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Bill Crow ^a

^a Goldsmiths College, University of London, UK

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VIEWPOINTS

Musical creativity and the new technology

Bill Crow*

Goldsmiths College, University of London, UK

This article considers the position of the new technology in relation to musical creativity in the classroom. Creativity in music education is generally believed to be a good thing. However, it does not always engage or motivate pupils. Moreover, processes and outcomes are often perceived to be distant from the pupils' musical lives and lack sufficient musical authenticity. This paper outlines the nature of the new technology and suggests that it might, if effectively and imaginatively employed, engage a larger proportion of pupils in a more broadly conceived and culturally relevant creative response.

Context: creativity in music education in England

In 1992, the place of musical creativity in musical learning was established in the national curriculum for music in England, Wales and Northern Ireland. It emerged as the process of 'composing' and took its place alongside 'listening' and 'performing' as part of a general classroom education in music for pupils aged five to 14 (Pitts, 2000).

However, creative approaches in music education have had a somewhat longer history which stretches back to the child centred approaches of Schafer (1976) and Paynter (Paynter & Aston, 1970) in the 1970s and on to the alternative traditions of world and popular music espoused by Vulliamy (Vulliamy & Lee, 1982) and others in the 1980s.

This 'creative dream' (NAME, 2000) of classroom composing is currently a central curriculum activity in English classrooms at secondary level. A shared pedagogy relating to 'composing' is still unclear. Nevertheless, justifications for its place in the curriculum are centred on the belief that 'creativity' engages pupils in 'active' learning.

*Department of Educational Studies, Goldsmiths College, University of London, New Cross, London SE14 6NW, UK. Email: b.crow@gold.ac.uk

Unfortunately, there has been growing concern in recent years about the quality of that learning. Odam identifies a number of problems relating to the current orthodoxy of ‘group’ creative approaches in secondary schools. Included in his list are:

- group work in composing seriously dominating curriculum time;
- attendant problems of pupil discipline and stress accumulation on teachers;
- lack of evidence of skills development in composing;
- little evidence of progression in composing;
- inadequate resources in many schools . . . (Odam, 2002, p. 123)

Research into music teacher identities suggests that the bulk of trainees entering the teaching profession are still predominantly trained in the classical performance tradition (Hargreaves, 2003), making it difficult for them to articulate and model effective teaching approaches in musical creativity.

A further perceived problem is music education’s inability to address the increasing gulf between ‘school music’ and ‘out of school music’ (MacDonald *et al.*, 2002). Current curriculum models towards creativity often appear unable to engage certain pupils in authentic musical experience.

The new music technology and creativity

About five years ago, in an attempt to bridge the divide between music education and young people’s lives, one examining board for in England introduced a new creative area for GCSE:¹ Club Dance Remix. It was an attempt to acknowledge the growth of the new music technology and its impact on youth culture. However, not everyone was in agreement about its legitimacy or musical value. For example, a recent music examiners’ report, commenting on the submitted ‘Club Dance Remix’ compositions, stated:

Sadly, it was more common that this topic was attempted by the weaker candidates, who resorted to using programmes such as ‘eJay’ and ‘Acid’² and their own input to the compositional process was minimal and questionable. The associated briefs too were often poorly done and gave no indication to how the piece was created. (Edexel, 2003, p. 15)

This statement includes a number of assumptions, which may say as much about the examiner as it does about the perceived shortcomings of the pupils and teachers.

In an attempt to challenge those assumptions and address those shortcomings, it is necessary to clarify certain aspects of the new music technology. To do this requires a definition of its nature, an assessment of its learning potential and a consideration of the implications for music teaching and curriculum design.

The nature of the new music technology

In recent times many musicians, music educators and music students have begun to employ some sort of computer-based technology in their musical lives. As Taylor states: 'The advent of digital technology in the early 1980s marks the beginning of what is the most fundamental change in the history of Western Music since the invention of music notation in the ninth century' (Taylor, 2001, p. 3). A further change has occurred over the past five years. Powerful computers and fast Internet connections have become affordable and widely available. The technology's ability to manipulate audio has meant that many people, who up until now did not perceive themselves to be musicians, can handle, create and communicate music using their computers. They employ inexpensive music software and hardware, which does not require 'traditional' musical skills or conceptual understanding. The software is attractively presented as a set of creative tools, which offer a range of musical choices. The choices are drawn from banks of readymade musical materials, which can be controlled in a variety of ways. The technology that falls into this category, and which is the focus of this paper, includes the *mp3 file* and associated software tools, *DJ remix software*, *loop-based sequencers* and *musical accompaniment generators*. It does not include programmes like Cubase and Sibelius which require performance skills or an understanding of traditional music notation.³

Types of readymade musical materials

In essence, the mp3 file is a compressed music track that reduces the file size of a standard compact disc track without too much loss of quality. While this may not appear too remarkable, it is this shrinking of the file that has fundamentally changed the way people personalise and interact with their music. It makes it possible to download tracks from the Internet, store them on computers and carry them around on portable mp3 players. It allows users to choose the *order* in which the music plays through the use of playlists, share their musical choices with other users on the Internet through file-sharing software, and carry entire personal collections of music in a portable format.⁴

DJ remix software is a part of the mp3 revolution, which allows for greater musical control of the material. It is modelled on the phenomenon of performance turntablism⁵ and is conceived as an interactive 'performance' with the mp3 files. Software such as 'Traktor DJ' (Native-Instruments, 2005) and 'Mixman Studio' allows the user to control and alter the music in a number of different ways. Spatial effects can be added, frequencies removed, tempos manipulated and additional sounds triggered in real time. Effects like scratching can be emulated and voiceovers and vocals added. In essence, the music can be altered to the extent that it becomes something new.

Loop-based sequencers such as GarageBand (Apple, 2005) and Fruity Loops primarily make use of 'readymade' and 'repeatable' sound slices (loops) as opposed to whole tracks of music. Typically, the software allows the user to choose the loops

from large instrumental and stylistic catalogues, and assemble them by dragging and dropping them on a grid. The loops can be repeated, layered, triggered and enhanced with a range of effects and processes. Certain versions of the software, for example Reason (Propellerhead, 2005), allow a greater degree of interaction by offering sound creation facilities and the opportunity to record and mix your own musical performances. Still others, as is the case with Ableton 'Live' (Ableton, 2005), stress the ability to interact with the sounds so, in effect, turning the computer into a performance instrument.

Musical accompaniment generators, while being somewhat to the side of digital sound processing, are nevertheless related to it. They include the 'auto-accompaniment' sections of electronic keyboards and software like 'Band in a Box'. The multi-part 'backings' in a range of musical styles are read from chords played in real time—often utilising easy 'single-finger' versions—or from typed sets of shorthand chord sequences. Such hardware and software has been around for a many years and features in many of our classrooms. However, recently there has been an increased musical realism achieved at affordable prices. In addition to these, another set of 'virtual instruments', with accompaniment-generating features, has begun to emerge. These emulate the 'authentic' sound and the playing/singing style of guitars (Steinberg, 2004), basses (Bornemark, 2005), drums (Steinberg, 2005) and voices (Yamaha, 2004).

The new technology and musical learning

One of the key questions for educators is what musical learning will take place when pupils engage in a musical activity. Up until now many of the criteria relating to effective musical learning have focused on traditional musical performance skills, knowledge and understanding (DFE, 2000). Hence it is difficult for us to evaluate musical engagement and outcomes which bypass performance and result in a range of new expressions.

Clearly, the technology does teach students something about music. For example, it offers pupils personal musical choices, often exercised in relation to musical genres. A manifestation of this is the 'playlist' of mp3 files. With free programmes such as 'iTunes' and 'Windows Media Player', pupils can rip, play, order and share their musical choices. Until recently, this was not possible as record companies controlled the choice and presentation of material on their commercial CDs. However, now pupils can 'play DJ' and share/publish their 'playlists' on the Internet. It would appear that the playlist is fast becoming an important element in the shaping of musical identity and taste. Many would acknowledge that, in terms of cultural influence, DJ personalities have changed our perceptions relating to music. As Brewster and Broughton point out:

The DJ has been with us for 94 years. In that time he has completely transformed the way music is conceived, created and consumed. By adapting music to suit his dancers he brought about dramatic stylistic changes and revolutionised the use of recording technology ... He also greatly advanced the status of recorded music—a record is no

longer a representation of some distant 'live' event, it is now the thing itself, the primary incarnation of the song. (2000, p. 22)

However, is being a DJ an educational activity? Is the 'playlist' a valid creative outcome? It is clear that many pupils, in their lives outside school, value the ability to choose, order and share their music. It allows them ownership and affords them musical identity. But the way that teachers might acknowledge this expression of musical choice, and the ways that they harness and support it in the development of pupils' musical knowledge and understanding, are still to be addressed. Nevertheless, there may be much untapped educational potential here. It could be an opportunity for music teachers to assist, support and celebrate a pupil's independent creative choices. In his book *Capturing Sound*, Katz suggests that the barriers between composer, performer and listener are breaking down. He states that 'while there has always been composer-performers—artists who interpret their own work—with recording we can conceive of listener-performers and listener-composers' (2004, p. 47).

When pupils engage with DJ remix software or loop-based sequencers, they go beyond making musical choices and working within musical genres. Their choices engage them in rhythmic structures (beats), instrumental and vocal timbres, the musical role and function of instruments, the expressive nature of sound and its placement, repetition and dynamic contrast, form and texture. This sort of musical creativity is currently being fostered in the UK by a national competition for pupils in the 11–19 age range:

The competition will offer young people the chance to demonstrate their creative music skills by writing their own 3-minute track using GarageBand, their own original input and a series of music 'loops', provided by Sony BMG artists: Kasabian, Faithless, Natasha Bedingfield, El Presidente and The Upper Room. (SoundStation, 2005)

In his report about the 'Club Dance Remix' section of the GCSE exam, the examiner expressed a view that the original input was 'minimal' and 'questionable'. Perhaps music educators now need to reassess their assumptions about originality and musical borrowing. In doing so, the debate relating to 'sharing' or 'stealing' is fundamental. It is one of the most polarising and contentious areas surrounding digital technology. In a recent article, Thomas Goetz made the case for copyright-free sharing and pointed to new organisations such as 'Creative Commons' (creativecommons, 2005), which allow artists to open their work to others, as those in the RMX'05 competition are doing. In relation to the creative process, Goetz stated 'At root, sharing and stealing music start from the same impulse: cribbing is creation. Building on what other musicians have done—with or without their blessing—is what it takes to make new music' (2004, p. 95).

Even if it is accepted that musical borrowing is a valid activity, educators must also be aware of the nature of the musical 'input' that pupils make. Only by doing so can they support and evaluate their efforts. Teachers need to be aware of the creative possibilities of the technology as well as the traditions and context of such musical

genres and styles. Its historical background—which might include toasters in Jamaica, American hip-hop musicians and dance culture DJs—suggests that it lends a voice to the disempowered and faceless ‘masses’. For music teachers, who often find themselves in culturally complex classrooms, the ability of these musical tools to cross boundaries within the context of authentic musical expression should be recognised. As Slodoba points out ‘Many school music educators have little respect or understanding for the musical lives of those they teach. (Moreover) . . . the musical enthusiasms and aspirations of many young people are not addressed in the current curriculum (2001, p. 4.2).

Musical accompaniment generators have been in the music classroom for some time in the guise of the ubiquitous electronic keyboard. These, along with more recent software, can teach pupils a lot about style, genre and instrumental role. However, they are particularly good at developing an understanding of harmonic sequence. This is not a textbook approach to the construction and voicing of chords: using auto-accompaniment produces harmonic sequence in real time and articulates it through style and genre. This is a valuable tool. Unfortunately, many music teachers do not explore this aspect of the keyboard. As Odam points out ‘keyboards are probably the most commonly found and possibly most under-used resource currently available. Their potential in aiding pupils’ work has still to be realized in many schools’ (Odam, 2002, p. 128). For many teachers, the perception still remains that it is a sort of inferior piano. Indeed, in some educational quarters, there is a deep dislike and/or distrust of electronic keyboards. Their inability to be ‘expressive’ is often cited. Salaman agrees with this and adds:

While many authors have argued passionately on behalf of singing, the percussion band, musical appreciation and much else in the past, there is an eerie silence about electronic keyboards. There is no philosophy and no Vaughan Williams or Orff has come forward to support their presence. (1997, p. 144)

While many would challenge Salaman’s assumptions—which hark back to the European tradition—he highlights the lack of a shared approach to the teaching and learning of electronic keyboards. At secondary level, through observation in schools, I have found that it is rare for teachers to ‘teach’ the auto-accompaniment section of these keyboards or make use of them in the design of their lessons. Many teachers appear unaware of the capabilities of these commonly found resources that fill their classrooms.

What does the new technology not teach?

With such music technology, there is a range of affordable and easily accessible musical tools, which could allow all pupils to engage in the creative musical process. This newfound democracy in musical creativity has been celebrated in certain quarters. Attali is optimistic about the move and sees the opportunity for all people to make music for themselves (Attali, 1985). Dertouzos, talking of art in general,

agrees and states that ‘the final dynamic the information market will bring to the creative world is the democratisation of art’ (1997, p. 154).

However, it is important to be aware of what an engagement with the technology might leave out of a pupil’s musical education. For example, educational focus could be said to be too narrow by concentrating on the use of such technology, and issues relating to different cultures, and gender may not be well served (Colley *et al.*, 1997). Above all, would it prepare pupils for music exams and university entrance? There can be little doubt that putting together a playlist, remixing a track, composing a loop-based piece, or generating a harmonic backing to a song will *not* engage pupils in musical traditional theory and notation, performance and ensemble skills, or the music of the European and other world traditions.

This gives rise to a number of questions about the nature of the music curriculum and those who teach and learn within it.

Some issues for the music curriculum

Sloboda has suggested that the articulation of the music curriculum as it currently stands does not meet the needs of society. Yet he reminds us that ‘music retains a central role in the lives of people who see themselves as ‘not musical’ and that . . . emotional self-management is at the heart of this role’ (2001, p. 4.2). This paper has suggested that teachers find it difficult to develop coherent approaches to musical creativity in generalist music education. Furthermore, they have not yet grasped the role that the new technology might play in developing authentic and relevant approaches while broadening access. Their own perceptions make it difficult for them to recognise or value such approaches. However, as Negus and Pickering remind us:

The meaning of creativity is integrally tied to changing historical processes, technologies and social conditions, and conceptions of individuals and society. It is precisely because of such connections that the attribution of ‘creative’ to a social activity or humanly produced artefact necessarily implies a value judgement. (2004, p. vii)

Hence music teachers need to rethink, redesign, develop and resource a ‘new’ music curriculum. It will have to address the assumptions inherent in our current approaches to music education, review the meaning of creativity, reassess the role of technology and address the disaffection that some pupils have for school music. A list of areas to review in future research might include the following:

- What will a music curriculum that is perceived as ‘authentic’ by the pupils include? At present, there is an assumption that a music education should encompass all types of music. An example of this is found in the English National Curriculum which states that the breadth of study should include:

a range of live and recorded music from different times and cultures including music from the British Isles, the ‘Western classical’ tradition, folk, jazz and popular genres, and by well-known composers and performers. (DFE, 2000, p. 21)

However, is ‘breadth’ appropriate or possible in certain educational contexts? Many pupils appear to have an aversion to the European classical tradition while their curriculum experience of world and popular music lacks authenticity and relevance. ‘Breadth’ can also exclude developments and approaches that incorporate the new digital technology. Is there enough time for traditional approaches alongside new developments?

- What resources will schools require to deliver a curriculum that is perceived by the pupils as ‘authentic’? It is clear that more hardware and software are required to take account of new developments in digital technology. However, if schools are to do this effectively they will have to consider class size, time allocation and the working environment. They will also have to ensure that teachers are trained in using the technology and that the technology is appropriate to the pupils’ needs. As Selwyn points out (2002), not all technological developments have enhanced teaching and learning over the last 20 years. If the new music technology is to enhance students’ musical creativity, it is essential to introduce effective technology, to support its implementation and to monitor its use and impact carefully.
- Should there be one ‘music curriculum’ or many? For many teachers, who value the qualities of traditional musical performance and still believe in the study of the European classical tradition, the idea of classrooms full of DJs may be disconcerting. However, a number of parallel music curricula already exist in schools. There is an instrumental strand, an extra-curricular strand and an examination strand. For the most part these serve small numbers of traditional performing musicians. Is there another relevant and valid curriculum strand, effectively utilising music technology, which can serve a different type of musical learner?
- What skills and musical backgrounds will music teachers need in order to deliver such a multiple music curriculum? It has been shown that certain undergraduates embarking on teacher training programmes are challenged in terms of skills and perceptions. Perhaps it is time to consider a broader source of expertise—the DJ, the rock musician, the rap artist—to enliven the musical life of our schools. Yet once again there is a need to consider a pedagogical grounding for these musicians and the way they would interface with the musical life in schools.

If music education of a generalist nature is to survive and flourish as a valid and worthwhile pursuit for pupils, then teachers will need to recognise pupils’ creative outcomes in a variety of genres, and learn to foster, develop and assess those outcomes. The new music technology may not supply all the answers to the problems posed by fostering creativity in the classroom. However, it might take teachers tantalisingly close to the musical language of their pupils’ worlds.

Notes

1. General Certificate of Secondary Education for ages 14–16 years.
2. ‘eJay’ and ‘Acid’ are loop-based sequencer software programmes which enable the assembly of pre-recorded musical loops or musical fragments.

3. It is worth pointing out that Sibelius's prominence in school music departments attests to the continuing link between music education and the notated 'text' of the European tradition. Their brand name and promotional materials focus on great composers, important conductors and prestigious seats of learning.
4. Apple's current 60GB iPod can hold 15,000 songs.
5. Turntablists are DJs who use vinyl disc records, and turntable techniques like scratching or beat juggling in the composition of original musical works.

Notes on contributor

Bill Crow is currently lecturer in music education at Goldsmiths College, University of London, where he coordinates the Music PGCE course and contributes to the undergraduate programme. He has published developed support materials and articles in the field of ICT in music for both primary and secondary school teachers. His most recent work in this area is an activity-based CDROM for the curriculum for 11–14-year-olds, published by Heinemann.

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