An Introduction to MUSIC STUDIES

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UNIVERSITY PRESS

explained music in terms of its mathematical properties, and those who directly or indirectly adopted the view of Aristoxenus (fourth century BCE) that musical phenomena are perceptual in nature and need to be understood in terms of the perceiver's individual experience – as I have already indicated.

Much ink has been spilt on sound and its perception over the years, but often that ink has been of a philosophical, music-theoretical, physiological, acoustical, or aesthetic hue rather than an explicitly psychological one. On the other hand, in the case of psychology and indeed other disciplines, precise boundaries do not really exist, in that scholars habitually draw from a range of sources and intellectual traditions, thereby enriching their own work and fertilizing the discipline(s) to which they are allied. (See chapter 11 for some examples.) One of the first people to find common ground between the various domains I have referred to was Hermann von Helmholtz (1821–94), whose work paralleled the establishment of psychology as a scientific discipline in its own right. (You will encounter Helmholtz's name when studying music notation, for he invented one of the main systems used to identify register.) Psychology was also acknowledged as a component of the "systematic musicology" (*Musikwissenschaft* – literally "music science" – in German) defined by Guido Adler in 1885. An interesting example in this respect is the **empirical** research of Carl Stumpf (1848–1936), who worked with musicians and drew upon his own practice as a violinist when preparing his pivotal *Tonpsychologie* (psychology of sound). Another pioneer – the American Carl Seashore (1866–1949) – also studied performers, looking in particular at the sources and perception of musical expression, which he measured with specially devised equipment.

The psychology of music today

Many others have contributed to the development of music psychology over the years, to the point that it is now well established throughout the world, with research taking place in the psychology and music departments of innumerable universities, institutes, research centers, and laboratories. Music psychology has its own journals (among them *Psychology of Music*, *Music Perception*, and *Musicae scientiae*), international societies (e.g., European Society for the Cognitive Sciences of Music – ESCOM), and conferences. Echoing my comment above, there is a vast amount of literature specifically on music psychology, much of it written in language that non-specialist readers, including many musicians, sometimes find alienating. One of the tasks of this chapter is to introduce you to key vocabulary, but you will need to read widely to grasp music psychology in its full complexity and to conquer the sometimes opaque terminology used to discuss it. Fortunately, certain recent publications are intended for non-specialists and may be of interest if you are new to the field. These include Sloboda's *The Musical Mind* from 1985, several chapters in motivated by a wish to answer key questions and fill gaps in the current understanding of a given issue. In music psychology, this might concern whether or not listeners perceive performances differently if musicians play from a score rather than by memory. Research on this very topic is described in Box 4.1.

Box 4.1 The value of performing from memory

Performances of the Preludes from Cello Suites I, II and III by J. S. Bach were recorded on video-tape across five separate conditions, differing with respect to memorisation and the presence of a music stand. Fifty "musicians" and thirty-six "non-musicians" were asked to watch and rate one video-taped performance of each Prelude on four performance aspects: overall quality, musical understanding, technical proficiency and communicative ability. Ratings indicated that (1) performing from memory was superior to playing from the score, (2) visibility of the performer influenced audiences' ratings of performances in a favourable direction, (3) the extra time spent preparing for the memorised performances was beneficial, and (4) musicians seemed biased in favour of performances without a music stand.

(Williamon 1999: 84)

Hypotheses

Having conducted a thorough literature review to establish a context for the study, the psychologist generates a set of *hypotheses*. These are provisional conjectures – educated guesses – based on what is known or what is assumed to be possible; the new investigation attempts to confirm or disprove them.

Hypotheses may be presented not as conjectural statements but as a series of research questions. For example, the research in Box 4.1 focused on four main questions, among them the following:

- Do memorized performances yield the most direct psychological connection with the audience?

As a hypothesis, this would take a different form:

- Memorized performances yield a direct psychological connection with the audience.

Despite its matter-of-fact formulation, do not assume that the statement is true: instead, think of hypotheses as starting with the phrase "It is possible that" and thus as requiring confirmation or inviting disproof.

Methods

After establishing contexts and defining hypotheses, most studies outline the method(s) in use, describing any participants as well as the procedures themselves. Detailed results are then presented, followed by discussion. It is here that the validity of the hypotheses is assessed, leading to final conclusions. In the memorization study, for example, "the results suggest that performing from memory does offer advantages over performing with the music. The evidence points to enhanced communication as a possible advantage of performing from memory" (Williamon 1999: 92).

Davidson did not stop there: she then asked observers to judge the extent to which different parts of the pianist's body conveyed information about his expressive intentions. Interestingly, this showed that listeners could accurately discern the expressive nature of the performance – whether "deadpan," "projected," or "exaggerated" – simply on the basis of the movements of the upper torso and head region, without hearing any sounds at all (Clarke and Davidson 1998: 78).

Davidson's work provides an example of the linked studies I previously referred to. It also makes use of the third kind of research methodology outlined above, which Clarke and Cook (2004) describe as "evaluative and qualitative" techniques. Another example of this is presented in Box 4.3, which, as you will see, involved over 3,500 participants in an ambitious investigation of people's music preferences.

Many other forms of data analysis could be cited, including the different methods of studying sound recordings developed within CHARM (www.charm.rhul.ac.uk) and elsewhere. Typically these focus on changes in timing and/or dynamics, as well as the acoustic properties of the sounds produced by performers, in order to characterize the nature of musical expression. (See the discussion of spectrograms in chapter 2.) For example, Bruno Repp analyzed patterns of timing and dynamics in mm. 1–5 of 115 commercially recorded performances of Chopin's Etude in E major, Op. 10, No. 3. This allowed him to identify four independent "timing strategies" and to observe "a widely shared central norm of expressive dynamics" (Repp 1999: 1972).

Box 4.2 An observational study of classical singers

Unlike instrumentalists, classically trained singers perform words as well as music and must therefore use different memorising strategies. The present study aimed to identify these, to compare the extent to which they were used by singers of varying levels of expertise and to assess which strategies were most likely to be effective. Thirteen participants learned and memorised the same song over the course of six fifteen-minute practice sessions, which were audiotaped. One major finding was that experienced professional singers were not necessarily faster, more accurate memorisers than student and amateur singers, so the strategies they used were not necessarily the most effective. Generally, participants began by practising the music separately from the words and went on to practise words and music together. They began by reading the song from the musical score and went on to practise it from memory once they were confident that they could sing it accurately. Fast, accurate memorisers began memorising earlier and were more likely than slower, less accurate memorisers to count beats aloud during the learning process. This suggests that effective song memorisation requires not only basic musical expertise but also the use of a strategic approach to the memorising task.

(Ginsborg 2002: 58)

Box 4.3 Music preferences and personality

A series of six studies investigated lay beliefs about music, the structure underlying music preferences, and the links between music preferences and personality. The data indicated that people consider music an important aspect of their lives and listening to music an activity they engaged in frequently. Using multiple samples, methods, and geographic regions, analyses of the music preferences of over 3,500 individuals converged to reveal four music-preference dimensions: Reflective and Complex, Intense and Rebellious, Upbeat and Conventional, and Energetic and Rhythmic. Preferences for these music dimensions were related to a wide array of personality dimensions (e.g., Openness), self-views (e.g., political orientation), and cognitive abilities (e.g., verbal IQ).

(Rentfrow and Gosling 2003: 1236)

Box 4.4 Singing in the brain: insights from cognitive neuropsychology

Singing abilities are rarely examined despite the fact that their study represents one of the richest sources of information regarding how music is processed in the brain. In particular, the analysis of singing performance in brain-damaged patients provides key information regarding the autonomy of music processing relative to language processing. Here, we … illustrate how lyrics can be distinguished from melody in singing, in the case of brain damage. We report a new case, G. D., who has a severe speech disorder, marked by phonemic errors and stuttering, without a concomitant musical production disorder. G. D. was found to produce as few intelligible words in speaking as in singing familiar songs. Singing "la, la, la" was intact and hence could not account for the speech deficit observed in singing. The results indicate that verbal production, be it sung or spoken, is mediated by the same (impaired) language output system and that this speech route is distinct from the (spared) melodic route.

(Peretz, Gagnon, Hébert, and Macoir 2004: 373).

The last methodology listed above belongs to "hard science" to a greater extent than the others. Neuropsychological research tries to achieve an understanding of the role of the central nervous system in a range of musical functions. For example, in the case study presented in Box 4.4, psychologists investigated whether a seventy-four-year-old man ("G. D.") who had developed certain speech difficulties could sing the lyrics as well as the melody in some three dozen songs. More often than not G. D. had no problem giving voice to the melody, but only rarely could he articulate the lyrics. The psychologists concluded that his speech difficulties – which were "typical of acquired neurological stuttering disorder" – "affected speaking and singing in a similar fashion," arguing "against the notion that singing enhances speech fluency" while also challenging the claim of previous authors that "stuttering can be alleviated by singing" (Peretz, Gagnon, Hébert, and Macoir 2004: 385).

How does "the musical mind" work?

It goes without saying that "the mind" and the brain have much to do with one another – but they are not the same thing. This distinction is central to the discipline of psychology, which primarily deals with "the organization and use of information" rather than "its representation in organic tissue" (Neisser 1967: 281). On the other hand, it is important to consider the mind holistically and "ecologically," as against the "mind/body dualism" that has dominated much psychological and philosophical thought over centuries. Eric Clarke puts it thus: "the mind is neither divorced from the body nor confined within the skull" (2002: 67–8).

Here is an example drawn from my own experience. I once found myself looking at a score on a train, trying to hear the music in my "mind's ear" – but my aural imagination could not grasp a harmonically complex passage within the piece. I then tried "playing" the passage on the table in front of me, and I found that through the simulated physical enactment of the music – the moving of my fingers as if on a keyboard – I suddenly could hear the sounds in my mind. This breakthrough was attributable to years of training as a pianist, which had created a deep-seated link between physical motion and sound – in this case, between an imaginary performance and imagined sounds.

To fathom "the musical mind," we need to grasp what cognition means. For psychologists, this key concept relates to the processing, structure, and operation of information and knowledge, whether conscious or unconscious. Theoretical explanations of cognition have changed over time. In Ulric Neisser's book *Cognitive Psychology*, "the term 'cognition' refers to all processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used" (Neisser 1967: 4). Today, psychologists typically take a much less circumscribed view of what cognition is and how it functions. (For a useful survey of more recent research see Eysenck and Keane 2000; see also Reed 1991.)

When humans first perceive or imagine something, we assign meaning to the object or event while additionally constructing a spatial, temporal, and conceptual framework to explain it in context. Over time, we develop a host of such "frames of reference" to which further phenomena are then related (Neisser 1967: 286). By way of example, consider the ringing bell described at the start of the chapter, which you would interpret by means of these very mechanisms. (Think too of the many other examples presented in chapter 3.)

Music psychology looks among other things at cognitive representations of musical structures comprising pitches, rhythms, timbres, and so on. (Recall the discussion of structure in chapter 2.) Musical memory is closely bound up with these. Whether or not you set out to memorize the pieces you are learning as a singer or instrumentalist, your mind is at work all the time, absorbing and processing the musical stimuli around you. That is also how people without formal musical training can pick up tunes which they later "play" by whistling or singing (as in the case of "G.D."). The complex mechanisms underpinning the assimilation of music in these ways may exploit the following types of musical memory:

- **aural** (i.e. "auditory memory"), which involves music in the "mind's ear"
- **visual**, where images of notated music, physical positions used to play certain configurations, or the look of the configurations themselves (for instance, the layout of a chord on the keyboard) are recorded in the "mind's eye"
- **kinaesthetic** (i.e. physical memory), by means of which particular gestures, distances, speeds of attack, etc. are stored for later use
- **conceptual**, involving harmonic, melodic, formal, and other formulae used to classify individual musical phenomena (see Williamon 2002: 118–19).

Performers and others use different types of memory not just in isolation but in conjunction with one another. Nevertheless, many a concert has been saved by kinaesthetic memory, when a well-rehearsed hand moves "unconsciously"

Box 4.5 An exceptional musical memory

A study investigated an autistic man (NP) with an exceptional aural musical memory, demonstrating that despite having never seen the score, this individual could remember and reproduce a sixty-bar piano piece by Grieg virtually note-perfect after just four hearings, while an equally experienced "control" pianist could manage only a fraction of the piece after equivalent exposure. This apparently remarkable feat depended on stylistic familiarity: a much shorter piece by Bartók, which was stylistically unfamiliar to NP, was remembered dramatically less well, the "control" pianist in this case achieving a far better result. The authors concluded that "the ability [of NP] is structurally based," that he "needs to code material in terms of tonal structures and relations and that his exceptional ability cannot at present survive outside that framework."

(Summary of Sloboda, Hermelin, and Connor 1985, quoted from Clarke 2002: 62–3)

to the right notes despite the failure of other forms of memory. This confirms that the psychology of musical performance is not simply about a mind functioning within a skull: it concerns the human being as a whole, acting within particular environments and in response to a range of stimuli, including social ones.

The discussion above reveals the importance of patterning to the musical mind. Consider in this respect the exceptional individual described in Box 4.5. Sight-reading in particular requires the musician to draw quickly from a repertoire of learned patterns and to discern altogether new ones, again responding at high speed. The fact that good eye–hand coordination is critical confirms the need for a holistic understanding of how the mind works. Research on pianists' eye movements when sight-reading similarly suggests that the music's structure influences bodily action: in the case of contrapuntal or polyphonic repertoire, the eyes tend to scan the score in predominantly horizontal spans, taking in a line at a time, whereas in homophonic repertoire a more vertical motion is prevalent (see Weaver 1943). The degree of skill on the performer's part influences the nature and efficiency of this process, likewise in determining how far ahead of the hands the eyes may be reading at any given point (Furneaux and Land 1999).

Two points need to be made here. First, as I have noted, this discussion provides but one example of the integral relationship between mind and body. Secondly, diverse skills are required to carry out difficult tasks like sight-reading. How such skills develop is the topic of the next section.

How do we learn music?

Some of our first interactions with other humans have a decidedly musical character. Psychologists refer to the tuneful, accentuated form of speech that adults use conversationally with babies as **motherese** (also known as "parentese"). Research indicates that motherese tends to be similar across diverse cultures, even those in which fundamentally distinct languages are spoken (see, e.g., Box 4.6). It appears to play an important role in the development of general cognitive abilities, likewise the gestural communication that occurs from early on.

Abilities of a specifically musical kind also develop out of these initial interactions with parents and other care-givers, who can play a pivotal role in providing opportunities for informal and formal engagement with music as a child grows older. The environment in which one develops is of pivotal importance – much more so, psychologists believe, than what is popularly described as "talent," i.e., the seemingly innate ability or predisposition to perform a task well. Without denying the potential advantages of certain physical and intellectual attributes, researchers nowadays tend to regard talent as a red herring, instead claiming that everybody possesses more or less the same potential to become musically accomplished. What is most critical is the availability of resources to support the acquisition of skills, and also the degree to which the individual is motivated to do what is necessary to acquire those skills (with motivation arising from a desire to do well, the prospect of external rewards, and a wish to fit in with others, possibly more than from intrinsic pleasure in performing a given task). (See Davidson 2002.)

Box 4.6 Maternal speech to infants

The prosodic features of maternal speech addressed to two-month-old infants were measured quantitatively in a tonal language, Mandarin Chinese, to determine whether the features are similar to those observed in nontonal languages such as English and German. Speech samples were recorded when eight Mandarin-speaking mothers addressed an adult and their own infants. Eight prosodic features were measured by computer: fundamental frequency (pitch), frequency range per sample, frequency range per phrase, phrase duration, pause duration, number of phrases per sample, number of syllables per phrase, and the proportion of phrase time as opposed to pause time per sample... [The] pattern of results for Mandarin motherese is similar to that reported in other languages and suggests that motherese may exhibit universal prosodic features.

(Grieser and Kuhl 1988)

Another essential factor is the amount of time devoted to acquiring the skill, likewise the nature of the effort that one invests. It would overstate the case to say that practice always makes perfect; on the other hand, there is a correlation between the total amount of *quality* practice time put in and the emerging degree of expertise. The term "quality" must be stressed, in that not all practice is effective; in fact, poorly focused, inattentive practicing may be downright counterproductive, grinding in mistakes rather than developing competence. Some psychologists distinguish careless or recreational playing from what they call "deliberate practice," i.e. "a highly structured activity with the explicit goal of improving some aspect of performance" (Krampe and Ericsson 1995: 86). (Chapter 13 talks about the learning of performance.)

According to Paul Fitts and Michael Posner (1967), skills are acquired in three stages:

1) **cognitive stage**: an initial phase requiring conscious attention;
2) **associative stage**: a phase of indeterminate duration, during which the activity is refined and errors are eliminated;
3) **autonomous stage**: an advanced (though not necessarily final) phase when conscious attention is no longer required in that the skill has become "automatic."

"Automaticity" is an important hallmark (though not a guarantor) of expertise in general. For example, the difficult tasks demanded of performers could not be executed at the necessary speed if conscious attention had to be devoted to every aspect thereof. Nevertheless, performing well is a challenge for experts and non-experts alike, as the following must be mastered to varying degrees:

- structure, notation, and reading skills
- aural skills
- technical and **motor** skills
- expressive skills
- presentation skills (see Davidson 2002: 97–8).

How do we create music?

Musical **creativity** is by no means limited to composers. All of us create music each time we listen to it, even if the result remains in our imagination. And of course performers bring music into the world whenever they sing or play their instruments. (See chapters 3 and 13–15.)

Despite its universality and fundamental significance, psychologists have not thoroughly explored creativity until quite recently. Since 1950, however, a good deal of literature has been published on the topic, including an entire book of multidisciplinary research on the theory and practice of musical creativity (Deliège and Wiggins 2006). The constituent essays address creativity with regard to listening to music, education, performance, and music therapy, in addition to presenting neuroscientific work and "computer models of creative behavior." There is also a postlude on compositional creativity, where an intriguing (if contentious) definition appears: "Creativity may be … thought of as the entire system by which processes operate on structures to produce outcomes that are novel but nevertheless rooted in existing knowledge" (quoted from Ward, Smith and Vaid 1997: 15).

Let us unpack this a bit. The word "processes" is undeniably vague – but then again, any creative activity, including listening, performing, etc., could be involved. As for "structures," think in terms of the cognitive representations – and moreover the frames of reference – that I referred to earlier. "Structures" here simply means the structured knowledge of varying degrees of complexity acquired through past experience and stored for future use. As for the outcomes of creative processes, the point about novelty is significant, but so is the one about "existing knowledge" being the basis of such outcomes. In other words, we as humans create whatever it is we create *against the backdrop of what we already know and have experienced*, drawing upon the latter even as we transcend it.

You will note that I have been stressing this point throughout the chapter, as I consider it critical to your understanding of how human psychology works and more particularly how we as musicians do what we do. Take the case of improvisation. By definition, improvised music is spontaneous – irrespective of the tradition or idiom in which it takes place – though the degree to which it is original varies enormously. (This distinction between creativity and originality is fundamental.) If you were a professional composer-pianist in 1830s Europe, for example, you might improvise for audiences by piecing together bits of musical figuration you had previously practiced – ready-made formulae, if you like. Hence a contemporary critic's complaint that extempore performance was often "little more than playing from memory" (*The Harmonicon*, June 1830). That need not have been the end of the matter, but then again the writer was correct in asserting the fundamental role of memory in improvisation. (See chapter 1 for related historical discussion.)

Some psychologists have studied the means by which musicians improvise in diverse contexts ranging from ornamented melody to free jazz and silent-film accompaniment (see chapters 11 and 16). One of them, Jeff Pressing, describes the use of models or "referents," i.e., "underlying formal scheme[s] or guiding image[s] ... used by the improviser to facilitate the generation and editing of improvised behaviour," whether as a provider of material or "as a focus for the production and organization of material from other sources" (Pressing 1984: 346, 347). He notes that improvisers typically practice both "objects" (motives, scales, arpeggios, etc.) and problem-solving processes such as "transitions, development and variation techniques, and methods of combining and juxtaposition" (1984: 355). The fostering of different types of memory is one goal of this sort of practice, likewise that of the performance skills needed to project the ideas in sound.

Improvisation is an especially interesting form of musical creativity, not least because anyone making music engages in it to some extent. That may be why John Sloboda once referred to "a rich untapped vein of data here which urgently awaits psychological attention" (Sloboda 1985: 150). If you start reading the music-psychological literature on improvisation – for example, Large, Palmer, and Pollack 1995 – you might wonder whether some of it is so remote from actual practice as to call its viability into question. You might feel the same about the research on artificial intelligence (AI) that you will encounter in further exploring musical creativity. And of course the above discussion on creativity has a particularly "cognitive" thrust without accounting for the broad range of factors that impinge upon or arise out of creative activity within music.

Once again, do not dismiss work of this sort simply because it does not accord with your experience and understanding or because you find its scientific character incompatible with musical artistry. It goes without saying that human creativity can never be explained in terms of rules and systems alone. On the other hand, the demonstration of gaps between explanatory models and what one perceives to be reality can be as informative as what a given explanation does get right. As with so many things, it is not a question of either/or, but of *both*: of one informing the other, of mutual enlightenment.

What is expressed in music and how do we perceive it?

The same point applies to the extensive research on musical expression that has been carried out from the perspectives of both performers and listeners. The very notion of what constitutes "expression" has excited controversy among psychologists. One of the most enduring, if problematic, definitions is the "generative" one encapsulated by Eric Clarke as follows: "expression comprises systematic patterns of deviation from the 'neutral' information given in a score" (Clarke 1995: 22). A vast amount of psychological work has been based on this premise, even though it fails to explain expressivity in non-notated music, in the perception of music by listeners who may not be able to read a score even if one is available, and so on. (Consider in this respect some of the discussion in chapters 1 and 3.)

The understanding of expression as a departure from structural norms has been challenged by theories of "composer's pulse," "integrated energy flux," and "narration and drama" (see Clarke 1995 for details). A more integrated approach has also been proposed by Patrik Juslin, who sees expression as "a multi-dimensional phenomenon consisting of five primary components":

- **g**enerative rules
- **e**motional expression
- **r**andom variations
- **m**otion principles
- **s**tylistic unexpectedness, which involves "local deviations from performance conventions."

According to Juslin (2003: 273), "an analysis of performance expression in terms of these five components – collectively referred to as the GERMS model – has important implications for research and teaching of music performance."

Computational models for musical expression have been developed by the following:

1) Johan Sundberg and Anders Friberg, who proposed twenty rules relating to timing, dynamics, and articulation "for the conversion of note signs into sounding music" (Sundberg 1988: 54);
2) Neil Todd, whose simpler rule-based system focuses on aspects of phrase structure;
3) Gerhard Widmer and Werner Goebl, who fed "large amounts of empirical data" (i.e. "precisely measured performances by skilled musicians")

> into the computer to find "significant regularities" from which general performance rules can be derived for use as "predictive computational models" (Widmer and Goebl 2004: 208, 209).

Similar data have been used to construct animated images of how timing and dynamics change over time (see for example Dixon, Goebl, and Widmer 2002). These live representations – referred to as the Performance Worm – may correspond to a listener's sense of how music moves or what it looks like in the mind's eye, even if that was not the authors' original intention.

Music perception is itself a vast and complex topic, with a correspondingly huge literature spanning such domains as music theory, psychology, linguistics, neurology, neurophysiology, artificial intelligence, physics, and psychophysics. Throughout this chapter I have given hints of the work in this area, starting with Aristoxenus in the fourth century BCE. Here it suffices to note a feature of music perception that we have encountered in other contexts thus far: namely, that although rules, systems, and models help to explain general phenomena, they need to be understood in terms of the experiences of given individuals in given circumstances. In other words, when it comes to perception, as with so many music-psychological phenomena, the general ultimately makes sense only in terms of the particular, just as the particular must be explained with reference to the general.

Chapter summary

- Humans understand the world around them according to past experience and acquired knowledge, both of which are refined and amplified as further experience is gained.
- Music psychology has a long history, and in recent decades the most prominent areas of research include cognition, skills acquisition, performance, expression, and perception.
- The typical approach of music psychologists involves generating hypotheses on the basis of existing knowledge, which are then tested in such procedures as experiments, observational studies, questionnaires, interviews, and neuropsychological investigations.
- The "musical mind" is not simply "confined within the skull": it must instead be holistically and "ecologically" understood.
- Numerous forms of musical memory exist, likewise aspects of musical skill.
- The creation of music takes place in the imagination as well as in sound; this involves the formation of "cognitive representations" starting from one's earliest exposure to other people and the world around one.
- Musical expression is highly complex, as are the means by which it is perceived.

Discussion topics

1. What factors influence whether or not we perceive sounds as music?
2. Can experiments under controlled conditions ever yield insight into the "reality" of musical performance, listening, or composition, and if so how?
3. What is meant by "cognitive representations of musical structures," and how do these function?
4. When might practicing have a harmful effect on the development of musical skill?
5. What defines "expertise" in music?
6. How might the "rules" of musical expression proposed by some psychologists explain what you personally consider to be expressive about a given piece or performance?