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In this short article I present a case for developing a new theory of music education,

arguing that advances in music technology have undermined some of the most basic

conceptual frameworks we currently possess. I describe some problems that might make

the development of a new theory difficult and suggest some ways in which they might be

overcome. My hope is that this paper will inspire people to consider the development of

such a theory.

**A curriculum development**

During his keynote address to the 2003 conference of the National Association of Music

Educators, John Paynter employed the metaphor of a shifting beam of light to describe the

process of changing knowledge and understanding. Most people, he suggested,

are happy to live out their lives in the light of established knowledge at the bright centre

of the beam, but there will always be a few who feel compelled to move away from

that comfortable existence. These are the explorers, keen to know what lies beyond

the familiar territory, in the shadows at the edge of the beam. In the course of time

their discoveries draw others in the same direction: first just a few, then more and more

until the new knowledge becomes widely accepted.

Paynter’s image can usefully be applied in understanding how curriculum development

happens and he could, with justice, have been referring to himself as one of the ‘explorers’

who was instrumental in shifting the focus of the curriculum. For the ‘Creative Music’

movement that he helped to found did establish new territory for the school music

curriculum in the UK. During a period which spanned three decades (roughly 1960 to

1983), Paynter and his colleagues helped a generation of teachers in the UK to understand

that, when freed from the necessity to follow externally imposed rules, children could work

with the raw materials of sound to create music, very much as they created paintings and

other art works. This curriculum development had a revolutionary quality; it was the subject

of fierce debate (Paynter, 1982: 179–86). Paynter’s recent conference address implied the

question, ‘How will the next curriculum development happen?’

**Technolog y- l e d developments**

Carr & Kemmis (1986) give an overview of curriculum changes in education as a whole,

and it is clear that many curriculum developments are substantially as Paynter describes.

Although inevitably the work of many people, such developments are led by influential

individuals, discontented with the status quo, powerfully articulating alternative visions of

education. Carr and Kemmis’s description of Lawrence Stenhouse’s ‘Teachers as researchers’

movement is an example of this type of development. But there are other models of

educational change. Describing the shift to the ‘practical’ view of curriculum in 1960s

America, Carr and Kemmis describe a ‘flurry’ of technological developments and explain

that what the curriculum needed (and got) was ‘an explicit theory to guide its technology’

(Carr & Kemmis, 1986: 17).

It seems to me that such is the case in music education today. In the time since Paynter’s

highly influential ‘York Project’ ended, the focus of the light seems not so much to have

moved position, as to have very considerably expanded (Green, 2001: 47). Much of this

expansion has been a result of technological developments. During the time of the creative

music ‘revolution’ outlined above, the technology in the classroom did not change a great

deal. The composition that Paynter’s work inspired tended to use either ‘found’ sounds

or classroom percussion instruments (Paynter, 1982). School sound recordings were made

on reel-to-reel tape and were edited using scissors and jointing tape (Orton, 1981). In the

mid-1980s, a popular music textbook contained a full-sized reproduction of a musical

keyboard inside the cover; the notion was that pupils would use this ‘silent’ keyboard to

locate pitches, melodies and chords (Reimer et al ., 1985). And an early textbook for the

General Certificate of Secondary Education (GCSE) suggested using books for researching

musical topics (Cain, 1988). Comparing this picture with modern sampling and editing,

the use of MIDI keyboards and the Internet, it is clear that the changes in the technology

available in the classroom have been considerable.

**Practical changes produced by new technologies**

Technological developments have brought with them practical changes in the music

curriculum as teachers have incorporated new hardware and software into their teaching.

Electronic keyboards and computers have given children a range of sounds that are often

very similar to the ones heard in popular music, making it possible to relate more closely

school music and the world outside. The ability to create music, layer by layer, to edit any

aspect of it and to play it back at virtually any tempo has meant that children are now

able to compose music that they cannot physically play (see Odam & Paterson, 2000: 19).

New technologies have enabled pupils to understand better the relationship between music

and visual images. For example, importing video files into a sequencing program such as

Cubase gives pupils the possibility of composing music for the moving image in ‘real time’,

making musical, artistic and technological decisions. And the ability to research musical

topics on the Internet requires pupils to learn research skills, such as selecting relevant

material and rejecting what is irrelevant (Crow, 2001: 159).

New technologies have also meant changes to teaching styles and the role of the

teacher. Before the ‘creative music’ developments, whole-class teaching seems to have

been the norm, and Paynter’s work was influential in effecting a shift in emphasis to group

work. Now, more and more, pupils are working either in pairs or as individuals, each with

a workstation and a set of headphones. This demands a different approach to teaching,

and also requires teachers to be technicians, performing ‘regular maintenance and careful

management of resources’ (Odam & Paterson, 2000: 35).

In addition, the new technologies have rendered public examinations in music

problematic, creating difficulties, for example, in assessing the notation of compositions

(Hodges, 2001). Sampling, sequencing and editing software have made it difficult, perhaps

impossible, to judge the extent to which pupils’ work is their own, especially when it

is done at home. This is true of composition, but also of performing, in cases when

music technology is offered in place of ‘live’ performance (see also Byrne & MacDonald,

2002).

**Theoretical changes produced by new technologies**

These practical changes are very considerable, and, what is perhaps even more important,

they have brought into question some of the most basic conceptual frameworks that have

underpinned music teaching. (This need not necessarily be the case; the use of whiteboards,

for instance, might cause a change in the way in which material is presented, without

causing more fundamental changes in what we think of as appropriate material.) In his

book A Basis for Music Education (1979), Keith Swanwick classified the core musical

activities as composing, performing and audience-listening (which he initially called

‘audition’), with literature studies and skill development in supporting roles (Swanwick,

1979). This classification had considerable influence on music teaching and is still felt in the

structure of the General Certificate of Secondary Education exam and the English National

Curriculum, in which the programmes of study list the performing, composing and listening

skills that are appropriate to particular stages of education (DfES, 1999). The importance

of Swanwick’s model for the curriculum lay in the separation of those activities which

engage people most directly with musical encounters (composing, audience-listening and

performing) from other activities. Technological developments have now rendered this

classification problematic. Programs such as Compose World (mostly used in primary

schools) and the Ejay series (mostly in secondary schools) allow children to manipulate

pre-composed sections of music, usually 1, 2 or 4 bars long. With programs such as

Propellerhead’s Reason, pupils use a virtual studio to apply post-production techniques

to whole songs which have been pre-composed. (They can also use this to enhance their

own compositions.) Using basic DJ equipment and procedures such as back-spinning

and scratching, children can ‘arrange’ recorded songs in real time; using sequencing

software, they can remix songs in different styles. None of these classroom activities can be

simply classified as composing, performing or audience-listening; neither are they primarily

concerned with skill development or literature studies.

Technological developments have thus called into question what we mean by the

terms ‘composing’, ‘performing’ and ‘audience-listening’. Does the term ‘composing’

include manipulating sound samples composed by other people? Does ‘performing’ include

entering performance parameters in ’step time’, before the sounds are heard, rather than

as they happen? And how are we to understand recording and mixing tracks – is this

simply an extension of ‘audience-listening’? What is the relationship between performer

and listener, when the performance is mediated by a computer? How are we to understand

Swanwick’s dictum ‘to care for music as discourse’ (Swanwick, 1999) when the nature of

such discourse has, in some circumstances, changed so radically? Clearly there needs to

be some redefining of terms, and an acceptance that the distinctions between terms are

more blurred than has previously been thought; but this is only the beginning – the crucial

question is, ‘To what extent do these activities provide meaningful, educational encounters

with music?’

Music technology has also called into question Swanwick and Tillman’s (1986) account

of the development of musical ability. Swanwick and Tillman’s research produced the

famous ‘spiral’ which, they suggested, might provide a suitable framework for informing

curriculum planning (Swanwick & Tillman, 1986: 335). They described how, at an early

age, children explore the qualities of sound – sound materials. As they develop, they create

music with a common vernacular, and, at some point in their teens, they tend to compose

music within specific styles. This work has influenced the National Curriculum, in which

‘composing in different genres and styles’ is described as ‘Level 6’, the expected level for

the majority of 14-year-olds (DfES, 1999: 37). How are we to understand work produced

with the help of computer programs such as Rave Ejay and Hip-Hop Ejay which enable

virtually anyone who can manipulate a mouse to create music within these styles?

At this point I should make it clear that I am in favour of using the new technologies

in teaching; I believe that they provide great benefits to the practice of music education,

especially by improving access to music (Ellis, 1997; Hodges, 2001). I welcome the fact

that new technologies help provide improved resources such as backing tracks, and allow

pupils to take their work home, e.g. via school web sites. They also enable pupils to share

their work with other people – young offenders (Savage & Challis, 2002) or people in other

countries (Seddon et al ., 2003). Mills and Murray (2000) report that pupils are ‘almost

without exception’ enthusiastic about music technology; it would be foolish not to use ICT

in our teaching. But I believe that it requires us to rethink our conceptual frameworks, the

tools we use for determining what is worthwhile. (I take for granted that it is primarily the

teacher’s job to decide this.)

In reformulating such frameworks, we won’t be starting from scratch. Hodges warns

against the dangers of seeing ICT as an end in itself, rather than as ‘a means to achieve

a musical outcome engaging aesthetic responsiveness’ (Hodges, 2001: 179). Mills and

Murray found that music technology lessons were good when the pupils worked primarily

as musicians (Mills & Murray, 2000: 140). Bray suggests that ICT helps when it enhances

creativity, makes learning easier, encourages exploration and independence and involves

appropriate learning objectives (Bray, 2000: 93). However, in my work I see some teachers

who embrace ICT wholeheartedly, sometimes to the exclusion of singing and playing

acoustic instruments (and with reason: if you’ve got 30 computers in your classroom, you

want to get good use out of them), and others who virtually ignore it. This isn’t simply a

question of money, although finances do play a part: it has more to do with the theories,

subconscious and conscious, vague or well defined, that teachers have about the value of

music technology. An adequate, overarching theory of music education that takes account

of new technologies could help to locate music technology within the curriculum as a whole.

**Some obstacl e s**

Of course, teachers are perfectly capable of developing new theories, as Carr and Kemmis

(1986) show. Unfortunately, however, the need to revise our conceptual frameworks comes

at a time when the potential for teachers to effect change has decreased. Johnson and

Hallgarten, researching into the views of UK teachers for the Institute for Public Policy

Research (an independent charity), report that, at least in England, government initiatives

are seen as diktats, and that ‘Ofsted [the inspection body] has operated as the Department’s

police, checking on whether the initiatives have been implemented as instructed’

(Johnson & Hallgarten, 2002: 5). They say:

The teachers involved in the research, while on the whole enthusiastic about their

work, felt downtrodden, stressed, overworked and undervalued. Linked to all of the

negative factors of the job *. . .*was a concern from both teachers and non-teachers

that autonomy in the classroom is being undermined *. . .* The principle of a national

curriculum was widely accepted at the time of its introduction, and has been hardly

questioned since. Yet its detailed prescription *. . .* has de-skilled teachers in the sense

that they have been discouraged from both questioning the curriculum needs of their

pupils and also developing innovative programmes. (Johnson & Hallgarten, 2002: 3–4)

The removal of autonomy leads to a lack of confidence, and there is evidence to suggest

that music teachers no longer trust their own convictions. For example, in a small survey,

Finney (2000) examined the place of singing in the curriculum. He found that most teachers

valued singing as a classroom activity, describing it as ‘an aid to aural capability’, ‘the best

way of training the ear’, and he said that ‘the pupil learning solely through an instrument

has a very poor ear’. However, many teachers were not able to give singing the prominence

it deserved: ‘[singing] has in practice a twilight existence and marginal role: teachers find

it difficult to give it the significance that they frequently claim for it’ (Finney, 2000: 203).

Finney acknowledges that many teachers’ knowledge about singing pedagogy is

‘limited’ and that, despite the benefits they see in singing, they lack the confidence to

develop this pedagogy. In a conclusion which resonates with the findings of Johnson and

Hallgarten, he says:

The current model of prescription and inspection continues to be hostile to cooperation

and joint problem solving amongst teachers. There is a tendency to look to fixed solutions. Risk, initiative and innovation are slow to flourish. (Finney, 2000: 209)

**Ways forward?**

Curriculum change is necessary if the world of the classroom is to keep pace with the world

outside. And it is also necessary to have a clearly defined theory which allows teachers to

commit themselves intellectually to the change. Inspired very largely by John Paynter, the

‘creative music’ movement revolutionised the music curriculum. In the process, however, it

created opposing groups of teachers, some of whom embraced its approach to composition

while others did not. *A Basis for Music Education* (Swanwick, 1979) helped to bridge the

gap between the groups with a theory that located composition within the music curriculum

as a whole. This is the sort of thing I believe we need with regard to music technology.

To create such a theory, to work with it and to adapt it to our individual circumstances

– to make it our own – will not be easy in the current climate, but it might be

possible. Dialogue will be essential, especially between teachers who use technology a lot

and those who use it reluctantly. ICT enthusiasts need to understand that those who are

reluctant to use music technology might not be technophobes; they might have genuine

and principled concerns, perhaps relating to certain less musical aspects of the technology.

There needs to be a greater understanding of what children, including young children,

learn from music technology. (Why is it not part of the English National Curriculum for

5–8-year-olds; what is the theory that supports this omission?) There needs to be more, and

better, professional development, so that teachers can learn from each other, as well as

from experts, how best to use music technology. And, given the current unhelpful climate

described above, we need to be aware of Pitts’s exhortation that ‘the impetus for genuine

change must come from the teacher rather than from the perceived threat of external agents’

(Pitts, 2000: 198).

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