal-state goals in specific environments, and that they consciously use music to achieve these goals. This can have very obvious practical implications: Mitchell (2004), for example, has shown that the tolerance for and experience of experimentally-induced pain can be significantly varied by listening to preferred music as compared with other auditory stimulation.

Another unusual feedback relationship between 'situations and contexts' and 'the listener' is shown in O'Hara *et al.*'s (2004) field tests of the Jukola, an interactive MP3 jukebox which allows a group of people in a public space to democratically choose the music being played by means of networked handheld wireless devices. O'Hara's team found that the process of voting and choice involved gave rise to 'discussions around music, playful competition, identity management and sense of community' (p. 145), which represents an intriguing way in which music can be used as a group as well as an individual resource.

Listeners vary with respect to the 'individual difference' factors on which all people vary, such as age, gender, and personality, and these can have a greater or lesser influence on their response to music (see Hargreaves 1986): these are shown above the horizontal line in Fig. 1.1. Shown below this line are those other factors which are more specifically music-related, such as musical training, knowledge, and experience, and these are likely to be particularly salient in determining responses to music. We shall say more shortly about the different components of responses to music: for the purposes of the model, we have focused on those relating to musical preference and taste. Most people have strong and distinctive patterns of preference: immediate, short-term reactions to given stimuli or pieces at given times gradually accumulate to give rise to

medium- and longer-term taste patterns, which tend to be more stable: and we have used the term 'musical identities' to refer to the ways in which these patterns can become an important part of individuals' personal identities (Hargreaves *et al.* 2002).

Although these medium- and long-term patterns are relatively stable, they are nevertheless subject to continual change as each listener encounters new stimuli: Fig. 1.1 illustrates this as a reciprocal feedback relationship between the music and the listener. Individuals' immediate responses to new stimuli are shaped by their longer term taste patterns: but significant new experiences can correspondingly feed back into the system and change those longer term patterns, as the preference or identity system is in a constant state of evolution, change, and re-negotiation.

The response to music itself, shown at the centre of Fig. 1.1, has many components, and can be conceptualized in many different ways. The figure briefly summarizes just three of the main foci of psychological investigation (for a more detailed review see Abeles and Chung 1996). At the physiological level, as we saw earlier, Beryne's proposal was that music can determine the level of arousal of the autonomic nervous system, and that this is probably implicated in some way in musical likes and dislikes: there is also a growing literature on the emotional effects of music, which can be observed at the physiological level (Juslin and Sloboda (2001), and Juslin, present volume). We have summarized two of the subjective concomitants of arousal level as individuals' level of engagement with the music, and the extent to which they are in active control of their listening, or being passive respondents. When people use music as a resource, as just discussed, they exert active control over factors such as genre and volume, and are likely to be highly engaged: when simply exposed to the piped music in a supermarket or restaurant, on the other hand, their level of engagement may be so low that they are not even aware of its existence. High levels of engagement can also produce physical and other behavioural responses, which could include dancing, foot tapping, and so on.

There is an extensive literature within the cognitive psychology of music which deals with the internalized rules, strategies, and operations which people employ in musical behaviour, and Fig. 1.1 mentions just a few of these: a good deal of research effort has been devoted to investigating the phenomena of attention, memory, perceptual coding, and expectation in listeners' responses to tones, intervals, scales, melody, harmony, and other aspects of musical structure (see e.g. Deutsch 1999). Musical preferences and tastes are dependent on the discriminations and evaluations that people make by employing these cognitive mechanisms: but they also involve affective components, which include aspects of emotion and mood. Responses to music in real-life

situations incorporate affective as well as cognitive components: the relationship between these is a central problem in social psychology, which is beyond our scope here.

Musical performance

The corresponding reciprocal feedback model of musical performance, shown in Fig. 1.2, is based on the same principles as the musical response model shown in Fig. 1.1. Our conceptualization of the *music* is broadly similar: variations occur with respect to basic stylistic and genre distinctions, to collative variables and prototypicality, and there are many other distinctions which remain unexplored. One feature which we have added to the performance model's description of music is the extent to which it is necessarily rooted in artistic contexts: as we indicated earlier, previous models of musical communication have restricted themselves to the performance of art music, usually within the Western tradition. The extent to which silence, chance events, and so on can be considered as art works when presented in certain contexts was mentioned earlier, but we have included them in the model to reinforce our earlier point that we are adopting as wide a definition of music, and of who might be a performer, as possible.

Our account of 'situations and contexts', and of the reciprocal feedback relationship between the factors involved and those within the music, need little further comment as they duplicate those in the response model. One factor which does require further elaboration with respect to performance, however, is the presence or absence of others. Our definition of 'a performance' within the model includes recordings and broadcasts as well as live performances: and the presence of other performers and an audience in the live situation clearly opens up many more channels of potential communication than for sound produced by a loudspeaker. The physical setting of a live performance gives rise to normative expectations about the appropriate audience response, and this varies according to genre and style: Western 'classical' audiences usually listen in silence (although this has not always been the case), and rock audiences frequently dance, sing, or interact with the performers in other ways (cf. also Clayton, Chapter 17 of this volume).

Juslin (this volume) uses the phrase 'acoustic performance parameters' as part of his illustration of the musical communication of emotion, and this refers simply to the physical characteristics of the sounds which form the performance. As we have just suggested, the performance medium is likely to have a profound influence on the communication process: recorded performances could include piped music in commercial environments, for example, and broadcasts could include live as well as recorded performances on television as well as

radio or the internet: all of these dimensions will influence the ways in which listeners are likely to respond. Alongside different performance media, we can also distinguish between different performance contexts: three prominent contexts are composed music, improvised music, and music in which the audience forms an integral part of the performance, such as in the ways in which contemporary club DJs can be seen to use audience reaction to shape their performances (see Brewster and Broughton 1999).

Different performance media, contexts, and conventions are dependent on the cultural traditions of different societies: the formalized conventions of Western European art music have radically different expectations of the 'performer' and the 'listener' from the more informal traditions of musics in Africa or South America, for example. The wide variations between these different traditions also imply varying definitions of the 'performer' and the 'composer' as well as of the 'audience': the performer is the composer in many forms of improvised jazz, for example.

For clarity of exposition, we have made a clear separation between the 'performer' and the 'composer' in the model. In Fig. 1.2, the factors that are listed above the horizontal lines in the lower two boxes show our working definition of who constitutes the performer and the composer, and those listed below the horizontal lines refer to the factors or dimensions along which they can vary. Performers within Western art music are largely either instrumentalists or vocalists, and take part in solo, small group, or larger group (e.g. orchestral) performances. We have already made clear, however, that our definition of performers as well as of composers includes those involved in informal music-making, such as children singing, clients in therapeutic contexts who produce musical improvisations, and other 'performances' which take place outside conventional 'artistic' contexts.

Looking in more detail, we can see that performers also vary with respect to 'individual difference' factors such as age, gender, and personality. Performers differ on specifically musical factors such as their level of instrumental, interpretative, and expressive skill, and the nature of specific performances are determined by performers' expressive intentions (as shown in Juslin's 'communication chain' illustration, see Chapter 5), as well as by psychological factors which determine performers' internal states. These might include arousal level, performance anxiety, and other motivational states which are receiving increasing attention within psychological research (see Williamon 2004). As well as the intrinsic desire to produce an excellent musical performance, motivations might include other perceived outcomes, such as receiving applause and critical acclaim; increasing record sales and earning large appearance fees; setting fashion trends; or passing examinations.

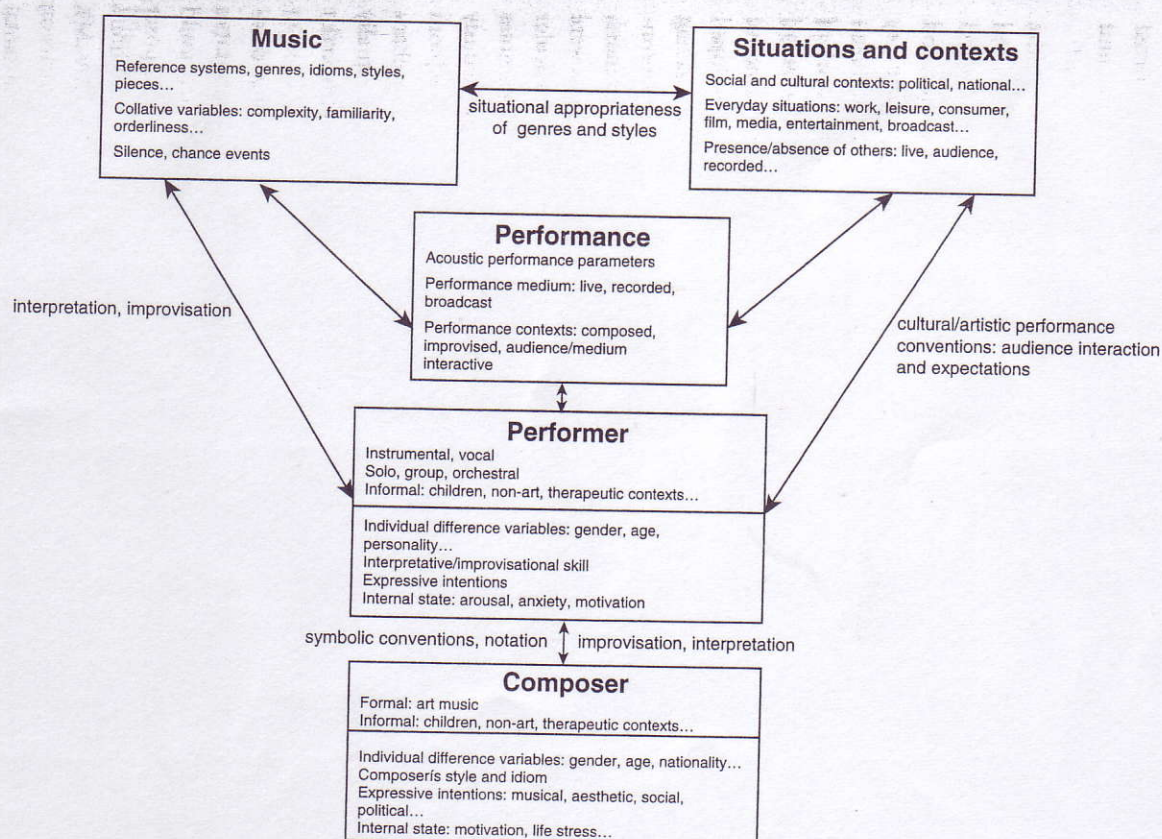


Fig. 1.2 Reciprocal feedback model of musical performance.

These latter examples illustrate the reciprocal feedback relationship that holds between the performer and the factors within 'situations and contexts'. The cultural and artistic performance expectations of different musical genres and different societies give rise to certain expectations about the behaviour expected of performers and of audiences: some Western rock stars are expected to behave in a way that others would see as outrageous, for example, and audiences can consciously or unconsciously encourage them to do so.

There is a corresponding reciprocal feedback relationship between the performer and the music itself, and this is most clearly seen in improvised music. Many jazz musicians report that their most successful improvised performances occur when they experience rapport with the audience, and with other members of the performing group: the new musical ideas that they create and develop become interdependent with their internal states and feelings (MacDonald and Wilson 2005). This is clearly apparent in the work of the pianist Keith Jarrett, whose solo improvisations, recorded in the 1970s, have received widespread critical acclaim. Jarrett brought his own distinctive approach to total improvisation to a huge worldwide audience. He developed harmonic sequences, rhythms, melodies, and structures from scratch, having made no advance plans and deliberately trying to clear his mind of any preconceived ideas before the performances, which could often last an hour or more. The direction, mood, and structure of each marathon improvisation were dependent on his own mental state and concerns at the time, on the particular concert situation, and on the audience reaction and feedback. In the liner notes to the concert recordings, Jarrett writes of: 'One artist creating spontaneously something which is governed by the atmosphere, the audience, the place (both the room and the geographical location), the instrument; all these being channelled consciously through the artist so that everyone's efforts are equally rewarded, although the success or failure belongs completely to the artist himself' (Carr 1991).

Jarrett's approach undoubtedly marks him out as a pioneer of musical communication within the world of free improvisation. However, other communities of musicians, notably, but not exclusively, in Amsterdam, Berlin, Chicago, and London, also explored the notion of the performer as instantaneous composer during the 1960s and beyond (Lewis 2004). Critically acclaimed ensembles such as The Association for the Advancement of Creative Musicians (AACM), The Spontaneous Music Ensemble, and AMM all had an explicit focus on developing strategies of musical communication that celebrated the instantaneous realization of musical composition in performance (Bailey 1992). An important feature of their approach, crucially relevant to this chapter, is that these musicians, while not working within an academic context,

were fundamentally interested in the wider theoretical, psychological, cultural, social, and political implications of musical communication (Durrant 1989). This approach was and still is viewed as part of a move towards the democratization of musical communication, which is in opposition to the elitist and status-driven conceptualizations of musical performance in the Western art tradition (Reason 2004).

These are clear examples of the composer and the performer being one and the same person, which leads us on to consider the additional factors which come into operation when they are not. In most Western art music, the composer is formally seen as the generator of the 'core product', and occupies the apex of a status hierarchy lower down which is the performer, whose role is to pass on the product to the listener, who is still lower down the hierarchy (see Cook 1998): this is the position implicitly adopted by most existing theories of musical communication. In this situation, the composer communicates with the performer by means of the written score, which involves shared understanding of some form of symbolic convention, such as staff notation. The use of graphic and other forms of notation, and their potential effects on musical communication, are explored elsewhere in this book (notably Chapters 6 and 7).

As in the case of the performer, composers also vary with respect to 'individual difference' factors such as age, gender, and personality: their particular musical languages, and the styles and idioms within which they work, may well be more distinctive and idiosyncratic than in the musical world of professional performers, who may be called upon to work in many different genres. (There are some notable exceptions to this, of course: Igor Stravinsky and Miles Davis, though working in completely different fields, both created and/or worked within several different idioms and styles over the course of a single lifetime). Composers' expressive intentions in a sense form the essence of the 'core product' referred to earlier, and these are determined by various musical, aesthetic, social, political, and other motivational factors. As in the case of performers, the working lives of many composers are notoriously bound up with particular psychological and other motivational states, including life stresses, the difficulty of earning a living from composing, the struggle for public recognition, and so on.

Musical communication

By combining the response and performance models, we are now able to propose a model of musical communication which takes into account all of the factors reviewed in this chapter: it is shown in Fig. 1.3. Figures 1.1 and 1.2, for clarity of illustration, appear in two dimensions: in order to combine them we need to move into three dimensions. We can conceive of the performance model in three dimensions as a pyramid (tetrahedron) with the *music, situations and*

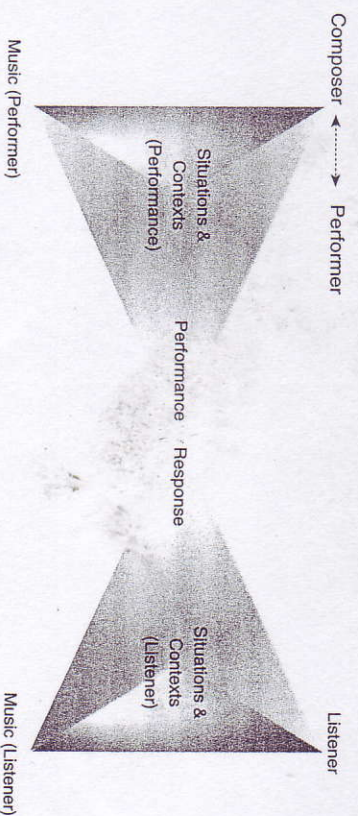


Fig. 1.3 Reciprocal feedback model of musical communication.

contexts, and *composer/performer* variables interactively giving rise to the *performance*; and of the response model, correspondingly, as a pyramid with the *music*, *situations and contexts*, and *listener* variables interactively giving rise to the *response*. The two pyramids can then be rotated as shown in Fig. 1.3 to produce a model in which musical communication is defined as the 'spark' which occurs when the performance event gives rise to a response.

The model also illustrates the distinction between the music as seen from the points of view of the performer and the listener, as well as that between the situations and contexts as seen from the points of view of the performer and the listener. This allows us to represent the possibility that the representations of the music by the composer and the listener – the former's expressive intentions and the listener's affective response, in terms of Juslin's 'communication chain' illustration – may be quite different from one another, although that need not necessarily be the case.

To reiterate what we pointed out earlier, this double tetrahedral model represents a view of musical communication which takes into account important social and contextual variables, which goes beyond 'art music' contexts, and whose principle of reciprocal feedback indicates that the causal relationships between each of the three major determinants operate in both directions. In each of these respects, it goes beyond the transmission models which have hitherto been proposed: but we need to be clear about its status in this respect. The double tetrahedral model is based on the communication of information between the performance event and the listener, and so remains, in essence, a transmission model: it does not specify any alternative theoretical explanation for the way in which communication occurs. Its two components, the performance and the response models, are not based on information transmission,

however: the proposed reciprocal feedback mechanisms which link the boxes in Figs 1.1 and 1.2 are intended to represent the causal relationships between the three determinants of the performance/response in each case rather than any flow of information as such.

It would therefore be inaccurate to describe Figs 1.1 and 1.2 as 'transmission models', even though we could do so for Fig. 1.3: and this obligates us to specify what exactly is the purpose of the performance and feedback models. The answer is that by specifying as many of the personal, situational, and musical factors involved as is possible at this stage, and by advancing proposals about some of the causal interrelationships between them, we can generate new theoretical predictions that might not otherwise be possible. It would be unrealistic to claim that all of the factors influencing musical communication are included within these three models: but they do nevertheless attempt to cover the main issues that have been investigated by psychological research to date, and might thereby stimulate more precise and comprehensive formulations. Detailed consideration of the five questions which we posed at the outset – the 'how', 'why', 'what', 'who', and 'where' of musical communication – should enable future researchers to address this new agenda.

Plan of the book

In deciding on the structure of the book, and in inviting contributors, we consciously adopted a multidisciplinary approach: as a result, there are chapters by, for example, psychologists, music therapists, music educationalists, and ethnomusicologists. Although these disciplines represent different ways of understanding musical communication, our text makes no claim to be exhaustive. It is most strongly influenced by our own roots within psychology, and contains chapters written from different theoretical perspectives within psychology, including cognitive, social constructionist, physiological, and evolutionary approaches. Although some of these perspectives may be viewed as mutually exclusive, we make no attempt to offer any value judgements or comparative evaluations, preferring to leave these to the reader.

We devoted a great deal of thought to the best way of dividing the book's varied chapters into coherent and conceptually meaningful themes, and eventually settled on four sections, namely *Cognition*, *Representation and Communication*, *Embodied Communication*, *Communication in Learning and Education*; and *Cultural Contexts of Communication*. The first three chapters of the book (including the present one) are not included within these subheadings as they offer wide-ranging views of the topic of musical communication, and discuss broad issues that cut across all of the other sections.

In Chapter 2, Ian Cross develops his evolutionary view of the functions of music. He presents clear evidence, on the one hand, that humans are predisposed to engage in music-like activities, such that music can be considered to be part of our biological heritage; but paradoxically, that music is also inherently ambiguous, taking a multiplicity of forms and fulfilling many different functions according to specific social and cultural conditions. In Chapter 3, Keith Sawyer starts from the same point of view, suggesting that 'there is evidence that musical ability is a genetic, biological competence'; but he then goes on to develop the argument that 'the evolutionary origins of music and language lie in sociality' (p. 51). He describes some of his own attempts to identify and characterize some specific interactional mechanisms which are held in common by both musical and verbal interaction, and expresses his belief 'that we enjoy music because it represents, in crystallized form, the basic processes of human social life.... As we listen to a performance, we are exposed to the distilled essence of human sociality' (pp. 46–7).

The first section of the book, *Cognition, Representation and Communication*, offers four chapters that share a focus upon cognitive psychological issues: we see their detailed consideration as a fundamental part of any comprehensive explanation of musical communication, and as complementing the wider social and cultural issues involved. Annabel Cohen presents a comprehensive and historically grounded overview of the relationship between musical cognition and musical communication in Chapter 4, highlighting that the brain imposes limits on what can be communicated. Patrik Juslin undertakes a similarly comprehensive review of the literature on emotional communication in music in Chapter 5. The topic of music and emotion enjoys widespread public as well as academic interest (see Juslin and Sloboda 2001), and encompasses a significant number of fundamental issues concerning musical communication.

In Chapters 6 and 7 respectively, Margaret Barrett and Jeanne Bamberger focus on musical notation, considering how the use of different notational conventions can shape musical perception and performance. Barrett looks in detail at children's invented notations, and Bamberger draws on three very different case studies – of a musically untutored nine-year-old, of two gifted young violinists, and of a professional string quartet – in demonstrating how the rules and syntax of notation crucially influence the process of musical communication.

The second section, *Embodied Communication*, draws together four chapters that focus on emotional, physical, and biological aspects of communication. In Chapter 8, Michael Thaut examines some of the neurological bases of musical communication, using behavioural evidence from psychophysical studies and from studies using brain imaging and brain wave recordings.

This work not only illuminates our understanding of the neurophysiological processes mediating rhythm perception and rhythm production, but also has implications for the use of music in therapy and medicine. Gary Ansdell and Mercédès Pavlicevic pursue the importance of the notion of 'music as communication' in the therapeutic field in Chapter 9, reviewing interdisciplinary research on the relationships between health and social interaction in relation to contemporary music therapy, and asking some fundamental conceptual questions about its future. They argue that placing the idea of 'music as communication' at the centre of music therapy 'can embody and foster a humanistic value system of musical dialogue as companionship and community – as ways of being musically with people in need' (p. 195).

In Chapter 10, Jane Davidson deals with three central aspects of musical communication in investigating the role of the human body in producing a musical performance, namely how biomechanical constraints operate; how expressive intentions and social codes influence the production of a performance; and how that production is subsequently interpreted by co-performers and audiences. She uses three case studies from her own research to illustrate these issues – a classical pianist, a jazz singer and accompanist, and a pop band. Graham Welch specifically considers the role of human vocalization and singing in musical communication in Chapter 11, reviewing its neurological and physiological origins and its role in early infant–parent relationships, especially in the communication of emotion. From this perspective, Welch suggests that musical communication is integral to human vocalization and emotional expression.

The three chapters in the section on *Communication in Learning and Education* all look at young peoples' musical communication in learning contexts, both formal and informal. In Chapter 12, Margaret Barrett explores the notion of a 'community of practice' in relation to children's music-making in informal settings, illustrating her analysis with examples drawn from her own research on children's play in such activities as handclapping, chants, and musical games. Susan Young highlights some key features of musical communication of young children aged 2–4 in Chapter 13, proposing that this can provide a template for musical communication in later years. She emphasizes the importance that music has in sustaining and developing relationships and in doing so, demonstrates a link between her own work and that of music therapists. In Chapter 14, Charles Byrne investigates the classroom environment, exploring those verbal and musical features of music teaching which seem to promote musical communication and learning. He considers the ways in which teachers think and talk about music, and proposes a theoretical model of interaction in the music classroom.

The final section of the book, *Cultural contexts of communication*, looks at a range of different contexts in which musical communication takes place and attempts to delineate a number of key processes involved in each of these situations. In Chapter 15, Raymond MacDonald, Dorothy Miell, and Graeme Wilson present an account of how talk about music in informal settings can play a crucial role within the musical communication process. Rather than examining how music itself communicates, this chapter focuses on the ways in which talk about music serves a number of personal, social, and musical functions for both young people and professional musicians, and which can therefore be viewed as an important aspect of musical communication itself.

In Chapter 16, Janis McNair and John Powles examine the role of music in creating, communicating, and sustaining identities based in particular sub-cultures. They point out that music and song can cause, facilitate and reflect social, cultural, and political change, such that music can be seen as a powerful medium for communicating intellectual and emotional messages; and they draw specifically on 1960s protest music, notably the music of Bob Dylan, and on hip-hop culture to illustrate these issues. Martin Clayton takes an ethnomusicological approach to communication within Indian raga music in Chapter 17, showing how this can operate through non-auditory as well as auditory channels. He suggests that non-verbal and auditory features of a performance can combine to create a cultural Gestalt whose intrinsically musical features are part of a social milieu that must be considered in its entirety for a full appreciation of the communicative potential of the music.

Scott Lipscomb and David Tolchinsky return to cognitive models in Chapter 18 to explore musical communication within a cinematic context. They present several empirical and theoretical models of film music perception and the role of music in film, and illustrate some of the many ways in which a film's soundtrack can not only contribute towards but also expand upon the meaning of a film's narrative, and on what it communicates to the audience. In the final chapter of the book, Adrian North and David Hargreaves review the research literature on the effects of music within consumer contexts, grounding this in the debate between those within the music industry who argue for the commercial benefits of piped music, and those campaigners who object that the background music which is 'piped' into shops and stores represents an invasion of personal freedom. They present clear evidence which shows that background music can influence the speed of customer activity, perceptions of the ambience or atmosphere within a retail outlet, the experience of time spent waiting in queues, and output in the workplace.

The power of music is immense, and the contents of this book represent just a first step towards our understanding of the 'how', 'why', 'what', 'who', and

'where' of musical communication. We have attempted to set out a new agenda, and look forward to the challenge being taken up by future research.

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