

Approaches to Composition with Music Technology in the Key Stage 3 and 4 Curriculum

Jonathan Savage (j.savage@mmu.ac.uk)

Introduction

As a high school teacher of music with a specific interest in developing creative uses of music technologies for the development of pupils' learning in music, I have often considered what the benefits of adopting a technological approach to the music curriculum might be. Some technologies enable us to carry out a variety of mundane tasks in a quicker and more efficient way; others enable us to produce 'professional' quality materials; some enable reproduction or simulation of performance contexts, etc. These uses of technology in music education seem perfectly valid and, with careful thought in regard to their application, can be educationally useful. But they are not what primarily interest me in this article.

I am interested with providing new ways for pupils to create, explore and combine sounds in ways that do not rely on the traditional skills associated with the creation and performance of music. I believe that certain technologies allow pupils to manipulate sounds in new ways, some through innovative 'virtual' environments. These technologies have the power to liberate pupils from the constraints of what have traditionally been seen as 'musical' (by which was often meant instrumental) skills, leading to a true democratisation of the music curriculum.

Curriculum Issues

I am interested in developing a 'sound-based' approach to composition with technology. This has largely been led by my interest in music of the late twentieth century, particularly that by electroacoustic composers. The use of various types of technology in these traditions has become a stimulus for me to develop a music curriculum that draws on imaginative concepts relating to the handling of sound. I am sure that it is possible to adopt such an approach to composition without music technology but, as we shall see, uses of technology in education has been an empowering influence in the work of my pupils. I believe that music technologies can become tools for the imagination when they are used in innovative and creative ways. The limiting factor in any given situation is not a piece of technology but one's creative ideas. It is possible to do creative things with simple or older technologies. At Debenham High School we do not have an unlimited budget or state-of-the-art, fully equipped studios. We are making use of numerous pieces of old technology, for example four-track porta-studios and ten year old computers. In this respect, the state

of music technology at Debenham seems to be fairly typical of most secondary schools in the United Kingdom.

What I have tried to do is plan for a progressive development of compositional skills throughout key stage three (ages 11-13) and four (ages 14-16). To assist this process, I have invested in a number of pieces of new technology which have enabled me to adopt a sound-based approach to the teaching of composition. The use of these technologies has meant that pupils can move down this road with increased speed and confidence.

I have equipped my department with four portable sound processing units. Each of these consists of a Zoom 1204 sound processor, microphone with lead, and a powered monitor speaker. This equipment is housed within a converted camera case. Before this unit of work, pupils will not have used such a piece of technology, although the majority of them are use to handling and using a microphone.



Before and after!

As with the majority of music technologies used in our classrooms, these processors were not designed for educational use. One needs to give thought to how one should present such a piece of technology to one's pupils in the context of the classroom. Ease of use is certainly an important issue. Within the camera case, each small group has everything they need to use the piece of technology effectively. The majority of the cables and connections needed to operate the equipment have been set up beforehand; wires can not go missing or be put into the wrong holes!

These technologies can work effectively in the classroom situation. Unlike so many other music technologies, they encourage pupils to work together in groups. The traditional dials on the front of the processor perform digital functions, manipulating various parameters of the sound, creating a balance between processed and unprocessed sound, etc. This encourages the pupils to play with and explore the process of digitally capturing and changing a sound in real time. The immediacy of the result is an important issue in maintaining the pupils' interest in their composition work. Certain features of the technology seem to attract the pupils' attention immediately, e.g. everyone enjoys hearing their voice glide effortlessly throughout a huge pitch range!

The unit of work that follows is an example of adopting a sound-based approach to composition with music technology taken from my Year 7 curriculum. It is the unit of work in which pupils are first introduced to the sound processing technology.

<u>Sound Processing 1</u>		
<u>Year 7 Scheme of Work (Key Stage 3): Spring 1</u>		
WEEK	MAIN LESSON AIMS	LESSON CONTENT
1	<ul style="list-style-type: none"> a. To introduce the idea of using the voice in a variety of ways as a compositional resource; b. To introduce the microphone, amplifier and sound processor as enabling technologies; c. To start a process of reflection and evaluation through the keeping of a diary. 	<p>The lesson begins with a variety of games devised to explore different types of sound that the voice can produce (10 min). The differences between consonant and vowel sounds are explored (5 min); group composition game with vowel sounds.</p> <p>A microphone is introduced and rules for its use are outlined. The microphone is passed around the circle of pupils: pupils say their names, say the consonants/vowels in their names, etc (10 min).</p> <p>The microphone is then attached to a sound processor. Within the whole class setting, pupils explore how the sound processor can change the original sounds. The idea of 'capturing' and 'changing' sounds is explored. The changes in sound are grouped under 'time-based' and 'timbre-based' headings (20 min).</p> <p>Pupils are required to keep a diary of the activities they take part in during this course. The diary questions for this week are written down in their logbooks (10 min).</p> <p>Homework: to begin the diary by answering the questions set.</p>
2	<ul style="list-style-type: none"> a. To develop the use of sound processing technologies for a creative purpose; b. To utilise vocal sounds and effects for expressive effect; c. To consider the impact of the 	<p>The lesson is a full class rehearsal and performance of a poem. The poem is normally chosen from the Year 7 poetry course. Therefore, the majority of the pupils will have a clear understanding of the poems meaning, etc. The sound processing technologies are used to enhance the poem through the use of a variety of vocal sounds. Worksheets are handed to each pupil. They are required to keep a list of instructions on the right-hand</p>

	above in the enhancing (or otherwise) the poem.	side of their sheet. (As narrators read the poem, small groups of pupils (working around 3 microphones on stands) provide a series of vocal sounds and effects. The final class performance is recorded and listened to using the Minidisc. A series of questions relating to evaluating the performance are discussed. Homework: to answer evaluation questions set on the role of voices and technologies in the class performance.
3	<ul style="list-style-type: none"> a. To develop an understanding of how a sound processor works, including input & output faders, wet/dry mix, editing facilities; b. To demonstrate and understand issues relating to the safe use of these technologies; c. To work effectively in a group with the technology. 	<p>A brief review of the previous lesson highlights the effective use of sound processing technologies in achieving an expressive end (5 min).</p> <p>Pupils are shown in more detail the sound processor, how to set it up in a simple way (basic lead connections, etc.), and instructed how to use it safely (15 min).</p> <p>Pupils are then divided into 4 groups and sent off with a series of instructions/questions to fulfil (25 min).</p> <p>The class will reconvene at the end of the lesson to share findings, answer the questions and discuss any outcomes (10 min).</p> <p>Homework: to write up the answers to the questions in exercise books.</p>
4	<ul style="list-style-type: none"> a. To hear how other composers have used these technologies for creative/expressive ends; b. To use the technologies to express the mood or emotion behind a single word; c. To develop a sense of improvisation/play with the technologies. 	<p>The lesson begins with a series of short listening excerpts (from work by Sheila Chandra, Luciano Berio and Trevor Wishart). Pupils are asked to consider and write down the ways in which they can hear the technology being used to change the vocal sounds (15 min). General points are then drawn together and listed on the board as starting points for compositional ideas (10 min).</p> <p>The composition task is introduced. Pupils have to produce a short piece based on a single word. The piece should seek to describe the mood or emotion behind that word. Pupils are encouraged to think carefully about their choice of word. An inappropriate word can make the composition task very difficult. The pupils</p>

		<p>decide upon groups. Group composition work begins (25 min). Ideas resulting from this work are written on the sheet before the end of the lesson (5 min).</p> <p>Homework: to list three ways that the group's ideas could be developed during the next lesson.</p>
5	<p>As above, plus:</p> <ol style="list-style-type: none"> To finish composition and perform it effectively; To evaluate the composing process and the performance act, identifying strengths and weaknesses; To consider the impact of the technology on the composing process, and its effectiveness in enhancing the expression of a mood or emotion. 	<p>Composition work continues from the previous lesson. Ideas are developed through a process of negotiation, each group member having thought about how the composition might progress in the homework (25 min).</p> <p>Each composition is performed to the rest of the class. Evaluation questions are discussed during the feedback sessions in-between performances (20 min). Parallels are drawn between the pupil work and the listening excerpts from the previous lesson, particularly the uses of the technology to enhance means of expression (5 min). Evaluation questions are set (5 min).</p> <p>Homework: to answer evaluation questions in form of a diary entry.</p>
6	<ol style="list-style-type: none"> To consider the relationship between sound and image; To continue work on developing interesting and effective vocal sounds through the use of sound processing technologies; To continue good group work practices in alternative 	<p>Pupils view a short piece of film (e.g. an advertisement). Techniques of composing music for film are introduced (by event, by mood). Pupils chart the development of mood and event in the film, listing main points (15 min). Pupils work in different groups to weeks 4 & 5. Composition task is to produce a piece of music to accompany the film, using voices and technologies. Pupils are encouraged to try innovative vocal techniques; the teacher gives examples. The importance of timing sound events is stressed. The contextual nature of this musical task is highlighted (10 min). Composition work continues for the duration of the lesson.</p>

	<p>groupings;</p> <p>d. To continue to develop skills in using sound processing technologies.</p>	<p>Pupils note summary of ideas before the end of the lesson.</p> <p>Homework: to list three ways that the group's ideas could be developed during the next lesson.</p>
7	<p>As above, plus:</p> <p>a. To perform compositions alongside the film, appreciating the problems of synchronising events;</p> <p>b. To develop an understanding of the work of a film/advert composer;</p> <p>c. To draw final list of conclusions relating to the effectiveness of these technologies in the development of musical ideas.</p>	<p>Composition work continues in light of the work done during the previous homework task. As in week 5, pupils have to negotiate with each other regarding their ideas for how the piece might develop. Final decisions are made, and groups have the opportunity to practice their composition with the film prior to final class performances (30 min).</p> <p>Final class performances alongside the film. Compositions are assessed and discussed (20 min). Questions particularly relate to (c).</p> <p>Pupils are encouraged to think of the technologies as tools for their creative ideas, rather than an end in themselves (10 min).</p>

Key Issues and Starting Points

There are a number of key issues or starting points that seem important in developing a sound-based approach to composition through the use of sound processing technologies.

Firstly, the voice is as natural a starting point as one can get when working with these technologies. The pupils respond well to the challenge of using their voices in new ways. The use of a microphone, sound processor and speaker is particularly beneficial in encouraging pupils to improvise with their voices. As one teacher I observed recently commented:

It has been noticeable that kids who are normally quite reticent have been more forthcoming because the sound is perceived as being outside them and therefore not so threatening.

It divorces sound from its source which has the effect of causing more focus being applied to the sound rather than what created it, great for appraisal. ...

Again, it is down to the measure of control that it affords the child, they can do what they want and are not so hampered by lack of expertise, which they experience when playing in more traditional ways.¹

In a similar way, year 10 pupils from Debenham High School have made similar points. Talking to them after two sessions of using the sound processor, they commented on a number of things: their ability to produce good, atmospheric sounds; the facilitating nature of the technology to experiment and improvise; the 'wider view' that it gave their compositional ideas. A male pupil from the group commented on how the sound processor gave him confidence to try things out with his voice. He saw the process by which the processor 'captured' the sound of his voice and then changed it (to a greater or lesser extent) as ameliorating his initial embarrassment when using his voice as a sound source for improvisation and composition.

In deliberately choosing to use voices as the source for compositional material, pupils are not able to rely upon traditional instrumental skills or approaches to composition they may have utilised in previous work. They are forced into what they see initially as a rather insecure and exposed environment. As the above quotations show, the technology provides them with the handle they need to put together sounds creatively and confidently. The use of this technology is intrinsic to the success of the unit of work.

Secondly, simple group games can encourage a natural and intuitive approach to the producing, combining and appraising of vocal sounds. I have found myself adopting strategies learnt from community music workshops; the use of certain exercises from John Stevens's book *Search and Reflect* (Stevens, 1985) have also been useful as a way of challenging pupils' perceptions regarding appropriate compositional techniques and materials. Pupils can be made aware of what a powerful and flexible resource their voices can be through imaginative vocal games with the whole class or in smaller groupings.

Thirdly, pupils are encouraged to record their compositions as often as possible. A portable mini-disc recorder is made available for them during each lesson for this purpose. Pupils record their compositions as 'works-in-progress' and can then listen to them, analysing and evaluating their work constructively as part of a compositional process. It is important to place ownership of this procedure in the hands of the pupils. Teachers often record pupils' work for assessment or posterity; in this scenario, pupils recording and evaluating an incomplete composition becomes an integrated part of their working practice.

One electroacoustic composer I have spoken to recently discussed a systematic cycle of selecting and editing musical materials. He suggested that recording oneself improvising was an essential component in seeking to achieve this. Incorporating the recording of pupils' improvising as part of compositional practice has proved most

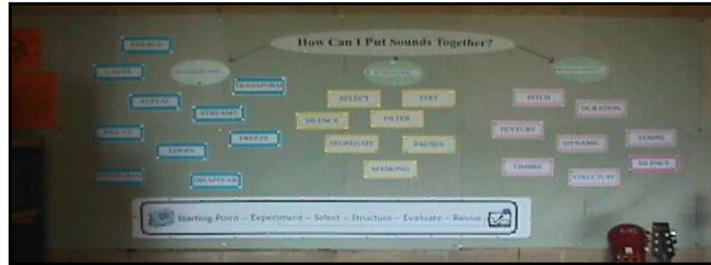
¹ Comment in a recent email (5/6/99) from Liz Marshall (Key Stage 1 Special Educational Needs Co-ordinator), Almondbury Church of England Infant and Nursery School. (Used with permission).

useful. Pupils are easily able to select and refine their ideas within this context. The pressure to 'remember' what they played is mitigated; they have the opportunity for spontaneous and creative play.

Finally, a structured but simple approach to evaluation is a key ingredient of this unit of work. Pupils are taught how to evaluate their work in response to a simple list of questions from the very start of their time at Debenham High School. During this unit of work, pupils are required to keep a diary of their activities in lessons. Each lesson ends in a series of questions designed to assist the pupils with this task (see below). My central research methodology during the past two years has been that of action research and naturalistic evaluation. A critical cyclical process of analysis and reflection is a key step in this methodology (Savage 1999). Some work has been done to encourage pupils to adopt these methodologies as they analyse their own learning and experiences. Equipping and empowering pupils with the skills and knowledge necessary to carry out action research projects is an exciting new area and application of this research². Within the music curriculum we have an exciting opportunity to develop some of these research and evaluation techniques in our pupils. Thinking of innovative ways to encourage pupils to evaluate, and make revisions on, their work should be a vital part of their compositional process.

² Some work has been done in Australian schools. For example, see 'Students as action researchers: partnerships for social justice' pp.114-138 in Atweh, B., Kemmis, S. & Weeks, P. (1998).

An Integrated Model for Composition

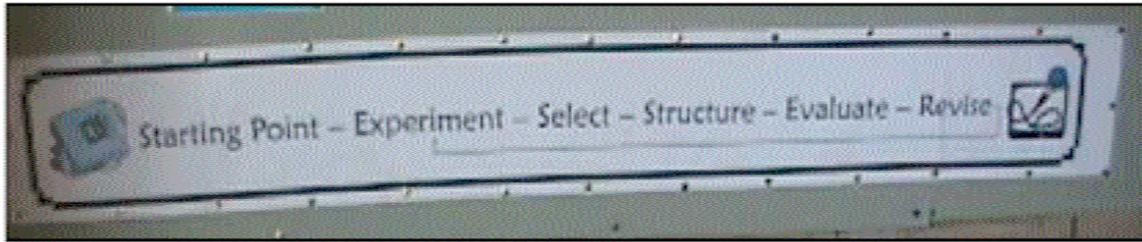


Throughout the whole of key stages three and four I am trying to develop ways of allowing pupils to create and manipulate sounds in interesting ways. The sonic, or electroacoustic, approach outlined in this article is an example of one way I have tried to do this. To assist my pupils in these tasks, I have devised a wall display to encourage them towards a more holistic view of musical practice. This work owes a significant amount to work done by Dr Waters and his 'Keywords: a toolbox of productive metaphors' (Waters 1994, pp.73-97)). Reflecting on his work, and drawing on conversations with electroacoustic composers, the chart displays what could be called a series of compositional metaphors. These are illustrated together with the elements of music under the overarching question, "How can I put sounds together?" Each metaphor is situated around a group heading ('By connecting' and 'By reducing') and can be used as a stimulus for a compositional task, with or without technology.



As pupils accumulate a variety of compositional tools from this selection (and often they come up with new ideas which we have to add to it!), so their means of expression is increased. Pupils begin to use combinations of these metaphors as they attempt larger compositional tasks. I will often make explicit reference to these metaphors in all types of musical tasks (not just the compositional ones). For example, the metaphors can become interesting starting points for critical listening tasks.

Alongside the metaphors I have included one example of a process by which a composition task might be completed.



The banner depicts a six-stage process, the last five stages of which become cyclical. From the very beginning of their music education at Debenham High School, pupils are introduced to this process. During the first term's scheme of work in Year 7 I introduce the pupils to each individual stage. We consider why each step is important in the completion of a composition task. Particular attention is paid to the experimenting (what we might call improvisation, and what the pupils might call 'playing' or 'doodling'), and the evaluation stages. All pupils have a list of evaluation questions in their exercise books. A typical music homework would be to answer a selection of these questions in relation to the work done in that particular lesson. Questions on the list include:

- Briefly describe what you were asked to do.
- How well do you feel that you followed the instructions that you were given?
- Did you have any particular difficulties?
- If so, how did you sort them out?
- Did anything go really well?
- If so, try and think why they did.
- Are you pleased with your finished composition? List three ways that it could be improved further.
- If you had to do this work again, would you do anything different? If so, what?
- Did you enjoy this work? Why or why not?

The final part of this wall chart is the 'elements of music'.



The idea of 'elements of music' has become a common teaching approach during recent years. Developing pupils' performance, composition and listening/appraising skills through a consideration of the 'elements of music' has been an important feature of the previous National Curriculum documentation (DfEE 1995).

Under the old regime, pupils were expected to show a clear progression in learning in relation to each musical element through each of the key stages. The following table shows a summary of statements relating to their expected learning:

<u>Element</u>	<u>Key Stage 1</u> (QCA 1998)	<u>Key Stage 2</u> (QCA 1998)	<u>Key Stage 3</u> (DfEE 1995)
Pitch	<i>higher/lower</i>	<i>including melody</i>	<i>various scales and modes</i>
Dynamics	<i>louder/quieter</i>	<i>different levels of volume</i>	<i>subtle differences in volumes including balancing parts</i>
Duration	<i>longer/shorter a sense of pulse</i>	<i>a sense of rhythm groups of beats</i>	<i>syncopation</i>
Tempo	<i>faster/slower</i>	<i>different speeds</i>	<i>subtle differences in speed including rubato</i>
Timbre	<i>qualities of sound</i>	<i>qualities of sound</i>	<i>different ways in which timbre is changed</i>
Texture	<i>several sounds at the same time</i>	<i>combinations of sounds</i>	<i>density and transparency of instrumentation, polyphony, harmony</i>
Structure	<i>repetition of simple patterns</i>	<i>organisation of sounds</i>	<i>forms based on single or alternating ideas (e.g. riffs, rondo, ternary, variation)</i>

In contrast, the United States of America K-12 National Standards³ do not treat the 'elements of music' with such a high degree of regulation and specificity. The following are considered 'elements' of music: pitch, rhythm, harmony, dynamics, timbre, texture and form. The term is mentioned in a number of the criteria for Grades 5-8 (our Key Stage 2 -3 boundary) including the following statements:

Students will compose short pieces within specified guidelines, demonstrating how the elements of music are used to achieve unity and variety, tension and release, and balance;

Students will analyse the uses of elements in music in aural examples representing diverse genres and cultures.

In Grades 9 -12 (our Key Stage 3 -4 boundary):

Students will compose music in several distinct styles, demonstrating creativity in using the elements of music for expressive effect;

Students will analyse aural examples of a varied repertoire of music, representing diverse genres and cultures, by describing the uses of elements of music and expressive devices.

However, in both curricula there may well be a number of problems with placing too much emphasis on the concept of 'elements of music'. During the recent consultation on Curriculum 2000 (ATL 1999a, p.46), a number of teachers commented that:

There is abundant evidence that the use of the concept has resulted in a fragmented and atomistic curriculum in key stage 3 in many secondary schools.

The composition and curriculum model I am presenting in this article include a consideration of the elements of music alongside a number of other ideas and concepts. In doing this I hope to avoid the compartmental nature of a music curriculum built too largely around what could be considered artificial constructs. The United Kingdom's new National Curriculum for Music (DfEE/QCA 1999) retains the phrase 'elements of music'. It charts a vague progression within section 4b from 'organising and using expressively' (Key Stage 1) to 'the expressive use musical elements, devices, tonalities and structures' (Key Stage 3). It does, however, stress a cohesive approach to considering the musical elements. Statements in both Key Stage's 1 and 2 mention the '*combined* music elements of pitch, duration,' etc.

Used in conjunction with other compositional metaphors and concepts, a cohesive model for teaching composition with technology emerges. The wall display encourages pupils to consider composition in a variety of ways. The terminology it presents:

³ These can be accessed online through <http://www.menc.org/publications/books/prek12st.html>.

- Become 'handles' for compositional ideas;
- Become 'questions' for developing ideas;
- Become 'criteria' for assessing ideas;
- Become 'starting points' when evaluating ideas.

Conclusion

The conclusions I have drawn relate what one could consider strategies for the development of effective teaching with points relating to the creative use of technologies in the teaching of composition. Working these generalised statements out in practice is the never-ending challenge for a teacher.

Recent material written by the local education authority in Suffolk presents a clear picture of what is considered effective teaching. Teachers should:

- Prepare teaching programmes which ensure continuity and progression;
- Communicate clearly the content of the subject;
- Question pupils effectively, respond and support their discussion and questioning;
- Communicate clear objectives for each lesson to the pupils;
- Communicate expectations to the pupils;
- Ensure that appropriate assessment is built into our planning;
- Focus on pupil learning in our planning;
- Check that our planning promotes continuity and progression.

As I have discussed above, the use of ICT in music education present us with the opportunity to radically change our teaching strategies and practices in relation to the teaching of composition. Such changes are never easy, but I believe that the results are worth the energy and effort. It is important to consider the impact that these technologies will have on our own concept and ideas about music education. Old assessment and evaluatory procedures, for example, may not be appropriate in the light of the use of new technologies in the classroom. A redefinition of what is meant by a 'creative idea', and a 'compositional skill' is required, and the incorporation of computer technology in our classrooms will have implications for the traditionally strong group-work orientated approach to composition in these key stages. The very nature of education and learning is called into question when we adopt new technologies Things will not be able to stay the same. As Professor Stephen Heppell (ATL 1999b, p.22) has commented recently:

It would be a travesty and a betrayal of our role if we attempted to harness these new creative tools to deliver the tick-box homogeneity of the old teaching machine.

What I have presented in this article is an example of an alternative approach to the use of technology in music education which, whilst drawing on the strengths of traditional classroom practice in English classrooms, remains faithful to the aspiration of effective teaching outlined in the Suffolk LEA material.

OFSTED (OFSTED 1999) urge us to:

- Create a sense of purpose when exploring music;
- Ensure that pupils reflect on and evaluate their performances and compositions;
- Encourage pupils to use their musical imagination;
- Teach music within a practical musical context, helping pupils to develop and apply their musical knowledge when performing and composing.

I believe that this is valuable advice. As we seek to incorporate and apply new technologies with music education we should remember these words. The teaching of composition should be purposeful and imaginative, allowing the pupils opportunities to apply their musical knowledge, and give them space for reflection and evaluation. In a similar way, purposefulness, imagination, reflection and evaluation should be the hallmarks of our approach as we seek to develop new uses of technologies in educational practice.

Bibliography

- Association of Teachers and Lecturers (ATL) (1999a) *The Review of the National Curriculum in England: Response to QCA/DfEE Consultation* London, ATL.
- ATL (1999b) *Report 22/3* London, ATL.
- Atweh, B., Kemmis, S. & Weeks, P. (1998) *Action Research in Practice: Partnerships for social justice in education* London, Routledge.
- BECTa (1998) *Music Technology in Action* Coventry, BECTa.
- DfEE (1995) *National Curriculum for Music: Key Stage 3 Programme of Study* London, DfEE.
- DfEE & QCA (1999) *The National Curriculum for England: Music* London, DfEE & QCA. (Available at <http://www.nc.uk.net>)
- Elliott, John (1991) *Action Research for Educational Change* Milton Keynes: Open University Press.
- Eisner, Elliot (1985) *The Art of Educational Evaluation* London, The Falmer Press.
- Kushner, Saville (1989) *Working Dreams: Innovation in a Conservatoire* Norwich, CARE.
- Kushner, Saville (1991) *The Children's Music Book: Performing Musicians in Schools* London, Calouste Gulbenkian Foundation.
- Kushner, Saville (1992) *The Arts, Education and Evaluation: an introductory pack with practical exercises* Norwich, Centre for Applied Research in Education (CARE).
- OFSTED (1999) *Supplementary Materials - Music* London, OFSTED.
- QCA (1998) *Maintaining Breadth and Balance at Key Stages 1 and 2* London, QCA.
- Savage, Jonathan (1999) 'Establishing an Effective Model for the Evaluation of Music Technologies' (Unpublished paper available from the author).
- Somekh, Bridget & Davis, Niki (eds.) (1997) *Using Information Technology Effectively in Teaching and Learning* Routledge, London
- Stevens, John (1985) *Search and Reflect* London, BP/Community Music.
- Treacher, Veronica (ed.) (1989) *Classroom Issues in Assessment and Evaluation in the Arts* Reading, Berkshire LEA.
- Treacher, Veronica (ed.) (1992) *Behind the Debate: The Impact of the National Curriculum on Arts Teaching* Reading, Berkshire LEA.
- Waters, Dr Simon (1994) *Living Without Boundaries* Bath, Bath College of Higher Education Press.
- Wishart, Trevor (1996) *On Sonic Art* Amsterdam, Harwood Academic Publishers.