

ASSOCIATION OF MUSIC EDUCATION LECTURERS

PROCEEDINGS OF XIVTH ANNUAL CONFERENCE

**THE TRANSFORMATION OF MUSIC PRAXIS:
CHALLENGES FOR ARTS EDUCATION**

**27 - 29 SEPTEMBER, 1992
WYNYARD TRAVELODGE
SYDNEY**

THEMES:

**PHILOSOPHY
POLITICS
HISTORY
TECHNOLOGY
CREATIVE PROCESSES
LEARNING STYLES
TEACHING PRACTICE**

Vanda Weidenbach

Jean Callaghan

(Editors)

Copyright © 1993 Association of Music Education Lecturers

**Printed by University of Western Sydney, Nepean Press
Kingswood NSW Australia.**

**Weidenbach, Vanda & Callaghan, Jean (Eds) (1993) The Transformation of Music
Praxis: Challenges for Arts Education. Proceedings of the XVIth Annual Conference of the
Association of Music Education Lecturers. Sydney. September 1992**

ISBN 0 646 13895 2

CONTENTS

		Page
Keynote Speaker	Professor Jillian Maling	1-9
Barrett, Margaret	Music Learning Centres in the K-6 Generalist Classroom	10-23
Biddis, Carol	Gee-Whizz is Not te Only Response: A review of some education journal articles on music technology	24-45
Burtenshaw, Len	Demonstration - Multimedia Functions in Soundscope II and the Mozart Software Programs	46-57
Burtenshaw, Len	Video Conferencing	58-68
Callaghan, Jean	Science, Art and Vocal Pedagogy: A research design to investigate the relationship between scientific understandings of voice and current practice in the teaching of singing	69-78
Dunbar-Hall, Peter	An Etic and Emic Model for Teaching Popular Music	79-95
Franklin, Gavin	Improvisation? Who needs it?	96-103
Giddens, Micheal	The Role of the Body in Computer Music Education	104-116
Gifford, Edward	Frills, Skills and Dills for Australia: Developments in Post-compulsory Education and Training - Implications for Education in the 1990s	117-140
Gifford, Edward	Music Types & Tiger Stripes: Learning styles as an important factor in music teaching and learning	141-160
Greig, Robbie	Understanding New Age' Music	161-172

Horn, Kipps	Music Education and the New Right	173-186
Keane, Robert	Music for the 'Deaf'! On the failure of current practices in theoretical and aural training	187-196
Macmillan, Maree	Feminist Musicology and Music Education	197-213
McPherson, Gary	Assessing Creativity Through Improvisation	214-227
Reeder, Max	A Comparative Review of Informal Environments and Influences for the Observation of Creative Processes and Products in Young Children aged 3-9 years. The implications for programme planning are outlined	228-237
Russell-Bowie, Deidre	Given the Cuts, What Now?	238-254
Smith, Rosalynd	Music Education in Japanese Schools	255-268
Southcott, Jane	Martial Strains	269-286
Stevens, Robin	The Use of Hyper-card as a Medium for Off-Campus Teaching Music: Implications for Future Music Education Practice	287-302
van Ernst, Barbara	A Study of the Learning and Teaching Processes of Non-naive Music Students Engaged in Composition	303-327
van Ernst, Barbara	Towards a Model for Developing Teacher Confidence	328-335
Weidenbach, Vanda	Research in Music Education : Caught in a twelve tone row and lost in retrograde inversion	336-345
Wojtowicz, Amanda	Women and Administration	346-350

The shaping of Education in the Nineties

Professor Jillian M. Maling

Anyone working in education in Australia in the past few years has been hit by and had to adjust to a constant pace of change. Sometimes we wish it would go away, at others we wonder when it will stop. In this paper I want to argue that the pace will not slow nor will the change stop as what is occurring is a fundamental restructuring of education from its earliest years in child care and preschool through to its highest levels in the doctoral programs of our most distinguished Universities.

Why will it not stop. There are many reasons but the ones I am drawing attention to here is that the process is part of the restructuring of Australia. That in turn is part of a world wide movement signalled most dramatically by the crumbling of the Berlin Wall, by the changes in the Eastern block, by the reconfiguration of Russia and the other members of the the former USSR. A key impetus in each case is the disappearance of jobs - ones which often started the those leaving high school on their lifelong careers; the shift to a society - not just an economy which is served, driven and shaped by information. There are other factors. No doubt you have heard Carmichael listing them as he has stomped his way round this country gaining support for his Advanced skills certificate. They include the need for us to find new ways of working and living together. Working in terms; using initiative, finding ways of doing things better (not just more productively important though that is and the recognition that a workforce requiring initiative and enterprise is hardly best organized in terms of workers and supervisors. It is built on teams. In turn all of us who are working and living in the latter stages of this century are constantly having to unlearn, relearn and absorb entirely new ideas, skills, and ways of working. some of us talked years ago about lifelong learning. It is now a reality for anyone living in Australia and in most other places in the world. Without it we cannot solve the problems of the ozone layer, further develop our cultural and artistic heritage and create a world rich in harmony and diversity for the next generations.

In Australia that process of restructuring was signalled, symbolically enough, with a report of the ACTU delegation which visited a number of overseas countries (and had among its number Laurie Carmichael) entitled Australia Reconstructed. The outcomes of that Report have become much of the government agenda in the years since its publication in 1986. At the time few of us in education noticed it: after all we did not see the workforce needs of Australia in the next century as shaping in a direct and immediate fashion our working lives and those of colleagues. But it is that Report which is the

genesis of the Australian Standards Framework established by the National Training Board. That framework was the key background document to Brian Finn's Review of the Education and Training of 16 to 19 year olds and so in turn to Eric Mayer's Committee with its goal of developing a Competency framework for Australian Schools.

The Australian Standards Framework may be summed up as follows:

The National Training Board (') developed an Australian Standards Framework of eight competency levels. These serve as reference points for the development and recognition of competency standards (NTB, 1991: 11) The ASF descriptors, published in 1991, are currently under review.

- Level 1:** Competent, operative or service sector worker
 - Level 2:** An advanced operative or service sector worker
 - Level 3:** A competent skilled, autonomous worker
 - Level 4:** An advanced skill autonomous worker
 - Level 5:** A competent administrator specialist, technologist or paraprofessional
 - Level 6:** A competent senior administrator, specialist, technologist or paraprofessional
 - Level 7:** A competent professional or manager
 - Level 8:** A competent senior professional or manager
- NB: Levels 7 and 8 are seen as relating to university graduates

You will notice that the Framework competencies are broad, they are also work related - perhaps defining work too narrowly for the inclusion of the broad diversity of the Arts.

In the process of developing the Standards Framework the issues relating to the Education and Training of those who had completed compulsory schooling became central. The ideas of the Finn Report are now well known. Many of them are in process of being implemented in ways that are reshaping the whole of the education and training system. I have only selected two for brief attention here. the first is the ongoing process of the Mayer Committee.

One sign of the change to education is the composition of that Committee:

The Mayer Committee is chaired by Mr. Eric Mayer, Chair of the Business/Higher Education Round Table and former Chief Executive Officer of National Mutual. Other members of the Committee include representatives of the AV-CC, Commonwealth, State and Territory Employment, Education and Training departments and boards, members of industry and unions.

You will note that none of the professional Education Associations are represented. The same was true of the Finn committee.

Mayer's Competency strands have undergone some significant changes since the initial set of proposals in May of this year. The revised set are as follows:

- Collecting, analysing and organising ideas and information – focusing on processes for gathering, evaluating and presenting ideas and information.
- Expressing ideas and information – the focusing on the capacity to use a range of forms of communication - oral, written and graphic - to communicate ideas and information effectively.
- Planning and organising activities – focusing on planning, organisation and self-management
- Working with others and in teams – focusing on processes such as setting common goals, allocating tasks, monitoring achievement of goals
- Using mathematical ideas and techniques – focusing on the capacity to select, apply and use mathematical ideas and techniques
- Solving problems, including identifying and framing the nature of the problems and devising suitable strategies or response

- Using technology – the capacity to use technology processes, systems, equipment and materials, and the capacity to transfer knowledge and skills to new situations

(Mayer, 1992: 8)

You will no doubt have noted that there is in them no specific mention of the Arts let alone music, unless one argues that the competency relating to expressing ideas and information can be interpreted to include the work of artists. On the other hand, mathematics is mentioned and has a whole competency reserved to it as does the use of technology.

The outcome of the Mayer Committee will undoubtedly impact on schools throughout the country. For example, each competency is to have three performance levels:

OHP

with the emphasis on establishing national reports on standards acquired by school leavers and equivalent students. It is that emphasis on assessment and the linking of the work of the Mayer Committee to assessment which gives its ideas the potential for enormous impact on the way we teach and learn and what we teach and learn. We all know the way the AMEB examinations have shaped music in this country. In NSW we are all aware of the way the HSC shapes not only the learning and teaching of years 11 and 12 but much of what is undertaken in the preceding years of schooling. Assessment is a powerful device. Control of assessment is to a real degree the control of education (or training).

One of the other factors presently shaping the national scene in education is the sequence of events that started with the Ministers' of Education announcing at the Hobart Conference the agreed National Goals for Education. The work since then has focussed on the translation of these into a number of national curriculum statements in eight key learning areas of the primary and secondary school curriculum. The eight areas are the Arts, English, Health, LOTE, Mathematics, Science, Studies of Society and the Environment and Technology. Perhaps the one which has drawn most attention to date has been that in Mathematics, but the development of the National Curriculum Statement and Profile for the Arts is now underway.

The brief was developed by Drs Lee Emery and Geoff Hammond of the University of Melbourne's Institute of Education and submitted to the Arts Steering Committee of CURASS on June 18 1992. Some of you may have seen the advertisement calling for tenders for the next stage of development which appeared in the newspapers two to three weeks ago. the task is to be completed by the middle of next year.

The Statement in the Brief identifies several arts strands:

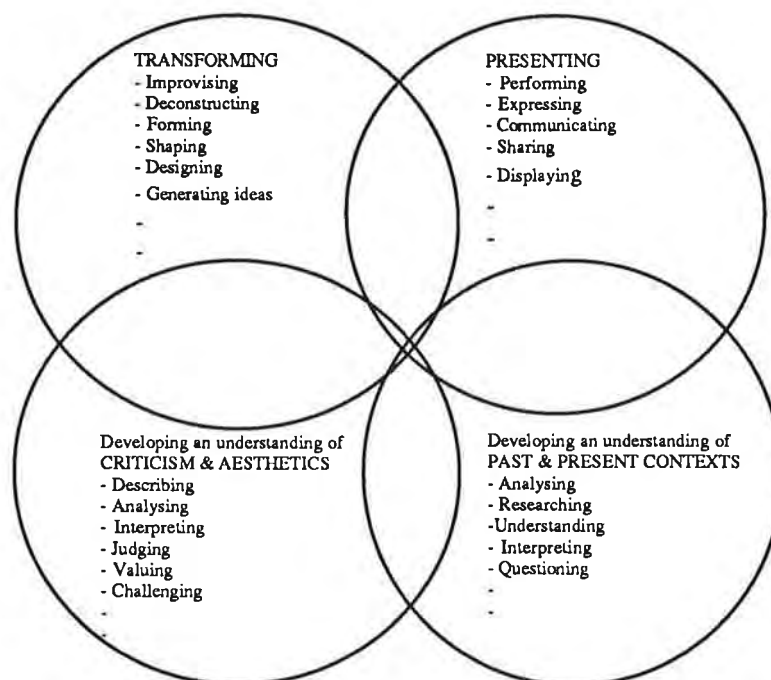
Art and Design
Dance
Drama
Media
Music

While acknowledging that that the five strands "are not always presented as separate entities" (6.2), the Brief also insists that "the arts strands are distinctive arts forms and the experience in working in one arts form cannot substitute for experience in any other." (6.4)

The document defines the major aspects of the music strand as a curriculum area

- The study of music as an aural art form which involves manipulation of sound yet also, in presentation, draws on visual, kinaesthetic and enactive processes.
- Developing appropriate skills and techniques in composition, performance and listening.
- Making music alone and with others.
- Becoming acquainted with diverse styles and genres of music.
- Support for and understanding of the musical life of the community.
- Understanding music as an area of employment and professional endeavour.
- Understanding the links between music and other art forms and also with other areas of the curriculum;

and recognizes four interrelated components of music in terms of transforming, presenting, developing an understanding of criticism and aesthetics as well as of past and present contexts:



It goes on to define the kinds of learning outcomes the curriculum statement will set out, the pointers to attainment at particular levels and the exemplars of achievement that will be expected of each student at a particular level and the general competencies that students will acquire in and through the Arts (section 11).

The document follows the trend of recent years to group curriculum into learning areas rather than into the separate disciplines. There are similar developments in most States. IN NSW, for example, we have the k - 12 curriculum grouped into key learning Areas with Music featuring as one of three parts in the KLA Creative Arts. The other two are Dance and Drama. Such groupings represent a challenge to Music's traditional autonomy while offering opportunities for working collaboratively in the Arts and also potentially at least for promotions to Head teacher of those in small subject areas. The changes also offer a challenge to those engaged in the education and training of teachers whether at pre or post service levels as the Minister in this State is making it clear that courses need to address the KLAs rather than the traditionally separate disciplines. The outcome of that process is still unclear.

The list of those organizations consulted in the process of developing the brief certainly suggests that teachers and professional organizations were closely involved. (Some indication of where in the total process the professional voice is able to be heard - or at least voiced. But those handling development report to CURASS, currently chaired by the NSW Director General. CURASS in turn reports to the AEC so the line of Ministerial and therefore political control of the process is clearly defined and maintained. In fact that direct political control of education by Ministers and parties is a feature of the restructuring as is the shift to a group of players which while diverse in its membership is not characterized at the national level by the participation of educators and their professional organizations. Key players in the restructuring and shaping are:

- Ministers of vocational, education, employment and training (M.O.V.E.E.T.)
- National Training Board (N.T.B.), a company limited by guarantee, owned by the Commonwealth, State and Territory ministers of vocational education, employment and training
- The National Office of Overseas Skills' Recognition (N.O.O.S.R.), a branch of the Commonwealth Department of Employment, Education and Training (D.E.E.T.)
- Confederation of Australian Industry (C.A.I.), peak industry body and represented on the Vocational Education, Employment and Training Advisory Committee
- The Mayer Committee on Employment - Related Key Competencies - established jointly by M.O.V.E.E.T. and the Australian Education Council (A.E.C.)
- The Australian Vice-Chancellors Committee (AV-CC)
- Higher Educational Council (HEC), a Council of the National Board of Employment, Education and Training (NBEET), which is an advisory body to the Commonwealth Minister of Vocational Employment, Education and Training

One of the reasons why the professional bodies in education have been able to be largely ignored is that there are so many and they are so fragmented. In looking after and finding expression of our various specializations in a range of organizations we have ourselves created a situation where we are largely voiceless in the process of change. What voice there is operates at the level of the Curriculum Statements but they have already been shaped and defined by the agenda of the key players noted above.

There is one further aspect of the shaping process to which I want to draw attention and that relates on the one hand to the efforts now being made to define various professional groups in terms of the Australian Standards Framework. Professions currently under consideration include:

Accountancy, Agricultural Science, Architecture, Chiropractic / Osteopathy, Dietetics, Engineering, Medical Scientists, Medical Radiation Science, Nursing, Occupational Therapy, Optometry, Pharmacy, Physiotherapy, Podiatry, Psychology, Social Work / Welfare, Speech Pathology, and Veterinary Science

Teaching is also in the initial stages with tenders having been called for the initial exploration of the development of a competency framework for the profession. That in turn will impact on teacher educators - a point that is clearly made in the Discussion paper on Teacher Education released last week by the Department of Employment Education and Training. That paper also raises a number of other issues with respect to teacher education:

- the oversupply of teachers in several States with an indication that given the cost of initial teacher preparation the government does not intend to continue funding that oversupply;
- the effectiveness of processes of teacher education which see it largely conducted away from the work places of teachers;
- the extent to which post graduate courses for teachers genuinely address the needs of the profession rather than the interests of university staff;

- the extent to which teacher educators whose experience of the classroom is largely vicarious or confined to brief visits to schools are adequately equipped to continue educating teachers at either initial or postgraduate levels.

I would like to conclude by arguing that these are issues not just for the Deans of Teacher Education Faculties nor for Vice Chancellors but for each member of the profession and each professional organization. We all know that projections of over and undersupply of teachers in this country have frequently been out partly because there are not variations from State to State but regions to region within State and in the case of Music form subject to subject. (Recently when I was in Melbourne I was informed that while the overall supply there is about 13 % , there is still a demand for music teachers which is not being met) We do have to work out our position on each of these issues raised: is our experience of the classroom work of teachers or of principals and their deputies sufficient to give us a working knowledge of their professional situation? Many principals and teachers would say No. Do our courses address their professional needs or our own? How do we know? One way or another there is a need to articulate responses to the matters being raised and to join in the shaping process. If we do not the change process will continue without the benefit of professional insight.

Thank you.

Margaret Barrett
Lecturer in Music Education
University of Tasmania at Launceston
PO Box 1214
Launceston, 7250
Tasmania.

MUSIC LEARNING CENTRES IN THE K-6 GENERALIST CLASSROOM

Incorporating music learning experiences into the generalist classroom program (Kindergarten - Grade 6) may be considered a daunting prospect for the classroom teacher. Factors such as perceived lack of experience and skill on the part of the classroom teacher are further compounded by aspects of the physical setting in the classroom. Too often extra-musical factors such as space, availability of equipment, noise level within the classroom and the prospect of disrupting other class groups nearby contribute to the decision to avoid music learning experiences within the classroom.

Is it necessary to consider music learning experiences always as a whole group activity, to be engaged in by all children concurrently? Whilst the social and musical benefits of large group music making are obvious it should be remembered that as adults, much of our engagement with music is of a private and individual nature. Unless in a concert situation, we tend to listen to music alone or in small groups. Composing music is essentially an individual activity and much of our practising time is spent in isolation.

By designing a classroom music program which incorporates the use of learning centres many of the classroom management problems identified above may be addressed. In addition, the classroom teacher may develop a music program in which the musical needs of individual children may be more effectively and efficiently accommodated whilst acknowledging the private and individual nature of much music experience.

This paper contains a description of music learning centres in operation in the K-6 classroom setting and provides some discussion of the benefits of such an approach to classroom music education.

MUSIC LEARNING CENTRES IN THE K-6 GENERALIST CLASSROOM

In planning for learning experiences in any curriculum area, a number of factors about teaching and learning are generally acknowledged. When planning learning experiences, there is a need to allow for varying periods of concentration, as some children may be able to attend to a particular task for greater periods of time than others. A variety of activities which allow the child to exercise choice within the learning process is recommended. A range of social settings within the learning environment is beneficial, resulting in learning experiences which are designed for whole or small group participation, for individual, or pair work. Children engage in learning experiences in different ways, some preferring to work quietly, others needing to be more active in their engagement. Teaching strategies need to take into account 'multi-modal functioning' (Biggs and Collis, 1992), ie. a range of thinking strategies. Provision needs to be made within the classroom organisation for the teacher to work on an individual basis with children who require such support. In addition, the teacher needs to be able to 'stand back' from the learning experience in order to observe and evaluate the learning experience and the ways in which individuals have responded to it. In this way the process of the learning experience is evaluated as well as the product.

The Continuous Program

One organisational structure which has been developed in an attempt to accommodate these factors is that of the 'continuous program'. Originally developed with the kindergarten in mind, schools and teachers in Tasmania are choosing the structure of the continuous program as a basis for classroom organisation in the Early Childhood and Lower Primary setting. Such a structure also holds some benefits for the Upper Primary sector. The continuous program has been described as a structure which

...involves the availability of concurrent indoor and outdoor environments of activities appropriate to childrens stages of development. Children may choose to work individually or in small groups, independently or with adults, indoor or outdoors throughout the session. (Cole et al., 1990, 2)

In a classroom organised on the principle of a continuous program, the school day is seen as one on-going period of active engagement, rather than as a series of discrete lessons organised around such common school events of morning-tea and lunch-

time. Within the kindergarten classroom, children arrive at school between eight-thirty and nine o'clock and commence working independently within the learning environment from the moment of their arrival until the end of the session at midday. Tasks in a variety of areas such as reading, the visual arts, sorting and classifying, music and construction, are made available for the children and the decision as to which activities to address, with whom and for how long rests with the children. Such engagement is strictly monitored by the teacher through observation and interaction with individual children or small groups of children in order to ascertain that all children are working constructively, and to make future teaching decisions. To facilitate the smooth running of the program, rules for appropriate behaviour and management of learning areas are firmly established with the children and responsibility for cleaning up after themselves, helping others and caring for equipment is fostered.

Within the continuous program a minimum of time is spent in whole group activities as this is seen to interrupt the continuity of the learning environment. For example, children take morning tea in small groups or individually, over a period of time rather than the whole group stopping for a fifteen minute period. When it is necessary for the whole group to work together, for example in movement, drama, sharing sessions or ensemble singing, this usually occurs at the end of the morning session.

Within the early childhood and primary sector of the school, the continuous program may be used as an organisational structure in a similar way, however, common times such as morning-tea and lunch-time need to be observed and whole schools activities such as sports events and assemblies need to be accommodated. As a result the sessions within the continuous program are of one and one half hours duration approximately, running from nine to ten-thirty, from eleven to twelve-thirty and from one-thirty to three o'clock.

A number of benefits are seen to arise from the continuous program. For the child the program allows for long periods of uninterrupted activity. In addition:

Children become decision makers by electing where they will work and play, with whom for how long, when they will join a small group or if they become part of a whole group experience.....thus taking a more active part in their own learning. (Cole et al. 1990, 3)

For teachers, one of the advantages of the continuous program is that the development, implementation and evaluation of individual learning programs is facilitated by allowing

opportunities to observe and plan for individual needs within the classroom setting. As so much emphasis is placed upon the child making decisions about the where, when, why, with whom and how of learning within the continuous program, it becomes the teacher's responsibility to provide a range of learning experiences which are developed from the observation of children's needs. Such experiences need to be developmentally appropriate, purposeful and with clear objectives in mind.

Another advantage of the continuous program for the teacher concerns the issue of behaviour management. Behaviour management issues may be effectively dealt with in the continuous program structure as

...most difficulties can be dealt with on an individual basis. This boosts self-esteem and does not draw undue attention to individual behaviour problems. (Cole et al. 1990, 4)

Within a classroom which adopts the concept of a continuous program as the organisational structure, there are a number of implications for the types of learning experiences offered to children. At any one time within the classroom it is probable that several different learning tasks will be addressed concurrently. This implies that the ways in which learning experiences are structured will differ significantly from organisational structures in the past. One strategy which may be used as a feature of the organisational structure of the continuous program is that of the 'learning centre'. Indeed, the 'learning centre' is a valued feature of any continuous program.

Learning Centres

Learning centres may be described as 'self initiating learning challenges' (Henley, 1990) which provide opportunities for children to become more active decision makers in their own learning. Staab maintains that learning centres '...can help a child to become more autonomous as that child decides where to work, with whom to work, and then takes some responsibility for the evaluation of these choices.' (1991, 113).

In physical terms, a learning centre may be comprised of a range of quality materials and resources which are designed to stimulate the child's interest, and some suggestions which provide the child with a focus for working with the material. The construction of the learning centre challenge needs to be open-ended, that is, a problem to which there is no single correct answer, but a range of possible solutions, all of which are valid. This allows the child to exercise choice and make decisions, whilst trialling a range of solutions. The learning centre should be self-contained, in that all

the materials that a child will need to complete the task required are available at the centre. Ideally the learning centre should be positioned in the classroom to allow easy access, yet ensure some privacy in working.

Learning centres are developed to respond to specific needs which have been identified through observation of the children and should be designed in such a way that all children in the class may work productively at the task. Inevitably some may require more support in completing the task than others, or may produce responses that are more or less sophisticated than others.

Learning centres may be used by a teacher as part of the program for a variety of purposes. For example, a learning centre may be used as a way of introducing new material and/or concepts to the class. The children's responses to the tasks will assist the teacher in making consequent planning and teaching decisions. A learning centre may be designed to reinforce existing learning or to stimulate or extend children's interests. Open-ended learning centres are designed to stimulate critical thinking and to encourage children to pursue topics of interest to them.

Learning experiences may accommodate a range of approaches to learning. For example, learning tasks may require the use of audio-visual material such as cassettes, film strips, videos and slides as well as writing and reading tasks. Music learning centres may be constructed to facilitate listening, composing and playing activities as well as tasks which require research and the gathering of information from other sources, or notational procedures. As a result children will use a range of learning behaviours whilst working on a learning centre. These may include:

reading, listening, observing, experimenting, writing, notating,
discussing, constructing, explaining, describing, comparing,
contrasting, measuring, playing, practising, reflecting, evaluating.

A teacher may choose to use learning centres as a supplement to the program, or as an integral component of the program. If learning centres are to become an integral part of the program, decisions need to be made concerning the placement of learning centres within the physical environment and the frequency with which the learning centre tasks are changed. The establishment of rules for working at learning centres is essential and it is important that the teacher monitors which children have completed the task, and what their responses have been. Such monitoring can be achieved through the observation of children at work at the learning centre and through the daily collection of

work completed at the centre. For example, after collecting and evaluating work from a learning centre, the teacher may choose to work with a small group of children the following day in order to share their responses and consolidate their thinking, or to re-focus and extend their ideas.

A learning centre approach to music education in the classroom has much to offer the generalist classroom teacher. In the following section of this paper, the use of learning centres in music education is described and the advantages of such an approach are discussed.

Music and the continuous program

Traditionally, within the K - 6 classroom, music has been planned and implemented as a learning experience in which the whole class is engaged simultaneously. Sometimes, such experiences are the responsibility of a specialist music teacher, at other times that of the generalist classroom teacher, and it is the latter which is increasingly becoming the 'norm' in the K - 6 sector. Such experiences may involve the removal of the class group to a music room, often at some distance from any other classrooms, in order to accommodate the inevitable noise which will result. Alternatively, the teacher may choose to transport all music teaching materials to the classroom in order to conduct a music lesson.

Such a strategy as the latter inevitably has problems. Availability of instruments, the difficulty of transporting large quantities of instruments, the potential disturbance to other classes when thirty children are engaged in active music making, access to quality recording equipment, issues of space, and time-tabling considerations all tend to militate against the music lesson. Some of these factors are also a concern when a teacher decides to move her class to another setting such as a music room to conduct a music lesson. Music becomes a 'thing' which is done out of the classroom, and is divorced from the daily functioning of the classroom. The necessity of negotiating the use of the music room with other staff also removes the possibility of any spontaneous engagement in music experience as a result of work in the classroom in other subject areas, and effectively compartmentalises music into a specific time-slot within the week. Regardless of which of the above options the teacher chooses, music is seen to be a disruptive feature of the continuous program as everything must stop in order to move the class to the music room or to re-organise the classroom environment.

It is advocated that learning experiences in music are planned to encompass the activities of listening, composing and playing and to foster the 'enabling' components

of literacy and technical skill development (Swanwick, 1979). (Although listening is isolated as a discrete activity within this framework, it should be acknowledged that listening, as the fundamental mode of musical engagement, permeates all musical experience. Within the context of this framework, listening may be more effectively viewed as critical listening for appraisal and appreciation.) The proportion of each of these activities within the music program tends to be at the discretion of the teacher and to reflect the teachers own musical skills and understandings. Within the K - 6 sector experiences may acknowledge the pedagogical principles of one of the major music educators such as Kodaly, Orff or Dalcroze and/or may take the form of whole group singing, the development of an instrumental ensemble, instruction in notational issues, a listening experience, movement to music in response to an element such as beat or rhythm, or the setting of a compositional task. Whilst some of these activities are well suited to whole group implementation, others are not. In addition, such an emphasis on whole group work tends to ignore many of the educational issues discussed above, such as accommodating differing modes of learning, different rates of working, and fostering independent decision making in the learner.

By reflecting on adult engagement in musicmaking it is evident that much of our music experience is of an individual and essentially private nature. Unless we are involved in a large performing ensemble or are part of an audience at a concert, most of our music is experienced in isolation, with one other or at most a small group.

Listening in the Classroom

Although we tend to enjoy discussing the nature of our response to a listening experience with a friend or colleague, listening does not always require interaction with others. Often our responses to listening experiences are intensely personal and, whilst deriving meaning from them, we may not necessarily be able to articulate such meaning to others, or indeed to ourselves. Of course, in a learning situation, teachers wish to monitor what it is that children are focusing on in a listening experience, and also to evaluate the degree to which children are able to apply their developing musical understanding in a critical way. In such situations interaction with others is essential, and this may be achieved through such strategies as individual questioning or the development of written responses.

However, is it necessary for all thirty children in a K - 6 class group to listen to the same piece of music at the same time? Such an action implies that all children are ready for and receptive to a specific learning experience at the same time. It also removes the possibility of individuals verifying their perceptions of the music through returning to

sections of the work for a second hearing. Some individuals may develop a response to the work in a relatively short time whilst others may need to revisit a work a number of times in order to formulate a response. By placing the listening experience on a learning centre, children are able to make the decision to hear the work several times. Such re-visiting of a listening experience is an activity that should be fostered in learners.

Although it is valid to use whole group listening experiences as a means of demonstrating an idea or musical structure, other approaches to listening experiences are equally valid and may be accommodated more effectively into the classroom structure. Musical examples may be made available to children through the use of listening posts where listening experiences may be engaged in at any time, without interruption to the class as a whole. The introduction of some questions related to the example, or the concept which is illustrated within the example, may provide children with a focus for their listening. At other times, the teacher may choose to leave a range of examples to be listened to for their own sake, and not require a written or verbal response to such activity.

Composing in the Classroom

Composing as an integral part of the music program, has gained considerable recognition in recent years. The work of Thomas (1970), Self (1967) and Paynter (1970, 1982) amongst others has promoted this form of musical engagement as an essential music learning experience. In the context of the adult music world much composition is engaged in on an individual basis although it may be argued that much jazz improvisation and that contemporary music which employs collaborative improvisational techniques are a form of group composition.

In contrast to this, in the educational setting, especially at the K - 6 level, much compositional experience is whole or small group in nature. There are a number of advantages to compositional experiences organised in whole and small groups. The monitoring of childrens' responses to the task is much easier when the teacher only has one large, or six to seven small groups to interact with, as opposed to thirty individuals. In addition the interactive nature of such learning experiences often contributes to greater learning in terms of social skills and problem-solving skills as well as developing knowledge of and skills in specific musical issues.

However, such advantages as those described above need to be considered in the light of the following issues. Thirty children composing in small groups produce

approximately the same amount of sound as thirty children composing individually. Furthermore, it is necessary in such situations to supply at least thirty instruments, and ideally a few more in order to provide the children with some opportunity for choice in selecting their musical materials. Such resource issues in themselves may provide the classroom teacher with sufficient incentive to avoid compositional activities. Another factor which may influence the decision to plan for composition is that of individual difference. Within any classroom there will be a broad range of learning styles, of skill level, of understanding, and it is inevitable that some children will require much more time and interaction with the teacher to complete a task than others. In such cases the teacher is faced with the dilemma of hurrying some children unnecessarily through tasks whilst trying to accommodate those who have already completed their work.

Rather than regarding composition as a music activity in which the whole class must engage simultaneously there are strong arguments for planning compositional experiences as learning centre activities for individuals, pairs, or at times, small groups. Such an organisational structure will accommodate those who need more or less time to complete their work. Considerably fewer resources will be required to complete the task as, depending on the nature of the compositional problem, six to seven quality instruments may be all that is required, in addition to recording materials. The problem of maintaining a tolerable noise level within the classroom will also be resolved to some extent through such planning. In addition, by creating a learning environment in which children must choose between a range of tasks, and organise their time accordingly individual decision making is promoted.

Playing Music in the Classroom

For many children, classroom experiences in playing music have traditionally involved singing and at times the development of simple instrumental accompaniments to favourite songs. Whilst acknowledging the importance and value of whole group music making in this context, it is suggested that some aspects of these activities could be planned as individual or small group situations. For example, a learning centre which incorporates an audio cassette and the words and music to several favourite songs (Kenney, 1989) may be an effective way of teaching or reinforcing class song material as a supplement to whole group work. Consequently, whole group work may focus more on the development of specific skills rather than on the learning of repertoire. In addition, such a learning centre will also provide a powerful model of the purposes of musical notation.

In order to provide accompaniments to group singing activities, or to participate in instrumental ensembles, children need to develop and practise instrumental skills. Due to restrictions on time and resources, it is often the child who already possesses rhythmic skills and is able to demonstrate a degree of technical expertise with the instrument, who is assigned any instrumental responsibilities in ensembles. In such situations how is the less technically competent child ever to learn the skills needed to fulfil such tasks? By setting a learning centre problem which requires the development and practise of a simple ostinato pattern, or the reading and practising of an existing pattern, less technically competent children are able to approach the task at their own pace, and to develop the necessary skills to participate in ensemble playing. The issue of fostering practice habits and techniques is one which should be addressed early in children's music education and such learning centres provide an appropriate context for the development of these.

In those situations where children have access to instrumental tuition, learning centres may be developed which require the use of their developing instrumental skills. In this way music learning experiences which occur outside the classroom may be seen to be relevant to classroom music making.

Whilst learning centres may be developed to foster independent learning in the music activities of composing listening and playing, notational issues may also be addressed through such strategies. For example, if the teacher is introducing children to rhythmic duration through the use of French time names, learning centre tasks may reinforce and extend any whole group activity in the concept. Notation may be effectively addressed through the development of a compositional task which requires the manipulation of symbols. For example, the child may be asked to devise an extended rhythmic pattern which uses a limited number of rhythmic units (crotchet and quaver), to notate the pattern, to practise the pattern and then to share the pattern with the teacher. Such challenges allow those individuals who have difficulty in grasping the concepts opportunities to practise the task in their own time without impeding the progress of other children who may be ready to move on. Similarly, those individuals who have progressed beyond such a task may be challenged to incorporate more complex rhythmic units into their work. In addition, the teacher has greater opportunity to monitor individual children's progress and to plan effectively for individual needs.

All of the learning centre activities described above may be designed for a range of groupings. Some are more appropriate for individual participation, others for pairs or groups of four to five children. However, such an emphasis on individual work does

not exclude the possibility of some whole group participation in classroom music experiences. Indeed, whole group sharing and discussion of the outcomes of the learning centre tasks is a vital component of the learning and evaluation processes. For example, at an appropriate time within the daily program, the teacher may develop a discussion with the whole group about a listening experience made available to the class through a learning centre. Such a discussion may canvass the children's responses to the work, elicited through the placement of some focus questions on the learning centre, and draw certain structural features of the work to the childrens' attention.

Similarly, if children have been engaged in a compositional task through the week, the sharing of these compositions in a group situation is a valuable way of focussing on musical issues evident within the works and also provides a forum for reflection on the works themselves and the processes used in their development. In such situations the teacher may choose to use song material or a listening experience with the whole group to further illustrate concepts addressed. Within such whole class sessions, teachers may also address issues of vocal technique, and develop children's skills in ensemble singing and playing. Through such a combination of individually focused learning centres, and whole class work, teachers may develop a music program which accommodates individual needs and also provides opportunities for group music making.

Conclusion

Throughout this paper a number of the advantages of a learning centre approach to music education in the classroom have been touched upon. In summary, these include:

- the integration of music into the daily classroom environment
- the possibility of making more adequate provision for individual musical differences within the class group
- the possibility of designing individual learning programs in music
- the possibility of responding more readily to the musical interests and needs of children within the class group

- the possibility of children re-visiting a learning experience several times during a week and trialing a range of solutions to problems posed by a learning centre
- a reduction in the amount of instrumental resources required to operate a viable music program which encompasses the activities of Listening, Composing and Playing.

For the generalist classroom teacher there are a number of other advantages to a learning centre approach to music education. Teachers daunted by the prospect of conducting whole group music lessons which require considerable directing skills may approach the issue of music education within their classroom in a less 'confrontational' manner.

In 1991, year three Early Childhood Education students at the University of Tasmania at Launceston devised, implemented and evaluated a series of learning experiences in music based on the concept of learning centres. Over a period of five weeks, students worked in an early childhood classroom in a local school for one and one half hours a week (an early morning, mid-morning or afternoon session). During these sessions students observed and interacted with children as they worked through a series of learning centre tasks in composing, listening to and playing music. Planning for further experiences arose from the collection of material, including notations, recordings and written comments developed by the children in response to the tasks, and some observation of and interaction with children working at the task.

In reflecting on the most effective way of developing a music program in the classroom, one student commented that: "Monitoring children's progress on a rotating learning centre basis, with a regular sharing session for the whole class, seemed to be the best way" (Rhonda). Many were surprised to observe children working for extended periods of time on a music task. In one case a group of children was observed working productively and without intervention, on a compositional task for over an hour, an action which would have been impossible if the music lesson were compartmentalised into a specific time-slot within the week. From comments collected from the classroom teachers, and from work collected from the learning centre, it was evident that a number of children were choosing to return to the learning centre several times during the week.

One of the most common issues raised by the students was that of confidence in implementing a music program. Many commented that their own musical understanding developed significantly through working with and observing how children approached musical tasks on a learning centre and expressed relief that music education was possible without always having to 'perform' in front of the class.

As it becomes increasingly evident that fewer schools are able to afford to employ a music specialist teacher and that the responsibility for music education will rest in the hands of the classroom teacher, other ways of approaching music education in the K - 6 sector are needed. It is suggested in this paper that through the development of a music program based on learning centres classroom teachers may integrate music learning experiences into their daily program whilst addressing the important issues of music education.

REFERENCES

- Biggs, J. B. & Collis, K. F. (1992), 'Multimodal Learning and the Quality of Intelligent Behaviour' in Intelligence: Reconceptualisation and Measurement, ed. H.A.H. Rowe, Lawrence Erlbaum, Hillsdale NJ.
- Cole, J., Holman, B., Udovicic, C. & White, A (1990), Kindergarten and the Continuous Program, Holman & Udovicic, Tasmania.
- Henley, R. (1990) Self Initiating Learning Challenges, Unpublished Manuscript.
- Kenney, S. (1989) 'Music Centres: Freedom to Explore' in Music Educators Journal, Vol. 76, No. 2, pp. 32-36.
- Paynter, J. & Aston, P. (1970) Sound and Silence, Cambridge University Press, Cambridge.
- Paynter, J. (1982) Music in the Secondary School Curriculum, Cambridge University Press, Cambridge.
- Self, G. (1967) New Sounds in Class, Universal Edition, London.
- Staab, C. (1991) 'Classroom Organisation: Thematic Centres Revisited' in Language Arts, Vol. 68, No. 2, pp. 108-113.
- Swanwick, K. (1979) A Basis for Music Education, NFER - Nelson, Berkshire.
- Thomas, R.B. (1970) MMCP Synthesis: A Structure for Music Education, Media Materials, Inc., Bardonia, New York

**Gee-whiz is not the only response:
music educators attitudes to new technologies**

CAROL BIDDISS
LECTURER: MUSIC EDUCATION
SCHOOL OF STUDIES IN EDUCATION
UNIVERSITY OF SOUTH AUSTRALIA

Abstract

This review of articles in recent education journals (1982-1991), on **music, technology, computers and elementary education**, is structured around five themes. Each theme is examined to uncover the influences of various theories of education.

The first theme, **the teacher as smart technician**, examines articles which urge teachers to 'up-skill' themselves. These articles devote substantial space to descriptions of new hardware and software and are generally full of jargon and slogans.

The second theme, **music teacher as arts educator**, sets up a dialectic approach to the use of music technology. These writers slow down the *gee-whiz* pace set in the first theme and seat music in a context of arts education or aesthetic education.

In the third theme, **teacher as guardian of tradition**, new technologies are viewed as harmful.

Technology transplant versus a reconstructed curriculum in the fourth theme. Past practices in music education lead to some computer applications which were praised for relieving the teacher of *donkey-work*, but there is also opposition to the limited effectiveness of programs such as *drill and practice*. A reconstructed curriculum examines innovations sparked by the technology itself. The graphic representation of music is explored and *interactivity* becomes a major issue.

Technology as a creative sound tool is concerned with creativity or *thinking skills*. Within this construct, educational reform is driven by a *developmental psychology model* rather than by industry, aesthetics, the teaching tradition or the technology itself. Technology is co-opted as a tool to help students *think in sound*, with composition the central activity in music programs.

In addition to the five themes there is a section on **networks** which identifies professional associations dealing with music technology and education.

INTRODUCTION: FROM THE TECHNICAL TEACHER TO THE CREATIVE CHILD

This report proposes to investigate the attitudes of educators in Australia, the United States of America and the United Kingdom to the introduction of microtechnology into the practice of music education. The study was precipitated by the overwhelming speed of developments in the music technology industry in its many facets, including the mainstream-popular, such as pc software for home use, and the specialty applications such as desk-top music publishing software or university courseware.

Although one of the parameters for the search was the education of primary or elementary school children, it quickly became obvious that not many people had written about this group. It was decided to keep the search widely based in order to find out as many attitudes and applications as possible and to allow the following key question to remain open: 'what applications, if any, are desirable for use in the primary school music program?'

The report is structured around five themes each of which focusses on the role and/or attitudes of teachers regarding the use of computer technology in music education.

The first theme '**the teacher as smart technician**', examines articles which urge teachers to 'up-skill' themselves. These articles devote substantial space to descriptions of new hardware and software and are generally full of jargon and slogans.

The second theme, '**music teacher as arts educator**', sets up a dialectic approach to the use of music technology. New is not seen as good *per se*. The writers examined in this section slow down the *gee-whiz* pace set in the first theme and situate music in a context of arts education or aesthetic education.

In the third theme, '**teacher as guardian of tradition**', the technological advances in the music (and information) industries are seen as harmful. This section examines the arguments for limiting the use of microtechnology in the teaching of music.

'**Technology transplant versus a reconstructed curriculum**' is the fourth theme. It launches into a discussion of practices that have grown from the old idea of the 'teaching machine' which precedes the new and powerful personal computer. These applications are examined for their appropriateness in the light of new ideas about teaching and learning and about the nature and function of music in educational programs. However, there is another camp contesting the effectiveness of programs such as 'drill and practice'. In proposing a reconstructed curriculum, such writers examine innovations sparked by the technology itself. Interdisciplinary possibilities are proposed arising from a growing understanding of the 'digital domain'. The graphic representation of music is explored and 'interactivity' becomes a major issue.

'**Technology as a creative sound tool for children**' is a section describing the renewed interest in creativity. Within this construction, educational reform is driven by a 'developmental psychology model' rather than by market forces, the aesthetic tradition, the teaching tradition or leading edge technologies the technology itself. Technology is co-opted as a tool to help students to *think in sound*, with composition as the central activity in music programs of the future, especially given the new composing technologies.

In addition to the five themes there is a section on 'networks' which identifies professional associations dealing with the issues around music technology and education.

The paper concludes with the writer's proposals for future directions and developments in primary school music.

TEACHER AS SMART TECHNICIAN: GEE-WHIZ!

Many articles found in the *North American Music Educators Journal*, especially around the late nineteen-eighties, have as their theme the exhortation to teachers to 'jump on the technology bandwagon'. The writing is designed to shock readers into action with phrases such as: 'A technological explosion has occurred and it has left music teachers gasping'. (Wagner 1988).

Wagner furthermore assures teachers that they will be able to realise their 'fondest audio dreams', that they 'need' to learn about technology, and that they will be 'amazed and dazzled' by what it can do. This sounds more like advertising copy than educational writing. Less obvious evangelism permeates the writing of Feldstein (1988): 'I am a strong believer in the value of technology'.

He places the 'responsibility' for keeping up with technological advances directly with 'all music educators'. He refers frequently to the music sales market and suggests that teachers seek out sales people for advice. He utilises terms such as 'instruction', 'testing', 'motivation' and 'excellence' and makes sweeping claims about the 'limitless' uses of technology.

Another writer who supports the 'limitless uses' claim is Kassner (1988). He sees a reluctance to wholeheartedly embrace music technology as a disease which can be cured by consulting the 'local technophile'. Kassner breaks down 'technophobia' into twelve separate fears. His arguments are sometimes compelling as in:

... some may be reluctant to take the chance
of failing by using unfamiliar equipment,
especially around evaluation time. But it is
perfectly acceptable not to know everything.

In other moments his arguments seem to achieve the opposite effect, positively increasing the fear, say, of becoming unemployed. Kassner does not acknowledge any of the teacher's fears as legitimate.

Part of the evangelical model is information-giving about the 'amazing potential' of the new technology. Writers describe items such as electronic keyboards, synthesizers, MIDI, and electronic wind or valve instruments. These descriptions tend to be peppered with acronyms and alpha-numeric 'code' names and are written in much the same style as car magazine articles. They are supposedly for the beginner, but only really become useful when the teacher has joined the *cognoscenti* through contact with the technology itself and with other users.

Hall (1986) describes the advent of MIDI (Musical Instrument Digital Interface) system as heralding a 'new age of music instruction'. His approach is less a sales pitch and more a survey of possible applications. He identifies three roles for the technology; performance training, theory training and composition training, with composition attracting the most attention. He claims that the MIDI-based CAI (Computer-Aided-Instruction) laboratory is within reach of many schools and he gives practical advice about resource purchasing.

A different attitude permeates the writings in the British journal, **Music Teacher**. Exhortation is replaced by recommendation. Fear, lack of skill, resistance on aesthetic grounds and lack of resource monies are all acknowledged as legitimate constraints on teachers. Local administrators, local music dealers and government educational reports are seen as crucial factors in the 'music technology in schools' equation, as is the student who can easily be overlooked in a field where so much attention is given to learning about a new teaching tool.

Slaughter (1988) urges teachers to become 'smart technicians' with these mild words:

If you have not yet 'jumped' into the world
of hi-tech I unhesitatingly recommend it to you.
Make a start.

His article 'Music Technology for the Fearful' cites comments from pupils, shifts the burden of guilt over the inadequate training of teachers in this regard to the education authorities and affirms the role of the teacher as one who makes correct and creative judgements. His is a 'teacher-friendly' attitude.

Wright's (1990) descriptions of the multi-track recorder, the signal processor and the sampler are interspersed with descriptions of what he has observed children doing with this equipment. Information for teachers is embedded in a teaching context. The alien nature of the 'code' names is defused in statements such as:

Why is it that most items of music technology
seem to bear titles that sound like tax forms
or space probes?

Even in articles that intend simply to give information such as a series by Wells (1988), there are cautionary notes sounded about buying wisely and both good and bad features of specific pieces of equipment are reviewed. Very detailed information is given, which would only interest an initiate, but the range of equipment names and the prices quoted give the impression that an educational 'specialist' has done a lot of the work and the teacher armed with such an article can feel confident about approaching a dealer and getting answers to specific questions.

Sturruck (1989) imbues her descriptions of new offerings at the Music Fair '89 with a sense of balance and fun. The high-tech products are reviewed alongside acoustic instruments, printed music and new books. Once again a context is established, and real-life situations are described such as

... a woman who emerged from a demo session
in a soundproof booth describing the experience
as 'ten minutes in the chamber of horrors'.

In her article on Music Fair '90, Sturruck (1990) takes a more serious look at computer music in a way that is designed to interest the uninitiated:

Overcoming his initial fear of the equipment, Dave
gradually realised that, far from being a threat,
technology could be a complement to traditional skills.

The British professional journal, **Music Teacher** features regular writers and one such is Morgan (1988) whose style is to describe a new piece of technology and then spend most of the article discussing possible applications. In 'Music Software for the Atari 1040ST' he describes, in fine detail, software suitable for a GCSE composition class and devotes one sixth of the article to drawbacks. In another article (1989) he refers to the work of contemporary composers and performers setting the educational process firmly in the world of professional musicians rather than in the world of professional salespeople.

For a truly extraordinary example of multi-track recording, Trevor Wishart's own version of his *Anticredos* has to be heard to be believed. This recording, along with his *Book of Lost Voices*, would be a valuable source of ideas for vocal work.

Hodges (1989) presents another perspective on setting up a microtechnology music classroom, claiming that creative music making may be accomplished more cheaply on small electronic keyboards rather than on Orff instruments.

In Australia, a handbook for teachers published by the New South Wales Department of Education gives encouragement to new computer users by attempting to demystify classroom applications. The document gives a great deal of information and also offers perspectives from beyond the school setting. Such comments as the following imply a need for teachers to make haste in equipping themselves and their students for the practice of music:

While setting up an integrated digital studio can be a frustrating process, once you have got it up and running, the speed and flexibility is nothing short of astounding.

...with a computer system you can have far fewer limitations on what that instrument can do; computers can play higher, faster and lower than humans can.

JOINING THE REVOLUTION.

In conclusion, it appears that there are four main strategies in use for urging teachers to join in the technology revolution: exhortation, information-giving, rationalisation and description of practical applications. The arguments are drawn from among the following: 'we missed the boat with jazz', 'you won't have a job', 'other curriculum fields are doing it', 'new technology can do new things', 'donkey-work is reduced', 'students will enjoy learning more', 'you'll be seen as old fashioned if you don't', 'the music industry demands it', 'you'll be able to work more quickly', and 'the future is what we're educating for'. The latter argument about the future is a very powerful one, and one that can easily be over-rated and distorted.

TEACHER AS ARTS EDUCATOR

The next group of writers takes a much longer view of the past. The future is of importance, but it is not a future narrowly defined by today's technology, a technology which is on a rolling wave of obsolescence.

Working from a historical overview of the purposes of music education, Bennett Reimer (1989) widens the discussion so that music is seen as one of the subjects in the field of aesthetic education. He outlines a series of imperatives for aesthetic educators, urging them to understand the values of music as explained by 'professional scholars'. He sees a danger, from past practice, in relying on methodology as panacea, and blames such reliance for the misguided perception

that music education is a field entirely devoted to music training. This perception is particularly dangerous right now because of two revolutionary changes in process.

The first revolutionary process is, as expected, the one in computer technology. The second, the cognitive revolution, gives rise to the overthrow of

a mechanistic model of mentality with its concomitant focus on education as training.

The challenges raised by Reimer will be taken up in following themes where the composing technologies and the diversity of human cognition will be explored in more detail.

Aesthetic cognition is nurtured in arts education programs. Eisner (1987) writing for the same journal two years earlier claims that the arts are almost always named as an essential area of study in educational overhauls. He makes no mention of technology except for a passing comment about the concerns of the business community regarding the quality of school education. His concern is to outline a four dimensional curriculum in arts education:

First, one can learn to make expressive images.

The second thing ... is to learn how to experience their qualities ... The development of sophisticated vision and auditory sensitivity is not an automatic consequence of maturation...

The third thing one can do with the arts is to understand that they are all situated in time, place and culture.

The fourth thing ... is to make judgements about their quality.

Given the frenzied tone of some of the articles devoted to music technology written in the same journal, Eisner's third dimension takes on extra significance. He is scornful of the public's concern with test scores and sees the work of arts educators as the design of programs that optimize a student's ability to 'think, imagine and feel'. These ideas, along with those of Reimer, will be elucidated later.

None of the British journal articles read showed this distinct leaning towards systematic aesthetic education. Kemp (1986) does, however, make passing reference to 'imaging music' as physical movement (kinaesthesia) and also as visual shapes, textures, patterns and colours. He acknowledges the interdisciplinary possibilities of computer-arts education:

Computer technology offers the music educator
a breakthrough in the form of an instantaneous
link between sound and its graphic representation.

In a paper submitted to a Project of National Significance, Stevens (1987) makes two recommendations with respect to arts education in Australia

(vi) ... there is a need for a multi-arts newsletter with adequate editorial and secretarial support to be provided for teachers by an organisation such as the Curriculum Development Centre...

(vii) In view of the increasing importance of technology in the arts and in arts education, a National Technology in Arts Education Council ... should be appointed to advise national, state and regional education authorities on matters pertaining to technology and the arts in schools.

In a paper delivered at an Australian seminar by a West German professor, Dr. Gruhn (1988), the distinction is made between an instrumental understanding of an experience and an aesthetic understanding of an experience. His voice will lead the discussion on the dissenters.

TEACHER AS GUARDIAN OF TRADITION

Gruhn is interested in the pedagogic problems related to conditions of human learning in the arts and the effectiveness of computers in this learning process. He distinguishes between the uses of the computer as a 'tool' and as a 'tutor' and exposes limitations in learning from computer as tutor:

Computer learning programs, especially drill and practice programs deal with skills and elements which students must already have in their minds. They don't shape images, they simulate them. (1988)

He is concerned that the simulated 'microworlds' of cyberspace, when accessed by a child, will be seen as equivalent to 'realworld' aesthetic experiences.

This is not to imply that skill-oriented activities are not desirable or important in the early childhood curriculum. What is debatable is the function of this kind of learning in an educational system, where more and more "direct experience" ... is replaced by a secondary, mediated experience.

He calls this the danger of 'technological reductionism', reducing the complexity of aesthetic experience to a perception and discrimination of its elemental parts. He also alerts readers to the danger of connecting children's learning to the computer at too early an age. He is aware of the allure of computers because of their speed and ease of use in pedagogy. He calls this the danger of the 'technological takeover'.

Some of the most compelling arguments against the wholehearted embrace of the new information technologies are raised in a book review by Hope (1988). **The Cult of Information** by Theodore Roszak (1988) alerts readers to the profit motive of the computer companies and to the driving fear of national economic loss. These twin motives have contributed to the 'false' notion of 'computer literacy':

We do not speak of typewriter literacy or calculator literacy.

Roszak voices aesthetic concerns about the 'degraded' nature of in-built computer graphics and also about the lack of sympathy felt by some children to the computer as a musical instrument or an artistic medium. But his main concern is with the public perception of technique as content and data as ideas. He warns about a

a critical loss of holistic intellectual capability, while racing technology generates visions of exploding potential and amazing achievement.

The 'data ethos' is undeniably here to stay. Roszak is concerned that the kind of thinking skills needed in the arts, in government and in education are not the same as those driving the technological revolution and that at the moment the 'gee-whiz' technology cult is in charge.

One of the strangest set of arguments against the uses of music technology is proposed by Vorhees (1986). His concerns are that 'musical diletantes' will be able to convert their aspirations into musical products without having gone through the rigours of learning:

The very thought is liable to enrage those of us who have "paid our dues" in classrooms, practice rooms and under innumerable batons.

His attitude is one of 'gatekeeping' a clubhouse of initiated musicians, special kinds of humans who have won the right to make artistic works. Children have not been capable of these activities in Vorhees' understanding of the situation:

In particular, it has been very difficult for children to relate to music in any satisfyingly creative way. They can create some kinds of music, but not the kinds of music they want.

These statements seem to imply a deficit model of the learner and indeed a deficit model of the child.

In a keynote address to the 1985 Music Educators National Conference, Lehmann claims that American education has taken a turn towards the narrowly technical and away from traditional values:

...thoughtful educators and laymen alike consider that the purpose of education should be the pursuit of truth and beauty and the development of human capacities, and the improvement of the quality of life. (1985)

He believes that an obsession with computers, maths and science is reducing the time being made available for teaching in the arts. He also complains of failure in the production of high quality software for educational purposes. One important point is that students are acquainting themselves with today's technology in order to gain employment. Meanwhile the rapidly improving technology of the next millennium approaches, making the students' hard won skills and knowledge obsolete. Lehmann is not opposed to the use of computers in education. He claims that they have the capacity to revolutionise it.

But they will never do it in the ways we're using them now. They will never do it if we merely rewrite our current textbooks as series of exercises, put them on floppy disks, and call them educational learning systems... That's merely a parody of educational computing.

It is this fear which paves the way for the arguments of the following writers who want to design new curricula to take advantage of new media.

TECHNOLOGY TRANSPLANT VERSUS A RECONSTRUCTED CURRICULUM

Newcombe (1988) expresses concern that much of the music courseware in use is failing to make a significant contribution to tomorrow's music.

...I am not aware of any music teaching automaton that gives guidance congruent with a non-Western musical idiom. Indeed, music teaching automatons that actually understand even the most conservative Western contrapuntal idioms, involving only tertian harmony and twelve-tone equal temperament, are still very rare.

The challenge of the world-wide artistic environment, which has opened through the twin gates of media and ease of travel, is not yet acknowledged by software producers. He foresees a world arts mentality which will recognise those artists whose works break through traditional cultural boundaries and speak in the digital code of Integrated Services Digital Network, (ISDN). He talks of music as one of the many "information products" which will become available through the new style of broadcasting provided by ISDN.

Eventually, with the ISDN, huge databases of art, music and drama will be retrievable in microscopic detail.

Newcombe identifies arts education courseware as another information product delivered through this network and alludes to the already documented awesome power of electronic communications media in the arena of artistic influence. His argument is that if simple broadcasting can affect public taste how much greater will be the effect of interactive courseware. He proposes principles for the design of such courseware:

The idea behind such courseware should be to develop the skills involved in creative thinking; it should provide guidance in meeting the demands of particular sets of aesthetic desiderata, and it should provide this guidance in the context of actual artistic creation...

Arts education has traditionally had two goals; career preparation for the artistically 'gifted' and motivated, and enrichment experiences for those not identified as potentially professional artists. Newcombe sees a new possibility which reasserts that the act of artistic creation belongs to all humans. In his words:

...the act of creation is at the very heart of what it means to be alive.

Innovations in interactive computer technology have made it possible for home musicians to create their own musical works and for educators to design the software to support these creative acts.

This viewpoint is supported by Taylor (1988) who writes:

I hope that music teachers will begin to insist that instructional programmers push the computer's capacity to its limits. I also hope that they will remind those programmers that learners expect (and deserve) a computer-based learning environment that recognises human ingenuity and creativity.

He examines the four ways that computers are being used in the music industry at present. In the first area, performance, he claims that the great popularity enjoyed by electronic instrumental devices is due to their interactive nature:

...people want to interact directly with music on their own terms. They enjoy creating, playing and hearing their own musical products.

In the second area, music production, the home musician is in line for a more active role. With the development of digital audio tape (DAT) which matches the noise-free quality of the compact disk, it is possible to make home recordings equal to much of what is now sold. Taylor signals a second production innovation, a sheet-music database accessed via synthesizer and printer in a music store:

...a salesman [sic] could have the store's computer and synthesizer play the composition (perhaps in various arrangements and instrumentation) for the customer...it could be simple to print it in any key, for any instrument or group of instruments, with any number of parts.

Of lesser interest to the commercial world, so far, are the areas of composition and music instruction. However, the opportunities for school students to learn the basics of sound synthesis are increasing and as this group moves through to earning capacity there will be a wide market for home composer software.

Taylor believes that music instruction software is mediocre.

...many programmers think of computers as learning tools. They still see them as "teaching machines", a concept from the 1950s. Teaching machines were portable mechanical devices that presented information and drill materials to learners in small units or "frames". ... This idea was usually called "programmed instruction", and it grew out of behavioural psychology research.

Thus, although much of the 'drillmaster' software is seen as an elegant use of the computer's capabilities, it is in fact only one of its lowliest functions based on the limited view of learning as a lock-step behavioural process.

In reviewing the MEDICI melodic dictation program trialled at the Centre for Music Research at the Florida State University, Taylor (1982) concludes that a major weakness of the drillmaster concept became apparent;

MEDICI did exactly what it was designed to do ... There was no forgiving, no slowing down of the learning pace, and most important, no control by students over the learning process. They perceived MEDICI as a relentless and unforgiving machine ... some students hired colleagues with good melodic dictation skills to work with MEDICI in their names.

Arenson (1984) discusses Taylor's (1982) findings with regard to MEDICI and although he recognises that the gain scores for both the control group and the experimental group were not significantly different, he cites other studies in CBI (computer based instruction) and concludes that

drill-and-practice is more effective than traditional homework and self-practice in learning fundamental music theory skills.

However, there still remains the issue of the quality of the program and he warns that there are many in existence which are limited and, as with any curriculum resource, they will always reflect the pedagogical bias of the author. He advocates flexibility and describes the "tables" or instructor editing files built into the GUIDO Music Learning System (Arenson and Hofstetter, 1983). These allow music instructors with no knowledge of computer programming to edit programs to suit their biases and their students' needs.

McPherson (1985) gives an account of the use of GUIDO at the University of Western Australia where it is seen by staff as an integrated part of the whole music curriculum, complementing the practical and creative aspects of coursework. He describes a new role for the instructor, that of diagnostic consultant helping individual students.

Arenson (1984) claims that computers are superior to traditional methods in the areas of musicianship, 'such areas as ear-training, sight-singing, music theory instruction', where speed and accuracy are important. He sees a need to encourage the design of software for music appreciation and music history instruction and a need to use other developing media.

For more sophisticated CBI in music appreciation and music history courses, video-disc technology holds great promise ...

DeBloois (1984) takes the role of videodisc technology one step further by including the crucial factor of interactivity thus incorporating in instructive programs the possibility for enjoyment, as experienced by users of electronic instruments which are by nature interactive. Interactive instruction is characterised by four features; firstly, users create their own sequence of lessons, secondly the system responds according to the learner's (a) interest, (b) ability, (c) learning style, (d) pace and (e) language, thirdly, the material is encoded in modules rather than in linear sequence and fourthly the learner interacts with a data base of visual, textual and audio cues.

DeBloois has a particularly ambitious purpose in mind for this kind of program.

... instructional designers believe that high quality, validated instructional systems may be the only way we will deliver better learner performance in less time and at lower per-learner cost. (1984)

He exhorts teachers and instructional designers, presumably two different groups to put away the tools of the industrial revolution and to develop training and educational systems that take account of 'a high tech, high touch, decentralised, self-help, multi-option society' - the information society.

DeBloois argues passionately for political involvement by designers, educators and instructors in order to guard against the negative effects of the technological revolution. He also advocates closer interaction between technologists and humanists, so that 'sparks begin to fly' resulting in the development of interactive learning systems which faithfully meet his four requirements. His goal is:

[to] have students engage in learning in an active enthusiastic way, to find success and feel actualised through the process, and to accomplish personal learning goals with efficiency.

Balzano (1987) advocates an even more radical position. He is not content with using computers to make learning more efficient, but sees them as a catalyst for making connections across disciplines and across age-levels. His is a vision of a totally reconstructed curriculum using a design orientation to encourage a more integrated view of a field of knowledge. He proposes a new metaphor, a 'design environment' to replace the old idea of computer as a 'number cruncher' which has given rise to the drill-and-practice application. This, he claims, is based on the metaphor of 'mind as sponge'.

With the twin notions in mind of design as planning and as improvising, he launches into a description of his research on musical 'design environments' which give the learner different kinds of musical 'handles' or models as 'ways of thinking about and manipulating musical structures'.

Balzano's project is called SESAME, Structured Environments for Sound and Music Exploration. It was designed to avoid two 'rather oppressive roadblocks' obstructing the progress of music students. He claims that students find 'music theory' and 'basic musicianship' to be painful courses of learning which must be endured before they can move on to composing music or designing their own musical structures. He also claims that the path to musicality through 'performance' is intellectually suspect.

... it does indeed appear all too possible with any heavily performance slanted approach for the learner to become merely a proficient player, almost as one becomes a proficient typist. Just as we would not accept typing proficiency as a substitute for ... literacy, so we should not accept playing proficiency as a substitute for genuine musical literacy.

The typing analogy is a poor one. Poetry recitation would be closer to the mark. However, the point is made that genuine literacy includes the ability to write new texts whereas musical literacy has not been encouraged in the recent past; performance has.

Balzano recommends that composition be given a central place in the music curriculum, with computers providing the design environment which supports the development of musical proficiency through cognitive rather than mechanical control. He maintains that: 'the computer is not a drill machine but a "discovery-rich environment".'

His thesis is that the drill-machine or automated teacher is a disempowering notion. The computer should be an 'environment surrogate' rather than a 'person surrogate' providing the learner with the means to accomplish what they want to do. The role of the teacher is that of 'master learner' or 'manager of learning resources' whose objectives are to lose the attention of the learners as they pursue their own intentions, to observe them as individuals and as teams, and to develop personalised evaluations of them. He claims a similarity between his 'design environments' and Seymour Papert's 'microworlds'. This link with Papert, designer of the LOGO computing language developed in 1968 at the Massachusetts Institute of Technology, leads to the next major theme noted in the literature.

TECHNOLOGY AS A CREATIVE SOUND TOOL FOR CHILDREN IN THE GENERAL CLASSROOM

Martin Lamb (1982) describes an interactive music teaching system called 'Music Doodles' which he has developed following the lines of Papert and Bamberger, (also from MIT). This is one of the few systems designed for children and yet, he claims, it is powerful enough for composers to work with. Its features are 1) its interactivity (the rules are part of the game, both sound and animation provide pleasurable feedback) 2) the graphical modelling of pitch and melodic shape, and 3) the possibility of transforming the phrases invented through transportation, augmentation, diminution, retrograde and inversion.

In a later paper (1986) delivered in Australia, Lamb describes a series of music education computer programs, three of which are novel ways of applying computer technology to music teaching:

MUSICLAND, Melody Manipulations and Music Logo all introduce the student to musical concepts, teach about composition and allow her to perform high-level functions without having to acquire low-level (i.e. motor) skills.

MUSICLAND, one of the Lamb's programs which includes 'Music Doodles', uses an innovative interface which does away with the typewriter keyboard. A stylus, graphics tablet and slider controls allow a child of three years old to control all aspects of the four games. This program and another of Lamb's, namely 'Melody Manipulations', allow learning to happen through the creative musical process of composition rather than leaving composition as an activity reserved for a 'gifted' few who have proven their 'worth' by achieving excellence in theory and/or performance. The few students who have traditionally been encouraged to compose have demonstrated an ability to hear internally or to "think in sound." Lamb claims that the graphical models and instant playback features of such programs provide a powerful aid to inner hearing:

Being able to hear your creative ideas externally ... opens up the field of music to anyone, not simply to those who are advanced in their training.

The creation of one's own musical works is exceptionally motivating and leads to confidence, a desire for technical fluency and a new state of curiosity as the basis for learning music concepts.

Davidson (1990) reviews the conditions needed for an environment in which students assume responsibility for their own learning. Such an environment is seen to be necessary for the encouragement of creativity. Why is creativity seen to be desirable in the compulsory school setting?

General music classes are probably not the training ground for performers or composers, but they are the first arenas in which students, regardless of gift, can discover what thinking like an artist means and how creative thinking transforms expectations, standards and conditions of learning. And students begin to understand what the rewards of an artist's work might be.

So the purpose of arts education in this instance is to let the student think the way an artist thinks. One of the projects described, 'Songsmith', is a part of a larger project, 'Arts Propel', which is concerned with assessment in music. It is interesting to note that the researchers' intention is to assess students' musical knowledge as comprehensively as they can, hence the inclusion of composition projects which foster creative thought and practice. Davidson names three 'essential ingredients' for learning in the arts; production, reflection and perception, and stresses production as the starting point. In 'Songsmith', students who have little or no formal training in music set a melody to their own text using the program 'Deluxe Music Construction Set' and Macintosh computers. Production immediately involves the learner in the second mode, reflection, which

is intimately connected with the process of monitoring and shaping a performance, a composition or a notation. It mirrors the thinking involved in planning, designing strategies, making choices and evaluating results as well as quietly enjoying a completed work.

Perception involves the student's discriminatory powers. It is exercised at will and is, in turn, modified during the interlinked processes of production and reflection. Davidson claims that students find these processes both challenging and highly enjoyable. Two key factors identified as playing an important role in fostering creative activity are: 1) students are empowered by using the computer which is a tool for 'exploration, verification and confirmation' and 2) music is learned in its own language, sound, rather than in the medium of the more pervasive language of school instruction, words. The third factor is the special nature of the music class which, in Davidson's experience, allows extended time and flexible schedules for students to set and solve their own problems, real-life tasks, in which they are given more responsibility for their own learning. Critical facility is developed rather than accuracy and the whole of the student's musical experience is brought into play. Some quotes from the students bear witness to the authenticity of these claims:

I like to criticise the songs. If one note stands out, that's it. You can tell. If I hear one note that sounds really bad I say "Stop right there" and go right back and change it.

Music class is important because you don't have to work under pressure. [The teacher] lets you do it another time, like during lunch or homeroom.

The best thing about my class is that I can work on my own. The way Miss Green teaches it, we do our own work and we do it on our own. (cited in Davidson 1990).

Webster (1988) has developed a model of creative thinking in music which proposes a complex web of factors. He includes enabling skills (such as flexibility), enabling conditions (such as environment), thinking processes, both divergent and convergent, a period of stillness (incubation) and an intention of producing something (a composition, performance or analysis). Thus, the creative product is seen as evidence of high order human inner life. The kinds of activities that happen in much of music education do not support the divergent thinking needed to achieve musical creativity and yet music is regarded as an expressive art form in society. Webster (1990) engages the latest technological innovations in his arguments for increasing the creative options of children in school settings. He believes that the newer composing programs and multi-media hardware will help teachers and researchers understand the creative thinking processes better and lead us to better quality teaching:

Education ought to be about teachers who ask children to think, to imagine, to play with ideas, to create, and to feel what all that is like. (1990)

Reimer emphasises the creative side of music as the proper concern of generalist classroom teachers. He refers to the work of the developmental psychologist, Howard Gardner:

If, as scholars are now suggesting, human intelligence is multi-dimensional, and human cognition is diverse, educators will need to search for more comprehensive approaches to cognitive development.

The concept of intelligence as multi-dimensional adds value to practices which encourage children to think in sound and to problem-solve in music the way they have been encouraged to problem-solve in art and writing over the last two decades.

How does the idea of music technology as a creative tool for children measure up against Eisner's four dimensional curriculum cited in the 'arts educator' theme? The first category is to learn to make expressive images. The composing programs exist in enough variety to allow all users to achieve success, no matter what level of musical skill they have attained. The second thing is to develop sophisticated auditory sensitivity. The drill-and-practice type of program would certainly be appropriate to this aim as would certain facets of the composing software. Eisner's third dimension to a musically educated person is the realisation that music exists in time, place and culture. There seems to be a lack in this area, at least in the literature reviewed for this paper. It may be that this is the least appropriate area to be resourced in computer software format. A more likely argument is that it will be developed along with interactive videodisc technology. Finally, Eisner insists on developing the ability to make judgements about quality. The development of affordable recording equipment of high quality has already played its part in allowing students to develop a critical faculty about their own work in the first instance. The sequencing programs and electronic instruments now readily available will increase students' options, encouraging them to become producers of their own music rather than consumers of the 'produced' few.

NETWORKS

1. The U.S.A.

Michael Arenson (1984), from the Department of Music, University of Delaware, identifies a special-interest group forming a part of the Association for the Development of Computer-Based Instructional Systems, (ADCIS). The National Consortium for Computer-Based Music Instruction, (NCCBMI), now the Association for Technology in Music Instruction (ATMI) publishes a newsletter, a courseware directory and one issue per year in the **Journal of Computer-Based Instruction**, a refereed quarterly.

Gerald Balzano is from the Department of Music, Centre for Music Experiment, Program in Cognitive Science, University of California. In his article, (1987) he describes a research project, SESAME, Structured Environments for Sound and Music Exploration.

Lyle Davidson is a lecturer in education at Harvard University's Graduate School of Education and chairman of the Undergraduate Theory Department at the New England Conservatory of Music. In his article (1990) he describes a music assessment project taking place in Pittsburgh sponsored by the Rockefeller Foundation:

.... Arts Propel brings together the Pittsburgh Public Schools, Educational Testing Service, and Harvard Project Zero to develop ways of assessing students' musical knowledge more comprehensively.

Jack A. Taylor (1988), professor of music and director of the Centre for Music Research at the Florida State University, Tallahassee, gives extensive notes including addresses of software suppliers and information about digital composition studios.

Peter R. Webster (1988) an associate professor of music at Case University, notes reports of national significance to education reform.

2. The U.K.

Anthony Kemp (1986), is Director of the Music Education Centre University of Reading, Chairman of the United Kingdom Council for Music Education and Training, and Chairman Elect of the ISME Research Commission. He cites publications from technology centres such as the Southern Region Electronic Information Centre and the Reading University Music Education Centre Microtechnology Unit. He also mentions the London: Council for Educational Technology.

Nigel Morgan (1988 March) mentions two projects; "Touching Sound" organised by a research fellow from MESU (Microelectronic Education Support Unit), and Bedfordshire County's TVEI "Sound Technology Bus". In later articles (1988) (1989) he gives addresses for distributors and consultants. Morgan (1991), refers to a DES proposal outlining availability of funds.

Susan Sturruck in two articles about the **British Music Fair** (1989, 1990) supplies the reader with dealers' names, recommends books and software and gives an address for Fair registration.

James Sullivan (1990) is the contact person for the Cheshire Music Studio which, as part of the Cheshire Education Authority, offers training courses for teachers.

Paul Wright (1990) describes an education project designed by three composers from the Electro-Acoustic Music Association of Great Britain, (EMAS) and performed at the Huddersfield International Contemporary Music Festival.

Colin Wells, manager of the Music Education Centre Microtechnology Unit, University of Reading School of Education, gives a long list of suppliers' addresses in the **1986 British Music Education Yearbook**.

3. **Australia**

Music and Computers (1986) gives names and addresses of Australian and American music software dealers, associations, newsletter publishers and Australian education units and studios.

In his 1987 paper, Robin Stevens, senior lecturer in music education at Deakin University, Victoria, cites several successful Australian projects in the areas of innovative teaching programs, software development, research and development work, and newsletter distribution. The newsletter mailing list forms the group known as ACIMEG, Australian Computers in Music Education Group. The newsletter is compiled and edited by Robin Stevens and is a joint publication of the Research and Development Group in Musicology and the Performing Arts and of the Educational Computing Research Group, Deakin University, Victoria.

PROPOSALS FOR FUTURE DIRECTIONS AND DEVELOPMENTS IN PRIMARY SCHOOL MUSIC

It seems fairly obvious that, despite the current economic recession, computer assisted learning is here to stay. In music education the groundwork has been laid allowing for expansion in all possible directions, in fact in some directions that are at the moment inconceivable to many classroom teachers. The applications noted in this paper cover the four traditional areas of performance, musicianship (ear-training, sight reading, theory instruction), composition and history/appreciation. They also propose new directions in cross-curriculum or multi-disciplinary studies. How do they stand in relation to the question 'What applications, if any, are desirable for use in the primary school music program?' posed earlier in this paper.

For the generalist classroom teacher, I favour applications that encourage students to 'think in sound', to take responsibility for their own learning, to work sometimes alone and sometimes in groups, to work across traditional curriculum boundaries, to use multi-media and to make artistic products regardless of their skill and knowledge level. I believe that the researchers Lamb, Webster and Davidson have the most to offer the classroom teacher. The specialist music teacher in schools or in the private studio setting would be advantaged by having the whole range of software types in order to choose the best ones for individual learners.

A further question arises. "What conditions will encourage the wise use of computers in primary music education?" My proposals are:

1. Tap existing networks in Australian and elsewhere. Act to encourage growth in the sharing of perceptions among educators. Encourage provision of information of a practical nature.
2. Encourage in-service activities to support teachers in schools and other educators. Acknowledge reluctance as legitimate, and allow educators to choose the moment and method of entry into the field of computer assisted learning in music and the arts generally.
3. Work towards the establishment of a lending library of software allowing educators to use their existing hardware.
4. Undertake research in the field and include opportunities for educators to work with programmers in order to develop interactive, modular programs suited to Australia's cultural setting, with particular reference to Aboriginal perceptions.
5. Design and implement courses in pre-service teacher education which allow for "hands-on" experience of computer assisted learning in music and related multi-disciplinary studies.
6. Engage Australian composers, particularly encouraging women composers, in educational projects using music technology.
7. Keep a wary watch focus on the balance of direct and mediated arts experiences in the general classroom setting.

BIBLIOGRAPHY

- ARENSEN, Michael A. "Computer-Based Instruction in Musicianship Training: in **Computers and the Humanities**. Pp.157-164, Vol. 18, No. 3-4, July-December 1984.
- BALZANO, Gerald J. "Reconstructing the Curriculum for Design" in **Machine Mediated Learning**. Pp.83-109, Vol. 2, No. 1,2, 1987.
- BONTINCK, Irmgard. "The Changing Media Landscape and its Consequences for Music Education Policies : The Role of Musical Programming." in **International Journal of Music Education**. Pp.5-13, No. 17 1991.
- DAVIDSON, Lyle, "Tools and Environments for Musical Creativity." in **Music Educators Journal**. Pp.47-51, May 1990.
- DE BLOOIS, Michael. "Designing Instructional Materials for the Humanities" in **Computers and the Humanities**. Pp.189-194, Vol. 18, No. 3-4, July-December 1984.
- DEL GROSSO DESTRETI, Luigi. "Do Musics Need Sociology 'tout court', a Sociology of Professions or a Sociology of Technological Communication?" in **International Journal of Music Education**. Pp.19-21, No. 15 1990.
- EISNER, Elliot W. "Educating the Whole Person : ARTS in the Curriculum." **Music Educators Journal**. Pp.37-41, April 1987.
- FELDSTEIN, Sandy. "Technology for Teaching." **Music Educators Journal**. Pp. 35-37, Vol. 74, No. 7, Mar. 1988.
- FELDSTEIN, Sandy. "An Ear to the Past, an Eye to the Future." **Music Educators Journal**. Pp.38-40, Vol. 76, No. 3, Nov. 1989.
- GRUHN, Prof. Dr. Wilfried. "Putting Computers in Their Proper Place." Submitted for the seminar **Changes in the professional profiles of music educators prompted by technological innovation**. Byron Bay, Australia 1988.
- HALL, W. Vann. "Conquering the Midi Muddle". **Music Educators Journal**. Pp.26-29, Dec. 1986.
- HOPE, Samuel. "As Disk Drives Whir." in **Design for Arts in Education**. Pp. 47-48, Vol. 90, No. 2, Dec. 1988.
- HODGES, Richard. "Creative Keyboards." in **Music Teacher**. Pp.28-29, Vol. 68, No. 5 May 1989.
- KASSNER, Kirk. "Rx for Technophobia." **Music Educators Journal**. Pp. 18-21, Vol. 75, No. 3, Nov. 1988.
- KEMP, Anthony. "Microtechnology in Music Education." in **International Journal of Music Education**. Pp. 39-42, No. 8, 1986.
- LAMB, Martin. "An Interactive Graphical Modeling Game for Teaching Musical Concepts". in **Journal of Computer-Based Instruction**. PP. 59-63, Vol. 9, No. 2, Autumn 1982.
- LAMB, Martin. "Micros Plus : MUSIC!" as conference paper at the **IFIP Conference on Microcomputers in Education**. Wollongong, Australia 1986.

- LEHMAN, Paul. "The Class of 2001 : Coping with the Computer Bandwagon." **Music Educators National Conference**. Reston, Virginia 1985.
- MILLER, Frederick. "Music in Our Schools : The Case for Realism." in **Design for Arts in Education**. Pp.38-41, Vol. 89, No. 5, May/June 1988.
- NEW SOUTH WALES DEPARTMENT OF EDUCATION. **Music and Computers**. Computer Education Unit, 1986.
- MORGAN, Nigel. "New Technologies for Better Music." in **Music Teacher**. Pp.8-9, Vol. 67, No. 2, Feb. 1988.
- MORGAN, Nigel. "The Hybrid Music System." in **Music Teacher**. Pp.33-35, Vol. 67, No. 3, Mar. 1988.
- MORGAN, Nigel. "Music Software for Atari." in **Music Teacher**. Pp.29-31, Vol. 67, No. 7, July 1988.
- MORGAN, Nigel. "Multi-Track Recording" in **Music Teacher**. Pp.17-18, Vol. 68, No. 2, Feb. 1989.
- NEWCORBE, Steven R. "Computer-based Arts Instruction : How Are We Doing?" in **Design for Arts in Education**. Pp.46-49, Vol. 89, No. 5, May/June 1988.
- REIMER, Bennett. "Music Education as Aesthetic Education : Past and Present. First of a Two-part Series." **Music Educators Journal**. Vol. 75, No. 6, Pp. 22-28, Feb. 1989.
- REIMER, Bennett. "Music Education as Aesthetic Education : Towards the Future. Second of a Two-part Series." **Music Educators Journal**. Pp.27-32, Vol. 75, No. 7, Mar. 1989.
- REIMER, Bennett. "Would Discipline-Based Music Education Make Sense?" in **Music Educators Journal**. Pp. 21-28, May 91.
- REITENOUR, Steve. **Music Higher Education and Technology : Annotated Bibliography**. ERIC Document, April 1986.
- SLAUGHTER, Paul. "Music Technology for the fearful." in **Music Teacher**. Pp. 11-13, Vol. 167, No. 1, January 1988.
- STEVENS, Robin S. (Ed.) **Computer Technology and Music Education : the Australian Beginning**. Geelong, Deakin University Press, 1987.
- STEVENS, Robin S. **Music Technology : Its Role in Music Education and its Potential for use in Australian Schools**. Prepared for the Australian Society for Music Education for inclusion in a major paper on "The Arts and Technology", Project of National Significance. 1987.
- STEVENS, Robin S. **My Computer Sings! A Study of Educational Computing in Music Education**. Geelong, Deakin University Press, 1988.
- STEVENS, Robin S. "The Best of Both Worlds : An Eclectic Approach to the Use of Computer Technology in Music Education." **International Journal of Music Education**. Pp.24-36, No. 17, 1991.
- STURRUCK, Susan. "British Music Fair." in **Music Teacher**. Pp.17-21, Vol. 68, No. 9, Sept. 1989.

STURRUCK, Susan. "Fair Trading." in **Music Teacher**. Pp.28-29, Vol. 69, No. 6, June 1990.

SULLIVAN, James. "The Poor Man's Piano." in **Music Teacher**. Pp.14-15, Vol. 69, No. 7, July 1990.

SULLIVAN, James. "Crossed Wires" in **Music Teacher**. Pp.14-17, Vol. 69, No. 8, August 1990.

TAYLOR, Caroline. "PRS Composer in Residence." in **Music Teacher**. Pp.35-36, Vol. 69, No. 2, Feb. 1990.

TAYLOR, Jack A. "Computers in Music and Music Instruction : The Joys of Hardware and the Woes of Software." in **Design for Arts in Education**. Pp.50-55, Vol. 89, No. 5, May/June 1988.

THOMAS, Ronald B. "Designing a Curriculum for the Gifted and Talented." in **Music Educators Journal**. Pp.54-58, Vol. 76, No. 7 March 1990.

TURNER, Tony. "Where Technology Wins." in **Music Teacher**. Pp.9-11, Vol. 68, No. 1, Jan. 1989.

TURNER, Tony. "You Pays Your Money and You Takes Your Choice." in **Music Teacher**. Pp.25-27, Vol. 68, No. 5, May 1989.

VOORHEES, Jerry L. "Music in a New Age : The Challenge of Electronics." **Music Educators Journal**. Pp.32-36, Oct. 1986.

WAGNER, Michael J. "Technology : A Musical Explosion." **Music Educators Journal**. Pp.30-33, Vol. 75, No. 2, Oct. 1988.

WEBSTER, Peter. "Creative Thinking and Music Education." in **Design for Arts in Education**. Pp.33-37, Vol. 89, No. 5, May/June 1988.

WEBSTER, Peter R. "Creativity as Creative Thinking." **Music Educators Journal**. Pp.22-28, Vol. 76, No. 9, May 1990.

WEBSTER, Peter R. "Creative Thinking, Technology and Music Education." in **Design for Arts in Education**. Pp.35-41, Vol. 91, No.5, May/June 1990.

WELLS, Colin. "Microtechnology in Music Education : Its Uses and Potential" in **British Music Education Yearbook**. ed. Marianne Barton and Jacqueline Fowler. Rhinegold, London 1986.

WELLS, Colin. "Microscope." in **Music Teacher**. Pp.27, Vol. 67, No. 4, April 1988.

WELLS, Colin. "Microphones and Real Time." in **Music Teacher**. Pp.37-38, Vol. 67, No. 6, June 1988.

WRIGHT, Paul. "Wired for Sound." in **Music Teacher**. P.31, Vol.69, No. 6, June 1990.

SOUNDScope II AND THE MOZART PROGRAM - SOFTWARE DEVELOPED AT THE SYDNEY CONSERVATORIUM

Paper presented at the XIVth AMEL Annual National
Conference, September, 1992, in Sydney

by

Dr Leonard Burtenshaw, Head, Division of
Music Education, University of Sydney

During 1991-1992, the Sydney Conservatorium Software Development Centre has devoted research grants to developing two software packages for the ATARI TT, and STE computers, as well as transferring one of these programs, namely the Mozart Program to the Macintosh. The research has built on SoundScope I, which was demonstrated at the 1990 ISME Conference in Helsinki, with multimedia functions. In some respect SoundScope II for the ATARI TT and STE has some similar functions to Hypercard and its basic function is that of an authoring tool for developing other software programs. It encompasses the rapidly expanding area of multimedia which can be considered a formal device drawing together text, graphics, pictures, video and sounds.

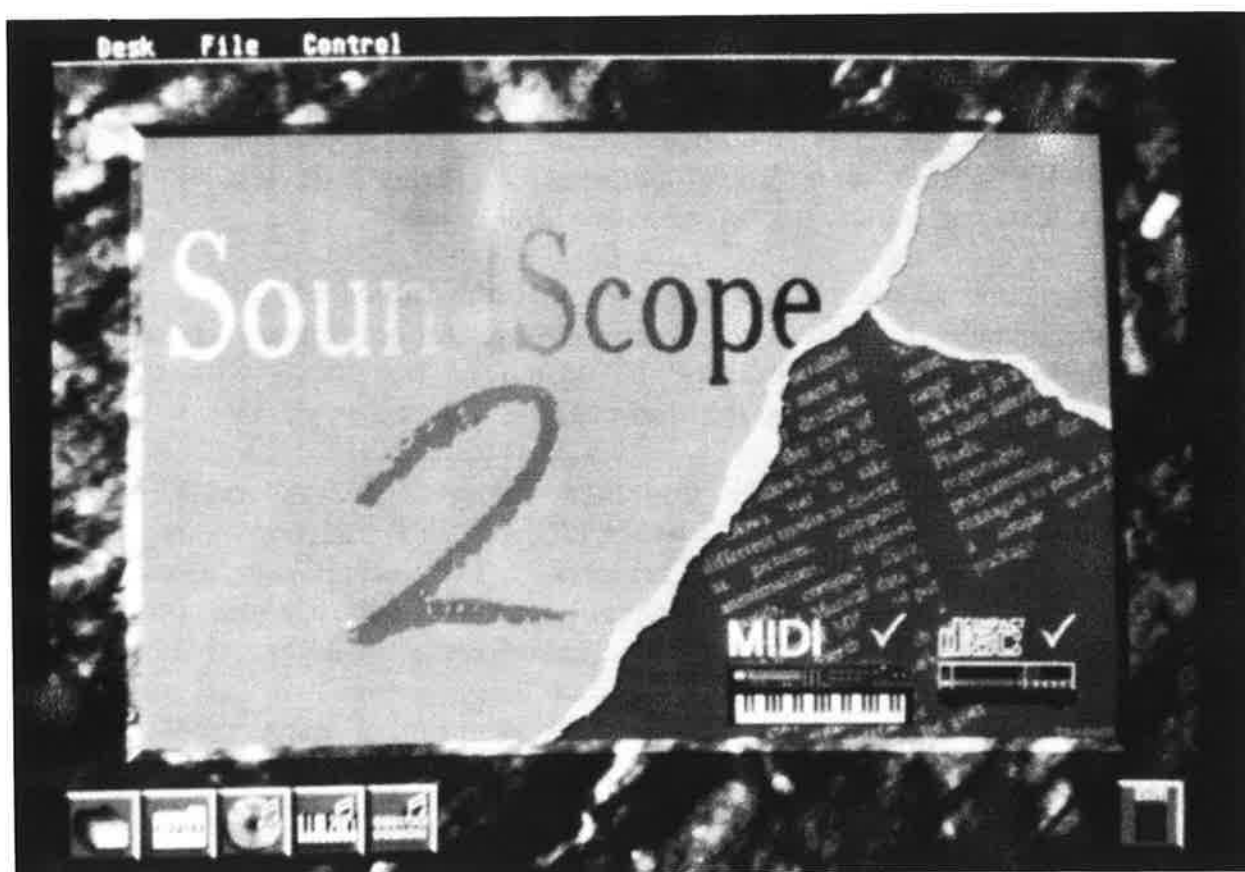
... look at the computer games that the junior computer enthusiasts have today - lights, sound, action, music, speech and animation. It mirrors the output of television, with the added intelligence of the computer. (Barr-David, 1992)

The SoundScope II brings together many differing medias of communication eg CD, MIDI, ANIMATION, TEXT and combines them together in any way the user requires. This effectively allows a user to create such diverse products as - business reports, product demonstrations, slide shows, discussions of music, children's adventures, multiple choice tests and help menus, in an online computer environment utilising the best features of each media.

Emphasis has been placed on ease of use to allow even computer novices and children to create their own work. Everyone can enjoy the simplicity of the design whilst the hardcore user can still create detailed and complex products.

The original SoundScope I concentrated on the use of CD-ROM technology. SoundScope II has been radically reorganised and re-thought to allow pictures, text, buttons, pointers, animation, CD

ROM, digitised sound and MIDI files in a far more user-friendly environment.



The opening screen for SoundScope II shows the five icons on the bottom left hand corner which constitute the main features of the program - from left to right, the script, cards, CD, MIDI, and digi icons

SoundScope II has been designed to take full advantage of CD and MIDI technology. It does not create graphics, sounds, CDs or MIDI music but allows for the combination of these in a logical format that can be played in a step-by-step situation as a script.

Sound components (MIDI, CD and Digitised Sounds) are captured in the SoundScope II system by way of a SNAPSHOT which is a saved location pointing to the start and end time of a CD, an individual MIDI file or Digitised sound file. Graphics, animation, text, CD or MIDI or digitized sounds are combined within the basic control unit called the CARD. Cards are then combined in a script controlling the order of execution of the Cards.



The CD screen from SoundScope II will provide an example of the way a sound sample that can be captured and the start and finishing times held in memory. It is assumed that a CD ROM has been interfaced to the computer and a CD disc installed. If a track number is known, then the mouse pointer moves to Track select

and clicks on. The user then types the sound track number, and the start and finishing times in minutes and seconds appears on the screen. Press the Play icon to hear the excerpts. If however, the track number of the CD disc is not known, the user can search for the start by applying the mouse pointer to make a selection on the minutes and seconds columns and then can activate the sound icon (next to the STOP icon) to hear the excerpt. In a similar way the end of the excerpt is determined by diverting the mouse pointer to the minutes and seconds columns in the "End" section of the screen.

The Mozart Program is an example of how the SoundScope II, acting like Hypercard for the Macintosh, may be utilized to develop a music education program. The Mozart Program designed for the ATARI TT has also been transferred to the Apple Macintosh. In these programs movements from the Haffner Serenade K250 and the Haffner Symphony K385 are analysed in way that utilize some of the potential of interactive multimedia.

The following four examples taken from the Macintosh version show the Aims, Movements of the Haffner Serenade and Haffner Symphony being analysed and discussed, the Score of the opening of the Menuetto movement, and the Background information about the Serenade.

Aims

The aim of the software programme Mozart is to introduce to the general musical audience stylistic features of the music of Mozart using the following Compact Discs:

Mozart - "Haffner" - Serenade KQ250
Marsch KQ 249
Teledec 6.43062 ZK

Mozart - Symphony No. 35 "Haffner" KQ 385
Teledec 242 896-2 ZK

Selected movements of the works will be analysed in order to provide greater understanding of the music itself. Formal aspects of the music will be discussed and illustrated in diagram form. Mozart's use of melody, harmony and instrumentation will be featured in the presentation.

[Click to continue](#)

Studies in Mozart

☒ Marsch D-dur, KV 249

☐ Serenade Nr. 7 D-dur, KV 250
(Haffner Serenade) Menuetto & Trio

☐ Symphonie Nr. 35 D-dur KV 385
(Haffner Symphony) Menuetto

☐ Symphonie Nr. 35 D-dur KV 385
(Haffner Symphony) Presto

☐ Picture Gallery

☐ Follow the Score

☒ Phrase Player

Play Now

Sydney Conservatorium of Music

SERENADE No. 7 in "D" Major KV 250

"Haffner Serenade"

Wolfgang Amadeus Mozart

Movement 3
Menuetto

Violin I *f* Tutti

1

Strings *p*
Bassoons

9 *f* Tutti

1st Violins *p*
1st Flutes

Tutti *tr*

CD Excerpt from TELDEC 843062 ZK
MOZART "Haffner" - Serenade KV250 - Marsch KV249
Nikolaus Harnoncourt - Staatskapelle Dresden

Background

Recording

Instruments

Musical Analysis

The Serenade in "D" Major KV 250 was written in 1776 and originally commissioned by Siegmund Hafner, a wealthy Salzburg merchant, for the festivities associated with the wedding of his sister, Elizabeth.

The Serenade consists of eight main movements and is representative of the serenade design, several movements of which are Menuetto and Trios. Mozart undertook the commission perhaps too seriously and wrote a much more substantial work than was normally the case with the serenade.

The outer movements suggest the proportions of symphonic writing. Movements 2-4 (Andante, Menuetto and Trio and Rondeau) are scored for solo violin and orchestra and could even constitute a "violin concerto" in the middle work. Concerto, symphonic and serenade models are therefore combined in this composition.

The prevailing character of this serenade is one of gaiety and festivity. The March, KV 249 is closely associated with the serenade as it was played as part of the festivities.

Issues for the Music Educator

There is a need for continual re-evaluation of interactive multimedia programs to ascertain the desirability of the program itself rather than for the program to be technology-driven. The software should "do more than merely automate current activities ... it should, to use the jargon, provide 'added value' to the information or activity". (Burnand, 1991:14) David Burnand also draws attention to the value of mass data storage and as an example cites the recently released Music Index on CD ROM which contains 200,000 citations from music periodicals.

Future Planning

Software programs being planned by the Conservatorium Software Development Centre include the Pictures at an Exhibition (Mussorgsky) and the Carnival of the Animals (Saint-Saens). The first program will utilize the original piano version as well as the Ravel orchestration along with the CD performances. Reproductions of the Hartmann Exhibition will be incorporated as graphics and elements of the two scores will be discussed. The second program, the Carnival of the Animals, will combine various graphics of the animals with the musical score and the CD recording.

The Software Development Centre is hoping to undertake some joint projects with music educators and computer programmers internationally, in order to write a significant series of music programs developed with the most advanced technology. It may be opportune to initiate a Commission of ISME in order to provide an impetus for such research and development.

Conclusion

The multimedia capacity of drawing together text, graphics, pictures or sounds had one of its earliest advocates in Vannevar Bush. In describing his imaginary Memex he states that it is "a device in which an individual stores his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory". (Bush, 1945) Almost 50 years later the relevancy of this thinking may be applied to Music

Education and even where the emphasis may have shifted in some school systems to the creative processes, there will still be a need for the gaining of factual knowledge. Information Technology has its part to play in passing on this information.

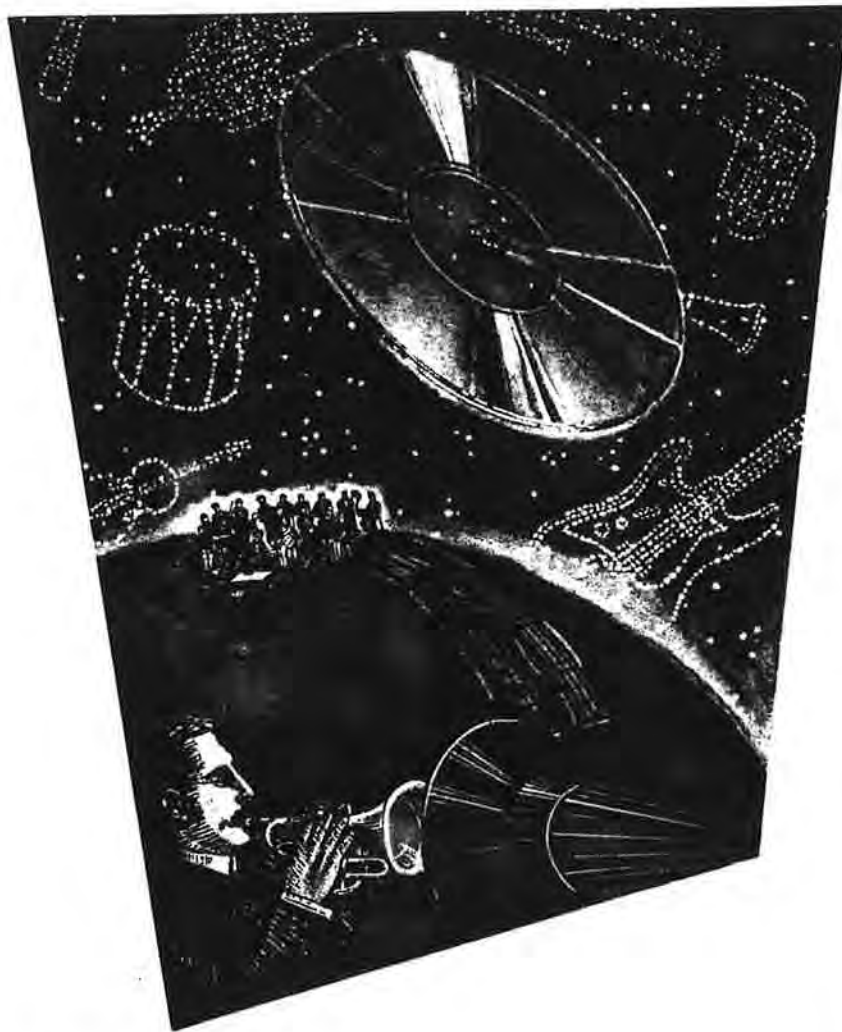
David Burnand (1991:3) quotes Tazelaar's hyperthetical situation in illustrating how an integration of visual and aural multimedia information relevant music may be easily access by a computer mouse.

.. imagine ... walking into the New York Public Library and picking up a book on Mozart. You begin to read and learn that Mozart was an Australian composer in the late 1700s. You wonder what else was happening in Austria then, so you go to the card catalog, find a book on Austrian History, go to the stacks, locate the volume (if it's not checked out), and read it before you continue.

In this book you find a reference to old Salzburg, and you wonder what it looked like. Back to the card catalog, and the stacks, to find a book with images from that time. Finally you get back to Mozart and read of a piano concerto you've never heard. This time you head for the library's record collection and listening room. (Tazelaar, 1988)

Tazelaar explains how this imaginary scene may be programmed on a computer. The Mozart Program developed at the Software Development Centre at the Sydney Conservatorium may provide partial fulfilment of Tazelaar's hyperthetical situation.

SoundScope® II



Minimum Hardware Requirements: ATARI STE (1 meg minimum), ATARI TT (2 meg minimum), Colour Monitor ATARI SC1224, ATARI PTC1426
Optional Hardware: Conservatorium of Music CD921 CD-ROM Player, Atari CDAR 504 CD-ROM Player or equivalent, stereo headphones or stereo amplifier (Bose speakers, 'Video Room Mates' or Acoustimas AM-5' are recommended), ATARI Hard Disk drive or equivalent.



CONSERVATORIUM OF MUSIC
SOFTWARE DEVELOPMENT
UNIVERSITY OF SYDNEY

References

- Bush, V, "As We May Think", Atlantic Monthly, 176, July, 1945
- Burnand, David, The IBM Music Education Project Report, London:
Goldsmith's College, University of London, 1991
- Tazelaar, J M, "Hypertext", BYTE, October, 1988, p 234
- Barr-David, Frank, The Future - Hot and Interesting, Sydney:
Lexmark International, 1992, p 105

EXPERIMENTS IN VIDEOCONFERENCING - IMPLICATIONS FOR MUSIC EDUCATION

Paper presented at the XIVth AMEL Annual
National Conference, September 1992, in Sydney

by

Dr Leonard Burtenshaw, Head, Division of
Music Education, University of Sydney

Introduction

Although videoconferencing units have been used by Telecom for communication purposes between the major cities in Australia since the seventies, it is only recently, with the sophistication in picture and sound quality, that the potential of videoconferencing for teaching and research purposes has become a reality. In order to provide the Conservatorium Faculty with an understanding of the various technical means and the teaching and research strategies in distance learning, it was decided to engage an expert in the area; Associate Professor Betty Lawrence, New York University, was appointed to the Division of Music Education as a research scholar in February, 1992. Her report, "Extended Campus Programs - Future Directions for the Conservatorium of Music, Sydney" made recommendations for the Conservatorium to embark on a series of experiments in distance learning in various areas of musical instruction, and to consolidate these experiments through teaching and research commitments in addition to purchasing the appropriate equipment.

The linking of university classes in different locations through various technologies has been a recent development for the dispensing of information. Videoconferencing has the capacity for two-way audio and video interaction between instructor and students, and demonstrates one pathway for utilizing the more able and innovative lecturers on different university sites. Eric Aubert (August, 1992) describes the first three-way videoconference lecture between the University of Technology (Sydney), Sydney and Macquarie Universities. In such a setting the sharing of resources can lead to considerable financial savings, particularly in highly specialized subject areas with expensive equipment and a paucity of lecturers.

Distance Learning through Videoconferencing is currently being developed as cooperative ventures by a number of Institutes of

Higher Education both in Australia and overseas. Among the institutions at the forefront of these developments are Deakin, Charles Sturt, New England and Wollongong Universities. In addition to initiatives that link two or more places within Australia, a project is in place that links institutions in different countries - Master of Pharmacy Degree jointly presented by the Universities of Hong Kong and Otago, New Zealand (Australian Campus Review Weekly, August 20, 1992, p 8).

Drawing on the expertise of outstanding music instructors from city centres and projecting the tutorial via videoconferencing to country areas may be seen as important developments in the education of young people and, at the same time, opportunities for teachers in the country areas to gain in-service experience in participating in the programme.

Five Experiments in Music Education

During 1992 a series of four music education experimental videoconferencing projects have been co-ordinated by Dr L Burtenshaw in cooperation with the University Centre (Sydney), Charles Sturt University and the University of New England, sites separated by approximately 600 kilometres--(i) the University Centre (Clarence Street, Sydney) and the Charles Sturt University - short teaching segments in violin, oboe, and trumpet, (ii) the University Centre and the University of New England, Armidale - a master class with Professor Detlef Krauss, distinguished German pianist acting as a visiting professor in Armidale and providing instruction to four students from the Sydney Conservatorium performing the following programme from the University Centre, Sydney:

Damien Scott:	Beethoven Sonata Op 28 in D 1st Movement
Tonya Lemoh:	Liszt "Sunt Lacrimae Rerum" from Annee de Pelerenage
Anne Dillon:	Beethoven Sonata Op 79 in F# major Two Movements
Rieko Suzuki:	Scriabin, Sonata No 1, 1st Movement

(UNE Gazette, April 1992, Wollongong Campus News, April 1992; and Charles Sturt, Billboard, April 1992);

(iii) the University Centre, Bathurst and Armidale, a three-way link - Professor Barbara Andress (Arizona) as a guest lecturer in Sydney providing a one hour lecture in early childhood music education with a 20 minute segment involving a class of eight four years olds, (Charles Sturt, Billboard, July 1992), (iv) the University Centre and Armidale - a master class presented by Professor Lev Vlasenko, Head of the Piano Faculty, Moscow Conservatoire, a visiting Professor at the Sydney Conservatorium; participating in Armidale were a teacher of piano and a student playing the following programme:

Mrs Carmel Liertz (Piano Staff)	Etude Tableau Op 39 No 5 Rachmaninoff Berceuse Op 57 Chopin
Kate Rose (Student)	Scherzo Humoristique ("Cat and Mouse") Copland Sonata in D major K284 Mozart Nocturne in G minor Op 37 Chopin

(Wollongong, Campus News, 16th September, 1992; Tony Kleu, Sydney Morning Herald, 3rd September, 1992; Australian Campus Review Weekly, 27th August, 1992).



Professor Lev Vlasenko, Head of the Piano Faculty of the Moscow Conservatoire and a visiting professor at the Sydney Conservatorium (centre), recently conducted a master class at the University Centre in Sydney that linked him to a piano teacher and student from the University of New England in Armidale. Looking on were, from left: Dr Leonard Burtenshaw, Head of the Division of Music Education at the Conservatorium; and Mr Ray Hand, who heads the University Centre in Sydney.



Professor Lev Vlasenko

The four experiments already described utilized two channels (telephone lines) 128 Kilobits in the transmission and while satisfactory for speech, the sound quality for music was of limited success.

Master Class in Piano and Clarinet

The fifth experiment involved a link-up of four sites - the Melbourne Telecom Video Conference Room (William Street), the TAFE ORANO Community College in Dubbo, the University of New England in Armidale, and the Telecom Video Conference Room, (The American Express Tower), Sydney, in a two hour session. The transmission was realized through fibre optic cables, with seven channels (384 kilobits).

The Music Instruction of Max Cooke (Piano) and Dr Peter Clinck (Clarinet) was beamed to pupils in Dubbo with observers in the other two sites. The Master Class was conducted in the traditional manner of interaction between teacher and student. The lecturers in Armidale and Sydney familiar with the earlier experiments concluded that the sound and picture quality was the best standard achieved to date and was considered suitable for ongoing musical instruction. (Eric Aubert, October, 1992; Anne Sarzin, November, 1992, Rosalind Halton, October, 1992; Max Cooke, October, 1992).

The report of Max Cooke provides a further insight into the nature of the Master Class (October, 1992).

The videoconferencing centre in William Street in Melbourne, in which I worked, was equipped with a Bernstein grand piano. The studio in Dubbo, in which the students of Mrs Leanne Taylor performed, had an upright Bernstein piano. These instruments were both suitable for the occasion. The fact that the piano students had received my publications, TONE, TOUCH & TECHNIQUE and the associated video, provided a basis for useful instruction, and I am certain that any future distance teaching should be based on the study of pre-arranged materials. A single masterclass could be of some value, but if the videoconferencing system is to be of continuing value, and especially for outlying areas, it is likely that it should be used as part of an educational programme including publications and demonstration

performances on either video or cassette. I think it would not be possible to give entire lessons through videoconferencing, so additional means of teaching will be necessary. I say this at the outset, because I think the long-term success of the project depends upon an understanding of this fact.

My impression was that the experiment on October 21st was successful. The students with whom I was working responded immediately to my suggestions, they could hear my remarks and see my demonstrations, which seems to provide evidence that the system is workable.

Implications for Music Education

The Fifth Experiment has demonstrated the potential of videoconferencing as applied to instrumental teaching. The students who will gain the greatest benefit are those living in isolated country areas.

Most exciting from the point of view of U.N.E. Armidale Music Department was the transmission of this class to a country centre such as Dubbo. We are acutely concerned here with the problems of isolation faced by music teachers and students in rural N.S.W., and the frequent and persistent development of poor and inefficient patterns of movement often encountered in students whose musical and intellectual potential is otherwise equal to their city counterparts.

We feel that the combination of video and teleconferencing has great potential to contribute to the formation of sound technical habits, and the alleviation of the disadvantage due to location often faced by country students and teachers.
(Rosalind Halton, 1992)

Commentators on distance learning (Duning, 1990:43, and Gough, Garner and Day 1981:26) have posed two questions: "Does the new technology provide an effective and economically viable solution to the problem" and "what might the medium allow us to do that we cannot do now?" In addressing the first question the cost factor of videoconferencing planned on a weekly basis throughout a teaching semester would be prohibitive. However, the impact of three one-hour sessions during the semester with a master teacher and set in

the context of an educational programme, could be significant and realistic in terms of cost. The motivational aspect for the student in working with a master teacher could be seen as another important factor in answering this question.

Max Cooke considered that the Fifth Experiment proved that the concept of instrumental teaching using videoconferencing can play its part in the educational process. "The greatest value would be in association with a planned study programme worked out in advance, so that the 'video class' would supplement work already being undertaken, for which visual instruction is an important adjunct." (Max Cooke, 1992)

In seeking to answer the second question posed by Duning et al, it is clear that in country centres a wide range of instrumental instruction simply does not exist. Videoconferencing sessions such as Experiment No 5 (but with a supplement of audio and video tapes of student and teacher performance) could help to rectify this deficiency.

Just as Lappia and Kirkland (1989:277) perceive audio tapes as a medium in distance learning to help break isolation, to provide musical examples, and to encourage thinking, the author considers that videoconferencing can far exceed these capabilities in adding two-way audio and video functions. At the same time interaction between instructor and pupil(s) can provide such personal attributes as warmth, enthusiasm and encouragement and most importantly establish an immediate evaluation of the task or performance at hand.

The five experiments in videoconferencing coordinated by the author in 1992 are seen as a beginning in developing trials in music education programs using this technology. The trend that is emerging from these experiments appears to conform to Holmberg's theory of guided didactic conversation. His authoritative writing on the subject of distance education is relevant today (Holmberg, 1977) - the bases of the theory are

- 1 that feelings of personal relation between teaching and learning parties promote study pleasures and motivation;
- 2 that such feelings can be fostered by well-developed self-instructional material and suitable two-way communication at a distance;

- 3 that intellectual pleasure and study motivation are favourable to the attainment of study goals and the use of proper study processes and methods;
- 4 that the atmosphere, language and conventions of friendly conversation favour feelings of personal relations;
- 5 that messages given and received in conversational forms are comparatively easily understood and remembered;
- 6 that the conversation concept can be successfully translated for use by media available to distance education;
- 7 that planning and guiding the work, whether provided by the teaching organisation or the student, are necessary for organised study, which is characterised by explicit or implicit goal conceptions.

Betty Lawrence (1992) has stated that technology has provided the potential for universities to have greater outreach to those who are unable or unwilling to come to the campus to attend lectures. The five experiments in videoconferencing demonstrate a future role of the major music schools in Australia in providing expert instrumental instruction as well as a range of music subjects to students in country areas.

References

Aubert, Eric, "Facing up to lecturing's new image in three-university link", Australian Campus Review Weekly, Vol 2, No 30, August, 1992, p 1

Aubert, Eric, "Sound of Success of Two-way Video Music Lessons", Australian Campus Review Weekly, Oct 29, 1992, P 24

Cooke, Max, "Report of Videoconference", for Dr L Burtenshaw, 29th October 1992

Duning, B, "The Coming of the New Distance Education in the United States: the telecommunications generation takes off", Distance Education, Vol II, No 1, 1990, p 43

Gough, J E, B J Garner, and R K Day, "Policy planning for distance education using a domestic communication satellite", Distance Education, Vol 2, No 1, 1981, p 26

Halton, Rosalind, "Videoconference Masterclass, Melbourne/Dubbo", Report for Dr L Burtenshaw, 29th October 1992

Holmberg, B, Distance Education: A Survey and Bibliography, London: Kogan, 1977

Kleu, Tony, "Scars show through the facelift", Sydney Morning Herald, September 3, 1992

Lawrence, Betty Hurley, "Extended Campus Programs - Future Directions for the Conservatorium of Music, Sydney", Report prepared for the Conservatorium, February, 1992

Sarzin, Anne, "Music Education Video-conferencing", The University of Sydney News, Nov 3, 1992, p

The Editor, "City Students in video link", UNE Gazette, No 44, April, 1992

The Editor, "Music lessons by video conference through the University Centre", Billboard, Vol 1, No 6, April 1992

The Editor, "Sydney centre proving its worth", University of Wollongong, Campus News, No 7, april, 1992

The Editor, "Stars of Piano, screen and pedagogy" Australian Campus Review Weekly, Vol 2, No 33, August 27, 1992, p 1

The Editor, "Music by Video", Billboard, Vol 1, No 12, 16th July 1992, p 8

The Editor, "More Use for the University Centre", University of Wollongong. Campus News, No 24, 16th September, 1992
p 7

SCIENCE, ART AND VOCAL PEDAGOGY

A Research Design to Investigate the Relationship between Scientific Understandings of Voice and Current Practice in the Teaching of Singing

by

JEAN CALLAGHAN

The Research Question

Early this year I began a research project to answer the question: What is the relationship between scientific understandings of voice and current practice in the teaching of singing in Australia?

The teaching of singing as a solo virtuoso art goes back to Italy early in the seventeenth century, where it emerged in response to demand for solo vocal virtuosos to sing the new monody and opera. The seventeenth and eighteenth century tradition of *bel canto* was an oral one based on continuity of objectives, technique and criteria of musical judgment, and dependent on the close relationship between composer and performer, teacher and student, performer and audience. The teacher was an accomplished performer in the musical style, who acted as an example to the student. The student practised arduously and, by trial and error, eventually produced the 'correct' sound, learnt what sensations accompanied production of that sound, and thus how to reproduce it.

This tradition has been broken by social and musical changes, one of the most influential being the development of scientific investigation of the voice. Singing is an art which has its basis in the sciences of anatomy, physiology and acoustics. In singing, technical matters pose more problems than in the playing of any musical instrument, since the singer's instrument is the body. The component parts of the singer's instrument consist of many different organs and muscles that are used for other activities and which must be co-ordinated in a particular way to produce particular vocal effects. Until recently, most of the working parts of this instrument could not be viewed in operation.

Experimental work directly related to vocal function in singing began with the investigations of Manuel Garcia (1805-1906). Garcia, a singer experiencing vocal problems, turned to experimental investigations into the mechanism of voice production as a basis for his teaching. His writings - *Traité complet de l'art du chant*, 1840 [1] and *Nouveau traité sommaire de l'art du chant*, 1856 [2] - represent a break with the *bel canto*

tradition. His invention, the laryngoscope, is still sometimes used by doctors to view the larynx.

After Garcia the gap between the scientific and the experiential widened. Works on vocal technique published in the first half of this century fall into three main categories: books describing the vocal mechanism, usually by doctors or physiologists, and often emphasising how to avoid vocal problems; works by singer/teachers, describing the singer's sensations when producing particular sounds, and espousing 'correct' methods for producing 'good' sound; and, occasionally, works by singer/teachers with scientific interests, or doctors or physiologists with an interest in singing, which attempt to integrate these insights.

Since the Second World War, developments in the electronic manipulation of sound and popularisation of a bewildering variety of musics - pop, rock, cabaret, folk, country and western, blues, jazz, Broadway musical, opera, art-song recital, and the music of many cultures other than our own - have given rise to a similarly bewildering variety of vocal 'techniques'. Most books on technique are based on some unstated aesthetic judgment of 'correct' vocal sound applicable only to one particular vocal style.

Recent invention of technology to view the larynx in operation, measure muscular effort, and record the acoustic nature of vocal sound has meant an increase in the number of studies on voice, as well as their detail, scope and reliability. Some books on singing technique, aimed at the practitioner, have incorporated the new information. The revised, enlarged edition of Vennard's *Singing - the Mechanism and the Technic* [3] was extraordinary, when published in 1967, for its detailed application of voice science findings to singing. In the last ten years or so more books in this mould have appeared (Miller, *The Structure of Singing* [4]; Sundberg, *The Science of the Singing Voice* [5]; Doscher, *The Functional Unity of the Singing Voice*, [6]). These works are, however, limited to the western art tradition, with an emphasis on opera.

Scientific research results with application to singing may now be published (most often in professional journals) in the disciplines of acoustics, physiology, speech and hearing, human movement, physiotherapy, voice therapy, linguistics, anatomy, laryngology, electronics, computing, and communications, as well as in singing. Many significant articles now appear in journals such as *Folia Phoniatrica*, *Journal of the Acoustical Society of America*, *Journal of Speech and Hearing Research*, the *NATS Journal* (from the National Association of [US] Teachers of Singing), *Journal of Research in Singing*, and *Journal of Voice*. The spread of this information, and the specialised technologies and often mutually inconsistent terminologies of work in the different disciplines, makes much of it inaccessible to singing practitioners.

While voice scientists, singers and singing teachers are all vitally concerned with how the voice works, their perspectives are quite different.

Voice scientists employ replicable, experimental method to produce verifiable information about the voice. They use the objective language of science and they convey their findings to other people through the medium of the scientific journal, where the aims, methods, results and conclusions of investigations are reported in written form and are accompanied by visual illustration, such as graphs and charts.

Singers, on the other hand, employ vocal sound to convey emotional and musical meanings through unique performance events using the language of word, music and body. What singers know about the voice is aural and experiential and their findings are embodied in their singing. In talking about performance, singers use the subjective language of feeling, sensation, emotion and imagination. They impart their findings orally through the medium of the master class, the lecture recital, and the famous-artist-turned-teacher.

The difference between the voice scientist and the singer, it might be said, is the difference between 'knowing that' and 'knowing how'. Most teachers of singing in Australia have been trained primarily in the 'know-how' of singing, with some also having qualifications in music education or general teaching.

It is this situation which gives rise to my research question: What is the relationship between scientific understandings of voice and current practice in the teaching of singing in Australia? Implied are the following sub-questions:

- . Do singing teachers see voice science as relevant to their work?
- . If so, how do they incorporate it into their teaching?
- . Does this knowledge affect the training of vocal pedagogues in tertiary institutions?
- . Do singers need a background in voice science to become efficient teachers?
- . If so, does their knowledge of the field need to be in the same form, or some different form, to that of voice scientists?
- . Do teachers conceptualise their knowledge about vocal functioning differently for singing than for teaching?
- . How is this knowledge presented to students?

Methodology

The aim of this research is to explore the relationship between theoretical understandings of voice and current Australian vocal pedagogy practice. In determining the methodology best suited to serve this aim, three basic decisions had to be made: where to collect data; whether to collect quantitative or qualitative data; and how to analyse the data.

I will need to collect data both from documentary sources and from practitioners. I have decided to collect the practitioner data from singing teachers working in tertiary institutions. While much singing teaching in Australia is done in private practice, I felt it was impracticable to identify all these practitioners and difficult to survey them. Practitioners in tertiary institutions represent a readily identifiable population which is in a position to influence the whole direction of vocal pedagogy practice.

In considering what type of data to collect and how to analyse them, I had the following concerns:

1. In order faithfully to reflect the phenomena being researched, data need to be in a form able to show concepts, attitudes and choices.
2. The research model needs to be capable of expressing relations, patterns and process.
3. In this lengthy, ongoing research process, the research design should facilitate the collection, coding and analysis of data as reciprocal processes so that new information and evolving theories to influence the next step in the process.
4. As much as possible, I want to collect data from practitioners in the setting in which it is generated.
5. I need to be able to place data from practitioners in their social/professional context.
6. I want to be able to interact with practitioners in the creation of data.
7. I want to make the data accessible to those from whom they have been derived.
8. I want to make the research results accessible to those who have contributed to the project.
9. I want to collect the data myself.

10. I need the flexibility to collect as wide a range of data, in as wide a range of forms, as seems relevant to the study.

Rather than forming an hypothesis and treating the practitioners as informants able to supply data which can be counted to either validate or negate this hypothesis, I am concerned to collect rich, detailed descriptions of what is happening in the field. These data can then be examined for patterns, relationships and items of interest.

I am adopting a qualitative approach, using the methodology of grounded theory detailed in Strauss and Corbin's *Basics of Qualitative Research* [7]. In this approach, data collection, analysis, and theory stand in reciprocal relationship with each other. A grounded theory will be discovered, developed, and provisionally verified through systematic data collection and analysis.

I am collecting qualitative data on voice science, vocal technique in singing and the practice of singing teachers, through document analysis and the survey of teachers of practitioners. These data will be systematically analysed by nonmathematical analytic and interpretive procedures to describe the relationship between scientific understandings of voice science and current Australian practice in the teaching of singing. All stages of the research process will be carefully documented.

Grounded theory research aims to discover relevant categories and the relationship among them; to put together categories in new, rather than standard ways; to develop complex theories derived from the situation observed. The approach is attractive in that understandings grounded in data collected from practitioners are more likely to be meaningful to those practitioners and to influence practice than any other type of research findings.

The technical data collected from bibliographic searches will be used to stimulate questions to be asked of the practising teachers and to provide concepts and relationships to be checked against the data collected by teacher survey. Data collected from teachers will need to include information which might affect attitudes to singing and to teaching, such as biographical information on their own training and careers. Document sources such as course information and reading lists of the various tertiary institutions training singers and/or singing teachers may also provide supplementary data.

In grounded theory data collection and data analysis are interwoven processes, occurring alternately so that the analysis may direct the sampling of data. Hence I plan to do a pilot survey, then analysis, re-assess the interview schedule in the light of the analysis, then conduct more interviews, all interspersed with collection and analysis of data from document sources.

Grounded theory relies on three major types of coding: open coding, axial coding and selective coding, which are put into an analytical framework called the conditional matrix [8]. The three types of coding are driven by making comparisons in order to produce categories and subcategories. Subcategories are linked to categories through what Strauss and Corbin term the paradigm model. In this model linking is achieved through a set of hypothetical relationships denoting causal conditions, phenomenon, context, intervening conditions, action/interactional strategies, and consequences. The hypotheses are verified against actual data continuing to be collected and analysed. The researcher moves between data collection, the three types of coding, and theory building.

Open coding, the first basic analytical step, entails examining the data to name and categorise phenomena. Thus data are conceptualised and named in terms of their properties and like data grouped in categories. The properties of data can be dimensionalised, and these properties and dimensions form the basis of relating categories to sub-categories, and between major categories. Sampling is kept as open as possible.

Axial coding puts data back together in a relational form by making connections between a category and its sub-categories. This development beyond properties and dimensions eventually produces several main categories. In axial coding the focus is on specifying a category (phenomenon) in terms of: the conditions that give rise to it; the context in which it is embedded; the action/interactional strategies by which it is handled, managed or carried out; and the consequences of those strategies. These specifying features of a category comprise its sub-categories [9]. For axial coding, sampling is relational and variational, in order to maximize the finding of differences at the dimensional level.

The third type of coding, selective coding, represents integration at a higher, more abstract level of analysis. The central phenomenon around which all the other categories are integrated - the core category - is selected and systematically related to other categories through its properties and dimensions. Discriminate sampling is associated with selective coding. It is deliberate and directed to collecting data needed for verifying the story line, relationships between categories, and for filling in poorly developed categories [10].

As more data are analysed, it then becomes possible to explore variations in phenomena, by comparing each category and its subcategories for different patterns in dimensional locations of instances of data [11]. From the pattern of relationships established through selective coding an explanation of the phenomenon can be formulated. This theory then needs to be validated against the data by testing it in various contextual conditions. Sampling continues until no new or relevant data seem to emerge regarding a category, the category development is dense, and the relationships between categories are well established and validated. The

final theory is limited to those categories, their properties and dimensions, and statements of relationships that exist in the actual data collected [12].

This research model has the advantage of being able to show action and change, or the reasons for little or minimal change. The ability to link sequences of action/interaction as they pertain to the management of, control over, or response to, a phenomenon is integral to this model [13]. This may well be important in considering the influence of voice research knowledge on current pedagogy practice.

The research model also uses a combination of inductive and deductive thinking, moving between asking questions, generating hypotheses, and making comparisons - an approach particularly well adapted to studying the relationship between phenomena.

Data Handling and Organisation

I intend to manage and organise the data in the form of written text, using NUDIST (Non-numerical Unstructured Data Indexing, Searching and Theorising) software on a Macintosh computer. NUDIST is particularly well adapted for all the processes of qualitative data handling:

- . collecting together all the relevant documents;
- . coding segments of text at various categories;
- . searching for words, phrases, etc. in the text of the documents;
- . using indexing as well as text search as a basis for finding passages of text and the ideas in them;
- . making notes and memos about the emerging ideas and theories;
- . re-organising and extending the indexing as the theorising grows.

NUDIST has been chosen for these applications, and for its ability also to contribute to the theory-building aspects of data handling: results can be fed back into the system and used in reorganising and reshaping all aspects of the system.

NUDIST can be used to build separate document and indexing databases. The document system is used to store on-line textual documents, together with data about them, as well as off-line data documents. The data documents (on- or off-line) can be indexed under chosen categories. Indexing systems can be created, explored and managed and documents indexed within them to create an analogue of, and container for thinking

about, the research project. There is built-in flexibility to re-organise and change the system as new concepts emerge from the data. NUDIST produces pattern-based searching by combining exploration of indexing information with searches for expressions occurring in the text. Results of text searches can be stored in the index system. NUDIST has been chosen for its fit with the grounded theory model: analysis is a process of ongoing exploration and category-building. The growing theories about combinations of categories can be recorded as comments stored at particular categories, and in memos stored on-line as documents, and indexed like any other document. Thus the system supports both theory-construction and theory testing [14].

Literature Review

The literature of voice science, vocal technique in singing, and teaching practice is being reviewed to yield data on:

- breathing and breath management
- phonation
- resonance and articulation
- vocal registers
- co-ordination
- how practitioners acquire knowledge of vocal technique.

Survey of Practitioners

Practitioners teaching in tertiary singing or vocal pedagogy courses will be surveyed through a semi-structured interview schedule designed to collect data on the categories listed above as identified in the literature. In addition, data will be sought on:

- when and where teachers received their initial training as singers
- whether they had further training for teaching, and if so, when, where, and what form this took
- whether they have opportunities for inservice training
- the content of the tertiary courses they teach
- how they conceptualise their knowledge of vocal technique in
 - a) singing
 - b) teaching.

Personal interview has been chosen over self-administered

questionnaire for its flexibility in collecting attitudinal information and more complex data. In addition, interviews usually have a higher response rate than self-administered questionnaires.

It is intended to interview all practitioners employed by tertiary institutions training singers or teachers of singing. I estimate this population comprises some 30-40 practitioners. I will begin with a small sample - say, ten practitioners - as a pilot. Following coding and analysis of the data from those interviews and of further bibliographic data, the interview schedule will be reassessed and applied to the rest of the survey population.

T i m e f r a m e

As mentioned earlier, data collection from the literature and from interview is being interwoven with analysis and theory-building.

A substantial amount of bibliographic material has already been collected and analysed as a basis for the pilot survey. The first interviews will be conducted from November 1992 to January 1993. I anticipate that the balance of interviewing will take place over 1993 and the first half of 1994, with comment and correction being sought from the practitioners interviewed as data are recorded, coded and analysed. Theory will be formulated as data are analysed and verified by reference back to the data. The whole research process will be carefully documented as it progresses. I intend to complete coding, analysis, theory building and documentation by mid-1995.

O u t c o m e s

It is difficult at this early stage to predict exactly what the outcomes of the research might be. Much current practice appears ineffective and divorced from an articulated theoretical base. I do hope the research will produce a detailed understanding of current practice and the beliefs, values and theories which underpin it, and thus suggest some directions for future professional development.

REFERENCES

1. Garcia, M. (1840). *Traite complet de l'art du chant*. Paris: Brandus et Cie.
2. Garcia, M. (1856). *Nouveau traite sommaire de l'art du chant*. Paris: Brandus et Cie.
3. Vennard, W. (1967). *Singing - the Mechanism and the Technic* (rev. ed.). New York: Carl Fischer.
4. Miller, R. (1986). *The Structure of Singing*. New York: Schirmer Books.
5. Sundberg, J. (1987). *The Science of Singing*. Dekalb, Ill.: Northern Illinois University Press.
6. Doscher, B. (1988). *The Functional Unity of the Singing Voice*. Metuchen, N.J.: Scarecrow Press.
7. Strauss, A. and Corbin, J. (1990). *Basics of Qualitative Research*. Newbury Park: Sage Publications.
8. Strauss and Corbin, p. 58.
9. Strauss and Corbin, p. 97.
10. Strauss and Corbin, p. 187.
11. Strauss and Corbin, p. 107.
12. Strauss and Corbin, p. 111.
13. Strauss and Corbin, p. 143.
14. [Richards, L. and T., 1992]. *Introducing NUDIST*, p. 10.

An Etic and Emic Model for Teaching Popular Music.

P. Dunbar-Hall

Abstract

Even though the teaching of popular music is a recognised component of music education, its acceptance into the core of the discipline is surrounded by problems. One of these problems is that, unlike art music, a developed and accepted teaching model for popular music does not exist. This paper examines one model applicable to this area, one based on the etic and emic properties of popular music. The model is applied to a song by Bob Marley to demonstrate its workings and scope, and the implications of the etic/emic divide in analytically defining a popular style and tracing its influence, as well as its implications for the study of music and the training of music teachers are considered.

Discussion of the model is offered as an example of a shift in music education, and thus of the training of music teachers. This shift concerns recognition of the need for a disciplined approach to the study of popular music. At the same time it exemplifies the widening of musicological method to take advantage of methodology from other fields, in this case, linguistics, and demonstrates the need for music educators to be actively involved in the design of teaching models suitable to musical repertoire chosen as teaching content.

Introduction

Popular music, despite its existence on syllabuses in various forms, is a problem area for many music teachers. This is due to a number of factors: (1) both the study of popular music styles and methods for teaching them are missing from many tertiary courses, (2) the predominant art music backgrounds of music teachers debilitate against an understanding of popular music, (3) there is a shortage of critical material in this area, and (4) an accepted model for teaching popular music has not yet developed. It is this last factor, the lack of a teaching model, that is the concern of this paper.

The problem related to a teaching model stems partly from the fact that music teachers from art music backgrounds know automatically how a work of the Western tonal tradition is studied and taught, because such study and teaching have been both their normal method of training (witness that the majority of tertiary courses are based around this), and, even before that, their daily activity through the learning of an instrument. In these ways an implicit understanding of Western art music must be seen as a type of cultural heritage for these teachers, one that precludes a feeling for the ways popular music might be taught. For this reason, analyses of tonal structures that relate key and modulation to formal plans, that see horizontal, melodic thinking as representative of vertical, harmonic thinking, and that heirarchise musical elements (usually pitch and harmony above rhythm), become a canon perpetuated from teacher to student. Such analytical assumptions need not apply to popular music, which functions in other ways: the establishment, excursion from, and return of a key centre that is the implicit

modus of pieces of tonal music is not the pattern on which popular music primarily functions; the hierarchy of pitch, harmony, and then rhythm may best be reversed in popular music, where rhythm assumes primacy; other elements at the lower end of traditional analysis, such as timbre, and processes not to the fore in art music, such as improvisation, assume importance in popular styles. Popular music and art music also work from different philosophical bases: the former is phonocentric (being created in performance, and a sound artefact) while the latter is logocentric (created and existing as notation, regardless of performance). To study and teach popular music by the same methods as those used for art music is clearly untenable. There is a need for alternative analytical methods, and concomitant with this, because dependent on it, a model for teaching popular music. It is the aim of this paper to discuss one critical method as a model for studying and teaching popular music: a model based on the etic and emic properties of music.

Etic and emic properties of music

That music can be considered in two different but complementary ways is an idea found in the works of a number of writers. Meyer (1956) explains this as:

music . . . is said to communicate emotional and aesthetic meanings as well as purely intellectual ones (p. vii)

and refers to the two sides of music as a:

puzzling combination of abstractness with concrete emotional and aesthetic experience, (ibid)

while Lippman (1981) discusses the semantics and syntax of music respectively as:

the familiar referential aspects of musical meaning, and . . . form or structure. (p. 184)

Doubrovova (1984) calls the same ideas phylogenesis and ontogenesis ('meanings of natural and anthropological nature', p. 33), and Middleton (1990) uses the standard terms *etic* ('objective and autonomous', p. 175) and *emic* ('the product of cultural knowledge', *ibid*). From this diverse terminology two opposing definitions of music can be seen: an intellectual use of form, and an emotional assigning of meaning. An *etic* approach to music is concerned with the study of the former, music as the combination of its elements, concepts and processes. It is objective, without a priori assumptions, and treats a work as an entity, while an *emic* approach is concerned with how music assumes degrees of meaning to its originators and listeners, and its socio-historical implications. The use of the terms '*etic*' and '*emic*' to describe this double layered view of music comes to music from anthropology (eg Geertz, 1973; Levi-Straus, 1964) and ultimately from linguistic concepts of phonetic and phonemic sounds. The idea is also found in the literature of music education, described as inherent and idiomatic approaches, for example Choksy, Abramson, Gillespie, and Woods (1986) discussing the 1965 Manhattanville Music Curriculum Project (MMCP) write:

The originators of the MMCP believed that if music education began with inherent concepts which pertain to all music, then students would not make specific value judgements which apply only to some music (idiomatic concepts) but would be able to consider all music without bias. (pp 16f)

The *etic* approach to music is found in many current syllabuses

in which music is studied for itself through elemental and conceptual work. Its current importance is related to the shift in emphasis in syllabuses that took place in the 1960s, when content specific courses were replaced by ones that concentrate on processes. This change signalled the decline of traditional ways of studying music, ways which see music principally as a collection of historical works representing the output of selected 'great men', replacing these with a focus on the music itself. In addition, it has links to late twentieth century forms of analysis, notably to Nattiez' semiotic neutral level demonstrated in his analysis of Varese's Density 21.5 (Nattiez, 1982), and defined by him (Nattiez, 1990) as:

a level of analysis at which one does not decide a priori whether the results generated by a specific analytical proceeding are relevant from the esthetic or poietic point of view. (p. 13)

and the idea of the work as immanent, that is, representative solely of itself, that occurs, for example, in the writings of Dahlhaus (1982, p. 90ff). Because this view of a piece of music works around the question 'how does this piece function?' instead of the more traditional 'what makes this great?', and because it disempowers the composer, 'negating the 'great man' and 'inspiration' myths of music history, such a view represents a paradigm shift in the processes of music education for many teachers. It also makes possible the study of musics from traditions in which the cultural background is not that of Western tonal music: early music, music of non-Western origin, and popular music.

The emic level provides the means of studying music in the context of both its creation and reception through consideration of the art work either as ideology, which Wolff (1981) expresses as:

Works of art . . . are not closed, self-contained and transcendent entities, but are the product of specific historical practices on the part of identifiable social groups in given conditions, and therrefore bear the imprint of the ideas, values and conditions of existence of those groups, and their representatives in particular artists, (p. 49)

or as an example of a style or genre (and all that this implies historically, geographically, religiously, and socially).

The combination of the etic and emic approaches to music provides a model for studying and teaching popular music for a number of reasons. First, the etic level provides musicological information about popular music, something that is lacking in its literature. Frith's comment of 1978 on rock music still stands in this regard:

Rock, despite the millions of words devoted to it, is still seldom subject to musical analysis. (p. 176)

Second, it sets up a disciplined approach that follows standard procedures of analysis/data collection (etic) followed by interpretation and comment (emic). This is not to suggest that the etic level exists only as a precursor to the emic, although parts of the emic study, for example the definition of style, are dependent on the information provided by analysis. Third, in relation to the model of music education that sees Music in three stages:

composition/poiesis - the work - reception/esthesis
 (emic) (etic) (emic)

the combination of etic and emic covers all parts of the paradigm: etic discussing the work as itself, and emic explaining the composer's and the listeners' relations with it.

Application

An example of the etic/emc approach can demonstrate its scope.

(Recording: 'Exodus', Bob Marley and the Wailers)

(a) Etic

The song 'Exodus' (Bob Marley and the Wailers) has a rhythmic profile that includes a bass guitar ostinato,

Ex. 1: bass ostinato



which also appears on the lead guitar and in the brass lineup, the bass drum rhythm (noticeable at the beginning of the song)

Ex. 2: bass drum rhythm



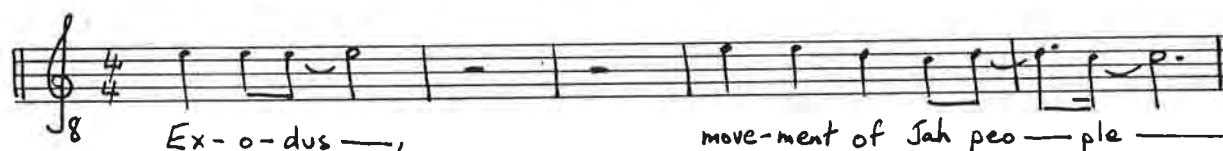
the repeated tambourine rhythm

Ex. 3: tambourine rhythm



and layers of rhythms on congas, hi-hat, and snare drum. Melodically, the song uses a hookline,

Ex 4: hookline



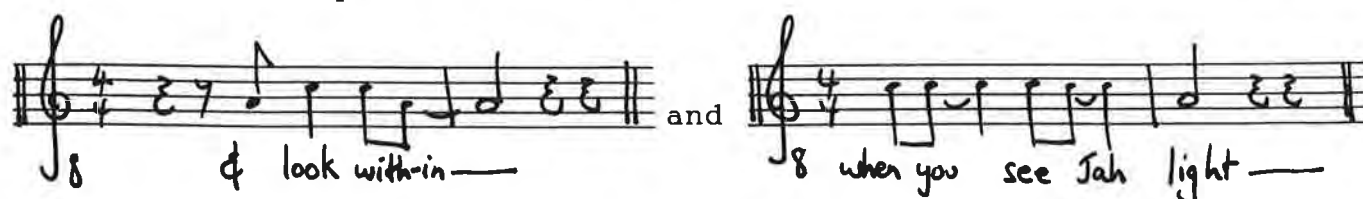
which is employed to indicate the song's structure. There are three vocal sections. Each of these sections is made up of the introductory hookline followed by four call and response lines. The calls are made by Marley, the responses by the backup group. The responses are all versions of the motive

Ex 5: response motive



depending on the amount of syllables that have to be fitted in. Two examples are

Ex 6: two responses



and two responses (repeats of the same line) add 'd',

Ex 7: responses with 'd'



Marley's calls use four melodic shapes,

Ex 8: Marley's four call shapes



of which (b) and (c) each occur once, the song depending on alternations of (a) and (d). 'Exodus' then can be shown to consist of a finite number of melodic motives used to give the

song a plan, performed above a multi-layered rhythmic accompaniment.

Harmonically, an A minor chord builds up and results from the ostinato and overlying layers of melodic material. Processes of repetition, and alternation between soloist and chorus, and voice/s and instruments are used. The song is performed by a male soloist, a backing vocal group, and guitars, drumkit, a brass lineup, electronic organ, and extra percussion.

We should note the use of static harmony. This song was chosen to demonstrate this model because its use of harmony is not tonal and modulatory, thus analytically what is foregrounded in the song are melodic motives, the use of opposing forces in the singers and instrumentalists, and interlocking layers of rhythm.

(b)Emic

The emic consideration of this song covers two areas: (1) creation of style, and (2) the sub-cultural implications of that style.

(1) The musical qualities of this song are typical of reggae. The prominence of the bass guitar ostinato, its contrasting syncopated and unsyncopated rhythm, the use of a one drop rhythm (quoted above) on the bass drum, the build up of layers of rhythms on both melodic and percussion instruments, and the use of a rock style lineup of bass and lead guitar and drumkit supplemented by a brass section, electronic organ and extra percussion instruments (especially congas) are traits of reggae

style (see Bergman, 1985).

(2) Reggae assumes meaning for its Jamaican listeners as one of the musical styles associated with Rastafarianism, a back-to-Africa religion that deifies the late Ethiopian emperor, Hailie Selassie, from whose African title, Ras Tafari, it takes its name. Embedded in the music are clues to this, both in the lyrics and through musical elements.

In 'Exodus' the text includes the following: 'Exodus, movement of Jah people', 'we're leaving Babylon, we're goin' to our father's (? Our Father's) land.' The use of the word 'exodus' recalls the use of Biblical reference to the same concept (freedom) in Negro spirituals, in Rastafarian terminology 'Babylon' refers to the condition of Jamaicans of African descent (slavery, poor living conditions, white domination), while 'Jah' is the Rastafarian word for God. 'Jah people' are the Rastafarians.

Musically, reggae style includes Africanisms, in this song the contrasting syncopation/non-syncopation of the bass ostinato, and the use of layers of rhythms to build up a complex rhythmic texture. The alternation of solo and group, or solo and instrumentalists could also be seen as deriving from African sources, as could the pentatonic nature of the song (the 'b' of Marley's third motive appears only once in the vocal parts), though quantifiable statements on musical origins should be used with caution. To a Rastafarian, reggae has connotations as a form of religious music with encoded meaning based around the concept of Africa as a spiritual home.

By a form of metonymy, reggae, after its introduction to worldwide audiences in the mid-1970s, assumed links to a black consciousness ethic. This explains its use by black, non-Jamaican artists such as Stevie Wonder ('Master Blaster', 'Happy Birthday'), and its popularity with some New Zealand Maori, and some Australian Aboriginal rock groups (see Breen, 1989).

(Recordings: 'Rust in Dust', Herbs

'Kapi Pulka', Coloured Stone)

That its musical profile, or idiomatic definition/etic level, could be easily identified led to imitations by non-blacks, with examples such as 'The Tide is High' by Blondie, Sting's 'Roxanne', and Redgum's 'I've Been to Bali Too,' in which case reggae, once popularised and subsequently commercialised, becomes a sub-style of popular music open to use by anyone.

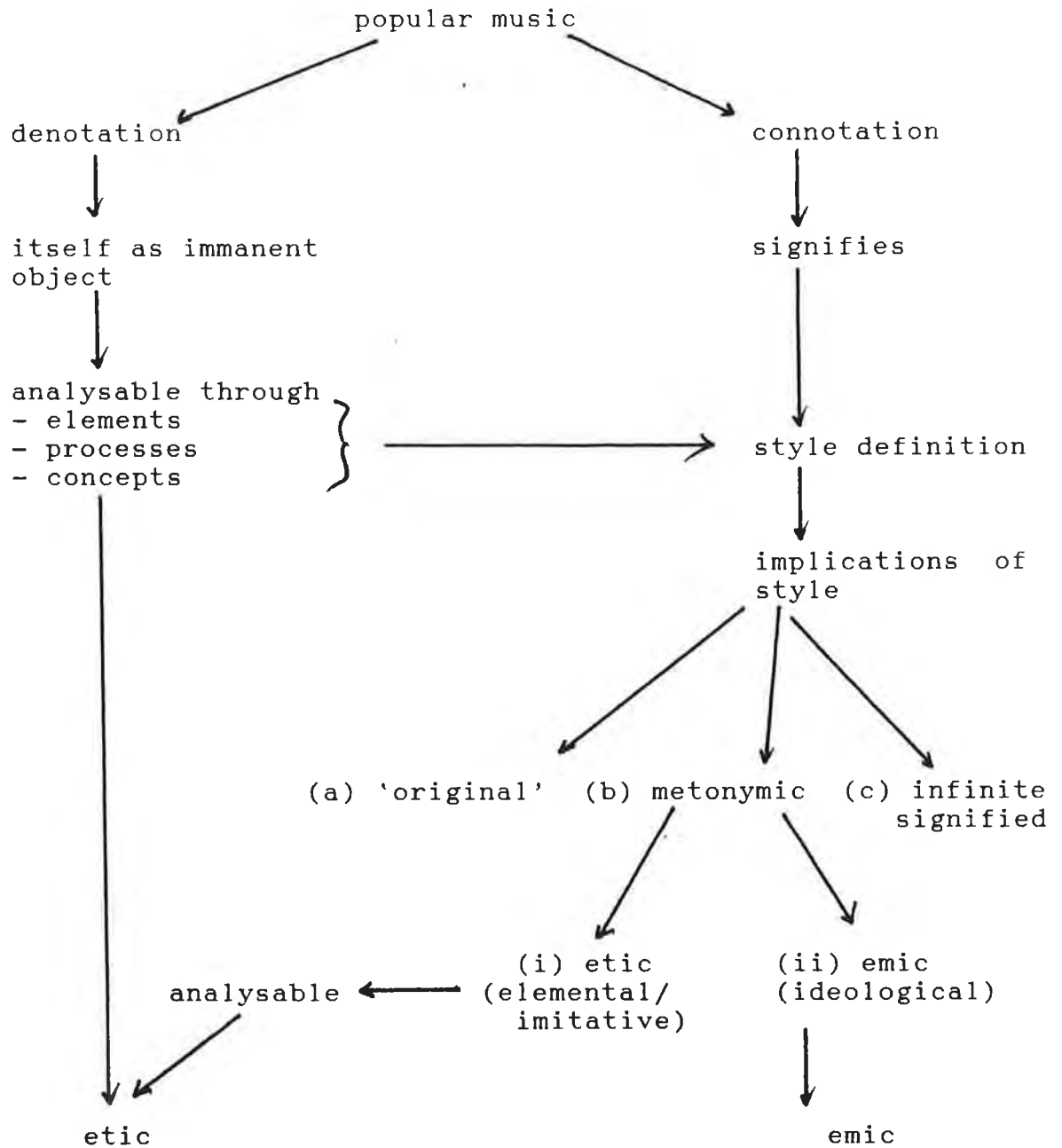
(Recording: 'The Tide is High', Blondie)

The emic consideration of 'Exodus' demonstrates three things: (1) how a type of music can be defined through reference to style characteristics common to a number of pieces and derived from the etic analysis, (2) how one form of cultural meaning is attached to the style of the song, and (3) an historical explanation of how that style spread, first, through its emic qualities to other black performers, and second, through its etic ones, to white imitators. It is because popular music functions as a whole on the level of style influence that a model for its study which utilises this characteristic can be suggested as a teaching approach. An understanding of etic and emic levels as the basis

of a teaching model for popular music is therefore to be seen as deriving from a characteristic of the music itself.

The etic and emic model can be summarised in the following diagram in which the two columns are equated with the semiotic concepts of denotation and connotation. Etic consideration is seen as denotative because the music stands for itself, while the emic side is seen as connotative because on this side music is understood to stand for something, to be seen as a signifier whose signified is both a style and what that style means in reception. Notice that the signification has a number of levels: (a) original, which may represent the intent of the composer/s, (b) metonymic, in which some aspect of the original has spread to other works both emically, through ideology, and etically through imitation of style, and (c) infinite signified, the possibility of any meaning attached to a work by any listener at any time.

An etic/emic teaching model for popular music



Conclusion

The preceding discussion has implications for music education and the training of music teachers. First, it represents a shift in the ways music can be approached as a teachable object, challenging the philosophical basis of music education by offering an alternative way of perceiving music. Second, it transfers the emphasis in music study from secondary derived sources, such as the standard historic texts on which traditional music courses have been based, onto consideration of the music itself, in this way emphasising the need for music teachers to be able to teach any piece of music, thus to have the ability of immanent analysis. This in itself implies an objective of the training of music teachers: the ability either to construct analytical methods related to the music to be analysed, or, as in this case, the ability to adapt models from other disciplines which may prove useful for the study of music. In this study the model has been adapted from concepts in anthropology and linguistics.

As long as a lack of developed teaching models for popular music exists, popular music's place in music education, despite its appeal to students and richness of teaching material, will stagnate. Because it is based on the definition of music that recognises music's bi-partite quality of abstract structure and associated meaning, a teaching model derived from the etic/emic approach to music includes the range of qualities that makes up any piece of music. The comprehensiveness of this method could benefit both the teaching of popular music, the training of music teachers, and popular music's standing as an area of research.

References

- Bergman, B., (1985) Reggae and Latin Pop Poole, Dorset: Blandford
- Breen, M., (1989) Our Place Our Music Canberra: Aboriginal Studies Press
- Choksy, L., Abramson, R., Gillespie, A., & Woods, D., (1986) Teaching Music in the Twentieth Century Englewood Cliffs, NJ: Prentice-Hall
- Dahlhaus, C., (1982) Esthetics of Music Cambridge: Cambridge University Press
- Doubrovava, J., (1984) 'Musical Semiotics in Czechoslovakia and an Interpersonal Hypothesis of Music' International Review of the Aesthetics and Sociology of Music 15, 1, pp 31 - 38
- Frith, S., (1978) The Sociology of Rock London: Constable
- Geertz, C., (1973) The Interpretation of Cultures New York: Basic Books
- Levi-Strauss, C., (1964) The Raw and the Cooked New York: Peregrine
- Lippman, E., (1981) 'The Dilemma of Musical Meaning' International Review of the Aesthetics and Sociology of Music 12, 2, pp 181 - 202
- Meyer, L., (1956) Emotion and Meaning in Music Chicago: University of Chicago Press
- Middleton, R., (1990) Studying Popular Music Ballmoor, Buckingham: Open University Press
- Nattiez, J., (1982) 'Varese's ~Density 21.5~: a study in semiological analysis' Music Analysis 1, 3, pp 243 - 340
- (1990) Music and Discourse: toward a semiology of music Princeton, NJ: Princeton University Press
- Wolff, J., (1981) The Social Production of Art London: Macmillan

Recordings

- Coloured Stone, (1984) Kooniba Rock Sydney: BMG/Arista SPCD 1087
- Herbs, (1987) Sensitive to a Smile Auckland: WEA Records CD WAR 2008
- Marley, B., & the Wailers, (1984) Legend: the best of Bob Marley and the Wailers London: Island Records/RML 52042

Biographical note

Peter Dunbar-Hall is the author/co-author of numerous texts in music education used in Australia, Asia, New Zealand, America, and Britain. He lectures in Music Education at the Sydney Conservatorium of Music, University of Sydney.

Address: School of Academic Studies

Sydney Conservatorium of Music

Macquarie St, Sydney, NSW, 2000

Australia

Ph: (02) 230 3750

Improvisation? Who Needs It?

Gavin Franklin,
Deakin University, Warrnambool.

Preamble :

My main purpose for writing this paper is to signal a research interest, in the hope of locating people with similar perversion. (This makes it sound like an animal signalling willingness to mate, but what do you expect? It's Spring after all!). Anyway, I hope that these are not merely the ravings of a zealot but that they may turn out to have some currency.

My second reason for doing this is to share some gossip about life in the provinces. (You should be warned that these ruminations are shaped by a continuous eighteen year involvement with the south-western region of Victoria and I concede that some people may find them rustic and odd; I make no apology for this, it is simply a fact.)

Another, quite serious purpose, is to give substance to some thoughts concerning the products of the very valuable - although incomplete - secondary school instrumental programs in my home region. So I wish to offer a few observations about music education "praxis" as it is manifested in the 'Deep South', a territory where in recent times the main preoccupations have been the fortunes - or rather lack of them - of Pyramid Building Society, the size of the milk cheque, and whether or not the South Warrnambool Roosters can win back-to-back flags.

From time to time I ponder the question about what happens to the products of instrumental programs after they leave the school environment? It would seem a great pity if they could find no community outlet for the ability they had developed, or at least felt that they wanted to. What percentage of students leave school and engage in no further active participation in music-making? When I talk to secondary instrumental teachers and former student musicians living in the district, their opinions are that the non-participation rate is fairly high, although no formal research has been done on this, either by the schools themselves or any external agent. It would seem a pity if, having developed to a level of reasonable competence, a fair number of students did not wish to pursue this interest in their lives beyond the walls of the school.

What opportunities exist for graduates of secondary instrumental programs to participate in music making? Looking around, there is the city band, catering for those who learned brass instruments, and a struggling symphony orchestra for the rest (how many flautists and clarinetists can be accommodated in one orchestra?). The lack of school-based string teaching is desperate so far as the needs of the symphony are concerned. Once per year the theatre group uses a few people from these organisations to play the score of a musical. The idiom with which secondary program 'graduates' are most familiar - stage and concert bands - is non-existent. Where do all the saxophonists go? The answer to this and the question about the excess flute and clarinet players, seemed to be that, upon leaving school, they stopped playing. I have thought for some time that a truly successful instrumental program should produce people who pursue musical performance at least as a hobby after leaving school. If youth is vitally interested in musical performance, why doesn't it agitate/lobby funding agencies to assist in setting up relevant performing groups? They ask for and get money for skate-board ramps, rock concerts and theatre groups, so why not musical ensembles?

These issues rolled around my brain again as a result of observing the secondary school band in which my son, Lachlan, plays. So many of the members, Lachlan included, have reached year 11 and, if not for band practices and playouts, combined with some urging from their parents, the instruments would not leave their cases. Why do they not choose to play their instruments as a leisure activity? Is it merely because it is easier to switch on an electronic gadget or bounce a ball around the yard, or has it anything to do with the fact that the whole experience of learning to play is just part of the discipline of being in the structured setting of the school? - and everybody knows you don't choose to do schoolwork.

Case A:

"What'll I play?" he asks in reply to my entreaty that he should try to fit a 10-minute practice period into his daily schedule.

"Try some scales and arpeggios for a start," I say, "that might be all you have time for. If you want to do more, perhaps you could work out how to play some tunes you know."

The nose wrinkles almost imperceptibly. "Which instrument will I use?"

"I don't care. Whichever is easier to assemble."

"Yeah but I haven't brought my music home."

"Don't use a score. Work it out using your ear.. It might take a while but it'll be worth it." The nose is still. He moves off to do further battle with his chemistry homework. A half-hour later I am almost shocked when clarinet scales issue (somewhat shakily) from under the music-room door. Twenty minutes later he's still at it, building a passable version of a standard tune he's heard me play many times. He emerges sometime later looking pretty pleased with himself.

Case B:

Kerry is a second year Teacher Education student. She worked for several years until she had enough to support herself in her course.

"I learned the clarinet for four years at school," she announces proudly during discussion one day. "I loved it."

"Oh, good," say I enthusiastically. "You'll be able to play for us and demonstrate a single-reed instrument."

"Have you got one?" she asks.

"Yes, but you can use your own. The one we have is not very good."

"It'll be better than mine. I sold mine to buy a television set!"

I am not completely certain just what these two unrelated incidents illustrate, but the common thread which I perceive is some kind of rejection of the idea that instrumental performance, as it was represented in the programs experienced by these two students, is a valid activity choice.

Another sobering thought was that by far the majority of the professional performers (i.e. those who make a portion of their living from it) in the South-western region of Victoria are self-tutored or minimally tutored on their instruments. Almost none play instruments taught in local schools instrumental programs.

My Comments:

I'd like to stress at the outset that it is not my intention to "bucket" the schools in the region but rather to highlight aspects of their already very fine programs, which I think might be made even better. I have a high regard for the teachers who have established and maintained these programs; their dedication and enthusiasm is manifested on a daily basis and it would be extremely stupid of me to be destructively critical.

On the other hand, if one of the objectives of instrumental programs is to engender a continuing interest in playing during life after schooling is ended, I think it is time to examine/evaluate instrumental programs in South-western Victoria. One aspect which might be looked at is their role in preparing students for participation in community groups, all of which, apart from the elitist symphony orchestra, specialist brass band and two community choirs, require participants to be able to improvise to some extent. Perhaps this survey could also look at the number of people who reach grade 5 or 6 A.M.E.B. standard, then give up; I would like to hear their reasons for doing so. (Perhaps it just wasn't very satisfying learning to play someone else's notated compositions and never having the chance to play creatively.)

I think that improvisation - in the sense of playing non-notated music or at least being encouraged to "interpret" notation in idiosyncratic ways - should become an integral part of performance programs. I am aware that in some places it has, but my observation of my local scene have made me sceptical. In fact, it would be a nice switch to develop a curriculum around the activities of an improvising ensemble. Theory, history, ear training and technique development could all service the needs of performance in a group where improvisation is of primary importance.

My reason for speaking about it at this conference is that there is a need to reach student teachers with this message. Unless they have the skills and develop the attitudes, it will not happen. One of the more enlightened young music specialists in the district studied jazz in her pre-service (South Australian) course but is not an improviser and does not include it in her teaching program - yet. [I believe some graduates of the same course are improvisors, but by no means all.]

As John Duke declared (1972) :

"As simple as it may sound, one way in which all teachers could be of assistance in encouraging improvisation is to admit to their students that improvisation is, and always has been, an important facet of musical expression. When teachers never mention improvisation, students are likely to get the idea that it is unimportant, or worse, that it is some illegitimate way of making music." (p. 213)

What is Meant by 'Improvisation'?

Historically, it has meant different things, depending which style period one looks at. eg. in the eighteenth century improvisation existed as ornamentation of melody, variation technique and the realisation of figured bass; in 20th century jazz it is constituted in approaches ranging between the decoration and personalised interpretation of a melody (New Orleans jazz), through spontaneously conceived and realised melody suggested by a harmonic sequence (bebop), to the initiation of all musical elements ('free jazz') and various stages in between.

In all cases, musical improvisation implies the impromptu, the spontaneous, music involving some measure of on-the-spot generating of melodic, rhythmic, dynamic and textural ideas. Mellers called it "...affirmation of life in the present moment." (1990, p. 25) This definition is deliberately broad to permit the inclusion of various performance practices from a range of different styles.

John Duke (1972) observed that since it is most likely that "written music is the child, improvisation the father", the history of improvised music is the history of music itself. Most notated music begins its existence as "improvisation".

The purpose of improvisation is also given variously. On keyboard instruments of the 18th century it was often necessary to improvise decorations which prolonged a sonority. Among other reasons for its existence are to create interest, prevent monotony, and to provide musical scope for the player's virtuosity, thus enabling the expression of personality.

Bill Dobbins proposes an analogy between musical improvisation and impromptu speaking - something we all do in casual conversation. To all intents and purposes, this is unrehearsed, but it is rehearsed in the sense that we have used &/or heard used most of the content of our discourse in other contexts. As we speak, we synthesise the meaning units, re-arranging them to convey our meanings at the moment.

To extend this analogy, in learning to speak we can identify stages which might be considered as stages of music learning also:

In the case of Speech -

- Stage (i) the learner distinguishes isolated words and phrases from nonsense syllables;
- Stage (ii) basic vocabulary acquired through rote imitation;
- Stage (iii) vocabulary is expanded and applied to spontaneous conversation;
- Stage (iv) language is fully integrated with the intuitive and subconscious processes of thought, feeling and physical movement.(i.e. adult functioning) [DOBBINS, 1980;p.37]

N.B. The practice of conversational usage usually begins with a relatively limited vocabulary. i.e. it is not necessary to wait until vocabulary development is expanded to some ordained dimension ('stage' 3) before commencing conversational use.

The development of proficiency in a musical "language" involves the same general process:

- (i) Exposure to a particular type of music over a long period of time results in the recognition of common melodic and rhythmic prototypes that characterise the style;
- (ii) Simple rote imitation of the teacher and mastery of elementary principles of notation and music reading;
- (iii) Expansion of repertoire of musical "vocabulary" and application in improvisation;
- (iv) Musical conversation within a group and spontaneous expression of musical ideas as a soloist. (N.B. Improvisation provides sole access to this "adult stage" of functioning.)

Dobbins asserts that *"Music Education too often ends when (the) second stage has reached an advanced level of development, where the student can read, memorise, or otherwise re-create music of considerable technical difficulty."* He thinks that reading music is an important and necessary stage of development, *"but it is of little ultimate creative value if it does not lead to a capacity for spontaneous musical expression."*

(1980, p.37)

This kind of thinking suggests a fundamental principle which, as usual, is expressed more eloquently by someone other than me :

"The best method to foster creativity is to encourage individuals to attempt to create within a particular domain as soon as they have acquired the rudiments of technique." (JOHNSON-LAIRD, 1987, p. 86)

*** Why Improvise anyway??**

In answering this question it is usual to mention personal fulfilment, self-development, originality in music, and to communicate something with others, the assertion of one's own unique "voice". It is also a direct way of gaining experience with musical elements, in a setting which is accessible to learners no matter what level of musicianship they possess, to paraphrase Ros Mc Millan in an article published recently. (1991)

Improvisation should be primarily concerned with novelty and invention, for this is what distinguishes it from forms of music-making which settle within , or at least are based upon, known conventions, styles or arrangements. (Alan Durant)

Improv. is less centred on any arrangements of sounds than on forms of human relationship and interaction, on kinds of decision-making and collective problem solving. (Durant)

*** Why should children be taught to improvise?**

"The demands of a constantly changing society in the daily life of every citizen suggests that adjustment, even survival, is increasingly dependent on the ability of the individual to be flexible, adaptive and spontaneous." (KONOWITZ, 1973, p. 2)

A major plank in the rationale for including improvisation in teaching programs is that it is "organic" ; e.g. very young children improvise with sounds in the course of learning language. Their capacity to hear a speech sound/word and to then play with that sound in a creative way must, I think, be seen as the basis for claiming that improvisation with sounds is the fundamental way in which we learn to speak. It seems to be an ability which is built into the human organism.

Is it too fanciful to suggest that babies, playing so noisily with pots and pans on the kitchen floor, are engaging in activity which, if encouraged, could eventually lead to their becoming efficient improvisers in one or more musical styles?

Traditional, "visual-based" methods of teaching music, particularly learning to play instruments, have managed to curb the inclination for improvisation to a large extent.

*** An observation :** Perhaps people don't learn to improvise. Perhaps what we call improvisation is the natural state of being for music/musicians and one can become unable to do it due to an approach to teaching which neglects the ability or distorts the natural inclination/capacity. It might be more correct to talk about improvement of the natural ability to improvise rather than to "learn how".

I am encouraged in this thought by my observations of the piano improvising of the Brown twins, Georgia and Connie. Their parents are both active "score reading" musicians and teachers so the children have spent their first three years of life surrounded by music in one way or another. The girls have had ready access to a piano since earliest times but no attempt has been made to formally "instruct" them. Each has developed an idiosyncratic approach to playing. I first witnessed one of their improvised performances at Easter this year (1992) when they visited my home with their parents. Georgia in particular gave an impressive display of exploratory pianism; a continuous flow of identifiable musical gestures lasting some twenty minutes. She only ceased due to the necessity of eating a meal which had been prepared. The intensity of her concentration was quite striking.

I witnessed another performance on September 12 at the Browns' Hamilton home. On this occasion, too, there was a marked difference in the twins' respective approaches. Georgia was once again the more prolific and "creative" player of the two. **However, in a few short months, a loss of innocence has occurred; Georgia now refuses to believe that she can play unless there is a musical score on the music desk in front of her.** She stops playing in order to turn pages and recognises the difference between those which contain notation and those which do not. She can not be persuaded to play pages which have only photographs or printed text and expresses this by saying : "It's too hard."

I have included this anecdote not only to back up the claim that improvising is an innate human capacity but also to postulate its fragility - how readily the ability might be eroded by conditions existing in the environment.

This points to the importance of improvisation to teachers and students at all levels of education. It also suggests the extent of individual differences between students and the necessity for tolerance and accommodation of these differences. It is important that teachers do not convey an attitude that improvising is embarrassing, or that the products of improvisation are necessarily inferior in some way.

Understanding of, sensitivity to, and recognition of the validity of improvised music is an important principle in the education of all teachers.

* If students emerge from 6 - 10 years of a traditional 'visual' approach to learning an instrument as improvisational cripples, I think it must be said that an enabling organic ability has been lost.

*** So what else is important about improvising?**

Many 'great' composers are reported to have been splendid improvisers. Perhaps there is some link between 'on-the-spot' composition (improvisation) and composing in the sense of scoring ideas for realisation by a performer at some future date. The whole issue of notation and its ability to communicate a composer's intentions is involved here.

Added to this is the fact that it is common for composers of contemporary music to require performers to provide original input into the sound realisation of their scores by using notation schemes which only partly specify their intentions. Therefore, the ability to improvise is essential to any performer who wishes to become involved with 'New' music. Conversely, lack of improvisational skill limits the development of 'New' music, which, in our situation, constitutes a severe limitation on the spread of music by Australians for Australians living in this country at this moment in time.

Even in the case of music which is well established in the repertoire, it is conceivable that experience at improvisation can improve the ability to realise these compositions by making a performer more aware of alternative possibilities. What harm can possibly be done if a player of virtuosic ability gives a completely idiosyncratic twist to a Beethoven sonata? As long as the aesthetic value of the work is not destroyed in the process. In the best of all possible worlds an iconoclast might even go so far as to require performers to do such things.

It is not my intention to equate improvisation and composition in some simplistic way. It is important to recognise that there are significant differences between the two forms of creativity. For one, they cannot be judged by the same criteria. eg. compositions are 'frozen' - able to be compared with products of past eras; this type of evaluation is largely irrelevant in improvisation where we are more interested in process than in product.

" The main reason to improvise is to expand upon all that you know, and to go from your 'known' into your 'unknown' without fear, or, taking fear with you, go into your unknown anyway"
(TECK, 1990, p.133 in reference to improvised dance.)

Then there are the benefits of improvisation for the acquisition of theoretical knowledge. For instance, in learning to improvise in a jazz-oriented manner, the student must become involved with theoretical concepts such as harmony, scale knowledge and the relationships between scales and chords in a completely meaning-laden context; i.e. in order to improve their improvising in a jazz idiom, students require continual growth in theoretical understanding. Motivation to come to grips with harmonic-melodic information could not be higher.

I seem to remember that the reason for learning to play scales and arpeggios was never clear until I began improvisation. The reason my classical teachers gave for scale practice was that music is structured of these elements, so technical proficiency was a pre-requisite for being able to play. I sort of knew this was so, because I could hear bits and pieces of scales and chords in compositions, although no one ever thought of pointing them out on the score; but it was not until improvisation came along that I truly used this knowledge. Similarly, it amazes me how anyone can learn to compose by studying A.M.E.B. theory : the fact that it is divorced from playing makes it well-nigh impossible for students to place it into any creative framework. Again, applying theoretical information in some kind of improvisatory activity seems like a useful thing to do and this point is well recognised today.

Improvising has obvious **benefits for listening** - as a member of an improvising ensemble of any kind, a student-musician is compelled to attend to what his/her fellow improvisers are doing. Overall ensemble success is dependent upon social skills and 'sensitivity' of group members.

Finally, I think that **confidence in approach to the instrument**, and the intimacy of the relationship the player develops with it is enhanced by improvisation.

Having established the importance of including improvisation experiences in teaching programs, we should ask why some teachers don't. After all, it's teachers, by and large, who control the agenda in schools.

- One possible explanation is that it is not seen as being **productive**, i.e. it emphasises processes, and even when it is successful, according to process-oriented criteria, the product is possibly not something one would wish to hear repeatedly. Part of the charm of improv. is its evanescence, its relative unpredictability and variation, its "more than one way to skin a cat" approach to doing things. This emphasis on process renders improvisation alien to the fundamental attitude of many traditional teachers of music who have been thoroughly indoctrinated with the idea that only an elite section of the population is capable of composing music to be played by specialist performers and to which the rest of the population is destined to listen. Kudos is earned from the establishment by performing compositions which have received the stamp of approval. Why would anyone choose to teach in a manner contrary to that which earns kudos? Perhaps if teachers could be convinced that the benefits for musicianship of developing improvising skills were so great that for them to neglect it amounted to doing something negative, then it would stand a chance.

"Naturally, a teacher's ability to assist a student will depend greatly upon his own knowledge and acquaintance with various types of improvisation. It is highly probable that for some years to come, many teachers will feel totally unprepared to help students with improvisation. In this event, the attitude which these teachers convey may be more helpful or damaging than they realise. Private instructors often bear great influence upon students, many of whom not only copy their mentor's performance habits, but their personal attitudes and mannerisms as well. Thus, a word of encouragement or a reference to an appropriate source for information may be the instructor's most important contribution." (DUKE, 1972, p.226)

A personal view : improvising ability is at least as important an aspect of musicianship as the ability to read staff notation, certainly in musical styles which can lead directly to employment as an instrumental performer - rock and jazz. Cases in point abound in professional performing circles - people who are not great readers yet no-one could deny their musicianship.

The development of specialisation in music so that a person could regard him/herself as **JUST** a performer, **JUST** a composer, **JUST** a musicologist or (strangest of the strange!) **EXCLUSIVELY** a teacher of music, has led us to a rather unhealthy state.

HOW?? - The first stage of recovery from the position is to enable (I had to resist the impulse to type 'require') teachers to be improvisers!! Experiences in improvisation should be included in **all** teacher preparation programs. I see this as necessary if music is to retain a place within the "Creative Arts" in school curricula and not continue to stagger from crisis to crisis, owing its very existence to the fact that its product earns the school another shield for the corridor, another headline in the local paper.

An Unhelpful Community Attitude:

Several years ago I offered to sponsor sections for improvisation in the string, wood-wind, brass and piano divisions of the local eisteddfod, pointing out that any style of improvisation could be involved. The suggestion did not get past the committee for about three reasons : a) they did not think that anybody could do it so there would not be any entries; b) none of the instrumental teachers in the district were improvisors - **they thought I should teach the teachers how to do it first**; c) difficulties associated with adjudication - it was felt that their regular adjudicators would not wish to be involved with what was declared to be "inferior" music.

How should we address the issue of the in-service education of teachers who are already in the field? (Should we?)

Activities to Develop Improvising Skill.

"Improvisation, like verbal language skills, should be introduced in the earliest stages of education to become a natural and fully functioning part of a person's creative skills." (DOBBINS, 1980, p. 40.)

Rather than try to compile a treatise on teaching methods here, I am content to mention several general principles and to indicate some idea sources. It is my impression that a great deal of the available literature on improvisation has originated in the field of Education. Entire numbers of the *Music Educators' Journal* have been devoted to it in January, 1980 and December, 1991. Both issues contain a wide range of advice about starting points for teachers who are looking for assistance with improvisation. The articles on Dalcroze and Orff are excellent, and those concerning vocal improvisation for primary level and improvisation with found sounds by Keith Thompson and Arthur Welwood respectively are especially pertinent for primary teachers.

Roger Dean's book (1989) is for students with some experience who wish to refine their skills. Dean is associated with so-called "free" music, but the book covers aspects which would be valuable in any style.

A few general principles (as promised) :

(i) Improv. ability is dependent on the ear; it follows that the better one's ear, the more likely it is that one may be a proficient improviser - i.e. one whose improvisations are coherent: i.e. have formal, melodic and rhythmic structure which are capable of communicating with an audience. Hence it behoves an educator intent upon helping learners to develop improvising ability to foster listening skills.

a) Encourage students to play tunes "by ear". At the most elementary learning level, one ability which is crucial is that of being able to reproduce vocally &/or upon the chosen instrument that which one hears played or sung by someone else. Eventually, this will lead to the skill of "imaging" which is the capacity to hear melodic phrases (or at least shapes and textures) in one's head and produce these same phrases on the instrument. Teachers can assist the development of this crucial skill by all kinds of "Call and Response". Rhythmic Imitation is a good starting point for this work.

b) A generally accepted outgrowth of call and response is "Question and answer", in which the student is encouraged to respond with an improvised phrase which is the same number of beats in length as that played by the teacher. (Most often on a limited set of pitches, or according to a standardised rhythmic pattern.) Some teachers of Orff Schulwerk recommend the use of linguistic discussions as the beginning point for rhythmic &/or melodic work of this nature.

Orff Schulwerk and Dalcroze Eurhythmics are both well known approaches which incorporate improvisation as one of their central principles. Neither is used in secondary school music programs in the south-western region of Victoria, although some primary teachers make effective use of Orff techniques (including improvisation) as a result of their experiences during pre- and in-service courses.

What all this has to do with "transforming praxis" is at once too obvious to state and yet obscure. On the one hand what I have defined as improvisation has been an undeniable part of music praxis for as long as humans have been engaging in it, while on the other, the power-wielding group in music education has often done its best to sublimate the reading of notation and to eradicate improvisation which is the lifeblood of musical creativity through ignoring it all together. There are places where this situation has been turned around somewhat. I would like to think that this might happen down my way.

We have come some distance since the sixties when one of my teachers at university bemoaned the loss of improvisation from music except in organ voluntaries and the work of the "lowly" jazz musician. The role of improvisation in music education has been recognised if not fully implemented, and perhaps jazz musicians are not all considered as such lowly creatures, despite their often comparatively meagre financial rewards. Still not much is documented about the psychological processes which govern the art, so our knowledge of how people learn to do it is clouded. Until researchers provide information about such matters, teachers must make do with intuition and that which seems to work. It might turn out that they are not far wrong!

Perhaps a MIDI system will prove useful. The capacity of this technology to control and convey messages concerning such factors as key pressure and key on/off information with great rapidity makes it possible to describe that which occurs during a keyboard improvisation with considerably more accuracy than is possible through 'manual' transcription. I will certainly be investigating it in the process of future research.

REFERENCES :

- AARON, T. - *Music Improvisation and Related Arts*. Music Educators' Journal, January, 1980, pp. 78 - 85. (N.B. Ideas for vocal improv.)
- DEAN, R.T. - *Creative Improvisation* (Open University Press, 1989)
- DOBBINS, B. - *Improvisation : An Essential Element of Musical Proficiency* (Music Educators' Journal, Jan. 1980, pp. 36-41)
- DUKE, J.R. - *Teaching Musical Improvisation* (George Peabody Teachers College, PhD, 1972, U.M.I.)
- JOHNSON-LAIRD, P.N. - *Reasoning, Imagining and Creating* (Bulletin of the Council for Research in Music Education. 95,(Winter) 1987 pp. 71-87
- KONOWITZ, B. - *Music Improvisation as a Classroom Method : A New Approach to Teaching Music*. (Alfred Publishing Co. 1973)
- McMILLAN, R. - *Music Education in Australia has Been Heavily Based on Western European Literacy Notions. ...* Paper to VIIIth National ASME Conference, Melbourne 1991. (Victorian Journal of Music Ed. 1992, No.1.)
- MELLERS, W. - *Back to The Future: Music, The Word, The Body and The Twenty-first Century* (Paper to VIIth ASME Conference, July 1990, pp 23 -27)
- PRESSING, J. - *The Micro- and Macro-structural Design of Improvised Music*. Journal of Music Perception, Winter, 1987, Vol. 5, No. 2, 133-172.
- TECK, K. - *'Movement and Music: Musicians in the Dance Studio'*. Greenwood Press,
- THOMPSON, K. - *Vocal Improvisation for Elementary Students*. Music Educators' Journal , January, 1980, pp. 69 - 71.
- WELWOOD, A. - *Improvisation With Found Sounds*. Music Educators' Journal, January 1980, pp. 72 - 77.

THE ROLE OF THE BODY IN COMPUTER MUSIC EDUCATION: SOME PHYSIOLOGICAL IMPLICATIONS

Micheal John Giddens

Let me say at the outset that this paper is anything but technological in content, and will not discuss any specific computer music education programs. Rather, I have put together some thoughts, insights, and intuitions relating to computer technology and the role of this technology in music education, and its relationship, if any, to rhythmic sensitivity. My priority has been the teaching of rhythm and, more specifically, current trends in kinesthetic rhythmic education. Adolphe Appia, the Genevan stage theorist, observed that 'Rhythm is in Man.' His colleague, Émile Jaques-Dalcroze, devoted his life to helping students to translate this corporeal rhythm to musical performance. Nonetheless, while musical rhythms may spring from the body, teaching students to play rhythmically is no easy matter. Listen to young instrumentalists (and the not so young) and it will be discovered that the ingredient most often lacking is a personal rhythmic vitality. Cuthbert Whitmore, in his *Commonsense in Pianoforte Playing*, gave teachers the following advice in helping children 'FIRST KEEP THE TIME':

Let us firmly turn our backs on the aimless indefinite "wagging" (there is no other word for it) of the beat which so often passes for [rhythmic] expression ... It is quite impossible for anyone to use *rubato* successfully unless he is first of all capable of playing in strict time with each pulse of a bar or phrase of exactly equal length; and till this can be done all idea of time-inflection had better be abandoned.¹

¹Cuthbert Whitmore, *Commonsense in Pianoforte Playing*, London, Augener, 1926, p.30.

Unfortunately, few students learn to play in time, and even Sir Thomas Beecham had to implore his rhythmically wayward orchestral members, '...to at least *attempt* to create the impression that the iron bonds of rhythm are never for a moment seriously loosened.'² To what degree then, might computers contribute to a more refined rhythmic sense?

Jaques-Dalcroze's pioneering investigations into the role of the body as the primary musical instrument has inspired countless educators to consider the relevance of the musculature in promoting both rhythmic and auditory sensitivity. Dalcroze's efforts took place at a time when psychology and the birth of psychoanalysis was having a marked impact upon educational theorists. But Dalcroze was a musician, not a trained psychologist, and he admitted the immense difficulties which he experienced in attempting to convey the psychological and neurological implications of his research. Dalcroze's lifelong aim, perhaps never fully realised, was to discover an education which would permit music to penetrate the human organism to the benefit of what he aptly called '...the music of the being'.³ In order to more fully comprehend the psycho-physiological implications inherent in such an education, Dalcroze sought the expertise of such leading psychologists as Edouard Claparède (1873 - 1940), who counted Piaget among his celebrated protégés. Nonetheless, Dalcroze writings relating his theoretical constructs to the practical application of Eurhythmics are often vague and inconclusive. Frequently, Dalcroze frees himself from his attempts to link his pedagogical and aesthetic researches to scientific facts and, in a letter to Claparède dated 1907, Dalcroze confided, 'Devoid of a scientific spirit I create empirically, but sometimes a single word is enough to spark within me a true revolution.'⁴

²Quoted in Ian Crofton and Donald Fraser, *A Dictionary of Musical Quotations*, London, Routledge, 1985, p.39.

³ '...la musique de l'être'. Cited in Louis Séchan, *La Danse grecque antique*, Paris, Boccard, 1930, p.249.

⁴ 'Dénué d'esprit scientifique, je crée empiriquement, mais un mot seul suffit parfois pour opérer en moi véritable révolution.' Cited Alfred Berchtold, 'Émile Jaques-Dalcroze et son temps', in Frank Martin, et al., *Émile Jaques-Dalcroze: l'Homme, le Compositeur, le Créateur de la rythmique*, Neuchâtel, Baconnière, 1965, p.81

Frank Wilson, a neurologist and musician at San Francisco's University of California Medical Centre, has noted a tendency amongst music educationalists to rely on a somewhat 'romantic' notion of the body as a natural learner, rather than applying themselves to a deeper understanding of the neurophysiological basis of rhythmic and auditory responses.⁵ Over the past ten years, I have participated in numerous courses and workshops which have focused attention upon the need to study rhythm, in addition to other musical concepts, utilising muscular movements. I have also read a vast amount of literature devoted to kinesthetic music education. The problem, as I see it, is that a great deal of this teaching begins and ends with the study of rhythmic movement per se, and, more often than not, fails to take into consideration the direct application of the kinesthetic activity to musical performance. Additionally, there seems to be an unfortunate tendency (in Australia at least) to relegate the kinesthetic music experience to the bottom rungs of the learning ladder, and I have watched far too many music and movement classes where less than adequately trained teachers presented children with activities which were neither rhythmical nor musical. Too much of what goes by the name of Dalcroze, Kodály, Orff, Suzuki, and their ilk, is, in my opinion, of dubious value in its cognitive content. Twiddling one's thumbs is a rhythmic activity, as is pretending to be a bear dancing, a washing machine agitating, or a kangaroo bouncing in two time, but these pursuits are far removed from the neurophysiologic operations which will enable a musician to perform, with a rhythmic precision, music ranging from Bach, to Brahms, to Bartók to Messiaen.

Rhythm is surely at the foundation of the musician's art. Berlioz, in his *Memoirs*, took to task the professors at the Paris Conservatoire for their failure to inculcate in young singers and instrumentalists '... the remotest conception of what is really meant by playing with the rhythm...' He also observed '...the flabbiness that is so common among performing musicians [this tendency arising] from being used *to depending on strictly predictable stress and divisions of time* ...'⁶ Here, Berlioz was inciting musicians to re-examine the false

⁵Frank Wilson, *Tone Deaf and All Thumbs?*, Viking, New York, 1978 ed.

⁶Hector Berlioz, *Memoirs*, London, Gollancz, 1969, p.478.

dogma of our Western music - the principle that rhythm is to be created only by the division of the measure into equal fractional parts of a whole note. Unfortunately, tradition persists, and I will discuss some of the repercussions in this paper. At this point, I would just like to comment on the pervasive quality of rhythm. For example, Shinichi Suzuki has done much to promote the importance of a good instrumental tone, and I often hear teachers (especially piano teachers) discussing the virtues of this and that 'weight' approach. Personally, I believe that tonal beauty is less concerned with considerations relating to arm weight and finger pressure, than with the *rhythmic flow* generated by the instrumentalist and the subtlety of the rhythmic nuances achieved with each phrase. Vocally, Maria Callas - a singer without an innately beautiful voice, but a dynamic sense of rhythm and phrasing - is a case in point. At any rate, let me quote Arnold Walter, the noted Orff specialist, when he wrote, 'Rhythm is still the forgotten element, in spite of Jaques-Dalcroze, whose warnings have never been heeded sufficiently.'⁷

Brian Brocklehurst, author of *Response to Music*, has suggested that:

Our aim as teachers of music must be to develop a close association between locomotor, manipulative and laryngeal imagery in such a way that kinaesthetic imagery reinforces auditory imagery and not acts as a substitute for it.⁸

This is no short order, and I wonder how many music educators (including those who diligently prepare their students for A.M.E.B. examinations) have seriously contemplated the repercussions of such a statement in their own teaching. On the other hand, a great many more teachers might profess to utilise the principles taught by Dalcroze, Suzuki and others. The dilemma is that Dalcroze's teaching, like that of Orff and Kodály who succeeded and learnt much from the Swiss professor, is based precisely on the learning objectives implicit in Brocklehurst's statement.

⁷Cited in Carl Orff and Gunild Keetman, *Music for Children*, London, Schott, 1950 ed., p.vi.

⁸Brian Brocklehurst, 'Music's Inner Gestures', *Music Teacher*, February, 1977, p.10.

Recently, I discussed the connection between music and muscular expression with a teacher interested in conducting further research into kinesthetic music education. During the interview, I began to notice how the emphasis tended to concentrate almost exclusively upon the way music prompts a muscular response. Yet, the more I considered this, the more I realised that as a performer and piano teacher it is the reverse, *how the inwardly felt rhythmic muscular activity provoking a musical response*, which is my prime concern. Again, it was a question of kinesthetic education leading to instrumental performance, rather than being an end in itself. Out of curiosity, I glanced through some of Dalcroze's writings to see what he might have to say regarding the relationship between kinesthetic studies and the study of an instrument.

Characteristically, Dalcroze had a lot to say, but one statement particularly caught my attention. He wrote in *Eurhythmics, Art and Education*:

It is clearly indispensable that the adapting of the preparatory [auditory and rhythmic] studies to the instrument should be made by the *same* teacher, otherwise the unimaginative student runs the risk of not being able, alone, to construct the bridge between the general and the specialised studies. The piano teacher who is not familiar with *solfège* and eurhythmics will not be able to utilise the resources possessed by his pupil. But if he is acquainted with the preparatory music studies, he is certain to advance the progress of the young pupil at a very rapid pace, not only from the point of view of interpretation, but also in improvisation. He will have, in fact, to deal with a pupil who has already, from his own experience, learned that conscious analysis of muscular sensations, of spontaneous rhythms, and of realised sounds, which gives full power of construction to the creative instinct.⁹

As a piano teacher, I have come to realise that the child who can step a crotchet pulse and clap a quaver rhythm, will not necessarily achieve an accurate rendition of the same rhythms when interpreting a composition at the keyboard. Cynthia Hannaford, a Dalcroze colleague in Adelaide, related how she had taught a girl to dance a Bach Minuet. A few months later, she heard the same girl play the same piece on the piano, and, in contrast to her dance performance, the instrumental rendition was rhythmically wayward, poorly phrased,

⁹Émile Jaques-Dalcroze, *Eurhythmics, Art and Education*, New York, Benjamin Blom, 1972 ed., pp.113-114.

and almost devoid of dynamic interest.¹⁰ One might say that the piano teacher, working apart from the eurhythmics teacher, had failed to translate the dance movements to the fingertips. Neurologically, the matter is a complex one, and it is this complexity which has important ramifications for teaching rhythm through any medium, including computers. As Wilson would have it:

Musical skill depends upon movements in which the entire body participates, but is built on precise control of the smaller muscles of the arms and hands, or those of the vocal and respiratory tract, or both.¹¹

Aural training, using computers, can provide a very useful adjunct to the student's musical training. Some programs, designed for younger children, have delightful graphics and provide ear-training games which provide for both fun and learning. At the same time, it is easy for children to adopt a rather intellectual or mathematical approach to this style of aural training. Passively sitting at a computer, with one's eyes glued to a monitor, is not the most conducive situation for learning to 'feel' rhythms muscularly and inwardly. Additionally, while most children cope reasonably well with both the rhythmic and aural training provided in the early program levels, far fewer children are able to progress with ease or fluency to more advanced musical concepts. Once syncopated or anacrusic rhythms are introduced, many children begin to flounder, and I believe this is due to the program having failed to instill a secure inward feeling for beat and measure. (Similarly, computer programs tend to ignore the need to instill a feeling for *tonality*, and the basic relationship of tonic and dominant - but that is another matter.)

Despite the technology, computer aural training - and I am here focusing on the rhythmical aspect - tends to adhere to that traditional metrical first beat in the bar approach which Berlioz, Dalcroze and others - such as Frank Martin¹² - have warned against. It is this

¹⁰Telephone conversation between the writer and Ms. Hannaford.

¹¹Wilson, op, cit., p.27.

¹²Frank Martin was a student of Dalcroze and later a Director of the Dalcroze Institute in Geneva.

preoccupation with 2, 3 and 4 bar measures which leads to later rhythmic anomalies, because it instils in the performer's mind a muscular dilemma in terms of force. This may be understood in terms of the tendency of traditional music education to train the performer, particularly at the early levels, to focus the brain's attention upon the 1st and 3rd beats of a bar. However, when a syncopated figure such as:



is introduced, the mind's overpowering perception of the 1st and 3rd beats gives rise to what might be explained as a neurological destabilisation, or, in simpler terms, the performer evidences a tendency to either retard or accelerate the tempo. To counteract this *a-rhythm*, the performer must have acquired a pre-programmed muscular internalisation to match what is so often, an intellectual conception of the rhythm. It is this neuro-muscular regulation of the motor activity which forms the pedagogical basis of Dalcroze's eurhythmics, and he explained in the introduction to *Solfège rythmique* (1925):

Rhythm is both muscular and nervous in essence and dictates the direction of the musical instincts. It constitutes a kind of compromise between force and resistance, and often if not always results in a modification of bodily equilibrium. As a consequence, one must necessarily study a specially devised series of bodily experiences which will constitute an indispensable basis of rhythm in the intellectual, sensory and emotional domains.¹³

In essence, much of Dalcroze's teaching is based on a pscho/physiological study of musical *durations*, a tendency already evidenced in the irregular phrasing and unusual time signatures employed in his early pedagogical compositions.¹⁴ But Dalcroze's observations have suffered such half-baked interpretations, that his intentions have failed to make sufficient inroads upon musicians and performance teachers. I am reminded of William Newman when he wrote,

¹³Émile Jaques-Dalcroze, *Solfège rythmique*, Lausanne, Jobin, 1925, p.iii. [The author's translation.]

¹⁴See for example, Émile Jaques-Dalcroze, *Esquisses Rythmiques*, Paris, Jobin, 1916.

'Just how much it [Dalcroze Eurhythmics] carries over to the problems of piano playing is hard to say.'¹⁵

I would reply that Dalcroze's teaching (moreover, the universal principles inherent in this teaching) is intimately connected with instrumental and vocal performance at all levels. At the turn of the century, Dalcroze immersed himself in recognising and attempting to resolve the connections between brain activity and bodily movement which would help to rectify the rhythmical deficiencies he observed in singers and instrumentalists. Dalcroze's theoretical constructs and his numerous exercises appeared in publications dating from 1894. In 1935, in association with the psychiatrist, Oscar-Louis Forel, Dalcroze prepared his forward looking *Coordination et Disordination des Mouvements Corporels*. The exercises contained in this book, which has never been translated into English, aim to help musicians to render automatic the oppositions of muscular rhythmic contractions and decontractions commonly encountered in instrumental performance. It is a training of such rhythmic refinement as I doubt could ever be achieved by a computer, and which needs to be conveyed, first-hand, by a musically sensitive educator. The following extract will enable you to gain some insight into this extraordinary training, while also exposing the superficiality of much of the current kinesthetic music education:

The problem of rhythmical refinement becomes particularly interesting when one considers that the human body is composed of almost symmetrical halves (on the sagittal plan) but that it is the left side of the brain which houses the centre of control, leaving unused important concealed territories in the right hemisphere. In struggling against the inertia and perverity of this left half of our body, rendering it independent through systematic muscular neurological exercises in disordination one augments psycho-motor skills and flexibility; and in return the exertion required to develop imagination, concentration, etc., combats our mental laziness and allows us to avoid ruts and beaten tracks.¹⁶

This year, at the International Society for Music Education Commission on the Education of the Professional Musician and Performance Teacher, Crispin Spaulding

¹⁵William Newman, *The Pianists Problems*, De Capo, New York, 1984 ed.

¹⁶Émile Jaques-Dalcroze, *Coordination et Disordination des Mouvements Corporels*, Paris, Alphonse Leduc, 1935, p.ii. [The authors translation.]

remarked that, 'The recent positive trend among musicians towards physical awareness deserves support.'¹⁷ As I remarked earlier, rhythm is elemental, and the musician who lacks a highly developed rhythmic sense is placed, to say the very least, at a considerable disadvantage. But rhythm is also muscular in essence, and until music educators, at all levels, comprehend the imperative need to teach rhythm as a physiological experience, and gain an appreciation of the neurological implications of such an education, musicians will continue to experience rhythmic difficulties in performance. Also, let me stress that I am discussing the TEACHING of rhythm, not the TESTING of innate or existing rhythmic awareness. As I have said many times before, aural testing is not aural training - and, if time permitted, I could say quite a few things about the V.C.E. aural syllabus. But returning once more to computers, I believe that while computer programs can provide a series of graded rhythmic tests, it is a very different thing to convey an inwardly felt rhythm, or an appreciation of the rhythmic agogics. I would like to refer once more to Wilson, and I will then conclude the paper with a brief discussion, from a neurological point of view, of a page from Milhaud's *Duo Concertant* for piano and clarinet. Wilson writes:

It is now recognised that highly skilled movements, particularly those that are rapidly executed and brief in duration, are under the guidance of a far more complex control system than is required for movements which can be corrected by ongoing adjustment, or the so-called current control...The essential characteristic of the control system is that the details of the movement must have been completely worked out in advance, in a lengthy trial and error process, so that the movement can be executed when it is called for with absolute accuracy, each and every time, in a nearly automatic way. This means that the brain, or the motor control system, must issue in advance of the move an ordered series of command signals that specify what the muscles must do, from start to finish, before the movement itself actually begins. Since there is no time to correct mistakes once the move has begun, everything must be right from the very beginning.¹⁸

If this sounds rather complicated, well it is. But it is not a complication which musicians (including music educationalists) can simply ignore or gloss over - although this seems to have been the tendency to date. Briefly, I would like to direct attention to some

¹⁷Crispin Spaulding, 'Prevention of Physical Problems Related to Playing and Performing', *International Seminars of International Society for Music Education Commissions of Education of Professional Musicians and Music in Schools and Teacher Training*, International Musicians Club, 19 - 25 July, 1992, Kyongju, Korea, p.187.

¹⁸Wilson, op. cit., pp.49-50.

details from Milhaud's *Concertant* which are interesting from the point of view of rhythmic agogics. I am currently rehearsing this work with my colleague, Warrick Sharpin, and I have been interested to observe some of the rhythmic complications - some quite deceptive on an initial reading - contained in this piece. I would also like to thank Anthony Shafton, who is currently investigating neuro-muscular rhythmic responses at the University of Melbourne, and Dr. Neil Coventry of Monash University Medical Centre, for their assistance in patiently helping me to appreciate the neurologic implications and muscular programming involved in musical performance.

Instrumental teachers place much emphasis upon relaxation in performance. On the other hand, muscles must be tense to operate, and in this we have the beginning of the performer's dilemma. Before elaborating, I have written out in a simplified version the rhythms (piano part only) of bars 25 - 30 contained in Milhaud's composition:



I was interested that this passage presented no difficulty as a kinesthetic experience in walking the beat and clapping the rhythms, or simply clapping. However, the same passage performed pianistically demands a tight rhythmic control, and I have noticed in performance an almost irresistible urge to both accelerate and retard the tempo. In short, an accuracy in stepping and clapping the rhythms away from an instrument, does not necessarily ensure an accuracy in performing the same rhythms in instrumental performance and within a musical context. On the other hand, the basic eurhythmic experience does seem to provide a safeguard - a warning bell - against playing out-of-time.

From an instrumental point of view, the performance of musical rhythms requires a sequence of activity in which nerve impulses are fired to the muscles - and in piano playing, principally the muscles of the fingers, hands, arms and shoulders. Tension is created, and the more rapid the nerve impulses the more fatigued the muscles become. This tension is more easily controlled at slower tempi, because the muscles have sufficient relaxation periods between activity. For example, in a slowly executed syncopated passage, the performer has more time to place the rhythmic stresses. In short, contraction is balanced by relaxation. In contrast, in rapid tempo, the muscles are frequently held in a state of contraction, and this, in combination with the musical agogics, can easily lead to rhythmic distortions. It might be observed that bar 26 of the Milhaud consists of a syncopated passage, *piano* and ascending in pitch. Bar 27 continues the syncopated motif, crescendo, leading to a bar of silence, followed by a group of *fortissimo* quavers which begins off the beat. Now, if I confide to you a tendency to hurry the semiquavers in bar 26, and to retard the quavers in bar 29, I can also supply a neurological reason for this a-rhythmic tendency. Firstly, the dynamic marking *piano* requires less force of muscular contraction than does the *fortissimo* of bar 29. Secondly, the tendency of traditional musical training to instill a feeling for the 1st downbeat (Berlioz's criticism) causes a neuro-muscular dilemma between the performer's concept of the syncopated pattern and the actual performance. Consequently, what is required is a pre-programmed automatic muscular internalisation to match the rhythmic concept. The better the kinesthetic preparation, particularly in the early years of training, the more effective and safeguarded will be the programming.

To conclude, I have attempted to provide a neurological insight, *albeit* a somewhat simplistic one, into the internalisation and externalisation of musical rhythms. I have also provided some thoughts regarding the role which computers might play in furthering the student's rhythmic development. I remember attending a eurhythmics class in which the teacher said, 'You must not count Messiaen's music, you must feel *his rhythm* vibrating in every muscle of the body.' The relationship between computer-based rhythmic training and

kinesthetic feeling is an interesting one and, if I have sometimes sounded a trifle negative towards the use of computers in this regard, I will reiterate that I have found some of the rhythm and ear-training programs to be a valuable adjunct to my teaching. At the same time, I do not think a computer can replace the experience of a well-trained music educator who is sensitive to the needs of the individual student, and who is able to isolate and define, and hopefully help overcome, the rhythmic and auditory difficulties experienced by the performer. Ultimately, my relationship with computers is akin to my love/hate relationship with the metronome, for as L. G. Heinze remarked, 'Do not think that the metronome will teach you to keep time; you must learn that *before* using it.'

--oOo--

Sources Cited

- Berlioz, Hector. *Memoirs*, London, Gollancz, 1969.
- Brocklehurst, Brian. 'Music's Inner Gestures', *Music Teacher*, February, 1977, p.10.
- Crofton, Ian, and Fraser, Donald. *A Dictionary of Musical Quotations*, London, Routledge, 1985.
- Jaques-Dalcroze, Émile. *Coordination et Disordination des Mouvements Corporels*. Paris, Alphonse Leduc, 1935.
- Jaques-Dalcroze, Émile. *Esquisses Rythmiques*, Paris, Jobin, 1916.
- Jaques-Dalcroze, Émile. *Eurhythmics, Art and Education*, New York, Benjamin Blom, 1972 ed.
- Jaques-Dalcroze, Émile. *Solfège rythmique*, Lausanne, Jobin, 1925,
- Martin, Frank, et al. *Émile Jaques-Dalcroze: l'Homme, le Compositeur, le Créateur de la rythmique*, Neuchâtel, 1965.
- Newman, William. *The Pianist's Problems*, De Capo, New York, 1984 ed.
- Orff, Carl, and Keetman, Gunild. *Music for Children*, London, Schott, 1950 ed.
- Séchan, Louis. *La Danse grecque antique*, Paris, Bocard, 1930.

Spaulding, Crispin. 'Prevention of Physical Problems Related to Playing and Performing'. *International Seminars of International Society for Music Education Commissions of Education of Professional Musicians and Music in Schools and Teacher Training*, International Musicians Club, 19 - 25 July, 1992, Kyongju, Korea, pp.185-198.

Whitemore, Cuthbert. *Commonsense in Pianoforte Playing*, London, Augener, 1926.

Wilson, Frank. *Tone Deaf and All Thumbs?*, New York, Viking, 1978 ed.

