Sound Musicianship

About the cover art

We are privileged to have the artwork of Vincent Serico on the front cover. The lizard representation in this painting is part of a series that engages with the struggle between colonial and Indigenous values. We are extremely grateful to Vincent's estate and the Australasian CRC for Interaction Design (ACID) for their support and kind permission.

Vincent Serico was a history painter 'that acknowledged Aboriginal existence in a way that gives comfort while recognizing past pain, sorrow, longing and loss and leaving a trace of [those who went before] in the hearts of others. The artist's central attribute is to make the artwork 'sing' in a positive winning stroke rather than creating a resigned memorial.' (Serico, 2007: Some people are stories, from: http://www.fireworksgallery.com.au/Artists/Vincent%20Serico/VincentSericoBio. htm)

This book also seeks to engage with cultural plurality and Indigenous values and the lizard represents the adaptability of these creatures that have two feet in the past and two in the future. We hope to let the thoughts expressed here about musicianship 'sing' and wish that the crafts of music may articulate each of our sonic landscapes.

Sound Musicianship:
Understanding the Crafts of Music

Edited by

Andrew R. Brown

Steve Dillon, the series editor and a chapter author, passed away just prior to this book going to press. He was passionate about music education, community music, and innovative uses of music technology.

Most of all Steve understood the power of music to transform lives. He was very proud of this volume and it was, sadly, one of his final projects. Steve's ideas, insights and inspiration will live on in this and his many other publications and initiatives, as well as in the hearts and actions of those of us who were privileged to know him.

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PREFACE

This is a book for music educators and musicians about musicianship—about musical skills, abilities, habits, sensibilities and understandings. The book has a deliberate focus on the developmental aspects of musicianship, which will benefit those hoping to advance their own music learning or that of others. However, most of the chapters are not written by educational specialists but relate to specific aspects of musicality, and are written with a view to informing debates around musicianship training.

Musicianship is a form of craftsmanship. Like most crafts, music requires a balance of theoretical knowledge and practical skills that contribute to a highly tuned ability to appreciate and express music. But just as there is more than one craft there are many types of music, each with its own array of skills and knowledge, habits and tools, or goals and meanings—deciding which of these are relevant will depend on the particulars of context and personal interest. There are, however, some general trends that influence musicianship in the twenty-first century, such as an increased reliance on digital media, greater awareness of the neurological basis for musical behaviour, a renewed interest in connections between bodily movements and musical expression, and increased cultural plurality resulting from more frequent travel, increased levels of migration and ubiquitous telecommunications.

This book is part of a series entitled "Meaningful Music Making for Life". When Elizabeth Mackinlay and Steve Dillon first began the series with the book *Music, Meaning and Transformation* (Dillon 2007), they asked the question: What does Australian experience have to offer the significant scholarship of US and European music researchers? Their conclusion was that this unique position offered quite a lot. This was not an arrogant position, but rather it set the series the responsibility of providing valuable contributions to music education scholarship.

Australian music education has a history of creating quality contemporary art and popular music programs, perhaps because of the country's short European history. Firstly, Australian music education is highly influenced by the presence of a strong classroom (general) music program in schools—often derived from programs of the 1970s popular in Canada and the UK, which were in turn based on writers such as Paynter and Aston and R. Murray Schafer. These influences mixed together with a large volume of unique Aussie pop and contemporary music work. Secondly,

music technology is also an area in which Australian music educators have a strong track record, both in practice and scholarship. In fact, we both began our music education careers working, in part, for Apple and Roland corporations developing music technology resources for schools and communities in the 1980s. Finally, Australia has been set apart by its multicultural and colonial struggles. Music education in Australia is a melting pot of European Art music, US band programs, methods based on European nationalist frameworks and contemporary popular music traditions. These influences have, at times, been an awkward fit: our calendar year teaching schedule means that American band tutors have children playing Christmas songs in April, for example. Further, and most importantly, Australia is a country with its own Indigenous knowledge—Australia was "sung into place" by the Dreaming. As ethnomusicologist Elizabeth Mackinlay told us; to the Yanyuwa people, "without a song you are nothing" (Dillon and Chapman 2005). Such is the significance of music as knowledge in Indigenous culture.

In our travels to conferences, we are conscious that in most cases Europeans rarely struggle with music being anything other than a European construction. Australian educators do not handle this particularly well either, but in our classrooms we do struggle with and act out the tensions at the interfaces between cultures (Nakata 2002). We hope this forced struggle with cultural diversity in music education puts us in a unique position to comment on the challenges our increasingly globalised world is facing. This book series consistently tries to engage with these areas of strength and weakness. As such, this book represents the global diversity of Western music education with contributions from America and Europe, alongside a strong Australian presence.

The book covers of this series also engage with the distinctive Australian culture: We are privileged to feature the artwork of Vincent Serico on the front cover. Vincent Serico was a history painter who "acknowledges Aboriginal existence in a way that gives comfort while recognising past pain, sorrow, longing and loss and leaving a trace of them in the hearts of others. The artist's central attribute is to make the artwork 'sing' in a positive winning stroke rather than creating a resigned memorial" (Serico 2007). The lizard representation in the painting used for the cover of this book is part of a series that engages with the struggle between colonial and Indigenous values. We are extremely grateful to Vincent's estate and the Australasian CRC for Interaction Design (ACID) for allowing us to use these images. This book includes an engagement with the struggles of colonial and Indigenous values, and the lizard represents the adaptability of these creatures who have two feet in the past

and two feet in the future. In this spirit, we hope this book will "sing" about musicianship, the crafts of music, and our varied sonic landscapes and that it will pay respect to musicianship traditions whilst looking forward to the musicianship required by the next generation of musicians.

Organisation of sound musicianship

This book is organised into five sections. After an introductory chapter by Andrew Brown discussing the effects of globalisation on musical practices and skill requirements, the first four sections examine different perspectives of music and explore how these illuminate aspects of musicianship. These sections explore the implications of music understood as sound, experience, motion and culture, respectively. In these sections, leading researchers and thinkers outline important issues and debates that are relevant to developing the crafts of music making and they share insights into recent trends and understandings. The final section of the book looks at educational considerations and provides a series of case studies that document innovative approaches to developing musicianship.

Technological perspectives

This first section of the book explores music from a scientific angle, particularly in terms of understanding music as acoustical vibrations, sound recordings and digital representations. Joe Wolfe presents an overview of musical acoustics, describing music as a sonic signal and explaining how an understanding of this concept provides a foundation for a contemporary musicianship. Today's music is often composed directly in sound, and the score may thus require visual representation. Also, music is always consumed as sound. David Hirst guides us through a process of musical analysis in light of these realities, showing how the sound signal alone can reveal structure and expression. Since the invention of the computer, music has increasingly been represented as digital data. Rick Taube's chapter explores music in this form, and describes how digital compositional structures can both reflect common musical structures and enable many novel ones. This leads on to Andrew Hugill's more general discussion about a digital musicianship that is characteristic of musicians engaging with music expressed as a digital medium, a topic very pertinent to music making in our digital age. James Tobias argues that digital musicianship in our age is more than simply literacy—rather, in an age where knowledge is expressed as data we are entering an era of data

virtuosos. Tobias argues that the subjectivity of musical knowledge is a paradigmatic case with which to explore such notions.

Psychological perspectives

The cognitive and experiential aspects of musicianship are explored in section two. Richard Parncutt provides an overview of the important issues in music psychology, and describes how developing musicians can benefit from an understanding of psychoacoustics. Studies of the musical mind have been accelerated in recent years by advances in neuroscience. In their chapter, Dawn Merrett and Sarah Wilson explain how this research helps us to better understand the musical mind and the factors that influence musical training, while Irène Deliège focuses on the important role the mind plays in understanding musical patterns and structures, paying particular attention to the cues that alert us to important musical features. The importance of listening in musical perception cannot be underestimated, and in their chapter, Mícheál Houlahan and Philip Tacka outline a sound-first approach to musicianship education. In their acknowledgment that we embody musical understanding as much as we intellectualise it, their perspective also emphasises musical participation through singing. This focus on the developmental interaction between mind and body is taken further in the chapter by John Bispham, who extends the above argument to consider the developmental balance between nature and nurture, and draws conclusions on the possible function of music in human evolution. The exploration of our engagement with music making is continued by Steve Dillon, who also seeks to connect our musical experiences with the purpose and wellbeing these can provide.

Physical perspectives

Building on the central role of embodiment in contemporary music psychology, this third section looks more deeply at movement and music. In the first chapter, Jane Davidson discusses how we demonstrate our musical knowledge and capacity for bodily engagement through singing, playing, dancing and entrained motion. Davidson reinforces the importance of gestural participation for embodied cognition, and discusses the extent to which these tendencies transcend cultural contexts. Geoff Luck and Petri Toiviainen continue this exploration of movement in musical expression and understanding in more detail. They consider both our response to music through music-induced movement, and our use of

movement in making music through performance. Taking on board the importance of movement in musicianship—especially in the form of playing musical instruments—Koji Matsunobu's chapter considers instrument making both as an important musical practice and as a process that can provide unique insights as part of a broader program of musicianship development. This theme is taken up by Bert Bongers in the more contemporary context of designing new electronic musical interfaces. He describes the links and mappings between human expression and physical interfaces, and deduces what these can tell us about acting musically. In David Borgo's chapter, we look beyond the body to our interactions with social and environmental contexts in order to understand how these shape and enable our musical capabilities. Borgo explores ecological theories, which move away from individualism to consider musicianship as a capability distributed amongst objects, spaces and other people. In the section's final chapter, Damián Keller discusses the relationship between musical materials and context through eco-composing—a practice which emphasises the design of musical experiences via the construction of sonic ecologies and interactive environments.

Cultural perspectives

The fourth section focuses on the sociocultural aspects of music making and the particular skills and sensitivities this demands of musicians. Jim Chapman provides an overview of the particular ethical and educational challenges and opportunities presented by cultural diversity and integration. In the light of multiculturalism and globalisation, it is vital for musicians to engage with these ethical issues which deal with the nature of appropriation in a postcolonial discourse. In the next chapter, Andrea Emberly draws attention to the idea that cultures are not only defined geographically, but also increasingly demarcated by other factors such as age. Expanding on this theme, Emberly explores the distinctiveness of children's and youth musical cultures. Hugh Brown's chapter on "internet" musical cultures argues for the weakening of the geographic-centrality of cultural discussions. Brown explains how online communities and systems have become sites for music production and distribution, while established production and business models are being disrupted by new technologies and evolving online practices. Another area of cultural fluidity in the twenty-first century is the dissolution of music's boundaries as a discipline—particularly its blending with visual media practices, a phenomenon which is discussed in Kersten Glandien's chapter. The rise of

sound art practices is a trend that is being amplified both by digital technologies and by the interoperability between sonic and visual sound data, but it also has significant analogue precedents. As well as questioning established making and performative practices, these discussions question the very notion of musicianship as sonic capability alone. Musicians, however, are not new to incorporating visuals into music. In fact, the challenge of gaining fluency with visual notations has traditionally played an important role in musicianship training. Robert Davidson's chapter grapples with the significance of notational literacies especially in communities with a diversity of musical traditions, each with different notational conventions, and the increased ubiquity of sound recording practices. The section's final chapter, by Gillian Wills, moves the discussion from notational representations to linguistic description. Wills focuses on music criticism, and explores the way in which musicianship includes the ability to think critically and communicate articulately about our own music and that of others. She also discusses the role of the music critic in our communities, and the impact of short form telecommunications such as texting and instant messaging on our musical dialogues.

Educational perspectives

While many of the chapters in previous sections touched their topics' educational implications, the authors of this section directly examine musicianship education and ground their discussions in case studies from all over the globe. The section starts with a chapter by Heidi Partti and Heidi Westerlund that looks at participatory culture, especially as driven by the democratisation of music production through the use of new media tools. Next is Eldad Tsabary's detailed description of a contemporary aural training curriculum designed to service electroacoustic and sound art practices. Eva Sæther and Per Sköld follow, with their tale of a small Swedish school's efforts to embed music training within a media-rich project-based learning context. Sonic arts and digital media converge in the chapter by Greg Jenkins, Lloyd Barrett, and Andrew R. Brown which describes the authors' process of working through many sound musicianship issues during their delivery of a program for undergraduate students. As we have seen, audio recording processes have come to dominate much music making, and Paul Draper's chapter discusses the elements required for a musicianship based on studio recording practices that would prepare students with technical, aesthetic and industry skills. In the final chapter, Richard Vella looks to the future of the music

conservatorium. He reflects on how these institutions need to balance past, present and future musical practices and prepare students for a more diverse range of vocational possibilities. Vella goes on to examine the pressures this places on the musicianship curriculum, and the need for pedagogical approaches that emphasise creativity and collaboration, rather than just technique and repertoire.

Conclusion

This book includes a diverse range of views and perspectives on musicianship. We therefore hope that you, the reader, encounter some new, interesting and thought-provoking ideas within these pages. As we move further into the twenty-first century—with all the opportunities and challenges for music making it brings—the requirement to review our concepts of musicianship training will intensify, and the definition of a "sound basis" for a contemporary musicianship will evolve. This book is intended to help stimulate and inform that evolutionary process.

Andrew R. Brown and Steve C. Dillon, Brisbane, March 2012

References

Dillon, Steve, and Jim Chapman. 2005. "Without a Song you are Nothing: Songwriters' Perspectives on Indigenising Tertiary Music and Sound Curriculum." In *Cultural Diversity in Music Education: Directions and Challenges for the 21st century*, edited by Patricia Sheehan Campbell, John Drummond, Peter Dunbar-Hall, Keith Howard, Huib Schippers, and Trevor Wiggins, 189–94. Brisbane: Australian Academic Press.

Nakata, Martin. 2002. "Indigenous Knowledge and the Cultural Interface: Underlying Issues at the Intersection of Knowledge and Information Systems." *IFLA Journal* 28:281–91.

Serico, Vincent. 2007. Fireworks Gallery, artist's notes. (Some people are fictionalised.)
http://www.fireworksgallery.com.au/Artists/Vincent%20Serico/Vincent%20Serico%20Show_files/frame.htm

CHAPTER ONE

MUSICIANSHIP IN A GLOBALISED WORLD

ANDREW R. BROWN

Musical experiences in the twenty-first century have arguably become more varied than ever before, and our knowledge about music making is more detailed, than in any previous century. In response, our understanding of musicianship and how it can be developed warrants revisiting. The opportunities and challenges for contemporary music making are shaped by a variety of forces, including increased access to musical heritage(s) through global trade, audiovisual recording and internet distribution; new insights into musical thoughts and behaviours from research into topics such as "music and the brain"; new technologies for music production and consumption, such as mobile computing devices and their apps, that expand and democratise participation in and access to music (Jenkins 2009); and the economic and social impacts surrounding the changes that result in the repositioning of music as a discipline, from the "arts and crafts" to the "creative industries". A discussion of a musicianship that responds to this context needs to move beyond the narrow and limited sense in which it is frequently used in music education.

Musicianship, for the purposes of this chapter, is a person's ability to perceive, understand and create sonic experiences. Musicianship involves awareness of musical features, the facility to articulate and interpret these features and their effects, and a capacity to demonstrate understanding through analysis, imitation and generation of music.

Musicianship is independent of, but necessary for, technical competence with music technologies including musical instruments, theoretical and notation systems, and audio production technologies. Musicianship can be personally expressed vocally, through bodily gestures, or through language usage—but it may also be maximally expressed for many people through a technological medium or process.

Musicianship is an individual or personal ability, but is also always contextual. It includes the perception and understanding of musicianship

in others and the musical opportunities offered by cultures and objects. Musicianship, therefore, contributes to a person's capacity for effective musical interaction, collaboration, leadership and dissemination.

A personal musicianship has many dimensions. Five that seem critical to achieving a comprehensive musicianship are aural awareness, embodiment, imagination, representation and interaction. The first of these, aural awareness, includes the ability to listen carefully and critically to sound, and to inform this ability with knowledge about how sounds are produced—both naturally (acoustics) and technologically (via musical instruments and other tools). The second is embodiment—the phenomenological experience of music that involves sensation, gesture, and movement, along with all the associated motor and coordination skills. The third, imagination, involves intellectual experiences of music, including perception, judgment, meaning and invention. Fourth is representation—how music is notated or recorded in some external form (which may be symbolic, visual, electronic or digital) and how these provide opportunities for reflection, creation and sharing. Finally, our musical interaction with others, technologies and histories acknowledges that music is both a social and a cultural phenomenon.

This chapter—reflecting the book's structure—separates aspects of musicianship into four categories: music as sound and data, music as perception and imagination, music as gesture and movement, and music as cultural construction.

Music as sound and data

Music is often described as organised sound. Not surprisingly, therefore, there have long been advocates for an understanding of the physics of sound—especially aspects such as the harmonic series and its impact on harmony, timbre, and musical time—as a foundational aspect of musicianship (e.g. Cowell 1996 [1958]). During the twentieth century, with the development of sound recording and amplification through loudspeakers, the sonic implications and possibilities of music expanded significantly. Compositional initiatives included electronic and electroacoustic music, musique concrète and studio recording production methods. The impacts on performance included the use of microphones and PAs, the invention of the electric guitar, and the use of the synthesiser, computer music workstation, and turntable as instruments. Analytical and musicological processes expanded to include sound visualised as waveforms, sonograms, synthesis and signal processing patch diagrams, graphs from data mining musical scores, and patterns extracted from

sound recordings using music information retrieval techniques. In the early twenty-first century, the distribution of recorded music became dominated by digital file downloads and streaming. As a result, an appreciation of the operations and possibilities of music in the forms of sound and data seems to be critical to a contemporary musicianship in the digital age (Hugill 2008; Hugill this volume).

Notions of what constituted the musical world exploded in the mid to late twentieth century. This was largely due to the ideas of composers such as Pierre Schaeffer and John Cage (1968), who expanded the range of materials and contexts that could be considered musical; and of acoustic ecologists such as R. Murray Schafer (1977), who urged us to pay closer attention to our sonic world, its protection and conservation. While a sound-first approach (making before notating) is commonly advocated by some music education traditions such as Kodály, Suzuki, Montessori and Orff-Schulwerk (see Houlahan and Tacka this volume), these approaches have typically limited themselves to the sounds of voice and orchestral-type instruments. The more radical ideas from that era, and the musical practices they have encouraged—especially their use in popular music— have less frequently found their way into musicianship education but when they have it is through "ear cleaning" exercises, soundwalks, soundscape compositions, instrument building, DIY and experimental improvisation activities (e.g. Upitis 1990; Paynter 1992; Tasbary this volume). Generally, an exploratory sound orientation seems largely to have been limited to younger children or to musically inexperienced groups, rather than taken seriously as part of advanced music studies. However, in an era of extensive auditory and cultural diversity, a focus on listening deeply and being open to the musical affordances of any sound or situation seems quite appropriate.

In the digital age, especially in light of widespread sound sampling and appropriation in music production, a shift is required in the way we listen to and think about sound and music. In addition to the open-mindedness extolled by the likes of Cage and Schafer, a range of new practices have emerged, while traditional roles such as "composer" and "performer" have been dissolved. Today's digital musicians may be involved in circuit bending, coding software, and network jamming alongside more established music and sound practices. They may refer to themselves as producers, sound artists, digital artists or live coders, and may see little distinction between their roles as a musical creator, presenter, distributor, curator or entrepreneur. They may even blur what used to be disciplinary boundaries, and see little difference between digital expression realised as sound, visual image, animation, industrial design, architecture, dance, and

fabricated object. While accommodating the skills and knowledge required for some or many of these contemporary practices under the heading of musicianship presents a challenge to educators, I suggest a good place to start is with a foundational understanding of sound, and how sound, as data, can be captured, manipulated and communicated.

Music as perception and imagination

While music may exist physically as sound, as well as in representations such as scores, it is in the interpretation of music through our senses where a high degree of musicianship is to be found. With so much of our musical ability devoted to listening, understanding and imagining, the operation and development of the musical mind is a significant topic of interest. Although there has been renewed interest in music perception in the early part of the twenty-first century driven by research developments in neuroscience (e.g. Levitin 2006; Sacks 2007), this interest builds on developments in the psychology of music over the past hundred years (e.g. James 1890; Seashore 1938; Meyer 1956, Deutsch 1999; Sloboda 2005), and there is plenty of information available from this research to productively inform the practices of music education.

Of particular relevance are the insights of psychoacoustic studies describing how the ear and the mind interpret sonic inputs—for instance, the fact that pitch and interval distances appear in a linear relationship, whilst equivalent frequency relationships follow a logarithmic curve. Other insights from psychoacoustic studies include explanations for experiences of consonance and dissonance, timbral blending and masking; the ability to detect the direction of sound sources, and whether or not they are stationary or in motion; and audible cues relating to the size and properties of physical space, based on reflections and reverberation characteristics. Our ability to identify, track, imagine or confuse multiple concurrent musical parts through processes of auditory stream analysis has gained particular attention (Bregman 1990).

Many of these aural abilities have been associated not only with musical aesthetics, but also with adaptive and survival qualities in the human species. This has led to much speculation about the evolutionary role of human capabilities now exploited for musical purposes, and whether or not music making simply leverages these general capacities or contributes to their development on an evolutionary timescale (Wallin et al. 2000). Further, and of more immediate relevance to musicianship education, is the issue surrounding the degree to which musical skills are innate or learned—the "nature versus nurture" debate. Musical talent's

identification and development have long been central to music education theories (e.g. Suzuki 1986; McPherson 1997). Unsurprisingly, developmental studies in music psychology and psychoacoustics suggest that innate musical and intellectual potential makes some contribution to musicianship, but these studies also reveal that training both enhances innate capabilities and develops new ones (Lehmann et al. 2007). Often, developmental potential is made especially clear in experimental results differentiating "musicians" from "nonmusicians" in many music perception studies— including those exploring pitch discrimination, recognition of bitonality, musical memory, identification of rhythmic similarity, audio stream segregation, and more.

Clearly, perceptual and cognitive processes are significant contributors to musicianship, as they can turn sounds into mental structures powerful enough to produce aesthetic and emotional responses. However, as ecological psychologists make clear, the mind does not act alone but in concert with the body, and with environmental and cultural contexts (e.g. Gibson 1979; Noë 2004). It is to these dimensions of musicianship that we turn our attention in the next two sections.

Music as gesture and movement

Inasmuch as music is a sonic phenomenon or mindful experience, it is also an activity; except perhaps for instances of generative computation, music making is the direct result of human activity. Christopher Small takes a strong view on this, claiming that "Music is not a thing at all but an activity, something that people do" (1998, 2). Put simply, human gestures create music, from the banging of a drum to the singing of a lyric and the conducting of an ensemble. The body is, according to David Borgo (this volume), "the fundamental musical instrument through which everyone first creates and apprehends music; it is simultaneously a music producer and a music transducer." Gestures are also used for non-sonic purposes in music to enhance the communication of expressivity to an audience and to coordinate with others during ensemble performances. Performative skills have long been a central aspect of musicianship studies—especially in the form of singing melodies, scales and intervals, or performing rhythmic patterns and exercises. Contemporary music research reinforces the centrality of bodily capacity in consolidating and demonstrating musical understanding; pedagogical trends emphasise their development through authentic and holistic music making activities, rather than through decontextualised graded exercises.

As humans, we are also prone to respond to music through movement, from simple tapping of the foot or nodding of the head to swaying and dancing. Bodily movements and sonic and musical gestures have interesting parallels. These connections can be quite direct, as in the case of playing acoustic instruments, or they can be metaphoric, as in the case of an upward arm gesture corresponding to an increase in the volume or pitch of a melodic phrase. Appreciating the direct and indirect connections between bodily and sonic gesture has had implications for considering music as sonic movement in time and space. In some cases, this insight has been at the heart of musical training (e.g. Vella 2000).

The cognitive significance of gestures and movement goes beyond a strong connection between body and mind—it is also implicated in shaping perception (Noë 2004) through the active repositioning of ourselves in relation to sound sources or spaces, and the development of music technologies with which to interact. Although some Western musical traditions employ stationary and passive music listening conventions, in other contexts movement and the shifting of listening orientations engages the body more directly in music appreciation. While instrumental performance utilises gesture in music making, the practices of instrument making pay particular attention to interaction design and expressive gestural control over sound. A final but important aspect affecting music perception and expression is the acoustic space in which music is made and/or heard. Relevant considerations include the design of concert halls and recording studios, the setup and creative use of multi-loudspeaker arrays, and the attention paid to environmental sound spaces and sources, such as in the field of acoustic ecology.

These types of connections between human movement, physical contexts and music may, at times, be so closely coupled that they are employed intuitively, such that our physical actions and responses constitute musical knowledge as a form of embodied cognition (Maturana and Varela 1980). The significance of embodied musicianship has informed many music education practices that emphasise the linking of sound and movement, especially in young children, and these have found particularly clear articulation in the Eurhythmics methods developed by Émile Jaques-Dalcroze in the early part of the twentieth century. Such embodied knowledge is an important part of musicianship. It can be developed through training and purposeful repetition, and can, through performance, reveal musical sensitivity and understanding that may be inexpressible by other means. The music education researcher David Elliott, who writes in some detail about musicianship, goes further,