MIDI and communality

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It is rare to see music and technology being used in combination in therapy and special education. This article is an account of work in a special school as part of a festival of popular music. The style of the music was *dance/rave*.[1] This was made accessible using a specialised range of MIDI devices to enable students with physical and learning disabilities to participate. There are many benefits to be derived from studying popular music. In special education this can help with physical coordination and social skills. Most important, young people with special needs are given access to youth cultures from which, traditionally, they have tended to be excluded.

1. INTRODUCTION

For over a decade contemporary cultural studies have explored a musical version of the two cultures debate. This has taken several forms around the synthesised-vs-natural axis, and the debate articulates a broad suspicion of music technology. This suspicion is particularly acute in the fields of therapy and special education.

It is rare to see music and technology being used in combination in either of these fields, which is surprising since they are used separately with great success in both classroom and clinical practice. One reason cited by practitioners is that performing arts tends to be seen as a group activity from which certain benefits can be derived in terms of social skills; the fear is that these might be stifled by the necessity or desire to concentrate on a machine rather than the person sitting next to you (similar arguments are levelled against computer games and their alleged tendency to create nonsocial addicts). However, there is another reason, less often cited, which is that the practitioners themselves are either afraid of the equipment required to obtain a satisfactory musical result, or simply unaware that the equipment exists.

Since 1993 I have been developing a programme of work in special schools and health and social services departments. The objectives of the programme are to explore applications of technology and music, in particular popular music, amongst young people with special educational needs, and this takes the form both of a resource and a research project. Resources consist of a pool of equipment, expertise and training available to care professionals, and a substantial part of this training contact includes demystifying youth culture as well as the technological hardware with which much of this culture is associated. Research tends to be limited by the nature of the contact. The programme operates in a reactive, rather than proactive, way; most of the work undertaken is the result of an approach from a school or institution and is tailored to a particular student group. In the last three years such groups have included the learning disabled, people with long-term depressive illnesses, hearing impaired under-sevens, and behaviourally disturbed adolescents.

In addition, the project has for the last two years provided specialist input to a popular music festival, *It's a Record*, running annually in schools in the North of England and funded jointly by the education authorities involved and the recording industry. Participating schools are invited to compose, record and devise a marketing strategy for a pop single. The project climaxes with a celebratory performance during which the recorded singles are played and the students concerned give a short presentation of their work. Our involvement has been to facilitate students in special schools in the region to participate in this project. This article is an account of how one song, *Moving On*, was written and produced at a school for children and young people with severe learning disabilities.

2. THE PROJECT

The students taking part in *It's a Record* were aged between twelve and fifteen. Severe learning disability (SLD) embraces a wide range and, out of the class of sixteen, only one member was literate, three had speech and five were independently mobile. Four members of the class had multiple disabilities. The school is not a wealthy one; it is located on the edge

[1] A style of club music established *c.* 1985 incorporating the heavy use of computer sequencers and samplers to process and remix rhythmic patterns and ostinati. The style contains a large number of sub-genres including *hard core* (tending to feature synthesised sounds), *jungle* (with a heavy counterpoint of percussion), *ambient* (atmospheric and gentle) and *ragga* (a blend of Carribean and Asian popular styles).

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of a run-down housing estate and burgled, or vandalised, on average twice a month.

Before the classroom contact began a meeting with the teacher established the style of music most popular with the class: *dance/rave*. It is particularly suitable for this type of work as its heavy use of computer sequencers and samplers makes the music accessible using a specialised range of MIDI devices. This choice also solved the potential problems of lyrics which can be encountered in special education where skills in speech and literacy may be limited. *Rave* tends to consist of fairly simple repeated phrases not unlike graffiti. Guitar-based rock, requiring more narrative lyrics, live singing, and instrumental work would have been made more difficult.

The first meeting was informal and exploratory. We mingled with a normal timetabled class, playing a background of taped dance music and at the same time learning about each of the student's particular skills and limitations. The music ranged through the various dance styles from frenetic *hard core* and *jungle* to the more gentle *ambient*. By the end of the day most of the class showed a preference for an example of *ragga* which included a variety of sound effects, and it was decided to adopt its basic four-part texture: vocals, sound effects, bass and percussion.

3. USING TECHNOLOGY

The percussion parts were recorded first. The class sat in a semicircle with teachers and helpers playing acoustic instruments familiar to them from the class cupboard. With one-to-one help and a metronome backing (a dance-style repeated bass drum) each member of the class devised his or her own simple pattern. In some cases this consisted of a succession of percussive attacks, in others this was no more than a single stroke on a drum.

Gradually each part was recorded onto a separate track of a computer sequencer. This was achieved by repeating the performance with each child having an opportunity to play their part on a MIDI controller. The choice of controller was determined by the disability. Some of the players were able to select and play percussion sounds directly using the keyboard synthesiser keys to choose a percussion instrument and tap out the rhythm they had devised. Others were given a set of MIDI drum pads and played using a hand, a beater or the electronic bass drum pedal (people with cerebral palsy often find it easier to tap their feet than coordinate their hands). Those with very limited motor skills used a device called 'MIDI Gesture'.

The MIDI Gesture device was developed as the result of a collaboration between a retailer, Dawsons Music of Warrington, England, and the Music Technology Group of the University of York. It is a small ultrasonic device with a detection range of between one and three metres. This is connected to another MIDI device, MIDI Creator,[2] which converts any detected physical movement into a MIDI signal. MIDI Gesture is capable of measuring distance; movements towards or away from the unit will be translated into a succession of MIDI signals.

MIDI Creator organises these incoming signals according to a number of preset patterns, scales, arpeggios and chords and it is thus possible to play one or more percussion sounds by waving a hand in the ultrasound beam. MIDI Creator can use any proportional or on/off controller to generate MIDI signals, and this has made it an attractive tool for people in clinical practice who commonly use switches in the implementation of a range of client tasks.

Having explored the use of a range of different MIDI controllers, the recording operation took almost a day to complete. Rigging and derigging was carried out during playtimes, but concentration amongst SLD pupils can be limited and they found having to record several takes very tedious. Nonetheless the resulting percussion patterns were rhythmically tidied using the computer editors and then combined and looped to produce the characteristic repetitions of rave.

The bass parts proved easier to record than anticipated. Two of the more able pupils had some basic computer skills; they could operate a mouse and could also pick out simple melodies on a piano keyboard. After improvising and perfecting a simple three-note bass riff in time with the percussion they entered the notes into the sequencer using MIDI step input and were shown how to introduce syncopation by dragging the displayed note heads left or right.

The backbone of the composition was now complete and a rough mix was recorded on tape for the teacher's use. There was now a two-week break in the music sessions so that words could be chosen and rehearsed with the school's speech therapist. The class teacher was keen to use the exercise as an opportunity to encourage and involve the slower speakers. The words chosen by the class were 'moving on'. The class also chose repeated sighs and choral effects triggered from synthesizer keyboards.

We decided to sample the vocalists – the teacher had doubts whether any of the class could sustain the rhythm, even of a spoken phrase, for the duration of the recording. It is never easy to obtain a clean sample: doing it in the midst of a busy school classroom is extremely difficult. However, with the key words saved to disk it was possible to experiment with different word patterns and compile a vocal part using the sampler and sequencer.

[2] Further information on MIDI Creator and MIDI Gesture is available from Dawsons Music Ltd, 65 Sankey Street, Warrington WA1 1SU, England.

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The choral effects were recorded by a small group who could vocalise but not form words. To enable them to sustain a sound a MIDI microphone was used to play sound modules and keyboards with appropriate presets. The microphone was passed round the group, each member of which had the benefit of the backing track being played on individual headphones.

The final form of the composition and the mix was devised by the two students with computer skills. The sequencing program we were using – Cubase[3] – has an easy to operate track display and a toolbox of rubbers, scissors and glue which young people find fun to use. In all, three mixes were recorded and the teacher and class chose which one would be played in the *It's a Record* presentation.

4. EVALUATION

There are many ways of evaluating *It's a Record*. The most obvious is to gauge the extent to which the end product satisfied the guidelines of the project, i.e. whether the song was commercially viable within the marketing limits set by its creators. Any project involving popular culture clearly has built into it an immediate appeal. Moreover, much music hardware and software is designed with popular music in mind; sequencers default in four bar phrases, keyboards emulate drums and bass guitars. Critics will argue that the use of technology in popular music takes the most obvious technological routes merely to gratify a teenage appetite.

This criticism fails to take into account the holistic view. The classroom value of popular music is not so much its popularity but the qualities and grammar which distinguish it from other musical styles and languages; these are set out below.

(1) Popular music is essentially a non-notated form, relying heavily upon imitation and improvisation. This unifies the three components which constitute musical study: listening, performing and composing.[4]
(2) Popular music derives much of its interest and complexity from syncopation and rhythmic counterpoint whilst its melodic structure is often pentatonic. Much can be achieved with limited instrumental skills.
(3) Much popular music is based on ostinato: literal repetition rather than motivic development and variation. The artistry lies in the accurate performance and replication of the ostinato – obtaining a good 'groove' or 'feel' – and not the unfolding of a musical discourse.
(4) In the context of education, where the process is often more valuable than the product, popular music is a group activity. There can be a rotation of roles and leaders flexible enough to accommodate the beginner and less-able student alongside the more advanced.

Point (4) expresses the 'communality' of pop referred to by cultural theorists, and this is perhaps the most important of the above points, particularly in the special school classroom where it is not only academic skills which are being taught. Wood (1983: 30) identifies a range of transferable skills. These include communication with and awareness of others, the development of important body language (for example, eye contact) and the development of social skills (sharing and turn-taking). The physical demands of music-making provide opportunities to practice hand-to-eye coordination, body awareness and orientation.

Popularity remains important. Many young people with special needs are denied access to youth culture. They tend to spend a lot of their time in the company of adults who may well be unaware of youth trends and cautious about exposing people in their care to them. Also, because of their disabilities, any direct experience – for example in nightclubs and concerts – is extremely limited.

The issue extends far beyond the question of physical access to buildings, to access to the culture itself. The social fabric of popular music-making introduces the vernacular trappings of clothing, language, attitude and fashion and the opportunity to own them and shape them.

With Punk, young people demonstrated that they could set, and, more importantly, move their own cultural goalposts. The growth of technology post-Punk has presented further challenges. The claim by Neil Tennant of the Pet Shop Boys (Rolling Stone 1988) that he did not consider it important to be able to sing or play live (nor, indeed, to be able to sing or play at all) scandalised a music industry which habitually, but covertly, uses session musicians to replace and cover the inadequacies of the promoted stars.

Both successful recording artists and young people with special needs make use of the same enabling technology to perform and compose. Tennant was merely stating an obvious feature of post-modern popular culture: technology empowers its users not only in the physical sense but in the way that musical ideas are generated and 'borrowed' with the use of samplers to create a common ownership of musical material. Young composers and performers with special needs are no longer a marginalised group but

[3] A range of MIDI sequencing and printing software manufactured by Steinberg, Billwerder Neuer Diech 228, 2000 Hamburg 26, Germany.
[4] These are identified, rather oddly, as separate entities in many examination syllabuses and in the National Curriculum of England and Wales.

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are free and able, like the Pet Shop Boys, to assert their own cultural authority.

REFERENCES

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Wood, M. 1983. *Music for Mentally Handicapped People*. London: Souvenir.

FURTHER READING

For those interested in music-making with people with special needs the most useful books are those on music therapy. However, I must stress that the work described in this article is not therapy: its only point of clinical contact was liaison with a speech therapist.

Alvin, J. 1966. *Music Therapy*. London: Stainer and Bell.
Bunt, L. 1994. *Music Therapy, an Art beyond Words*. London: Routledge.
Nordoff, P. and Robbins, C. 1971. *Therapy in Music for Handicapped Children*. London: Gollancz.

Sound Sense (19B Albert Road, Teddington, Middlesex TW11 0BD, England), the National Community Music Association of Great Britain, and its publications may be of interest. This organisation covers work by a range of people who, like myself in this context, regard themselves as community workers, rather than teachers, therapists or social workers. Its quarterly journal is *Sounding Board*.

On the question of technology and contemporary popular culture, the following may be of interest:

Beadle, J. J. 1993. *Pop Will Eat Itself*. London: Faber.
Frith, S., and Goodwin, A. (eds.). 1990. *On Record*. London: Routledge.

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