
Tradition and Transformation: Addressing the gap between electroacoustic music and the middle and secondary school curriculum

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Given the growing acceptance of information and communication technology (ICT) as integral to today's middle and secondary school classrooms, electroacoustic music would seem on the surface to be a central feature of the music curriculum. However, models that approximate actual practices of electroacoustic music in the classroom are rare, with many schools focusing squarely on ICT, either as tools to facilitate traditional musical contexts or to explore innovative uses of that technology. Also, with the exception of some notable recent developments, there are few initiatives to bring middle and secondary students, or their teachers, into contact with the practices of electroacoustic music communities. The purpose of this article is to explore this problematic gap between the education and electroacoustic music communities in an attempt to identify some of the issues that lie at the foundation of an effective curriculum. The position taken is that these foundational matters need to be addressed prior to any discussion of 'best practices' for middle and secondary electroacoustic music education.

1. INTRODUCTION

Currently, there is wide recognition of the need to adapt teaching and learning to the actual world students inhabit. Recent developments in technology have provided both practical and theoretical challenges to music education (Cain 2004). Educators are beginning to consider the integration of information and communication technology (ICT) into the music curriculum, and to adapt pedagogy to the varying needs of learners growing up in the digital age (Finney and Burnard 2007).

However, despite the emerging technology-driven changes in education, inclusion of musical practices commonly understood by the term 'electroacoustic music' (acousmatic music, soundscape composition, various mixed-style approaches, among others) in the curriculum is still rare. Initiatives coming from the music education field tend to focus on various technologies, which function as novel or more effective ways to teach music, or as a means to foster creativity (in the broadest sense); and, apart from a few exceptions (e.g. Higgins 2004; Savage 2005; Field 2007), technology-based school curricula are generally disconnected from actual traditions and practitioners of

electroacoustic music. Moreover, electroacoustic communities, mainly situated within higher education institutions, seldom focus educational concerns below tertiary-level learning, again with a few notable exceptions, such as the Sonic Postcards project (<http://soundandmusic.org/projects/sonic-postcards>) and initiatives based at the Music, Technology and Innovation Research Centre of De Montfort University (Landy 2009, 2012).

This apparent gap between communities of music educators and electroacoustic music practitioners raises questions concerning a possible basis for an electroacoustic music curriculum, which need to be addressed prior to any discussion of 'best practices' for teaching electroacoustic music in middle and secondary education. The purpose of this article, then, is to examine issues and problems that each of these communities must confront in order to bridge the divide and begin to lay the foundations for effective electroacoustic music curricula for adolescent learners. The discussion proposes to address both sides of the gap: first, in section 2, by viewing the problematic situation with respect to electroacoustic music in the current school curriculum – in particular, the need to relate music technologies to the musical practices that use them; and then, in section 3, by exploring challenges involved in bringing electroacoustic music into the middle/secondary classroom, emphasising the importance of a clear perspective on the value of electroacoustic music for adolescent learners. The article then concludes with a summary of the central points emerging from the discussion.

2. TECHNOLOGY-BASED MUSIC TEACHING AND LEARNING: THE CURRENT SCHOOL CONTEXT

Many in the music education field take for granted the traditions of practice that form the basis of singing and playing musical instruments. Apart from technical training, music instruction on voice and acoustic instruments focuses on a repertoire whose

styles belong to rich, authentic (i.e. real-world) traditions of music-making and listening (almost exclusively Western until recently) in which learners engage as the main purpose of playing or singing. Far from being universal abstract objects, repertoire belonging to these traditions is the result of specific communities with shared social/historical contexts and purposes. Therefore it must seem odd that emergent interest in ICT appears focused directly on the tools ('instruments') rather than on the music and, more importantly, the musical communities for which they are purposed. It is difficult to imagine music educators developing a curriculum around the piano as a piece of apparatus to explore in the classroom without reference to any of its literature. Yet music technology is often discussed in this context as if it were something autonomous to be 'implemented' in music programmes.

The notion of ICT as 'tools' for music learning is very broad, covering a range from computer-based composition projects to online 'music theory' games. But narrowing the focus to composition and performance – where it would be most likely to find a link with practices of electroacoustic music – still reveals two common, problematic trends: 1) ICT as a more effective way to teach traditional acoustic approaches to music; and, 2) ICT as a way to explore novel perspectives or foster creativity. The first of these trends, identified by Savage (2007a) as the 'extrinsic' model of ICT use, is still the dominant approach in many classrooms. On this view, ICT functions as a means to facilitate music-making that is extraneous to the technology used. A typical application of this model involves 'the linking of musical keyboards to computer workstations using sequencing software as a tool for tonal composition' (Savage 2007a: 144). Savage goes on to remark how severely restricting this approach is in view of its exclusive concentration on tonal language:

The use of the computer and musical keyboard in this way perpetuates musical concepts that have their roots in European music of the mid-eighteenth century. Tonal music is a well-established tradition but has been challenged at various points by composers, working with and without new technologies, in fundamental ways as well as through the expanding access we all have to world musical styles and traditions. (Savage 2007a: 144)

This echoes Beckstead's (2001) warning that 'although certain technological and intellectual forces are redefining the role of composition in Western music education, these technologies may actually reinforce the traditional notions that they are supposedly trying to supplant' (Beckstead 2001: 44).

In contrast, Savage's (2007a) 'intrinsic' model is defined as one that 'starts with a piece of ICT and examines it for its inherent musical possibilities'

(Savage 2007a: 145). The focus here is on music-making derived from recorded and electronically generated material. This perspective certainly allows the possibility of introducing electroacoustic practices, such as soundscape composition, that are decidedly 'sound-based' (Landy 2007). However, the intrinsic approach, as stated, is problematic as a basis for electroacoustic pedagogy. Exploring the intrinsic features of a given technology would not necessarily bring us any closer to living traditions of electroacoustic musical practice that have developed over time, than would experimenting with a violin necessarily engage us in the historical practices of string performance. There is still a danger of the technology becoming an end in itself rather than a means to engage students in authentic electroacoustic music-making.

This problem is evident in many school music programmes. In the absence of traditions of music-making parallel to those of their own musical background and training, educators are forced to seek other ways to unify a technology-based music curriculum. For example, Watson (2011) views technology in the curriculum as part of a programme to 'unlock' creativity, despite the fact that creative thinking can be facilitated also through more traditional resources.

I have argued previously that a much better way ahead would be to connect teaching and learning in the classroom with the authentic practices of electroacoustic composers (Martin 2012). Savage has taken this route effectively in pursuing his intrinsic model of ICT use (Savage and Challis 2001, 2002; Savage 2005). However, projects devoted to sound-based electroacoustic practices remain few as the education community continues to regard the tonal-notational traditions as central. The following passages illustrate the inferior value placed on sound-based music as a preliminary, exploratory stage in the goal of developing in the tonal language by upper secondary level:

At [the] beginning stage, students can find immediate success ... by creating soundscape compositions (compositions that combine sounds to create an 'effect') and compositions using found sounds. (Hickey 2003: 48)

At Key Stage 3 we use Cubasis [a simple software music recorder] for sound pictures and collages, but at KS4 there is a need for pupils to develop melody and harmony in order to get good grades at GCSE. (Teacher interviewed in Savage 2007b: 71)

While each of the above citations give an educator's perspective, the latter in particular also shows the influence of education policy beyond the teacher's control. This perspective of music education as education in tonal-notational music dominates all levels of many education systems in the West.

It is important to note that although some recent 'intrinsic' approaches do indeed attempt to engage

students in musical practices focused on editing and manipulating sound, these are often narrowly chosen from styles immediately appealing to learners from within their popular culture. As a result, learners are denied access to the wide range of possibilities that electroacoustic music communities have been developing over more than sixty years. Thus, a significant challenge for the education community is to move beyond both the technological tools and their most popular uses, and consider a broader conception of music, one that is not merely the result of recent technological innovations, but of perspectives and practices of sound-based music emerging since at least the early twentieth century.

3. ENGAGING ADOLESCENT LEARNERS IN ELECTROACOUSTIC MUSIC

3.1. The critical role of philosophical perspectives

The foregoing discussion located the source of the gap between music education and electroacoustic music within a tendency for school programmes to focus squarely on the technology, using it either ‘extrinsically’ to facilitate tonal music and notation, or ‘intrinsically’ but without clear attention to what electroacoustic practitioners are doing. The implication is that the education community could benefit from more consistent and long-term input and dialogue from electroacoustic music communities, not only at the school programme level, but also, and most significantly, at the teacher-training level. However, it is equally important that such initiatives be educationally effective. There are concerns that need to be addressed if a given initiative is to succeed in opening the field of electroacoustic music to people in general and to adolescent learners in particular. The present section, then, shifts the focus from technology to the practices of electroacoustic music, and explores central issues involved in bringing these traditions into meaningful contact with adolescent learners.

At the centre of any educational initiative are questions concerning the nature and value of what is to be taught. The way in which one addresses these foundational questions determines the effectiveness of one’s educational programme. This step is required before pedagogical methods can be considered. Curriculum is not merely a matter of content and procedures: philosophical perspectives lie at the heart of all curricular decisions, and educators are seldom aware of this fact (Regleski 2005). For our purposes, such foundational questions include, for example, whether electroacoustic music has inherent meaning, comprising works whose significance is universal for all times and places, or whether those meanings are socially constructed and relative to specific historical, cultural and practical situations. Following from

decisions on this level will be questions such as: ‘is electroacoustic music valuable for its own sake, or is it intended toward human purposes?’ Answers to these types of questions will affect significantly the ‘what’ and ‘how’ of a programme of electroacoustic music education.

Communities of electroacoustic music practitioners exist largely from within higher education institutions and organisations they support. Within this academic context, music as a subject – including music education – has been dominated (at least subliminally) by a perspective on music formed in the late eighteenth century, and which, despite the recent emergence of alternatives in music education philosophy, has remained intact until today (Leppert and McClary 1987; Elliott 1995; Spruce 2002). Unfortunately, the uncritical adoption of such a perspective has the potential to severely limit the efficacy of electroacoustic music education initiatives.

Central to this dominant conception is the construction of music as a collection of ‘fine art’ objects whose purpose is a ‘disinterested’ contemplation of artistic features of these works for their own sakes, apart from their uses or social context. This view is evident in Scrutton’s statement that ‘the experience of art is only available if we forget the use. We must consider the work of art as an end in itself’ (Scrutton 1997: 375). Again, this is not necessarily always stated so explicitly, but is implicit in programmes that focus on Western art music and the notion of music as a structural entity divisible into structural elements (which are thought to be universal).

The continued uncritical acceptance of this late eighteenth-/early nineteenth-century view is surprising, not because it is necessarily ‘out of date’, but rather in view of much recent scholarship which has unpacked the social conditions and dependence on idealist philosophy that grounds this way of thinking. Wolff (1987) and Goehr (1992) are just two of a number of scholars who locate the historical appearance of ‘music’ as autonomous works from within the steady decline of the patronage system in the late eighteenth century, and the subsequent need for a new conception of music consistent with the elevated significance of the then current concept of ‘fine art’ (or ‘high art’). Prior to the late eighteenth century, music was conceived as skilled performance to fulfill various practical purposes and ‘not generally understood as involving the production of works’ (Goehr 1992: 151). The emergence of a conception of musical works as comprising inherent abstract – ‘aesthetic’ – meanings that are timeless and only appreciable apart from the social, cultural and historical conditions and purposes, supported this new social reality in a way that fit the philosophical currents of that time.

Recognition of the social and ideological origins of the ‘autonomous work’ concept is important not

merely to reveal the fallacy of the assumption that music is universal and separable from social context, but also to provide alternative ways for understanding music's nature and value, ones that make sense of our many varied and changing social contexts and purposes. The unfortunate consequence of following Romantic ideology is an emphasis on learning as learning to appreciate representative 'works' and composers of (electroacoustic) music. Such a 'music appreciation' agenda would fail to engage adolescents and, moreover, would also fail to establish that electroacoustic music is valuable for most people in their diverse social and personal situations, thus further increasing the marginality of this music.

3.2. Addressing the musical needs of adolescents

Given the dominance of the traditional Romantic perspective described above, music education initiatives based on music appreciation are common, regardless of the extent to which activity is involved in the programmes. For example Higgins's (2004) important (and admirable) effort to bring electroacoustic music to secondary learners nevertheless works from the premise that 'traditionally taught music students do not know how to listen purposefully to [electroacoustic music]' and thus 'by engaging in the composition of *musique concrète*, students will have a better understanding of electroacoustic music in general' (Higgins 2004: v). Thus while the emphasis on activity and interaction over passive listening is consistent with how young adolescents best learn (Lounsbury 2000), the goal of music appreciation is not one that many would necessarily find meaningful and motivating.

Adolescent learners certainly do gain the capacity for abstract thinking and reflection on concepts, albeit in varying degrees depending on their individual cognitive development (Manning 1993). However, they identify more strongly with the world around them, in which their own personal and social interests drive their engagement in given subjects (Caskey and Anfara 2007). Thus in order for a subject to be meaningful and engaging to middle and secondary students, learning activities would ideally model real-world situations with which they are able to identify personally. In music education, this would mean approximating authentic musical practices in which engaging in the practice itself – and, in particular, the activity's value for the learner's personal/social life lived beyond the classroom – is the end, rather than simply the means to introduce musical concepts (such as the supposedly universal 'elements of music') or representative styles and masterworks.

Moreover, these learners are particularly motivated by activities that meaningfully address their emergent concept of selfhood – their personal and social identity as well as self-esteem. Adolescents

experience increased self-esteem when they are able to demonstrate competence in areas of personal interest, and when they are able to relate positively to peers (Harter 1990). Therefore, it is crucial that learners are able to face musical challenges that provide opportunities to experience competence in meaningful social situations. For the present purposes, this would involve working cooperatively – or in isolation with the provision of presenting to peers – on authentic electroacoustic music-making challenges that are planned such that the results will be 'a prime source of overt pride and personal pleasure' (Regelski 2004: 38).

One example of such an approach was the Sonic Postcards project, mentioned in the introduction, which had groups of students aged 9–14 working together to select and record various sounds from their local environment. The recordings would then be edited and arranged to create short pieces, or 'postcards', which would be exchanged with a school situated in a different location. Here students experienced soundscape composition's central goal to draw attention to the sonic environment, but through means that emphasised their need for personally relevant situations and ownership (i.e. working with their own immediate environment), as well as social interaction (connecting with peers both within and outside of their own schools) and autonomy.

Thus music learning, particularly in the context of adolescent development, requires approaches that are philosophically founded, not on a conception of music as a collection of 'fine art' works whose meanings are inherent in structural or expressive elements, but on music conceived as diverse socially situated practices with unique 'shared ways of thinking and shared traditions and standards of human effort' (Elliott 1995: 42), and whose value is understood in terms of their 'use for a variety of personal and social values and pleasures' (Regelski 2004: 6). This more recent thinking – termed 'praxial' (Alperson 1991; Elliott 1995; Regelski 2005) – shifts the perspective from music for music's sake toward music for the purpose of human needs, which are relative to a given situation rather than a universal standard. It is these personal and social benefits, rather than music appreciation, that, on the basis of current research and my own experience in education, I believe need to be at the centre if an educational programme of electroacoustic music is to succeed. Access to, and continued lifelong interest in, electroacoustic music is relative to the extent to which the learner perceives the practice as *personally* meaningful.

4. SUMMARY: BALANCING TRADITION AND TRANSFORMATION IN ELECTROACOUSTIC MUSIC EDUCATION

This paper began by identifying a gap separating the content and purposes of communities of educators in

middle and secondary schools and those of electroacoustic music practitioners. On one side of this divide is the situation in schools where various technologies are often the focus, rather than the musical traditions that use them. On the other are the communities engaged in traditions of electroacoustic music, located mainly within academic institutions, who operate largely within an implicit, and inherited, 'fine art' paradigm, and whose educational initiatives are rare, despite the wide accessibility of sophisticated music technologies. The foregoing discussion has attempted to reveal problems and possibilities which, if recognised and acted on, may bridge the divide, and provide the potential for an effective electroacoustic curriculum in middle and secondary education. This concluding section will summarise those concerns in light of implications they have for effective electroacoustic music education.

Music educators need opportunities to gain not only conceptual but procedural knowledge of electroacoustic musical styles, as they are situated within shared, living traditions of practice. As opposed to an unfocused agenda to implement technology, which has questionable transfer to real life, teachers could effectively provide 'apprenticeships' (Brown, Collins and Duguid 1989), 'practicums' (Elliott 1995) or 'laboratories' (Regelski 2004) in which learners engage actively in authentic styles that are electroacoustic parallels of choral and instrumental practices. Rather than experimenting with sound files in the abstract, targeted toward a vague notion of 'creativity', learners could be inducted into practices such as acousmatic or soundscape composition. However, 'traditions' here should not be understood to mean that they are 'fixed forever, or for their own sake' (Regelski 2005: 231). Musical traditions that are living are constantly open to transformation and confluence.

But how is the music education community to access knowledge of these established but dynamic traditions? Ideally, induction into authentic practices of electroacoustic music should be a part of the teacher education phase. The tendency for many higher education institutions, however, is still for departments to be compartmentalised and for sub-disciplines within departments to remain isolated from each other (Watts 2004). Are there workable ways to initiate collaboration between electroacoustic music and music education faculty?

If the central need of the music education community is to engage in traditions, the electroacoustic community could focus on the 'transformation' side of the balance in order to have an effective presence in education. There are at least two important, and related, senses to 'transformation' here. First, rather than merely following established (Romantic) models of music's nature and value, in which meaning inheres

in the structural features and concepts surrounding timeless musical works, the challenge is to question what electroacoustic music could mean, and how it could develop, in order to be relevant to the diverse social, cultural and personal contexts that belong to human experience. At the heart of this concern is the question of how electroacoustic music might become a vehicle for human needs, rather than merely artistic ones. This should be a fundamental issue if the goal for the electroacoustic music community is to be meaningful and accessible to the general public – not only as audience, but also as practitioners – rather than just a domain for specialists.

Second, and following from this point, in order for any middle or secondary school electroacoustic music education programme to succeed in the goal of lifelong engagement in electroacoustic music beyond the school years, we must be prepared to allow learners to actively construct their own personal and social meanings within the established and living traditions in which we have them participate. The challenge is to facilitate the transformation of tradition from the student level, allowing them to dialogue with conventional features of a given practice from within their own perspectives. In practical terms this involves supervising tasks involving choice, ownership, and active problem finding and solving, as well as students attributing their own personal meanings to the task. Rather than music appreciation, the projected goal here is personal fulfilment, which will lead to greater on-task behaviour, pleasure and the desire to continue to be involved in electroacoustic music.

To underscore this important point, I close with an illustration taken from my own experience with a lower secondary student. The task I had set for the class was to compose a short soundscape composition, alone or in pairs, using sounds the students had recorded using a portable recorder. Prior to the assignment of this open-choice task, the class had been introduced to models of soundscape composition (focusing on work done by peers) and also had practice with basic techniques. Pieces ranged from those involving processing to those with little or no processing, and most focused on drawing our attention to the recorded environments or giving a narrative. One particular student, however, appeared deliberately to go beyond the established boundaries of soundscape: interspersed among sounds of passing traffic, wind and moments with the sounds of students 'babbling' were brief sampled excerpts from songs by Queen and Pink Floyd. The whole arrangement was, however, carefully organised, and included a contrasting section toward the end in which the Pink Floyd sample was sped up.

One possible view is that he deviated from the boundaries of the task. However, apart from the

satisfactory way the short piece was constructed, this was not so much a mere deviation as a dialogue, in which sound materials he conceived as part of his own *personal* soundscape interacted with the more conventional recorded environments. The rock song excerpts were discovered in his father's CD collection (he would have been too young to have been a fan of either group) and the babbling voices were from a recording of friends of his which had not been collected by him (all student recordings were shared by the class). In this instance 'soundscape' was more broadly defined: it was not conceived merely to extend outward to the external environment, but also draw inward to the meanings this particular student attributes to his sound 'world'.

The level of engagement and enthusiasm evident in the work of the student described here is indicative of the potential for encouraging new generations of electroacoustic practitioners when learners are invited to direct the transformation of authentic traditions. The challenge for both the education and electroacoustic communities is to focus initiatives neither on novel uses of technology nor on practical and conceptual methods for introducing electroacoustic music as a 'fine art', but on ways to facilitate these students' lifelong active and personal interest in the authentic practices of electroacoustic music. Attention to the ways electroacoustic musical practices address the needs of middle and secondary school learners, not only in school but throughout their lives, may be one effective path to ensuring the continuation and development of this important part of our musical culture.

REFERENCES

- Alperson, P. 1991. What Should One Expect from a Philosophy of Music Education? *Journal of Aesthetic Education* 25(3): 215–42.
- Beckstead, D. 2001. Will Technology Transform Music Education? *Music Educators Journal* 87(6): 44–9.
- Brown, J.S., Collins, A. and Duguid, P. 1989. Situated Cognition and the Culture of Learning. *Educational Researcher* 18(1): 32–42.
- Cain, T. 2004. Theory, Technology and the Music Curriculum. *British Journal of Music Education* 21: 215–21.
- Caskey, M.M. and Anfara, V.A., Jr. 2007. Research Summary: Young Adolescents' Developmental Characteristics. <http://www.nmsa.org/Research/ResearchSummaries/DevelopmentalCharacteristics/tabid/1414/Default.aspx>
- Elliott, D. 1995. *Music Matters: A New Philosophy of Music Education*. New York: Oxford University Press.
- Field, A. 2007. New Forms of Composition and how to Enable Them. In: J. Finney and P. Burnard (eds.) *Music Education with Digital Technology*. New York: Oxford, pp. 156–68.
- Finney, J. and Burnard, P. 2007. *Music Education with Digital Technology*. London: Continuum.
- Goehr, L. 1992. *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music*. Oxford: Clarendon Press.
- Harter, S. 1990. Causes, Correlates and the Functional Role of Global Self-Worth: A Life-Span Perspective. In J. Kolligian and R. Sternberg (eds.) *Perceptions of Competence and Incompetence across the Life-Span*. New Haven, CT: Yale University Press, pp. 67–98.
- Hickey, M. 2003. Creative Thinking in the Context of Music Education. In M. Hickey (ed.) *Why and How to Teach Music Composition*. Reston, VA: MENC, pp. 31–53.
- Higgins, A.M. 2004. The Music of Sound: A Constructivist Approach to the Comprehension of Electroacoustic Music, through the Composition of Musique Concrète, at Post-Primary School Level. Unpublished master's thesis, University of Dublin, Ireland.
- Landy, L. 2007. *Understanding the Art of Sound Organization*. Cambridge, MA: The MIT Press.
- Landy, L. 2009. Increasing Access to Sound-Based Music. *Proceedings of the 6th EMS Conference, June 22–25, 2009, Buenos Aires, Argentina*. <http://www.ems-network.org/ems09/papers/landy.pdf>
- Landy, L. 2012. *Making Music with Sounds*. New York: Routledge.
- Leppert, R. and McClary, S. 1987. *Music and Society: The Politics of Composition, Performance and Reception*. Cambridge: Cambridge University Press.
- Lounsbury, J.H. 2000. Understanding and Appreciating the Wonder Years. National Middle School Association. <http://www.nmsa.org/moya/PlanYourCelebration/PRResources/WonderYears/tabid/1198/Default.aspx>
- Manning, M.L. 1993. *Developmentally Appropriate Middle Level Schools*. Wheaton, MD: Association for Childhood Education International.
- Martin, J. 2012. Toward Authentic Electronic Music in the Curriculum: Connecting Teaching to Current Compositional Practices. *International Journal of Music Education* 30(2): 120–32.
- Regelski, T. 2004. *Teaching Music in Grades 4–8: A Musicianship Approach*. New York: Oxford University Press.
- Regelski, T. 2005. Implications of Aesthetic Versus Praxial Philosophies. In D. Elliott (ed.) *Praxial Music Education: Reflections and Dialogues*. New York: Oxford, pp. 219–48.
- Savage, J. 2005. Working Towards a Theory for Music Technologies in the Classroom: How Pupils Engage With and Organise Sounds With New Technologies. *British Journal of Music Education* 22(2): 167–80.
- Savage, J. 2007a. Pedagogical Strategies for Change. In J. Finney and P. Burnard (eds.), *Music Education with Digital Technology*. New York: Oxford, pp. 142–55.
- Savage, J. 2007b. Reconstructing Music Education Through ICT. *Research in Education* 78(1): 65–77.
- Savage, J. and Challis, M. 2001. Dunwich Revisited: Collaborative Composition and Performance with New Technologies. *British Journal of Music Education* 8(2): 139–49.
- Savage, J. and Challis, M. 2002. Electroacoustic Composition: Practical Models of Composition with New Technologies. *Sonic Arts Network Journal of Electroacoustic Music* 14: 8–13.
- Scruton, R. 1997. *The Aesthetics of Music*. Oxford: Clarendon Press.

- Spruce, G. 2002. Ways of Thinking About Music: Political Dimensions and Educational Consequences. In G. Spruce (ed.) *Teaching Music in Secondary Schools: A Reader*. London: RoutledgeFalmer/Open University Press, pp. 3–24.
- Watson, S. 2011. *Using Technology to Unlock Musical Creativity*. New York: Oxford University Press.
- Watts, C. 2004. Mixing Things Up: Collaboration, Converging Disciplines, and the Music Curriculum. *Organised Sound* 9(3): 295–9.
- Wolff, J. 1987. The Ideology of Autonomous Art. In R. Leppert and S. McClary (eds.) *Music and Society: The Politics of Composition, Performance and Reception*. Cambridge: Cambridge University Press, pp. 1–2.