AMEL

MUSIC IN TEACHER EDUCATION

NATIONAL CONFERENCE REPORT
MAY 13-14. 1981
MELBOURNE

ASSOCIATION OF MUSIC EDUCATION LECTURERS

MUSIC IN TEACHER EDUCATION

MAY 13-14, 1981

ST MARY'S COLLEGE
UNIVERSITY OF MELBOURNE

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FOREWORD

During the AMEL Conference in Brisbane in May, 1980, it became apparent that there was a need for a formalised research conference for music educators. The Melbourne conference therefore became a forum for researchers who may not previously have had the opportunity to present material to a group of music educators, and also, those involved in research were able to identify work being done in other states.

Papers were presented in methodology and research findings, and reports were made on research in progress.

The reader of these Conference proceedings will be able to see the range of topics covered under the general heading of Research in Music and Music Education.

The conference organising committee was:

Christine Daffy
Noela Hogg
Jan Stockigt
Barbara van Ernst

Barbara van Ernst,
President (AMEL)

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MUSIC EDUCATION: TEACHING AND RESEARCH

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'We are more likely to reach the truth through error than through confusion.' (Francis Bacon)

In this paper I shall attempt to outline the concerns of music education, both as an academic field of study and as an important area of professional activity. There may be a number of colleagues, musicians and teachers, who have deep and serious reservations about the wisdom of attempting to analyse a highly valued and intuitively grasped activity like music, let alone the complex and subtle ways in which musical skills and understanding are transmitted and learned. There may also be colleagues in education who have doubts about whether music education is rich in possibilities as a field of study. Is the territory big enough to permit large-scale prospecting? Do the essentially practical activities of music making and music teaching lend themselves to the development of theoretical frameworks? Can we go beyond the merely descriptive? Indeed, ought there to be such a thing as a Chair of Music Education? The writer has a vested interest here! He also is convinced that the field of music education is as rich an area of study as any other. Reasons for saying this may become clear as we proceed.

We ought first to deal with those aspects of the field which relate directly to music rather than to education. Musical activities are complex and intricate and it is small wonder that musicians frequently have interesting things to say to one another, while at the same time claiming a distrust of words. There is certainly no shortage of musicological commentary in a variety and range of journals. Many musicians are prepared to speculate endlessly on the antecedents of particular compositions, the personal background of composers and socio-cultural influences upon their music, the evolution of particular styles and technical devices, and the technology of musical instruments, ranging from handmade antiquities to the most refined electronic possibilities of our own time. The recent quest for authenticity in performance has stimulated not only historical investigation, but also the reconstruction of instruments and performing conditions. Nor is talk about music limited to historical or technological development. Composers and performers today are frequently very articulate, not only about the 'what and how' but also about the 'why' of music. In their own way composers like Stockhausen and Cage are philosophers as well as musicians. (Some would say that the latter is primarily a philosopher.) We ought to acknowledge that the study of music generates its own theories and academic conversations and is not simply a matter of engaging intuitively and unreflectively in some essentially practical activity.

When we turn to the *teaching* of music the development of thinking and some kind of principled discourse becomes inevitable. Any teacher stands between the learner and the activity, sometimes helping, sometimes hindering. There seem to be very few effective teachers who have undeveloped views about the nature of this intervention. What are the most effective modes of instruction? Should students be shown how to do things or should they discover for themselves? Are there any principles on which the rehearsal

of skills can be organised? What is the appropriate repertoire for learners and should it include a wide spectrum of different musical styles? Should the learners' musical skill and understanding be confined to the context of family and local community? Is musical activity of any real human value? Even with general questions like these we can begin to see straight away that issues are being raised that are at once psychological, sociological, and philosophical. What is more, these concerns exist not only in the context of abstract discussion, but also within a framework of action and decision-making. In music we have an activity which is permeated with decisions to do with skill learning, concept formation, social context and interaction, multicultural issues, adolescence (the power of pop music), and above all, aesthetic questions to do with the nature of a mode of experience which is powerfully affective and simultaneously requires highly organised cognitive strategies. The problem is not that the field lacks richness: on the contrary, it lies in knowing where to begin.

Music has received some fairly concentrated attention from those who are primarily engaged in what are sometimes designated as the education 'disciplines', philosophy being one of these. The arts have always presented a challenge to aestheticians and music is frequently taken as an important test case in general discussions about the arts and aesthetic experience. Because music is multi-faceted, it sits very uneasily inside such crude theories of art as formalism or referentialism. For example, a referential theory of the Arts finds music very uncongenial, especially if it becomes bound up with the 'expression of the emotions'. There are too many instances in music of highly disciplined technical achievement allied to the making or re-making of a complex and stylised object, within the disciplines that a time-bound art imposes, to allow for easy explanations of the power of such an activity in terms of self-expression or self-discovery.[1] Similarly, any theories that ascribe to music a merely abstract and beautiful form come to grief on the rock of music's extremely powerful expressive function, especially when allied with dance, theatre, or film.[2] Even in the case of what may be regarded as one of the purest forms of music, a Bach fugue, there are still perceptible and undeniably human qualities of movement, pulse, gait, and gesture that we can easily identify. It is the musicians rather than the philosophers who can take us further here.

Psychologists too have frequently turned their attention to music. This is hardly surprising. There is nothing to surpass music when it comes to demonstrating such things as the chaining together of units of skill, or the examination of muscular co-ordination, or aspects of aural perception and memory, or manifestations of preferences and attitudes. It is true that sometimes music itself gets lost in such investigations and that the 'stimuli' that are used in experiments tend to be less than musical, but still, one can see the fascination that music holds for the behavioural sciences and for researchers.[3]

The life-blood of any area of study must be the quality of the empirical research that sustains it. Such research in music education has not so far distinguished itself by its methodologies or its results. A great deal of earnest and diligent psychological work has been done, strongly influenced by American efforts, which has about it the 'horticultural' methodological flavour of psychology two or three decades ago, an emphasis on measurement and testing and the scientific laboratory technique of observation - 'treatment' - re-observation, with the attendant problems of establishing control groups and a tight experimental design. We have been substantially

influenced by Carl Seashore and it is certainly true that he, more than anyone, has laid down a framework and set of aspirations for psychological research.[4] Unfortunately, many followers of Seashore in methodology have failed to notice that he was also and above all a strongly *structural* thinker. All his work is based on a firm and broad conceptual framework. Without such a framework any attempt to engage in empirical work is almost bound to be faulty and is certain to be unhelpful. We must first understand more about the nature of musical experience and be able to identify the crucial elements in teaching and learning. It is perhaps significant that the vast bulk of research to date has been related to identifying and testing musical abilities. These have often been defined rather narrowly in terms of certain aural skills, rather less often in terms of dexterous skills and rarely in terms of aesthetic perceptions. Consequently, psychological research often stops short of identifying the characteristically rich elements of musical behaviour and thus tends to alienate musicians and educators.

More recently, sociologists have taken an interest in the arts, especially music, and have become critical of the attitudes of music educators who, it is claimed, tend to support and stimulate the formation of a small elite of pupils in schools, devoting attention and resources to western 'classical' music through the medium of instrumental teaching, and formal examination work, ignoring or even vilifying other forms of music, especially those of Afro-American origin (jazz, rock, pop).[5] Relativistic sociological writing has performed a service by reminding us that musical conventions are man-made and not God-given, and that schools and other institutions actually help to define and shape culture: they do not simply transmit it. However, having so reminded us, the sociologist can take us no further. The musician-teacher is required to make things actually work, to get things going.

Those engaged in discussing general problems in education also find music a useful test case, for example, when considering such issues as worthwhileness, creativity, curriculum organisation, integration, conditions for learning, the formulation of teaching objectives, the 'core' curriculum.[6] Here again the insights of musicians are required if discussion is to be well focused.[7]

In short, music is such a complex and gritty component of human experience, with so many facets and operating on so many levels, that any proper understanding of music education can only develop when musicians and teachers *themselves* bring their experience of music, of teaching and learning, and of the educational disciplines, together in a single field. This is the field of Music Education and, like many fields in education, it is sturdier through being mongrel rather than thoroughbred.

In order to underline what has been said so far I wish to emphasise the point that all education is a process of *transaction*. Music education is no exception. We seek within the field to understand more about the relationships across the triangle of student, musical activity, and teacher. We are fortunate in having before us a good deal of work across the whole spectrum of education which can help us to understand more about the development, attitudes, and potentialities of our students. We are also challenged more than we were to examine more carefully the motivating human impulses and cultural factors that influence the behaviour of teachers and their choice of subject activities. The task of teasing out the essentials from the dross of educational study is the task for music education. It certainly

cannot be left in the hands of those who are neither musicians nor teachers. Nor, in the complex society in which we live, can the whole thing be left to happy intuition. Choices have to be made. Decisions must be taken. Activities are initiated or not. Justifications have to be made to colleagues in the staff room, at the board meeting, and in the education committee. Valid and effective decision-making can only be achieved when there is a framework of professional understanding on which we can draw, to which we can relate and within which we can communicate with each other. Although in music education we have begun in earnest only recently, there are already signs that colleagues in the field are enthusiastic about the mapping of the territory that has so far taken place. The need for it is certainly recognised. The level of classroom transaction in music education is at times very low, as is the level of debate on music curriculum issues.

As an illustration of the complexity of the field of music education we might usefully look at just one example of the kind of problems that can underlie statements about music and teaching. The illustration derives from an extended discussion with colleagues in Australia where we were trying to formulate a statement examining and defining the role of music as a core-curriculum subject. The opening paragraphs were at one time drafted as follows:

> It is recognised that human needs are not fully met by the provision of physical and material well-being. People need to make sense of their lives, to find living a rich and worthwhile experience. Evidence for this can be seen in the pervasive myths, rituals, celebrations, and artistic endeavours powerfully present in all cultures. These activities make possible the exploration of alternative experiences beyond the immediate and obvious, thus preserving openness in a species which needs to continually adapt to changing environments. We are able to explore and develop these alternatives through the use of symbolic forms as examplified in the sciences, language, and the arts. This is where music finds its role. It is an important mode of exploration and a source of deep pleasure and satisfaction.
>
> Although music and the arts have their own special values and procedures there are a number of features which are common to the general development of children. For example, we might notice social interaction, development of physical co-ordination, concentration, and memory. Ultimately though, music is valued because it gives insight into human experience and enables us to delight in living.
>
> Music is diverse and has developed in many varied and complex ways. A true understanding of it is learned rather than merely inherited. Therefore initiation into music cannot be left to chance and must be an integral part of any educational programme.
>
> We therefore draw attention to the right of every child to engage directly and practically in music. In the early years of schooling music will be part of every child's curriculum in order to provide a platform of skills, knowledge, experience, and values from which informed choices can be made when opportunities present themselves.

Immediately we ought to notice the wide range of sources underlying such a statement. The first paragraph derives from some understanding of social anthropology, of the relationship between the arts, myths and ritual, of the philosophical work of Susanne Langer and others. The statement raises difficult questions about the epistemological significance of the term 'symbolic forms'. The second paragraph makes observations concerning

certain aspects of the psychological and physical development of children. The reference to the 'special values and procedures' of music within the arts has roots in more general aesthetic problems, both psychological and philosophical. The third paragraph attempts to link music with learning processes and raises problems relating to the 'nature-nurture' debate.

We can see, then, that any statement about music education is bound to be problematic, involving us in a number of disciplines and modes of thought, unless such a statement is to be trivial or self-evident. Just as a practical musician brings a whole range of skills and sensitivity to performance, so the music educator has to develop a conceptual framework, knowledge in several fields, and an ability to learn from and initiate relevant research.

Many music advisers and inspectors in Britain are faced with similar difficulties of producing convincing and principled curriculum guidelines for music education, often without the necessary background of study essential for such a task. The result is that there is very little guidance for teachers from central sources.

Faced with the problems of manufacturing a music curriculum for themselves, many teachers have attempted to devise packages of activities which reflect their own value systems and teaching situations. In brief, it seems that we can identify fairly clearly three main clusters of classroom practice and curriculum values.[8] We might label these the 'traditional', the 'creative', and the 'urban' positions. Each of these points of view embodies a search for *relevance*. The first of them, the traditional, is looking for activities to be relevant to the mainstream of western music as it has evolved historically. The creativity movement, on the other hand, is looking for personal relevance for individual pupils and their emotional development. The urban teacher is more concerned with social relevance, in finding those activities that are meaningful for pupils from very different ethnic and cultural backgrounds. It is comparatively rare that these issues are tackled in anything like an objective way. As a result, practitioners in music education tend to be divided one from the other by virtue of the position they adopt and are often badly informed about each other and any relevant research. Yet research and professional development in music education surely proceed hand in hand and we must learn to talk to one another rather than proclaim slogans. It has been one of the writer's major tasks as Professor of Music Education to try to develop a conceptual framework that may make this 'talking to one another' possible; the response of many colleagues has been heartening.[9]

If the formulation of a strong and publicly declared conceptual framework is the first priority, the second is surely to come to some kind of historical and social perspective on where we are and why. The third priority is the development of appropriate research methodologies, which may or may not be experimental in the strict sense, but will certainly be more rigorous than casual and partial observations of practice in the classroom and elsewhere. We should be flexible in our interpretation of data - not to overlook alternative outcomes from those anticipated. The fourth task will be to embody all these findings in professional action and this will require not only substantial revision and development of courses for teachers, but also activity at administrator levels.

Work in music education at the University of London Institute of Education has been moving forward for over twenty years now. For much of this time

the main task has been the training of teachers, graduate musicians, for their first posts. This is still an important part of the work of the Music Department and brings staff into constant contact with schools, with children, with student teachers and teacher colleagues. It is this activity more than any other which keeps the academic aspects of music education as a field of study fairly tightly rooted in the earth. However refined our conceptual strategies and however scientific or sophisticated our research methodologies may become, in the end we have to translate what we know and understand into appropriate action. At the same time it is not our business simply to devise 'holding activities' for the classroom. That would be to perpetuate the bad as well as the good.

A *laissez faire* attitude has prevailed for many years and we would all recognise that music education, in schools at least, is not in a particularly robust state. The time is ripe for a conscious interventionist policy of a principled and well-argued kind. Little by little, the protagonists of theory and practice must squeeze out of one another the shape of curriculum decisions.

If we are to emerge from the financial constrictions of the next few years in better rather than in worse shape than before, we shall need to gather together the best imaginative practice and the most powerful ideas and push towards the formation of a truly professional attitude. If music education is to be a real field of study it must forego defensive territorial fragmentation. One mark of a field of study is surely a certain level of objectivity, a willingness to discuss, to try out, to experiment, to doubt, not merely to affirm our personal beliefs. There is much that is encouraging and promising, but there is also much to do. We need to develop further a spirit of co-operative curiosity. For by talking to each other we may learn how best to talk to others.

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A PRACTICAL APPROACH TO THE EVALUATION OF TERTIARY LEVEL COURSES

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In this paper evaluation is seen as a process which helps educators to make decisions. It involves both the gathering and interpretation of information and the use of judgement in making decisions in the light of the information gathered. The paper will consider three broad questions: Why evaluate? What evaluation methods may be used? and Who should evaluate? These questions will be applied to the context of tertiary level institutions.

WHY EVALUATE?

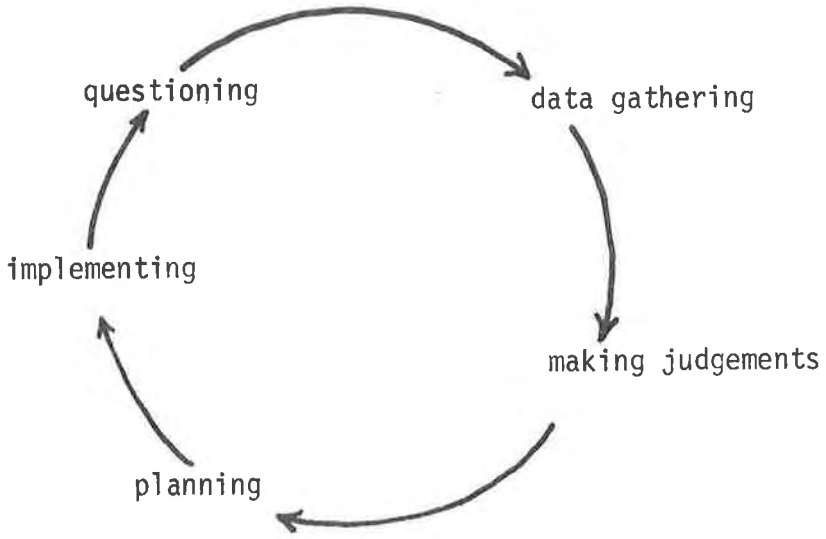
Reasons for carrying out evaluations may be classified into two broad areas: an evaluation may take place for the purpose of accountability, or the main purpose may be to promote change. These two areas are by no means mutually exclusive. The evaluation of tertiary courses in Victoria for accountability purposes has traditionally involved an 'external' evaluation which has been imposed by a body from outside the institution. For example, there was a mechanism whereby the now-disbanded Victoria Institute of Colleges systematically reviewed the courses of all VIC-affiliated colleges for accreditation purposes. However, evaluation for accountability need not necessarily be imposed from outside the institution as the questions that might be generated by such an evaluation are ones which I believe should be of interest to all educators. In the case of a course offered by a tertiary-level school of music, the school would be accountable to both present and prospective students and to the Music profession. Therefore, the following questions might be asked: What are the expectations of students entering the course? To what extent are these expectations being met? Are these expectations in keeping with the stated goals of the course? Is the course in touch with changes occurring in the Music profession? Are graduates from the course contributing towards the growth and development of the profession? Some writers on evaluation (notably Braskamp and Brown, in Stake, 1975) believe that the area of accountability should be extended to informing the general community about the rationale for a course. For example, does the community understand why this course is important? Is the community informed of the potential value of this course?

It is clear that some of the questions considered in an evaluation for the purpose of accountability will be likely to lead to change. If a music course is seen to be out of touch with developments in the Music profession, then an outcome of the evaluation might well be to make changes to the course which would more closely align it with the developments in the profession. However, other matters considered in an evaluation for the purpose of accountability would not necessarily lead to change, particularly those questions that might be put by a funding body (to which the course would be accountable). In this case the funding body would want to ensure that the course being offered was in keeping with the initial course plan

which would normally have had to be approved before funds were forthcoming.

Accountability, however, is not the only reason for conducting an evaluation. The purpose of an evaluation may well be to act as a change agent. Course evaluation is intrinsically related to course development and, as such, it is a part of an ongoing process, as the following diagram illustrates.

THE ONGOING PROCESS OF EVALUATION



Course developers and teachers should systematically monitor their courses by asking questions such as: Is the course adequately meeting students' needs? Are students achieving the goals set by course developers? Are these goals feasible? What do students perceive to be the main strengths and weaknesses of the course? What do teachers perceive to be the main strengths and weaknesses of the course? Data are gathered in response to the questions, judgements are made both at the level of formulating recommendations about the particular course and then in deciding whether or not to carry out the recommendations. Once recommendations have been implemented the process continues with questioning.

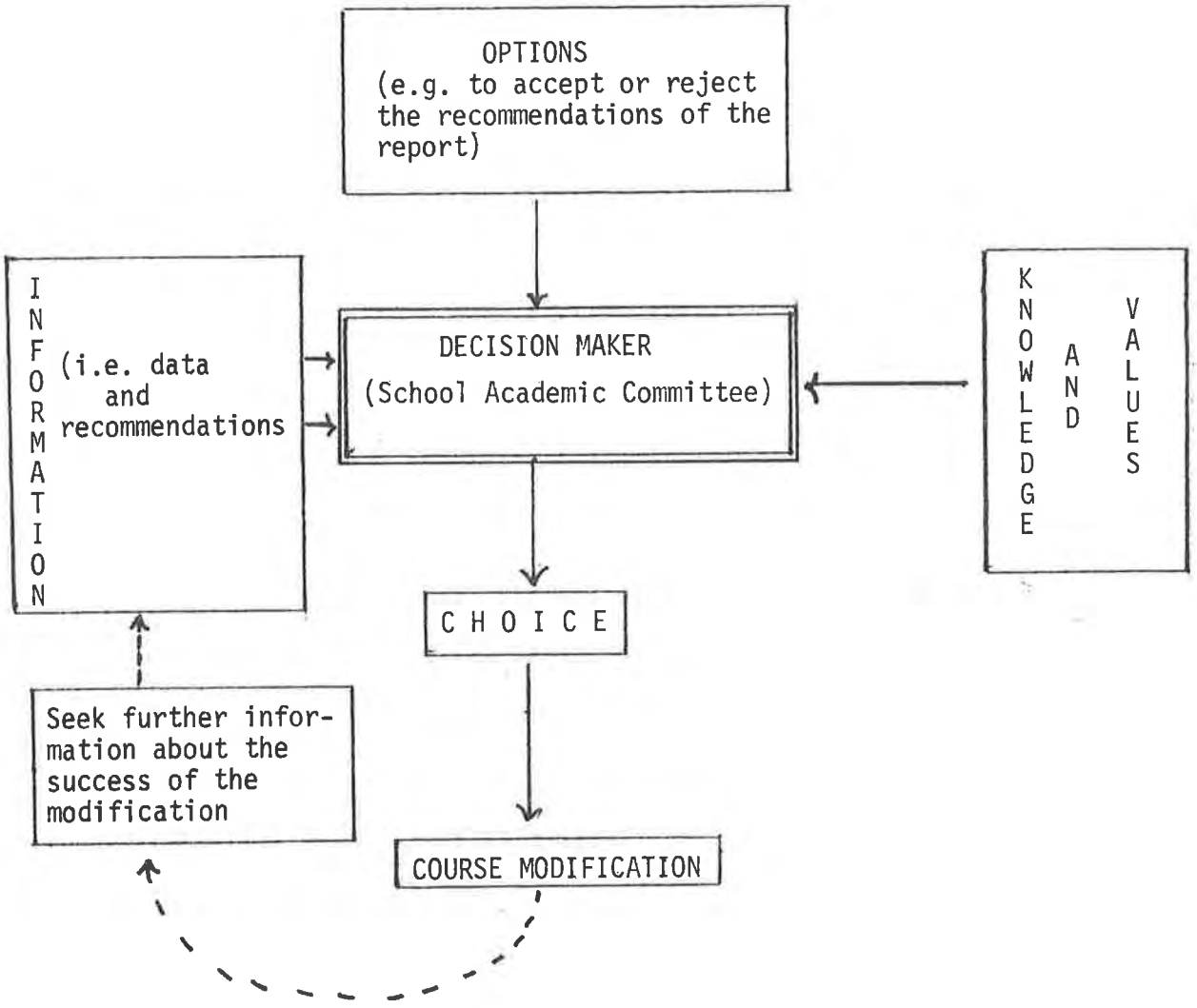
It is in relation to this process that evaluation, as a discipline, differs from research. Alkin (see Alkin et al, 1979) distinguishes between research and evaluation by pointing out that research studies are designed primarily to add to a body of knowledge, whereas evaluative studies are designed primarily to provide information for decision-making. According to this distinction, it is not of concern if the results of a research programme are not used - the redeeming feature may be the intrinsic value of the research - whereas it is of concern if the results of an evaluation are not used.

WHAT EVALUATION METHODS MAY BE USED?

To answer this question I shall describe (with critical annotations) an evaluation I undertook in 1978 for a tertiary-level school within a college. I shall then suggest other methods that might have been used, drawing on experiences I have had carrying out evaluations of courses at the Lincoln Institute of Health Sciences.

My brief was to undertake a formative evaluation of the undergraduate degree and diploma courses offered by the school. In this case the purpose of the evaluation was to act as a change agent. The School Academic Committee wanted to monitor the courses particularly in terms of the extent to which they were meeting what students perceived to be their needs. I was to provide a report consisting of recommendations arising from data gathered. The School Academic Committee would make decisions (concerning change) by following the process outlined below which has been adapted from Stufflebeam (1971).

MODEL OF A DECISION MAKING PROCESS



It can be seen here that the process of evaluation is essentially an ongoing one. Although the diagram oversimplifies the process, it suggests that the School Academic Committee would make decisions by considering the information presented (the report) in the light of members' own knowledge and values. The Committee would have the option of accepting or rejecting the information. If decisions made would lead to changes, these changes would need to be tested and evaluated.

The data-gathering stage of an evaluation essentially involves asking questions and gathering responses to these questions from appropriate people. It is crucial that the right questions are asked. A traditional model for an evaluation established by evaluators such as Ralph Tyler (who might be considered the pioneer of educational evaluation) is to spell out the goals and objectives of a course and then to ascertain whether or not the goals and objectives have been met. If this model were followed, I would have asked the school for a statement of its goals and objectives and I would have then framed questions based on this statement. However, Scriven (1972) has pointed out that a consideration of only the intended outcomes of a course can be very limiting. There may be both desirable and undesirable unintended outcomes which would be missed if questions were formulated with reference only to goals and objectives. Stake (1975) has suggested that an evaluator should firstly try to discover the 'key issues' in a course:

> After getting acquainted with a program... the evaluator acknowledges certain issues, problems, or potential problems... The systematic observations to be made... should be those that contribute to understanding or resolving the issues identified.
>
> Stake (1975), page 17

This approach seemed to fit my brief. I attempted to establish the key issues by talking with staff involved with the course and by sending a 'preliminary questionnaire' to final-year students. It may have been desirable to have included a wider sample of students in this preliminary survey, but my resources were limited. I did not want to jeopardise later questionnaire returns by overtaxing students, and I felt that final-year students were in a unique position to comment on the whole course. As I was attempting to uncover important issues, the questions in this preliminary questionnaire were broad and open-ended. For example: Which aspects of the three-year course do you believe have been most helpful in your development as a musician? What, if any, have been the most frustrating aspects of the three-year course? What areas should be covered in a more detailed questionnaire?

Data from staff discussions and from the preliminary questionnaire were analysed, and four 'key issues' or areas of concern were apparent:

1 The extent to which aspects of the course were helpful to students' musical/artistic development.

2 The amount of structured direction that should be given to students by teaching staff.

3 Assessment methods.

4 Whether or not the undergraduate courses were too short.

The first three of these issues focused on areas where change would be feasible. Altering the length of a course is not a simple matter, and it was very unlikely that an extension would be possible. Therefore,

questions relating to the fourth issue aimed to discover areas of the existing course where students felt more emphasis was needed. This could possibly be accomplished without adding a further year onto the undergraduate courses. A questionnaire covering the four key issues was then constructed. Although there was room for free comment, the questions were more objective than those on the preliminary questionnaire. For example:

> Could you please rate the following aspects of the teaching program to indicate how helpful you believe each has been in your development as a musician? (For example, if you found Chamber Music helpful, but not extremely helpful, you might tick the column headed '2'). If you did not take part at all in a particular activity please do not rate it.

ACTIVITY	EXTREMELY HELPFUL				NOT HELPFUL
	1	2	3	4	5
Participation in Orchestra					
Solo performance opportunities (concert practice)					
Master classes					
Lessons in principal study instrument (or voice)					
Chamber music					

Despite the attempts made to focus questions on 'key issues', it is possible that important data were lost because of the objective nature of the questionnaire. Students may leave out information because they perceive it to be irrelevant, or, despite careful structuring, a question may turn out to be ambiguous. Students bring different values systems to the responses; this is particularly apparent where items require rating or ranking. One person's notion of 'extremely good' may or may not be equivalent to that of another person. These factors must be borne in mind when analysing data which, when expressed quantitatively, look deceptively scientific.

Analysis of questionnaire responses led to twelve recommendations being made in the final report which went to the School Academic Committee. Of these recommendations, five related to the first 'key issue' (concerning the extent to which aspects of the course were helpful to students' musical development), two related to the second issue (concerning direction given to students), four related to the third issue (assessment methods), and one to the fourth issue (length of the courses). In keeping with the ongoing nature of a formative evaluation such as this, the recommendations often suggested that further investigation was needed or that a particular action could be tried as an experiment and evaluated.

Problems relating to the use of a questionnaire as the main data-gathering instrument would not necessarily have been overcome by using other approaches. But it is sometimes less formal and less threatening to gather responses by means of structured discussion groups. Questions would be devised by means of a process similar to the one used for this evaluation, but they would be kept in an open-ended form and put to groups of no more than a dozen students (or teachers). There would be a 'neutral' discussion leader whose responsibility it would be to ensure that all questions were put to the group, that each group member contributed, and that discussion was not dominated by one or two people. A 'scribe' would be needed as well because tape recorders can be inhibiting in such a setting - some students refrain from making critical comments because they believe their voices would be recognised if the tapes were used irresponsibly. Given the key issues that emerged for this evaluation, it would have been interesting to have tried an adversary approach along the lines developed by Thomas Owens (1973). Two partisan individuals or teams of individuals gather data to support the respective sides of a problem. Then the adversaries or adversary teams present their evaluations either as written reports or in a traditional debate setting. A decision-maker (which in our case would be the School Academic Committee) would then act upon the arguments presented by the adversaries. This approach would have worked particularly well for the fourth 'key issue' (whether or not the undergraduate courses were too short), although I would have had some reservations about urging the adversaries to spend a lot of time gathering data when it was unlikely that the courses could have been lengthened.

WHO SHOULD EVALUATE?

In the evaluation described above, I acted as an independent evaluator. This would normally involve negotiation and agreement upon a formal contract between the evaluator and the client (in this example, the school). Until recently, I believe it was unusual for evaluations of tertiary-level courses to be carried out by this means. However, it is worth noting that, according to the Tertiary Education Commission Report for the 1982-4 triennium, thirty-two projects in the evaluative studies area have been funded since 1979, and a provision of $400,000 per annum has been made for evaluative studies during the 1982-4 triennium. This suggests that there may be a new emphasis in the area of programme evaluation and that funds will enable independent evaluators to play a greater part than before in these activities. However, evaluation may be accomplished satisfactorily in tertiary institutions without the aid of an independent evaluator. Many tertiary institutions have education units where staff have expertise in educational evaluation. At Lincoln Institute there have been instances where the 'experts' have conducted an evaluation of a course one year, then staff of a particular school have used that model to conduct their own evaluation the following year. Of course, having an independent evaluator provides benefits beyond expertise. Students, for example, may have difficulty in giving frank responses about an aspect of a course if one of the teachers is eliciting those responses. On the other hand, one of the main dangers in an evaluation is that the process will stop soon after the data-gathering stage. Perhaps teachers are more likely to ensure that action is taken when they have played a large part in gathering the data. There may well be a need for greater emphasis in training (or inservice training) tertiary teachers on the development of evaluative skills. It would certainly be irresponsible to play down the importance of having properly trained people carry out evaluative tasks as Popham (1975) points out:

> Educational evaluators are dealing with... easily damaged goods. Indeed, the harm that may be done to pupils as a consequence of inappropriate education may be as irreparable as the errors of a surgeon during an open-heart operation. The intellectual, emotional, and physical well-being of hundreds or thousands of learners can be influenced beneficially or adversely because of the actions of educational evaluators. (page 17)

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PERCEPTION AND CONCEPTS OF MUSICAL RHYTHMS IN PRIMARY SCHOOL CHILDREN

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ABSTRACT

The perception of musical rhythms by older primary-school children and the concepts they have of rhythms were explored in a replication of a study by Bamberger (1975). Of particular interest were the relationships between two hypothesised concepts of rhythm, prior musical training, and cognitive development. A sample of 105 fourth- and sixth-grade girls, selected to represent contrasting levels of prior musical training, were given two experimental tasks. The first was to make a drawing of a rhythm they had learned to clap. The second task was a forced choice matching-test made of drawings hypothesised to incorporate principles of the two rhythm concepts. Content analyses of the drawings by two judges offered support for Bamberger's (1975) findings. Chi-square analysis of drawing classifications revealed a significant relationship between prior musical training and rhythm concept, but not between grade level and rhythm concept. Chi-square analysis of matching-test scores did not reach significance.

There is a degree of mystery about the development of concepts of rhythm and meter between the ages of nine and fifteen years. Some studies have provided evidence of a steady improvement in performance up to the age of nine on tasks designed to assess the development of musical ability, but for older subjects results have been equivocal (cf. Larsen, 1973; Petzold, 1960, 1969; Pflederer, 1964), leading Gordon (1979) to conclude that musical aptitude has stabilised in most individuals by the age of nine. Specifically concerning the development of a concept of meter, Serafine (1979) reported age, intellectual maturity, and performance on Piaget conservation tasks to be significantly related to performance on a meter conservation task for a sample of children four to nine years old, with 76 per cent of the nine-year-old children demonstrating the use of a concept of meter. This would appear to support Gordon's (1979) conclusion.

However, the period from nine to fifteen years of age is known to be a time of significant cognitive growth, encompassing the appearance and development of abstract, logical reasoning. In terms of Piaget's theory (Flavell, 1963; Ginsburg and Opper, 1969), this period includes the transition from concrete operations to formal operations. Assuming that musical activity is a complex behaviour, often requiring sophisticated reasoning rather than just a conditioned response, one would expect that the transition to formal operations would have some effect on it, and that there would be some evidence of development in musical ability beyond the age of nine.

Jones (1976) measured the performance of subjects aged five through twelve years on a battery of tasks, among them a test of meter concept. Subjects

were asked to explain their answers to the meter concept task: most of those aged seven to nine years gave perceptual answers, while most subjects aged nine to twelve years made somewhat logical explanations. However, no more than 38 per cent of the subjects at any one of the age levels eight, nine, ten, eleven, and twelve passed the meter concept task, and none of the younger subjects passed the task. This suggests that a change in thinking about rhythmic concepts does occur after the age of nine, and that, although the acquisition of a meter concept is possible in at least some subjects nine years old, further development may continue past the age of twelve.

A study by Bamberger (1975) is interesting in this context. In this study, groups of children of ages four through twelve years were asked first to make a drawing of a particular rhythm they had learned to clap, then, as a subsequent task, to number their drawings in what to them was a meaningful way. Analysing the drawings, Bamberger (1975) found evidence for seven distinct types, and further concluded that these types represented various stages in the development of two contrasting strategies for notating rhythms, which she termed the 'figural' and 'metric' strategies (see figure 1).

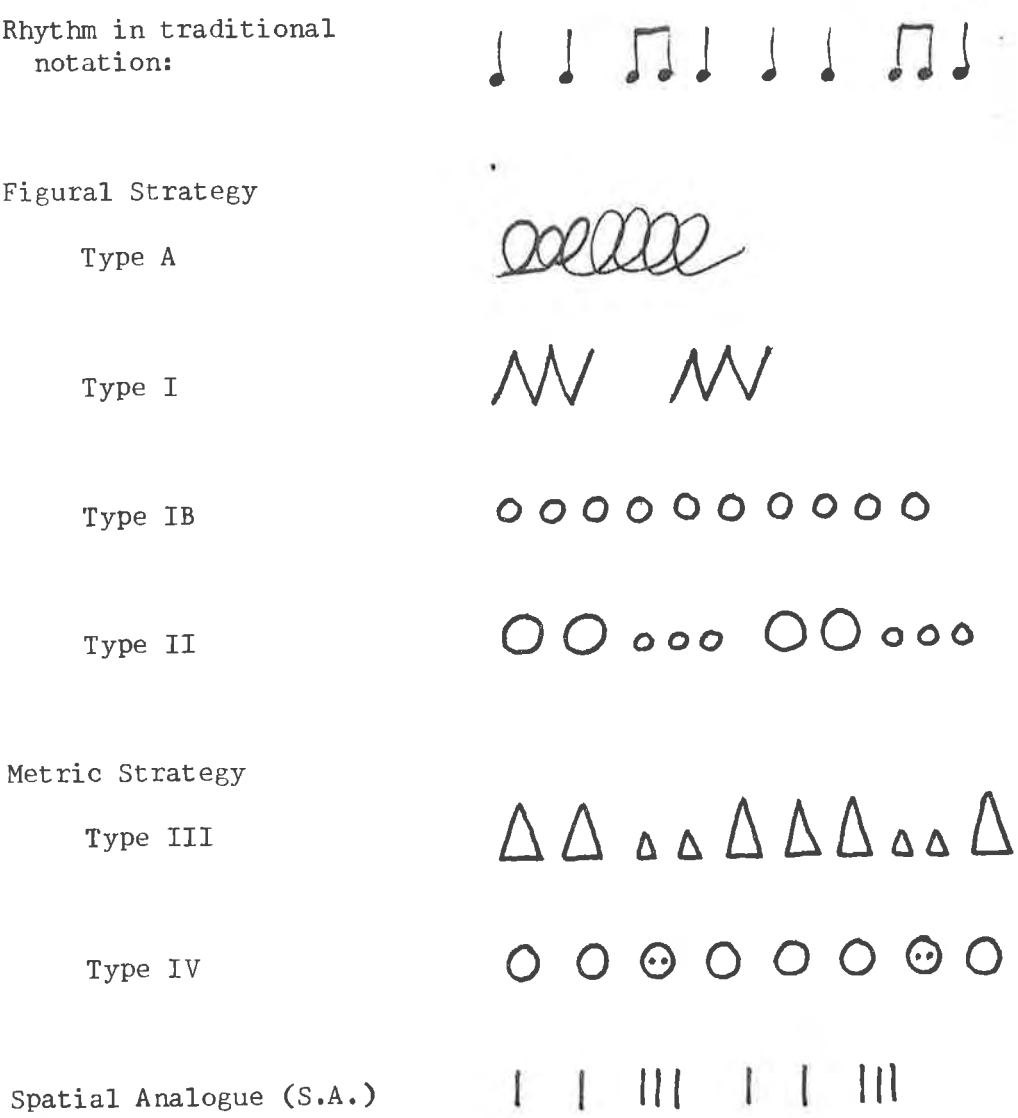


Figure 1: Classification of drawings made by primary school children attempting to notate a simple rhythm. (After Bamberger, 1975, 1980).

The principle difference between the strategies was in the grouping of symbols representing individual claps in the rhythm. In the figural strategy, claps were hypothesised to be shown in contiguous groups making a distinction between fast and slow claps. The metric strategy was hypothesised to distinguish between claps on the basis of duration, specifically the duration of the clap as implied by the duration of the interval between claps. The metric strategy was represented by two drawing types: Type III, which characteristically shows only the relative duration of events, and Type IV, in which claps appear to be grouped with reference to a metric pulse.

Bamberger (1975) hypothesised the several drawing types to represent a developmental sequence demonstrating growth in concepts of rhythm and meter, with the distinction between the figural and metric strategies representing a marked change in the kind of thinking used. The figural strategy appeared to have characteristics of pre-operational behaviour as defined by Piaget, while the metric strategy seemed typical of concrete operations. In a re-analysis of the data, Bamberger (1980) strongly implied a relationship between Type IV drawings and the attainment of formal operations, arguing that Type IV drawings show the use of a formal symbolic system. However, the developmental hypothesis was weakened by the occurrence of a proportionately large number of Type II drawings in the eleven-to-twelve-year-old group. Bamberger (1975, 1980) did not report the complete frequency distribution of drawing types, which would have provided more information. She did note that the musical instruction received by many subjects may have confounded her results.

Bamberger's (1975, 1980) findings tend to confirm those of Jones (1976) and suggest at least three possibilities: first, that the attainment of a metric concept, based partially on a logical analysis of rhythm, occurs as a natural consequence of cognitive growth, appearing in some children as early as age nine, but not developing in others until after the age of twelve. A second possibility may be that most children are capable of a metric concept by the age of nine, but that the development of this concept requires either specific training, or considerable experience with musical activities. In this case the metric concept would appear to be more closely related to concrete operations than to the attainment of formal operations. The third possibility, suggested by both Bamberger's (1975, 1980) findings and Jones (1976), might be that cognitive development and experience interact to produce a metric concept.

The present research was undertaken first of all to replicate Bamberger's (1975) experiments for the purpose of confirming her typology of drawings, and to provide more examples for study. A second objective was to statistically test the relationships between the hypothesised figural and metric strategies, musical training, and age. It was hypothesised that the types of drawings made by subjects would be significantly related to both prior musical training, as indicated by having taken lessons on an instrument, and grade level, which was assumed to be an approximate measure of cognitive development. Accordingly, subjects were drawn from the fourth and sixth grades who had either received instrumental tuition, or to form a contrasting group, had experienced no more than the regular music programme at their school. This resulted in four groups, whose aggregate classifications on Bamberger's (1975) drawing task could be compared and tested statistically. The research hypotheses predicted that the sixth-grade subjects would obtain a greater number of metric classifications than the fourth-grade groups, and similarly that the musically trained groups would obtain a greater number of metric classifications than the untrained

groups. The interaction hypothesis predicted that the sixth-grade, musically trained subjects would obtain more metric classifications than any of the other three groups. The fourth- and sixth-grade levels were used because they offered the maximum workable contrast within the age group of interest, which was from nine to fifteen years. Selecting subjects from years seven or eight at a secondary school would have necessitated more complex controls of extraneous factors such as intelligence, social background, and musical ability. These controls were beyond the scope of this study. By restricting the design to primary grades, it was possible to assume a degree of similarity in background between subjects, and to use simpler measures of intelligence.

A third objective of the present study was to test the validity of a matching-test designed to be an additional measure of the use of figural and metric concepts. It was hypothesised that individual subjects' performance on this test would be positively correlated with classifications on the drawing task. In addition, the same hypotheses concerning the relationships between rhythm concept, grade level, and musical training could be tested using the matching-test scores.

METHOD

A sample of 105 students was drawn from four government primary schools located in a suburb of Melbourne. The sample was representative rather than random: subjects were chosen to be representative of contrasting levels of the two variables, Grade Level and Musical Training, as described above. In addition, only girls were used in the sample to control possible differences in performance due to sex, and an attempt was made to select subjects from schools with similar music programmes and with reasonably homogeneous, middle-class student populations.

The selection of subjects proceeded as follows: first, all fourth- and sixth-grade students in several primary schools were asked to complete a questionnaire concerning which, if any, musical instruments they could play, how many years they had been playing these instruments, whether they had taken private lessons or had learned the instruments at school, and if they had taken an external music exam. The girls were ranked within each school according to strength of musical instruction received, as estimated from their replies on the questionnaire. Highest rankings were given to those who had played piano for at least one year, had received private lessons, and had taken a music exam. Lowest rankings were given to those who replied that they could not play an instrument and had not had music lessons. Individuals were then selected to form two groups at each grade level, representing the observed extremes in degree of prior musical training received. Selection was made on the basis of the rankings described above, but with consideration also being given to approximate matching of subjects in contrasting groups according to academic achievement as estimated by classroom teachers, and the need to obtain a total of at least 100 subjects taken from as few schools as possible.

The distribution of the achieved sample across the various cells of the factorial design is presented in Table 1. Range, mean, and standard deviation of ages in months for fourth- and sixth-grade groups are presented in Table 2. The fourth-grade subjects were approximately 9½ to 10 years old, while the sixth-grade subjects were approximately 11½ to 12 years old.

Two experimental tasks were given to groups ranging in size from six to

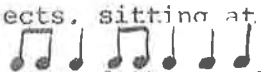
N of Subjects	Grade 4		Grade 6		Totals
	MT	ØMT	MT	ØMT	
School A	8	9	5	6	28
B	9	10	8	8	35
C	9	10	8	9	36
D	-	-	3	3	6
Totals	26	29	24	26	105

Table 1: Distribution of subjects in the achieved sample across schools and the cells of the factorial design.

Subjects' Ages in Months			
	Mean	Range	S.D.
Grade 4	116.9	110 to 131	5.09
Grade 6	139.9	134 to 149	4.05

Table 2: Mean, range and standard deviation of subjects' ages given in months, 4th and 6th Grade groups considered separately.

eighteen subjects, who were withdrawn from their regular class and taken to a separate room for the experimental session. These sessions were from twenty-five to forty minutes in length. Both tasks were completed during this time.

The first task was intended to be similar to the drawing tasks used by Bamberger (1975). This task was presented as being a musical puzzle. The subjects, sitting at tables, learned to clap a specific rhythm ( from Bamberger, 1975) by imitating the experimenter, who clapped the rhythm in strict time at a tempo of approximately ninety-two crotchets (♩) per minute. The rhythm was repeated until all, or all but one, of the subjects present clapped the rhythm correctly without hesitation. Most subjects learned the rhythm in three or four repetitions. The experimenter then gave the following instruction:

> Imagine that you are the chief drummer of a tribe on a South Sea island, and that you have just invented the rhythm we have clapped. Suppose, too, that you would like to write it down in some way so that you can remember it later, or so that your friend, who is the chief drummer of her tribe on another island can play it correctly just by looking at what you have written.

> But remember, you don't know how to write English or any other language, and you certainly don't know anything about writing music. What you can do is draw pictures on bark, like the ones Aborigines make. What kind of picture or sketch could you draw that would tell your friend how to play the rhythm we have just learned?

Subjects were asked to make their drawings on blank paper provided by the experimenter. Additional reminders were given (1) not to use regular musical notation or the Kodaly form of notation (ta ti-ti ta a a) which had been taught in three of the schools; (2) for each subject to think of her own solution to the puzzle; and (3) to check the drawing to see that it 'worked', in that the drawing seemed to match the rhythm. The rhythm was clapped again several times while the drawings were being made, to reduce the importance of memory to the task.

When several subjects had completed their drawings, the experimenter gave the additional instruction:

> If you have finished, go back over your drawing and put numbers underneath which seem to fit, or which would help you or someone else to understand the drawing and clap the rhythm.

The second task was a forced-choice matching-test of six items. Each item corresponded to a particular rhythm, and consisted of a set of three drawings. One drawing in each set was hypothesised to be a figural representation of the rhythm, the second, a metric representation, while the third drawing was intended to be a foil. The rhythms and the figural and metric drawings for the first two items were taken from examples in Bamberger (1975), the rhythm for the first item being the same as for the drawing task. The remaining items were newly composed. Each set of drawings appeared on a separate page of a test booklet, with the position of the drawings randomised between sets. The sets of drawings and corresponding rhythms are presented in Figure 2.

Figure 2: Rhythms and sets of drawings used in the matching-test. The drawings are shown similarly to their appearance in the test booklet.

Matching-test Items

Item 1: Rhythm:  (after Bamberger, 1975)

(Figural) 

(Metric) 

(Foil) 

Figure 2 (continued): Matching-test items (continued)

Item 2: Rhythm:  (after Bamberger, 1975)

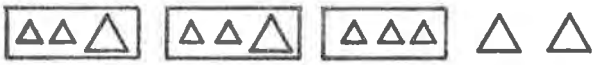
(Figural) 

(Foil) 

(Metric) 

Item 3: Rhythm: 

(Metric) 

(Foil) 

(Figural) 

Item 4: Rhythm: 

(Foil) 

(Figural) 

(Metric) 

Item 5: Rhythm: 

(Metric) 

(Figural) 

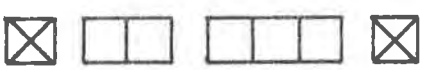
(Foil) 

Figure 2 (continued): Matching-test items (continued):

Item 6: Rhythm: 

(Foil) 

(Metric) 

(Figural) 

For each of the six items, subjects first learned the corresponding rhythm by imitation, using the same procedure as for the drawing task. They were then asked to turn to the appropriate page in the booklet and circle the drawing which seemed to be most like the rhythm. The rhythm was clapped again to allow subjects to check their choice.

RESULTS

Two judges independently examined subjects' drawings and classified them according to Bamberger's (1980) revised typology. Additional categories were provided for: (1) drawings which appeared to incorporate figural or metric principles, but did not exactly match the examples given by Bamberger (1980); (2) drawings which appeared to be completely different and did not fit into Bamberger's (1980) typology; and (3) drawings which were indecipherable within the context of this study. Separate classifications were made of graphics alone (exclusive of numbering) and numbering alone, yielding two scores for each drawing from each judge. It was hypothesised that Bamberger's (1980) typology would be confirmed if the two judges were substantially in agreement on the classification of individual drawings, and if there were relatively few drawings which appeared to be completely outside her typology.

A Chi-square analysis was performed on contingency tables comparing the classifications of individual drawings made by the judges. The Chi-square technique tests the statistical probability of observing a particular distribution of cases in various categories purely by chance, and is well suited to the kind of data generated by the present study (cf. Siegel, 1956; Kerlinger, 1973). The values of Chi-square for the comparison of the judges' graphics classifications and numbering classifications were both highly significant ($p < .001$), indicating that the probability of obtaining the observed agreement between judges by chance was less than one in one thousand. Contingency co-efficients were calculated for both tables as a measure of the strength of the agreement between judges (cf. Siegel, 1956): for graphics classification $C = .65$, and for numbering classifications $C = .73$. Both values were moderately strong, being 79 per cent and 89 per cent respectively of the maximum value the contingency co-efficient can attain given the size of table used, and indicated substantial agreement between judges.

Judge 1 classified six drawings as having graphics which did not fit into Bamberger's (1980) typology, while Judge 2 classified four drawings in this category. The judges were in agreement on three of these drawings, representing less than 3 per cent of the sample. Similarly, both judges classified one drawing each as having numbering which did not appear to be

Examples of Graphic Types

Rhythm:

Type A — No examples of this type were found.

Type I — (Ex. 1)

Type IB — (2)

(3)

Type II — Last two claps shown separately:

(4)

(5)

*Last two claps shown as a unit:

(6)

Type III — (7)

Type IV — (8)

*Metric grouping indicated by juxtaposition:

(9)

*Metric grouping indicated by spacing:

(10)

Spatial Analogue (S.A.) — (11)

(12)

(13)

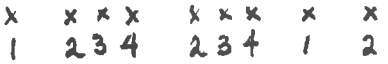
Figure 3: Examples of Graphic Types found among drawings from the the present study. New sub-types added to Bamberger's (1975, 1980) typology are indicated by (*).

Examples of Numbering Types

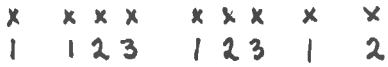
Rhythm:

Type IB (Ex. 1)

Type IIa (2)

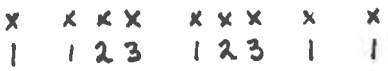


Type IIb (3)



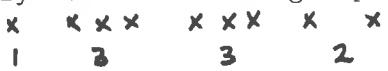
*Last two claps indicated separately:

(4)



*Numbers specify events in each group:

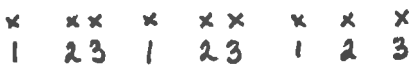
(5)



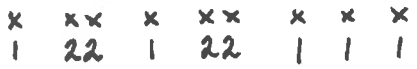
*Numbers label fast and slow claps

(6)

Type IIc (7)

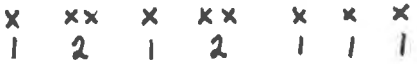


Type III (8)



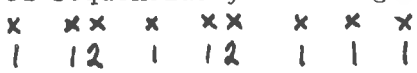
*Numbers specify events in each group:

(9)



*Events numbered sequentially within groups:

(10)



Type IV No examples found which clearly fit Bamberger's (1980) definition. One drawing which suggested Type IV:

(11)

*Beats numbered sequentially:

(12)

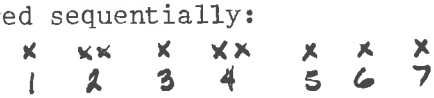


Figure 4: Examples of Numbering Types found among drawings from the present study. New sub-types added to Bamberger's (1975, 1980) typology are indicated by (*). Graphic symbols in the original drawings are indicated by (x). (Numbering types did not always agree with graphic types.)

either figural or metric, but in this instance they did not agree. The relatively few drawings found which did not fit the typology, in combination with the significant agreement between judges on the classification of drawings, offers support for the validity of Bamberger's (1980) typology.

The judge's classifications were reconciled to yield a score for graphics and numbering for each drawing. Figures 3 and 4 contain examples of graphic and numbering types found in the present study, based on the reconciled classifications. Figures 3 and 4 show several sub-types which have been added to Bamberger's (1980) typology (cf. Figure 1).

Space does not permit a full discussion of the graphic and numbering types; however, the numbering types do require some explanation. In Types IIa, IIb, and III, numbers have been used to define groups. Bamberger (1980) specified two ways in which numbers could be used for this purpose: to count sequentially within groups, or to label events within groups. However, she did not quote drawings similar to examples 6 and 10 (Figure 4). In addition, examples were found in both Types II and III which used numbers to specify the number of events in each group (examples 5 and 9, Figure 4). Bamberger (1980) specified that in Type IV drawings, the numbering should consistently identify a particular level of metric accent, as well as defining a metric pulse. No drawings were found which met this criterion completely, but a few were found which identified a metric pulse without indicating metric accent (example 12, Figure 4).

The reconciled graphic and numbering scores were combined to form composite scores of Figural, Metric, Mixed (graphics of one strategy with numbering of the other), or Indecipherable for each drawing. These scores were used in a partition of Chi-square analysis (Winer, 1971) testing the relationship between the strategy adopted by each subject as observed in her drawings, her age, and the level of prior musical training she had received. The frequency distribution of drawing composite scores across levels of the variables Grade Level and Musical Training, as defined by the sampling procedure, are presented in Table 3, with the corresponding partition of Chi-square presented in Table 4. The total Chi-square for this distribution proved moderately significant ($p < .05$), with the Musical Training term also reaching significance ($p < .01$). However, neither the variable Grade

Grade Level		Grade 4		Grade 6		Totals
Musical Training		MT	ØMT	MT	ØMT	
Drawing Composite Scores	Figural (F)	11	17	8	17	53
	Mixed (X)		1			1
	Metric (M)	15	9	16	9	49
	Ind. (O)		2			2
Totals, N of Subjects		26	29	24	26	105

Table 3: Frequency distribution of the number of subjects obtaining each Drawing Composite Score broken down by Grade Level and level of Musical Training.

Source	df	Chi-Sq	Significance
Total	3	8.32	$p < .05$
Grade Level x Drawing Scores	1	0.07	N.S. at .10
Musical Training x Drawing Scores	1	6.85	$p < .01$
Gde. Level x Mus. Tr. x Dr. Scores	1	1.39	N.S. at .10

Table 4: Partition of Chi-square of Drawing Composite Scores x Grade Level x level of Musical Training (calculated on a 2 x 4 table combining Drawing Scores F with O, and M with X).

Level nor the interaction between Grade Level and Musical Training attained significance. The reasons for this result can be seen in the distribution (Table 3): there is only a small difference in the number of either Figural or Metric scores between the fourth and sixth grades; but there is a consistent difference in the distribution of scores between levels of Musical Training, with musically trained subjects obtaining a larger number of Metric scores and fewer Figural scores at both grade levels, while the trend is reversed for subjects in the musically untrained groups. Consequently the observed distribution supports the hypothesis that there is a relationship between prior musical training and the kind of strategy used, but does not support the hypotheses of a relationship between Grade Level and rhythm strategy, or the interaction of Musical Training and Grade Level.

The matching-test was scored on the basis of performance above chance levels. Each subject was given a score of Figural, Metric, Mixed, or Unclassified depending upon the number of figural, metric, or foil responses she made to the matching-test items. The criteria for the matching-test scores were established by calculating the probability of obtaining the given distributions of responses by chance. The calculated probabilities also specified the proportion of the sample expected to obtain each score purely by chance. The criteria for matching-test scores, the calculated probabilities (expressed as percentages), and the observed frequencies of subjects obtaining each score are presented in Table 5. A Chi-square analysis comparing the observed distribution with the proportions expected by chance proved highly significant ($p < .001$), supporting the validity of the matching-test. A Chi-square analysis of the comparison of matching-test scores and composite drawing scores (Table 6) also proved highly significant ($p < .001$), further supporting the validity of the matching-test as a measure of rhythm strategy. However, the corresponding contingency coefficient was not particularly strong ($C = .49$), representing 60 per cent of the maximum value of C.

A partition of Chi-square analysis of the distribution of matching-test scores across Grade Level and Music Training (Tables 7 and 8) did not prove significant ($.30 > p > .20$). However, the general trend in the distribution of matching-test scores appears to be similar to that of the composite drawing scores, offering some confirmation of the relative importance of musical training.

Matching-test Composite Score	Criteria	Probability of Score	Expected Frequency	Observed Frequency
Figural (1)	At least 4 Fig responses + no more than 1 Foil.	p < 8.0%	8.4	66
Mixed (2)	a) 3 Fig + 2 Met + 1 Foil, or b) 3 Fig + 3 Met, or c) 2 Fig + 3 Met + 1 Foil.	p < 19.1%	20.1	15
Metric (3)	At least 4 Met + no more than 1 Foil.	p < 8.0%	8.4	19
Unclassified (0)	2 or more Foil responses.	p < 64.9%	68.1	5
Totals (N of subjects)			105.0	105
Chi-square = 468.11, df = 3, p < .001				

Table 5: (1) Criteria for Matching-test Composite Scores, specifying the combinations of responses to the six test items allowable for each score, (2) the exact probabilities of any one subject obtaining each score by chance, (3) the number of subjects expected to obtain each score by chance, and (4) the observed number of subjects obtaining each score.

Drawing Composite Scores	Matching-test Composite Scores				Totals
	Figural (1)	Mixed (2)	Metric (3)	Unclass. (0)	
Figural (F)	46	5		2	53
Mixed (X)	1				1
Metric (M)	18	10	19	2	49
Ind. (0)	1			1	2
Totals	66	15	19	5	105
Chi-square = 31.10, df = 3, p < .001 Contingency Coefficient = .49					

Table 6: Contingency table, Drawing Composite Scores x Matching-test Composite Scores (Chi-square calculated on a 2 x 4 table combining Drawing Scores F with 0, and M with X).

Grade Level		Grade 4		Grade 6		Totals
Musical Training		MT	ØMT	MT	ØMT	
Matching-test Scores	Figural (1)	16	18	12	20	66
	Mixed (2)	4	6	5		15
	Metric (3)	5	2	7	5	19
	Unclass.(0)	1	3		1	5
Totals, N of Subjects		26	29	24	26	105

Table 7: Frequency distribution of the number of subjects obtaining each Matching-test Composite Score broken down by Grade Level and level of Musical Training.

Source	df	Chi-Sq	Significance
Total	3	5.82	N.S. at .10
Grade Level x Matching-test Scores Musical Training x M-test Scores Gde. Level x Mus. Tr. x M-test Sc.	Partition of Chi-square is not valid because total Chi-square did not reach significance.		

Table 8: Partition of Chi-square of Matching-test Scores x Grade Level x level of Musical Training (calculated on a 2 x 4 table combining Matching-test Scores 1 with 0, and 3 with 2).

DISCUSSION

The results of the present study indicate two things fairly clearly. First, the content analysis and classification of the drawings confirm the major points of Bamberger's (1975, 1980) typology. Although several additional sub-categories were defined, the distinction between Types I, II, III, and the Spatial-Analogue (SA) drawings was upheld. These types were represented by a large number of clear examples. The principles of organisation defined by Bamberger (1975, 1980) to be characteristic of Type IV also appeared to be present in a large number of drawings, but only a portion of these clearly matched the examples given by Bamberger (1975, 1980). More importantly, the drawings confirmed the general contrast in organising principles between the figural and metric strategies. Specifically for the rhythm used here, the drawings confirmed the prevalence of two distinct groupings: the figural organisation of 1-3-3-2 (x xxx xxx xx), and the metric grouping of 1-2-1-2-1-1-1 (x xx x xx x x x). Relatively few

drawings in the sample did not display or tend towards one or the other of these patterns.

Secondly, the Chi-square analysis of the relationships between the strategy type evident in each subject's drawing, and the subject's grade level and degree of musical training, indicated a highly significant association between musical training and strategy type. Consequently, the use of the metric strategy appears to be positively correlated with having had some musical training, but not with greater maturity, at least between the ages tested. This appears to be a fairly definite finding, particularly considering the grossness of the measurement used in this study.

The analyses of the matching-test were less definite. Although the matching-test scores correlated moderately with strategy type, the Chi-square analysis of matching-test scores against Grade Level and Musical Training did not prove significant. From the data it appears that the matching-test as scored was biased against metric classification, in that several subjects who were classified as metric on the drawing task obtained mixed or figural scores on the matching-test. However, all of those who were classified as metric on the drawing task obtained metric scores on the matching-test. This apparent bias may have prevented the Chi-square analysis from reaching significance.

Several factors may have confounded the results of this study, principally musical ability, which was uncontrolled, and intelligence and social background, which were weakly controlled. It is possible that a significant number of subjects in the musically trained groups had superior musical ability, that they had received musical training and were therefore selected because of this ability. If so, the Chi-square analyses may indicate a correlation between musical ability and the type of strategy used, rather than between training and strategy type. Musical ability was not tested in this study. Similarly, subjects in the musically trained groups may generally have enjoyed a richer home environment, of which music lessons may have been a characteristic feature. This was controlled to the extent that the schools in this study were located in a single, generally middle-class suburb.

Finally, musically trained subjects may have been generally more intelligent. A measure of intelligence was attempted by asking classroom teachers to estimate the overall academic achievement of individual subjects, rating them as being above average, average, or below average. Chi-square analyses of these estimates showed no significant relationship between achievement and musical training among fourth-grade subjects, but did show a significant relationship ($p < .05$) among sixth-grade subjects, with the musically trained group having a larger number of above-average subjects. However, the weakness of Grade Level in relation to drawing classification argues against an association between intelligence and strategy type. Given the correlation between achievement and musical training in the sixth-grade groups, the interaction term should have reached significance in the analysis (Table 4), which it did not; as noted above, there was very little difference in the distribution of drawing classifications between figural and metric categories at the fourth- and sixth-grade levels (Table 3).

Concerning the development of musical concepts in relation to cognitive growth, the present results support the notion that there is little change in musical ability, or cognitive development with respect to rhythm concepts, between the ages of nine and twelve. The occurrence of

Grade Level		Grade 4		Grade 6		Totals
Musical Training		MT	ØMT	MT	ØMT	
Graphic Type	I	4	7	1	1	13
	II	5	6	3	8	22
	III	3	5	4	2	14
	IV	11	5	11	7	34
	S.A.	3	3	5	8	19
Indecipherable			3			3
Totals		26	29	24	26	105

Table 9: Distribution of Graphic Type classifications of drawings, based on the reconciliation of judges' classifications.

approximately equal numbers of figural and metric drawings at the fourth-grade level suggests that both strategies are characteristic of the concrete-operations period, and that they may be thought of as alternative schemes for dealing with musical stimuli. Further, the distribution of graphic types (Table 9) shows the occurrence of a relatively large number of Type IV drawings at the fourth-grade level, discounting Bamberger's (1980) suggestion that these drawings are related to the early stages of formal operations. The significance of musical training suggests that the metric strategy can be taught to at least some nine-year-old children, or that it may develop in response to experience with musical stimuli, particularly the experience of performing. This also supports Bamberger's (1975) suggestion that the figural strategy may be the more naive or natural way of thinking of musical rhythm.

Bamberger (1975) noted that, although the principles of both strategies are inherent in musical performance and understanding, the figural and metric strategies are basically incompatible, and that their conflicting use could cause misunderstanding and confusion between a student and his teacher, particularly if the student was unable to understand a metric teaching method. She argued further that traditional rhythmic notation is based on a metric conception, and may be very confusing to someone using a figural interpretation. Finally, Bamberger (1975) concluded that metric teaching methods should not be used with children too young to understand them.

Results of the present study indicate that the use and understanding of the metric strategy does not depend strictly upon abstract logical reasoning typical of the formal-operations period, even though logical principles may be implied in metric drawings. But presumably the most efficient method of teaching a metric concept of rhythm would still depend upon the stage of general cognitive development reached by the student. Methods based on a logical analysis of rhythmic notation probably will not be efficient with children who have not attained formal operations. Since in practice it may be assumed that at least some children will not have reached this stage until the age of thirteen or fourteen, iconic methods of teaching rhythm,

as suggested by Bamberger (1975), supplemented with an emphasis on meter and some logical explanations for those who are ready, may be the best approach from the fourth grade through the first years of secondary school. More importantly, teachers should be aware of the basic conflicts between the figural and metric concepts, so that they can adapt their teaching to suit the situation.

The results of the present study suggest several avenues for further research. First would be the improvement of the matching-test, with the objective of developing a measure which would be easier to use than the drawing task, but would reliably distinguish between subjects favouring the figural strategy and those using the metric strategy. A second possibility would be a study of the relationship between the strategy used and specific measures of cognitive development, similar to the study conducted by Serafine (1979). In the present study, the difference in age between fourth and sixth grades was assumed to represent a difference in cognitive development. This assumption may not have been valid; a study employing measures of cognitive development might show a correlation between greater maturity and the use of the metric strategy. Another area of interest would be the relationship between specific programmes of musical instruction, such as the Kodaly method, and the kind of strategy used. The objective in this case would be to discover whether the hypothesised effects on rhythmic strategies are general to all kinds of musical experience, implying that the adoption of a metric strategy is a characteristic response of people to the experience of dealing with musical stimuli, or whether the metric strategy is facilitated by specific experiences and kinds of instructions.

Finally, the possibility that the metric and figural strategies are specific to percussive stimuli, and consequently a function of the experimental situation, should be explored. It would appear that the use of the metric strategy depends largely upon the individual recognising the duration of the interval between claps as being part of an implied continuous sound beginning with one clap and ending with the following clap. This concept is familiar to practising musicians, who use it frequently as a teaching device. Most music students would therefore be familiar with the concept as well. However, untrained subjects might not make the required connection, and consequently would not understand the metric strategy. Untrained subjects might, however, adopt the metric strategy if the stimuli consisted of tones which were articulated by short silences but not separated by long gaps.

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AN INVESTIGATION INTO IDENTIFYING MUSICAL TALENT IN 80 YEAR 1 CHILDREN

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Over the last four years I have been actively involved in looking at the educational needs of gifted and talented children. I have had the good fortune to have been to Israel three times now to look at their overall plan for the education of their gifted and talented children. I believe that we in Australia are beginning to examine this issue now and do something about it - it is an issue, I think, that will become the single biggest issue in Australian education in the next decade. My state, New South Wales, is regrettably behind the other states, but things are beginning to happen. At my college, Mitchell College of Advanced Education in Bathurst, we are currently planning a postgraduate diploma external course for teachers to teach talented children. It was natural then that I would turn to the provisions for education in my own particular discipline of music for gifted and talented children.

I think that many of us here have seen changes in our own states from proscriptive courses in the fifties to programmes adapted from abroad with new methods and ideas, but unfortunately there have been no programmes designed specifically for gifted and talented children in music. As music educators we have left this to parent identification, and we have left it to the parents to do something themselves for their talented offspring through private music tuition. And how many of these musically bright children received the right kind of instrumental tuition from their teachers? How well-equipped were these teachers in the special methods necessary to teach these children? How many of these children received the old routine humdrum preparation for the AMEB exams? And how many of them might we have lost to music by not doing something ourselves as music educators for the thing that should be closest to our hearts, the education of children in music, and in this case the education of musically gifted children?

In those days I believed that any changes in our music curricula in the schools had to be a growth from within the system and not something superimposed from without. So I developed what I called a Balanced Music Programme[1] for K-VI in the normal Infants and Primary School, taking note of the developments in music education in the States resulting from the work of Bessie Swanson, the Nyes, Alice Snyder, and others, as well as the methods of Kodaly and Orff.

In looking at the needs of the gifted and talented in music in the school, therefore, I commenced an investigation in July 1978 into the music education of this group within the school programme. I do not wish this paper to become at this point a discussion on what is giftedness and what is talent, the definition of them, the use of IQ tests, and so on, except to say broadly that a gifted child is one who has an allround capacity to learn and is generally a convergent thinker, and that a talented child is one with special aptitudes in music, sport, or ballet, for example, and who has in him probably more untapped creative ability than intelligence

quotient, and has, too, because of his creative potential, a capacity more for divergent thinking rather than the adherence to set methods and a set framework in which to operate. Similarly, I do not want to bog down now in the various curriculum provisions for these gifted and talented children, except to say that the three usual provisions of ability grouping - in special classes, acceleration, and enrichment programmes within the school or after school - seem to work and have their place. Indeed, in Israel, all these solutions are used to good effect. I should mention here, for interest perhaps, and to indicate the scope of the work going on there, that I had the privilege and good fortune to work in an after-school enrichment programme at the Museum Ha-Aretz in Tel Aviv, which involves 2000 gifted and talented children in 120 different courses - and not one in music, which I reminded my good friend Erika Landau, the Director of the Project. She has promised that we will do something about it when I return.

In Australia, then, we have the organisational machinery already in our Education Departments to provide overall education for gifted and talented children. In New South Wales we have OC classes, which are really ability-grouped children in a special class. There is some acceleration but not very much. Certainly we have different kinds of enrichment programmes in operation. And it is this latter provision, that is, of enrichment programmes, that I see as the most useful for providing for the special needs of musically talented children in the school situation. Let me emphasise again that I am not talking here about private instrumental tuition or conservatoriums. I am concerned with what can be done within the normal school programme to provide for the needs of musically talented children.

And so to return to the investigation. I wanted to identify a group of musically talented children and teach them in a 'pull-out', horizontal enrichment programme. I believed that a balanced music programme as I had developed it would still be the vehicle for the creativity-based programme that I thought these children needed. And herein was my hypothesis:

> That musically talented children have creative potential and therefore need different methods of instruction geared to the full range of mental abilities - divergent, evaluative, experimental, and not just IQ, and that they would prefer learning music through exploring, questioning, experimenting, and manipulating, and not by authority or by a method that demanded conformity to pre-determined methods and materials.

The subjects chosen were 80 Year 1 children, age 6.4 to 6.6 approximately, in three parallel grades in the Infant Department at the Bathurst Public School. I had proposed initially to use Year 2 children, but the Infant Mistress felt that her department would have the benefit of these children the following year. Actually this worked out well, because I continued teaching the talented group the following year to see what could be done. Since then, I seem to have been overseas more than I have been home, but it is interesting to note that each child in that group has continued with instrumental tuition and, indeed, one child I now teach piano. It is a sheer delight to witness her rhythmic and pitch sense, her fluent reading, and overall musicality. She is doing a Grade 2 programme and is one of those rare pupils to whom you can give an enriching and broadening programme of all the Sonatinas and early Bach that are so important to develop a sense of style.

To identify the children musically, I administered the Bentley Measures of Musical Ability.[2] The choice of this battery of tests above others was that:

1 This test was designed originally for younger children and is the only adequately standardised battery designed exclusively for the elementary grades.

2 This test subscribes to the theory (as I do) that musicality is a combination of separate and sometimes unrelated abilities and not a general factor of musicality. (This was the omnibus theory of Mursell in his controversy with Seashore's view that musicality comprised separate and sometimes unrelated abilities.)

Each class was tested separately over four days and, because of the age of the children, very detailed instructions were given both by the Infant Mistress and myself about filling in the score sheet. Test 1 for Pitch Discrimination was taken from the record, but the three remaining tests of Tonal Memory, Chord Analysis, and Rhythmic Memory were given by me from the piano in order to present them more slowly for the children. I believe that the same conditions prevailed with each class and that the subjects were not affected in any way. After the pre-test, the children were grouped as follows:

1	Group 1 (top)	About 10 per cent of the children. Score: 26 - 32. 11 children.
2	Group 2 (bottom)	About 10 per cent of the children. Score: 2 - 7. 11 children.
3	Group 3 (middle group)	About 80 per cent of the children. Score: 8 - 25. 62 children.

The following teaching procedures were undertaken for these three groups:

1 Group 1 (top group) was taught by me in an experimental situation and developed as a group of children with measured musical ability using a balanced music programme, in what I believe was a responsive and creative environment.

2 Group 2 (bottom group) was also taught by me using the same methods and musical experiences as Group 1. Clearly the rate of progress and understanding of musical concepts was not the same as for Group 1.

3 Group 3 (middle group). This group acted as the control group. The method of procedure was as follows: I taught the 62 children in the school hall in a demonstration lesson for the three respective class teachers who observed. I gave a copy of each lesson to each of the three teachers and they were asked to revise and consolidate the work of this lesson at their own rate, and according to their own ability in teaching music, during the week.

The teaching for the three thus-structured groups continued on a weekly basis for four months, after which time the post-test was administered to all the children.

PRELIMINARY STATISTICAL ANALYSIS

Following the collection of data on the subjects' performances on the pre- and post-tests, analysis of the statistical and substantive significance of the difference between the three groups' pre- and post-test scores was preceded by an attempt to ascertain whether the variable explaining such possible differences was, in fact, group membership, ie, the intervening variable of the teacher.

To examine this, four additional candidate-variables were selected - age, sex, IQ, and SES (socio-economic status). It was thought that these variables represented the factors most often associated, in educational research generally, with variation in pupils' performances on skills of one sort or another.

The factor of age was operationalised in terms of age in months at the time data collection ceased in December 1978, and further, in terms of two levels - upper and lower age groups. Pupils above the median age of 84 months were assigned to the former group and pupils below were assigned to the latter. Those whose ages corresponded to the median value were assigned alternatively to one of the two levels.

Sex was likewise accorded two levels, and IQ, being difficult to measure in terms of standard instruments due to the observed volatility of pupils in this age range and because of the New South Wales Department policy not to test IQ until year 4, was operationalised in terms of class teachers' assessments of pupils' abilities, internal number test, and the Schonell Standardised Reading Test. Again, pupils classified by their teachers as above average in general ability were assigned to level 1; pupils below average ability were assigned to level 2, and those designated as average were assigned alternatively to one of the two levels. SES was likewise operationalised on the basis of the pupils' paternal occupational classification, as a dichotomous factor. Subjects whose fathers' occupations could be classified as professional, managerial, entrepreneurial, or skilled were assigned to level 1. Subjects whose fathers' occupations could be classified as unskilled, ie, not requiring any formal training after school leaving, were assigned to level 2. Thus a total of 5 variables - age, sex, IQ, SES, and Instructional Group - ie, Group 1, 2, or 3 - were selected for preliminary investigation. To investigate whether any of these factors were involved in either the sub-, pre-, or post-test performances of subjects, data was submitted, first to five separate one-way multivariate analyses of variance - MANOVAs. Table 1 in Appendix A shows the means and standard deviations of each criterion by factor and level. Table 2 shows the results of the five separate one-way MANOVAs. Interpreting this Table broadly in terms of percentage of variability, it is evident that the Instructional Group factor (68 per cent) is most strongly associated with variability in performance generally. It is also evident that IQ (29 per cent) or general scholastic ability, as operationalised above, is statistically significantly associated with subject performance. These significant relationships are, of course, not unexpected in heuristic terms. It is, however, useful for present purposes to note the non-significant involvement of the remaining three variables, Age (6 per cent), Sex (16 per cent), and SES (6 per cent), since their effect as intervening variables in either pre- or post-test performances can be discounted at least in mono-factorial terms.

Next, the possible confounding of the major variable selected for investigation, namely Instructional Group, with IQ was investigated. To examine any possible confounding of these factors, data was submitted to a multivariate analysis of co-variance, MANCOVA, whereby the subjects' scores on the four pre-test sub-tests were partialled out. Thus the analysis concerned two independent variables (IQ at two levels; Instructional Group at three levels), four dependent variables (subject post-scores on four sub-tests comprising the total test proper), and four co-variates (subject pre-scores on the same sub-tests). Results of this two-way MANCOVA are shown in Table 3.

These results indicate that, after variation in subjects' pre-test performance has been allowed for, Instructional Group is the only factor which reveals a statistically significant association (19 per cent) with post-test performance. Both IQ and first-order interaction of IQ with Instructional Group fail to reveal any systematic association with performance beyond a level which could be expected by chance alone, given the adopted probability criterion of $P < .05$.

In the light of these general exploratory findings it was thought to be justified to proceed to the analysis proper, ie, the investigation of the statistical significance of any gain scores within each Instructional Group.

COMPARISON OF INSTRUCTIONAL GROUPS' MAIN SCORES

Instructional Groups 1-3 (whose mean scores and standard deviations on each sub-, pre-, and post-test and on the pre- and post-totals are shown in Table 1) were examined via the T-test for paired comparisons for any statistically significant gain in total test performance, hypothesised as due to the instructional treatment outlined earlier. Results are shown in Table 4.

In the above analyses, the positive correlation coefficient (r) indicates that in each group the respective T-value reflects a consistent direction of score increment from pre- to post-test totals. All three comparisons indicate that the gain represented by the mean difference value is statistically significant at the 5 per cent level of confidence or greater. Inspection of the mean difference values, which represent the raw score increment for each group, reveals that Groups 1 and 3 are roughly equivalent, with Group 2 showing the largest gain. However, due to differences in sample size, a more substantive measure gain is afforded by the statistic: the approximately unbiased estimate of Omega 2, which is less susceptible to n-variation. The value of T is related to Omega 2 by the following transformation:[3]

$$T^2 = F_1 \frac{F - 1}{F - 1 + N} = \text{Omega}^2$$

Applying this formula, the approximately unbiased estimates of Omega 2 give the following proportions of variance for each Group explained by instructional treatment:

Group 1 = .44 = 44%
Group 2 = .82 = 82%
Group 3 = .17 = 17%.

The conclusion seems justifiable, on this basis, that the particular or instructional variable for Groups 1 (top) and 2 (bottom) seems substantively more effective than in the case with Group 3, and further, that this variable is relatively more substantively effective for Group 2 (bottom) than for Group 1.

CONCLUSIONS

1 From the statistical analysis it appears that my hypothesis was correct - namely, that a group of musically talented children will progress in

musical understandings and be sensitised to music in a programme that allows them to explore and experiment at the same time as learning, and that the whole climate of their learning situation is one of creativity. Their creative expressions, judgements, and responses in the learning situation are in interaction with the teacher who, by his creative approach in this situation, evokes these responses from the children.

2 That, as far as the Group 2 (bottom group) is concerned, it appears that the same interactions and experiences give these children (identified as not musical on the Bentley battery) a dramatic increase in musical understandings (82 per cent), and these experiences might have reached further into them than I had realised, and might well have developed latent musical ability in them that was not demonstrated in the Pre-test scores.

In commenting on these two groups it seems clear to me that we have to assign the responsibility for music teaching to a music specialist. Historically we had music specialists in Victoria for many years, but their organisation for instruction often meant only fortnightly visits to a class that oftentimes received no support instruction from the class teacher in the intervening two weeks. In New South Wales we have one music consultant attempting to cover large areas. We have had the 'self-contained' classroom philosophy, which maintains that every teacher is a 'jack of all trades': this is just rubbish. Of recent years we have moved into the idea of a music resource teacher dealing with a small cluster of schools. This organisation, it seems to me, has more merit, especially when coupled with the increased autonomy given to school Principals, whereby they can use more effectively the separate and specialist talents of their staff. In effect, a situation where a teacher on a staff who is also a good musician is responsible for music teaching in the school, and where this teacher has access to the more musically specialised abilities of a resource teacher and his materials, can help develop more effective programmes in our schools. This would mean not only the normal school programme K-VI, but also the possibility of doing something as I have described for musically talented children.

In considering Group 3, that is, the group on which I demonstrated and then left the work for the class teacher to follow, we do not have an effective music teaching situation. I feel sure that many of my former colleagues who worked with me on the Music and Speech staff in Melbourne would agree that we had a situation similar to what I did with Group 3. It is better than nothing, but it is not, in the light of what I have concluded, the best we can do, and it is not an organisational structure that will lead to the proper teaching needed for musically talented children.

It remains now to look at the sort of programme that I used that produced these results. Music's place in the curriculum must rest on the intrinsic value of music itself in the lives of young children, and not because it is valuable for teaching language, reading, civic responsibility, or number. Certainly the extrinsic or extra-musical values of music (for recreation, social purposes, or just fun) are important in the school's music programme, but it is the intrinsic value of music itself for the growth and development of the individual that must be emphasised. Music teaching should be so musically orientated as to foster and develop the child's responsiveness, musicality, and aesthetic satisfactions.

I had developed what I believed to be the right type of music programme for children in the primary school. I called it a Balanced Music Programme and defined it as:

> The Balanced Music Programme is a projected scheme of work which caters for the individual differences in children by offering musical experiences in five areas - singing, listening, playing, moving, and creating - through which each child discovers his own particular talents and potentialities. The programme may be presented through a series of units or separate music experiences, or both. As a result of the creative approach by the teacher and creative participation by the child, the child grows in an understanding of music and music materials presented in a meaningful situation. Further balance is added to the programme by showing the relation of the current study to other areas of the curriculum; this has the effect of widening the child's cultural horizons and quickening and extending his human sympathies.[4]

I do not believe that my position has changed much since then, except to refine procedures and methods. I see it now as I did then as a music curriculum with a sequence through stages of development in children from K to VI. The underlying approach is creative and, just as it caters for the individual differences in children, it permits each teacher to operate at his own level of efficiency and be creative within those limits. The programme offers equality of opportunity but not equality of outcome! As Nava Butler puts it so brilliantly:

> By striving to create uniform educational frameworks, we often deprive the child of the freedom to enjoy educational opportunities. In the search for the illusory process of 'levelling of achievement', the teacher often hampers the quality of uniqueness in the child. This precious quality, described by Martin Ruber (*Man Between Man,* 1946) as essential in saving man from 'the danger of collectivism', is also man's most important contribution to society. The development of this quality is not only important to human growth, but essential to maintaining a healthy democracy. Plato claimed that in a just society each individual is trained to do the things for which his particular talents suit him.[5]

I believed that this Balanced Music Programme would be suitable for these musically talented children. I think that, rather than speak specifically about each lesson that the children had over 4 months, it will be better to speak generally about the programme.

First the five areas of the programme and their range through the stages of development and their presentation:

Singing

This must be seen as a developmental process. Not every child will have found his singing voice by the time he comes to school, but given the right classroom climate and remedial help, the development will occur. I do not advocate sophisticated voice training techniques, but rather suggest that children be encouraged to sing with a good, clear, forward head tone. Songs should range from simple two- and three-note songs in the Pentatonic mode through songs suitable for each stage in the child's development (and this includes popular songs) to the broader type of singing experiences, such as the singing of rounds, chants, and descants. The singing lesson should have built into it remedial work for the uncertain singers, in the form of tone-matching activities, simple chants, and chord root chants.

Listening

This refers to listening to recorded music and develops in the first instance the child's ability to perceive mood, dynamics, range, and tempo,

and to follow a simple story in music. After this, children listen for the sounds of instruments, such as those within their experience (tambourines, drums, triangles), to the families of the orchestra and the instruments within them. The range of form from simple binary, ternary, and rondo form to larger forms, such as the symphony, concerto, or opera, should be covered.

Playing

These are graded from the exploration of sound on a variety of sound sources to the playing of tuned and untuned percussion instruments for melodic and rhythmic ostinati, the percussion band, and second parts such as descants, and chord roots. The playing of recorders, strings, and wind develop out of this.

Moving

The child's exploration of his own body and how he can respond to music kinaesthetically is the basis of movement. There must be a development from formal responses (feeling pulse or pattern) through to patterned responses, as in singing games, and later, folk dances. With this vocabulary of movement, then, the child is able to make his own creative response to music.

Creating

This is an activity. The importance of this cannot be over-emphasised. Activities to evoke a creative response from the child start with the child's movements to a game, choosing instruments to play with a song or record, to later, perhaps, deciding on tone colour, dynamics, etc, or mime or pantomime.

The programme has to be planned sequentially over a year and sequentially from K to VI. Lessons can be presented as the usual singing, listening, or playing lessons, but I like to balance each separate experience with one other area of the programme. A lively Spanish song, once learned, is made more attractive and musically satisfying by the use of ethnic instruments for pointing up the pattern or the pulse. Another form of presentation is through interrelated units of work related to other areas in the curriculum, eg, Social Studies. This approach is very much suited to the self-contained classroom idea wherein the teacher can relate to other areas of the curriculum when a real learning situation occurs.

In planning a separate experience or a unit, the teacher works from a level of understanding of the grade and then proceeds to select materials from whatever experience he is presenting, and to develop these sequentially throughout the year. The whole development towards literacy is a spiral development from K through to VI. The materials of music are all the stuff that makes up music. For convenience these can be arranged in three categories:

1 The elements of music - melody, rhythm, harmony.
2 Instruments, styles, and forms.
3 Mood and expression.

As suggested earlier, the teacher, aware of the level of understanding of his grade, will then select relevant material from the experience he is presenting. Because these materials are found in all music, the teaching of specific musical facts is not the important thing - the same materials will appear in later lessons. What is important is that the material

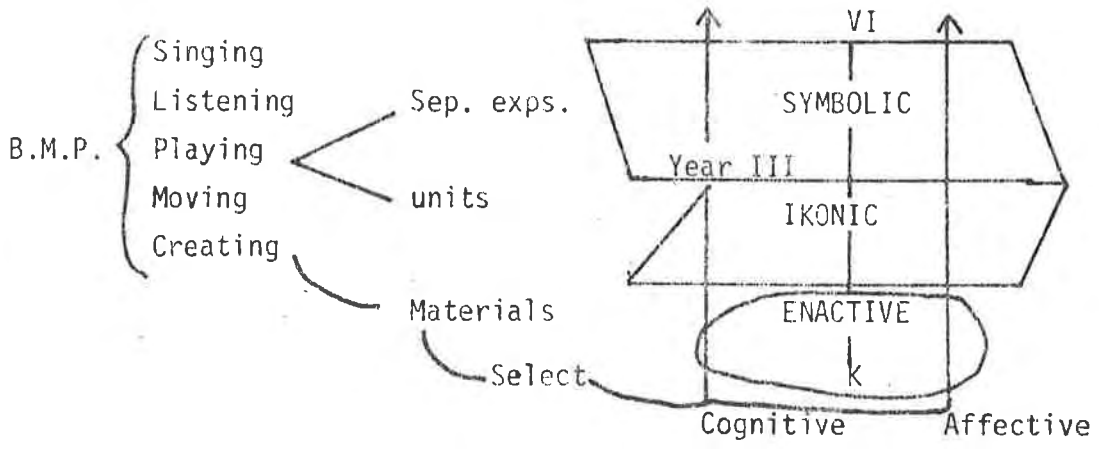
selected from teaching in whatever the experience, singing or listening, is to give the child more musical understanding so that he will gain more pleasure out of the experience, and be sensitised by it. The child should be taken on this spiral from K to VI through a series of pleasurable musical experiences in which his musical understandings and his aesthetic awareness are being developed.

In discussing stages of development from K to VI, I prefer to think of three stages of learning as defined by Bruner,[6] the Enactive, the Ikonic, and the Symbolic. Frances Aronoff uses these distinctions in her excellent book, *Music and Young Children.*[7]

One important point to emphasise here is that cognitive and affective development must proceed simultaneously and, very largely, it is the creative approach and musically orientated teaching of the teacher that facilitates this. A creative approach by the teacher must underly his teaching in each of the areas, and it is only this that evokes a creative response from the child. Musically orientated teaching means an alertness in every lesson to using every opportunity to develop the child's aural, notational, and creative skills. In effect, the child's musicianship.

Measurement of cognitive development can be made by changes in the child's behaviour. In the affective domain, measurement is not as easy. Observation of the child's behaviour within the pleasurable climate of the lesson is often the only gauge.

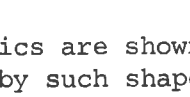
The following diagram is probably the best way to understand the sequential development through the different stages.



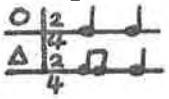
The Enactive period extends from Kindergarten to about halfway through year I. During this period, children learn music by listening and doing. They are not yet ready to read, and activities within the lesson provide the auditory sequencing, co-ordination, motor, and vocal development. Children should see the picture of music as being their song. During this period, the children should acquire a large repertoire of songs covering all the notes in the pentatonic scale at least. They should move to a pulse or pattern using the following notes. ♩ 𝅗𝅥 ♫ 𝅗𝅥.

They should play pulse and rhythmic ostinati on untuned percussion instruments, and melodic ostinati on tuned percussion instruments. Through all these activities, they should be developing a sense of pitch, pulse and pattern, dynamics, mood, and expression. The Ikonic period extends to

about the end of year II. There is an escalation of the same activities into this stage, but now a readiness to read music is built through structured lessons in which the visual is added. Where children walked to the beat earlier, and once this is recognised and felt, the children now see a graphic representation of it, ie, an ikon they will comprehend: — — or //. They see a representation of changes in pitch in their song or recording by ∿∿∿, and, more precisely, in their song by s - m - m - s or 2 - 3 - 3 - 5.

Dynamics are shown by  and their earlier perception of form is seen by such shapes as O △ O.

The Symbolic state ranges from year 3 to 6, and of course could extend to year 12. At this stage, children are beginning to read actual musical notation. Their earlier ikons for an accompaniment to 'On the Bridge', viz.

 become 

Earlier reading of s_{m} ss_{m} now becomes 

For primary-school children, reading, as I see it, is a developmental process of discovering the symbols that represent the music. The child is going through a similar process in language reading.

In conclusion, let me suggest that the value of music in the lives of our children in the year 2001 will depend on what we do now in music in the schools. We will be accountable to them.

RECOMMENDATIONS

1 That we implement in our schools a music programme K-VI that is creatively based and along the lines suggested.

2 That we consider doing something positive about musically talented children in the school situation.

3 That, from a staffing point of view, we press for such arrangements as will give trained and competent music teachers access to schools to work with staff members charged with the responsibility for music instruction.

And that we promote this as being the best organisation to promote the musical learning of all children as well as those talented in music, and that we accept the general classroom teacher as having responsibility for music instruction only when these arrangements cannot be made.

NOTES

1 J. B. Taverner, 'A New Programme for Music Education: The Balanced Music Programme', Unpublished B.Ed. thesis, University of Melbourne, 1964, p. 14.
2 Arnold Bentley, *Musical Ability in Children and Its Measurement*, London: George Harrap and Co. Ltd., 1966.
3 H. R. Lindman, *Analysis of Variance in Complex Experimental Designs*, San Francisco: Freeman, 1974.
4 Taverner, op. cit., p. 14.
5 Nava Butler, 'Israel's First Experiment in Special Classes', in

Joy Gibson and Prue Chennels (eds.), *Gifted Children: Looking to Their Future*, Great Britain: The Anchor Press Ltd., 1976, p. 170.

6 J. Bruner, 'The Course of Cognitive Growth', *American Psychologist*, 19, 2, January 1964.

7 Frances Aronoff, *Music and Young Children*, New York: Holt, Rinehart and Winston, 1969.

TABLE 1

Means and (Standard Deviations) of criteria by Level and Factor and Total Score. N = 84

FACTOR	LEVEL	n	CRITERIA									
			Pitch (Pre)	Pitch (Post)	Tunes (Pre)	Tunes (Post)	Chords (Pre)	Chords (Post)	Rhythm (Pre)	Rhythm (Post)	Total (Pre)	Total (Post)
Age	1	41	7.24 (3.69)	9.10 (4.47)	4.34 (8.40)	2.85 (2.08)	4.73 (3.70)	5.34 (2.78)	3.42 (1.87)	3.59 (2.64)	18.71 (8.17)	21.95 (8.82)
	2	43	6.61 (3.84)	9.42 (3.51)	2.70 (2.13)	2.61 (2.04)	4.16 (3.11)	5.93 (2.98)	3.05 (2.51)	3.79 (2.47)	16.47 (8.22)	21.79 (7.30)
Sex	1	42	6.74 (4.06)	9.26 (4.09)	2.29 (1.88)	2.29 (2.10)	3.88 (3.14)	6.00 (2.88)	2.81 (2.36)	3.45 (2.69)	15.71 (8.29)	20.98 (7.68)
	2	42	7.10 (3.48)	9.26 (3.93)	4.71 (8.26)	3.17 (1.92)	5.00 (3.60)	6.26 (2.90)	3.64 (2.12)	3.93 (2.40)	19.41 (7.83)	22.76 (8.35)
I.Q.	1	40	8.28 (3.30)	10.26 (4.29)	5.00 (8.39)	3.50 (2.12)	5.63 (3.14)	6.93 (2.37)	4.10 (2.24)	4.55 (2.50)	21.80 (6.73)	25.33 (7.56)
	2	44	5.68 (3.76)	8.39 (3.51)	2.14 (1.86)	2.02 (1.72)	3.36 (3.31)	5.41 (3.12)	2.43 (1.89)	2.91 (2.34)	13.71 (7.59)	18.73 (7.12)
S.E.S.	1	37	7.62 (3.92)	9.87 (4.28)	4.57 (8.77)	2.97 (2.36)	4.87 (3.97)	6.54 (2.75)	3.41 (2.18)	3.87 (2.31)	19.32 (8.61)	23.32 (7.89)
	2	47	6.36 (3.57)	8.79 (3.72)	2.66 (2.20)	2.53 (1.77)	4.11 (2.88)	5.81 (2.96)	3.09 (2.25)	3.55 (2.73)	16.17 (7.72	20.72 (8.03)
TEACHER	1	11	11.55 (2.88)	14.27 (3.90)	9.73 (15.22)	5.36 (2.06)	7.27 (3.55)	7.46 (1.92)	5.36 (1.63)	5.73 (2.24)	29.36 (3.08)	32.82 (4.09)
	2	11	1.27 (0.91)	7.36 (2.98)	1.09 (1.04)	1.82 (1.60)	0.64 (0.67)	3.55 (3.01)	0.73 (1.10)	2.00 (2.32)	3.55 (1.70)	14.73 (6.56)
	3	62	7.10 (2.84)	8.71 (3.49)	2.82 (1.90)	2.42 (1.76)	4.61 (3.09)	6.36 (2.75)	3.30 (2.02)	3.63 (2.41)	17.95 (5.42)	21.19 (6.83)

TABLE 2

Results of multivariate statistical Tests in five one-way MANOVA (N = 84.)

Source of Variation	Multivariate F	df	P < 0.05	R
Age	0.472	10,73	.403	.247
Sex	1.477	"	.165	.410
I.Q.	3.048	"	.003	.543
S.E.S.	0.448	"	.917	.240
Instructional Group	7.467	20,144	.001	.827

TABLE 3

Results of Multivariate Statistical Significance Tests in Two-way MANCOVA (N = 84)

Source of Variation	Multivariate F	df	P <	R
Instructional Group	2.129	8,142	.037	.434
I.Q.	1.226	4,71	.307	.254
I.Q. x Instructional Group	0.834	8,142	.574	.275

TABLE 4

Results of correlated T-Tests for Total Pre-and Post-Test Performance of Each Instructional Group

Group	n	Mean Difference	SD	Standard Error	r	t	df	P
1	11	3.46	3.73	1.12	.49	3.08	10	.012
2	11	11.18	5.27	1.59	.82	7.04	10	.001
3	62	3.24	6.88	0.88	.39	3.71	61	.001

APPENDIX B

Computer Programme for Statistical Analysis Used in the Present Investigation

	Scource	Title
1.	S P S S	T-test for Paired Comparisons
2.	Clyde Computing Service Miami, Florida	Multivariate Analysis of Variance
3.	B.M.D.	Frequency Count Routine (BMD PZD)

HISTORICAL RESEARCH IN THE FIELD OF MUSIC EDUCATION: ITS NATURE AND APPLICATIONS

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During 1980 I was privileged to attend the MENC National In-Service Convention at Miami Beach, Florida, and, while there, to participate in sessions organised by the Society for Research in Music Education. Most areas of music education research were represented at what were called Special Research Interest Group meetings, and I was pleasantly surprised to find a strong contingent of music education historians attending the sessions organised for the History Special Interest Group. From what I gathered, there is a healthy rivalry among the various factions of the American music education research community, and I was surprised at the almost militant approach taken by the historians in support of their area of research.

This militancy appears to have resulted from the fact that historical research in the field of music education in the United States has suffered something of a decline in popularity during the last decade in the face of the trend towards experimental research. However, if the *esprit de corps* of the members of the History Special Interest Group is any indication, there is likely to be a revival of interest in this branch of music education research in the United States.

The impetus for the present paper has come from a joint presentation given at the 1980 MENC Convention by George Heller, Chairman of the History Special Interest Group, and Bruce Wilson, Curator of the MENC Historical Centre at the University of Maryland. This presentation was entitled 'Historical Research in Music Education: A Prolegomenon' - the word 'prolegomenon' meaning an exploratory study - and I shall be referring to it fairly frequently in the course of the present paper.

As indicated in the title, my purpose in this paper is twofold: firstly, to discuss the nature of historical research in the field of music education; and secondly, to demonstrate some of the possible applications of historical research findings with reference to my own research into the history of music education in New South Wales and Victorian primary schools during the period 1848-1920.[1] This may hopefully give some encouragement to those of an historical bent to undertake research in this field.

To do justice to any consideration of the nature of historical research in the field of music education, the following questions need to be asked and satisfactorily answered: (1) what is meant by 'historical research in the field of music education'?; (2) how is historical research in music education undertaken?; and (3) why undertake research into the history of music education?

The first question, 'What is meant by "historical research in the field of music education"?', may be answered if we can satisfactorily define each of the terms involved. The term 'research' is defined by *The Concise Oxford*

Dictionary as 'a careful search or inquiry, endeavour to discover facts by scientific study of a subject, a course of critical investigation'.[2] From this definition we may say that research involves such activities as studying, searching, inquiring, discovering, investigating within a particular field or discipline, that these activities need to be undertaken with care and with a critical outlook, and that the outcome of research endeavours should be that certain facts or truths are arrived at which presumably increase individual or collective knowledge in the particular field or discipline being researched.

The term 'history', from which the adjective 'historical' derives, has been defined simply as 'an account of what has happened, all recorded past events, that branch of knowledge that deals with the recording, analysis, etc. of past events, a known past'.[3] Putting aside that branch of knowledge once referred to as 'natural history', history in a general sense may be said to be concerned not merely with past events but also with past people, their practices, their institutions, etc. - in fact, history encompasses all aspects of human existence in the past.

Thus, a reasonable definition for 'historical research' at this stage would be the careful and critical investigation and description of past people, practices, institutions, and occurrences in order to establish facts or draw conclusions.

As an initial step to defining 'music education', Heller and Wilson adopted, as their definition of 'education', the following: 'The transmission of skills and the training of character'.[4] This definition can, I feel, be expanded slightly to become the transmission of knowledge and skills, and the training of character. The composite term 'music education' may, as Heller and Wilson point out,[5] be interpreted in two ways: (1) the development of knowledge, skills, and character necessary to listen to, perform, and create music (ie, an education in music); or (2) the use of music in the development of knowledge, skills, and character (ie, music in education). Both these interpretations are equally valid, and historical research may be directed towards either or both these concepts of music education. Furthermore, the process of education and, by extension, the process of music education involves two differing activities: teaching on the part of the educator and, hopefully, learning on the part of the student.

Historical research in music education may therefore be defined as being the careful and critical investigation and description of past people, practices, movements, institutions, and materials involved with both music teaching and music learning in order to establish facts or truths and to draw conclusions.

The second question we need to address is: 'how is historical research undertaken?' - in other words, what is the *modus operandi* for historical research?

The traditional starting point for empirical research is the stating of an hypothesis (ie, an unproven theory) which will, in the course of the investigation, be tested and which later will be either supported or not supported, depending on the results of the data collected. Cohen and Manion make the point that an hypothesis gives direction and focus for data collection and analysis.[6] However, one of the ways in which historical research may differ from scientific or experimental research is that it does not always begin with an hypothesis. Indeed, as Heller and Wilson

point out, historical research does not seek to isolate a single cause by manipulating the variables but rather to explain complex relationships.[7]

An alternative approach to the stating of an hypothesis is to state a problem which the researcher will set out to solve. An example of this approach would be: 'The problem of this study is to compile and write a history of music education in/at _____ (a particular geographic location or institution) from _____ (year) to _____ (year).' It would seem to me that this approach gives too little direction and focus for data collection and analysis. Moreover, the results of conclusions from this type of research tend to be purely narrative and, as we shall see later, without some application to the contemporary scene, the value of findings of this type can be fairly limited.

I would therefore support Heller and Wilson's approach that historical research should begin with one or more questions which can later be reported as an exposition of a thesis.[8] The nature of the questions posed by the researcher and the way in which they are answered will determine the worth of research of this type.

The second stage in the *modus operandi* for historical research is the gathering of the data or evidence. The historian makes use of two forms of data: (1) primary sources of data; and (2) secondary sources of data. Primary sources may be thought of as original evidence which has a direct physical relationship with the period under study. This may include, on the one hand, documentary sources as well as oral sources of evidence provided at first hand by participants in or witnesses to an occurrence, and, on the other hand, artifacts or relics of the period. Most historical research draws chiefly on documentary evidence. It is interesting to note in relation to the sources of evidence that this is one aspect in which historical research differs markedly from other forms of research. Hockett makes the oft-quoted point that historical research utilises data that is already in existence.[9] Unlike the experimental researcher who is concerned with *direct observation*, the historian is generally unable to be involved with this type of observation and instead is concerned with *interpreting* the past from primary sources of evidence.

Secondary sources are those which do not bear a direct physical relationship to a past occurrence, that is, are not original, first-hand accounts. Heller and Wilson point out that written history is itself a re-telling of an occurrence, and in that sense is a secondary source.[10]

Part of gathering data is, of course, its location, and, just as the experimental researcher requires skills in statistical analysis, the historical researcher needs to possess bibliographical and archival skills.

The third stage in the *modus operandi* for historical research is that the evidence or data collected must then be evaluated. Hockett, when pointing out that the historian is generally not involved in direct observation of his data, also stresses that 'the historian, no less than the scientist, must utilise evidence resting on reliable observation'.[11] It is the attempt to test the truthfulness of the reports of observations by others that we refer to as historical criticism. There are two processes involved in historical criticism: (1) external criticism; and (2) internal criticism.

External criticism is concerned with the authenticity or genuineness of data. It is therefore aimed at the document itself rather than the contents, and may involve determining authorship, verifying handwriting,

deciphering penmanship, dating via cross-referencing, and so on.

Internal criticism is concerned with the accuracy or truthfulness of data, and with the trustworthiness, credibility, or worth of data. This is the more difficult of the two types of criticism, because it involves firstly evaluating the writer of a particular document, his biases and his possible motives for exaggeration or distortion. Secondly it involves the credibility of data which can be determined by analysing the circumstances, assessing witness reliability, determining the presence of bias, interpreting meaning, and so on. These criteria for evaluating data at this stage are what Gottschalk describes as 'the emphasising or minimising of data'.[12]

The fourth state is the organisation of evidence chronologically and/or topically in order to achieve a synthesis of the data.

The fifth stage is to interpret the evidence. According to Turrentine, this interpretation can take place either biographically, idealistically, scientifically, economically, geographically, sociologically, or eclectically.[13] However, whatever the approach, the aim during this stage is to interpret the data so that conclusions may be drawn and truths revealed.

The final stage in the *modus operandi* of historical research is to report the findings of the research from either an idealistic, realistic, programmatic, existential, or eclectic philosophical base in such a way that (1) it is in a readable form; and that (2) the particular thesis can be shown to have been satisfactorily defended, an hypothesis can be shown to have been supported or not supported, or particular questions may be seen to have been satisfactorily answered.

The third question to be considered in any discussion regarding the nature of historical research is: 'Why should music educationists want to undertake research into the history of music education?'

Those of us who have students working on research projects in music education - whatever the field - know all too well that one of the principal reasons why they are undertaking the research is to earn a higher degree. Another reason why they may have embarked on a research project rather than, for example, taken course work or a field study as an alternative probably has something to do with an intense and all-consuming interest which they feel for their particular research topics. Without this passion for research and for making new discoveries, most pieces of research would never in fact reach completion! However, from a more objective viewpoint, historical research in music education has certain values, both intrinsic and extrinsic, which I would like to discuss.

An intrinsic value of historical research in the field of music education is that it is concerned with the recording of the past for future generations and for posterity.

The other main values of historical research in music education are extrinsic and centre around the notion that the results/findings of historical research have application to the contemporary practice of music education. Heller and Wilson state that, in order for historical findings to have application on the contemporary scene, the research itself must be related to practice by treating questions which music educators are concerned about - in other words, there must be some relationship between the study of the past and the practice of the present - and the findings

themselves must be of some potential value or benefit to music educators.[14]

The traditional *raisons d'être* for historical research have been identified by the American educational historians Butts and Cremin as:

> ...to help educators understand what their present problems are, how the problems have arisen, what the advantages and disadvantages of the past have been, what forces from the past are still at work in the present, and what we have to reckon with as we move into the future.[15]

To paraphrase this quotation, we should make use of our knowledge of the past in order to help us in assessing the present more accurately and in preparing for the future with greater foresight. In order to illustrate the usefulness of historical findings in this regard, I would like to consider two examples which are related to the provision of musical instruction at the primary school level.

Firstly, when music teaching was introduced to state-supported schools in Victoria in the early 1850s, it was decided to employ itinerant singing masters to give musical instruction in the more populous districts. Although music was effectively an extracurricular subject at this time, in that an extra fee was charged for pupils attending music lessons, the system of visiting music specialists worked reasonably well. Later, when music was included in the 'Course of Free Instruction', the specialist system was expanded to allow ordinary class teachers to qualify as licensed teachers of singing and, if appointed as a resident music teacher within a particular school, to receive a special salary allowance for giving musical instruction in addition to their normal teaching duties. By 1892 there were 44 itinerant singing masters and 149 resident teachers of singing in Victorian primary schools under the supervision of a specialist Inspector of Music.[16] Moreover, it was estimated that during 1892-93 approximately 33 per cent of all children attending state schools were receiving musical instruction according to a prescribed syllabus from either a district singing master or a musically qualified member of the school teaching staff.[17]

This information allows us to make some very interesting comparisons regarding music teaching in state primary schools now and then. In 1978 the Victorian Education Department created 50 positions for Primary Music Advisers (one for each inspectorate in the State), of which I believe only 43 are presently filled, and 186 positions for on-staff music specialists in primary schools. In view of the fact that the number of children attending state primary schools in Victoria has increased by approximately 250 per cent since the end of the nineteenth century, we could say that the present provision of specialist music educators - whether they be teachers, advisers, or resource centre personnel - is proportionately far less than it was during the early 1890s. The conclusions to be drawn from this point onwards are another matter, but these sorts of historical comparisons can be useful in assessing current deficiencies, needs, and priorities in music education and, on a broader plane, in deciding on such issues as the status of music in our system of general education.

However, to continue with a little more history - as it turned out, the system of specialist music teachers in Victoria came to rather an abrupt end in 1893 as a result of the worsening economic depression and the consequent public service retrenchments. In March 1893, the additional allowances for resident teachers of singing (and drawing) were suspended and all itinerant singing (and drawing) masters were dismissed at the end

of that year when the Inspector of Music was also dismissed and his position was abolished. The comments reportedly made by the then Minister of Public Instruction to a deputation of singing and drawing masters who were protesting against their dismissals are not atypical, even today, of what happens when financial cutbacks occur in state education systems:

> At the same time, he (the Minister) would point out the immense difference there was between singing and drawing and the three R's. The three R's were a necessity of bread and butter in a civilized community, and we must have our people educated. Singing and drawing are luxuries... like a ship in heavy weather, we have to jettison cargo; it was a distinctly clear and unmistakeable loss, but it must be done.[18]

The colonial government had for some time been concerned about the cost of providing specialist music teachers, and in 1890 had in fact introduced music as a mandatory subject into teacher training courses and also enacted regulations making music one of the ordinary school subjects in which primary teachers could be required to give instruction. This had been done with a view to gradually transferring responsibility for music teaching in state schools from specialist to generalist teachers. However, the net result of what can only be described as the totally premature transfer of responsibility for music teaching to ordinary class teachers (who, in the main, were musically untrained) was a drastic lowering of musical standards in Victorian state schools. Indeed, it could be said that we in Victoria are still facing the consequences of that decision, taken in 1893, almost ninety years later.

However, the lesson to be learnt here is that, given the continuing trend in Victoria towards the use of specialist music educators in our primary schools, whether as teachers or advisers, there is a danger that, with any cutbacks in finance and the consequent cutbacks in staffing levels, history could well repeat itself. The point I want to make in this regard is that a knowledge of the past can not only give us a better perspective of present and future trends, but can also warn us of possible dangers ahead.

To turn to another possible application of historical research findings, Arnold Bentley pointed out at the Second National Conference of ASME in 1971 that historical research can be of practical value to music educators 'if only to enable us to be aware of the fact that what we regard as our latest, brightest, newest idea had been practised long ago'.[19] A similar notion is put by the American music education historian, Edgar Turrentine:

> Music teaching practices seem to be cyclical. This generation rejects the past generation's practices substituting something 'new' (always clothed in a new jargon), the next generation rejects that, adopting something 'new' (always clothed in new jargon) which generally is what the preceding generation has rejected - and so forth and so on, *ad infinitum*.[20]

To illustrate this cyclical phenomenon in Australian music education, I would like to refer to the re-emergence of the moveable doh solmisation system as one of the main class music teaching methods currently employed in this country. I am of course alluding to what Gillian Bonham has referred to as 'the very successful (Tonic Sol-fa) system which Curwen developed... now being reintroduced into Australia disguised as the "new" Kodály method of music education'.[21]

I am sure that very few if any of the younger generation of teachers who

are presently employing Deanna Hoermann's adaptation of the Hungarian method realise that the so-called Kodály system is itself an adaptation of the Tonic Sol-fa method developed in England by John Curwen during the nineteenth century. It is generally not known that Kodály made several visits to England, beginning in 1927, and was so impressed with what he saw of the Tonic Sol-fa method as it was employed in English elementary schools that he decided to adapt it for use in the Hungarian elementary school system. Aside from two modifications to the visual aspect of the Tonic Sol-fa method (the use of the Tonika Do notational system instead of Curwen's system of letters and punctuation marks as a means of approaching staff notation, and minor changes to Curwen's system of pitch handsigns), Kodály left Curwen's teaching principles intact in his 'Choral Method'.[22] The only other modification was Kodály's emphasis on the pentatonic scale in the early stages of teaching (as opposed to Curwen's diatonically based teaching repertoire) due to the strong pentatonic element in Hungarian folk song.

Curwen's Tonic Sol-fa method was first introduced to Australia by James Fisher, who conducted public singing classes in Sydney during the 1850s. The method was officially adopted by the New South Wales Council of Education in 1867 for use in public schools, and Fisher was appointed as the Council's singing master. The Tonic Sol-fa system then formed the basis of what was known as the 'moveable doh' method, which was developed by Hugo Alpen, Superintendent of Music in New South Wales Public Schools from 1885 to 1908. This particular adaptation of the Tonic Sol-fa method achieved considerable success in New South Wales, so that by the mid-1890s music was being taught according to a prescribed syllabus in virtually all public schools, with a pass rate at the annual examination of between 75 and 80 per cent.[23]

In Victoria, on the other hand, there was considerable opposition to the Tonic Sol-fa method, and it was not until 1887 that it was placed on an equal footing with existing music teaching methods, largely through the efforts of Samuel McBurney, whom I shall mention again later. The Tonic Sol-fa method was later revived in Victoria during the 1910s by John Byatt, whose work was continued by the first Supervisor of Music in Victoria, Alfred B. Lane. In South Australia the Tonic Sol-fa method was first introduced to public schools during the early 1870s and was later very successfully promoted by Frank Gratton, who was Supervisor of Music from 1921 to 1937.

However, due mainly to the fact that many teachers using the Tonic Sol-fa method unfortunately clung on to its letter notation system rather than using it as a stepping stone to sight reading from the staff, as Curwen had originally conceived it, the method as such gradually declined in popularity. The notational difficulty having been overcome in Kodály's adaptation of it, the Curwen method has now been reintroduced to Australia in an updated and expanded format known as the Developmental Music Programme. To my mind this illustrates very well indeed Edgar Turrentine's notion that music teaching practices tend to be cyclical. Moreover, a knowledge of the past successes of the Tonic Sol-fa method in Australia, particularly Alpen's adaptation of it in New South Wales, should offer enormous encouragement and inspiration for those teachers presently employing the Developmental Music Programme.

This inspirational or motivational aspect is the final application of historical research findings that I wish to mention. In this regard, Heller and Wilson point out that:

> Inspiration or motivation account for the importance of biography from Plutarch to the present... Honest and thorough biography serves not only to provide worthy models, but also to cast notables of the past in accurate, life-like (and therefore replicable) human models of behaviour.[24]

Those of us who are familiar with the historical background to American music education may recall among the names of some of the outstanding American music educators that of Lowell Mason, and certainly most of us have heard of the 'great' English and European music educators of the past such as Rousseau, Curwen, Dalcrose, Dolmetsch, MacPherson, Read, Scholes, Kodaly, and so on.

Perhaps due to the fact that many of our music teaching practices have been imported from overseas, we in Australia have tended to assume that we have not had any 'great' - in the sense of nationally or internationally recognised - music educators in our past from whom to derive inspiration and motivation in our professional endeavours. However we do have some important if not great music educators in our history. One of these was Samuel McBurney, who emigrated to Victoria in 1870 and who, as an Australian-by-adoption, achieved recognition as an international Tonic Sol-fa propagandist, author, and developer of a kindergarten music teaching method.

Born in 1847 at Glasgow, Scotland, McBurney was taught music by the Tonic Sol-fa system at an early age.[25] He later attended Glasgow University and became a schoolmaster before emigrating to Australia. After having held several positions as a mathematics and classics teacher, he gained the position of district singing master at Portland with the Victorian Education Department in 1875. The following year he returned to England, where he undertook studies at the Tonic Sol-fa College, London. He then returned to Australia and, with his wife, conducted a private Ladies' College at Geelong.

In an effort to disseminate the Tonic Sol-fa method, McBurney founded the Victorian Tonic Sol-fa Association in 1878, and five years later organised the first Intercolonial Tonic Sol-fa Conference at the Geelong Ladies' College. In further efforts to propagate Tonic Sol-fa, McBurney commenced choral singing classes, undertook lecture tours, offered correspondence courses, and examined candidates for certificates of the Tonic Sol-fa College. He then began his campaign for recognition of the Tonic Sol-fa method for use in state schools. Opposition was encountered from the Inspector of Music, Joseph Summers, and senior singing masters who preferred the Tonic Numeral method, but eventually, in 1887, a Tonic Sol-fa syllabus was placed on an equal footing with the existing music syllabus.

Early in 1887, McBurney and his wife left Victoria on an extended tour through the eastern colonies of Australia, and then travelled to New Zealand and the United States en route to Britain. During his travels, McBurney gave lectures, spoke at public meetings, formed local Tonic Sol-fa Associations, conducted classes at teachers' colleges and training institutes, and inspected school music classes - all with a view to propagating the Tonic Sol-fa system as a school music method. These efforts later earned him the title of 'The Stanley of Sol-fa' during the Tonic Sol-fa Jubilee Celebrations in London in 1891.

After a period in England, McBurney became determined to demonstrate that Tonic Sol-fa could be successfully applied to the highest levels of musical

scholarship. He therefore entered for the Mus.Bac. and then the Mus.Doc. examinations at Trinity College, University of Dublin. Having gained both degrees, he returned to Victoria, where he was appointed as Inspector of Music with the Education Department, but unfortunately his position was abolished in 1893. McBurney then opened a Ladies' College at St Kilda and also became heavily involved in conducting in-service training courses in Tonic Sol-fa for state school teachers. McBurney's fervent advocacy of the Tonic Sol-fa system ceased only with his death in 1909 at the age of sixty-two.

During the early 1890s McBurney published a number of school song books and teachers' manuals, including a textbook entitled *Kindergarten Musical Training*, which was published by J. Curwen and Sons about 1894. This text book, which included sixty-six 'Bird Songs', together with his *Bird Modulator* and *Bird Cards*, formed an exceedingly well-devised kindergarten music method. Firmly believing that the Tonic Sol-fa system could be successfully taught to pre-school children, McBurney devised his coloured *Bird Modulator* to illustrate to children the 'mental effects' of the scale tones by correlating each with a particular bird and characteristic colour. Thus doh - the strong or firm tone was represented by the 'Black Crow', soh - the grand and bright tone by a red parrot 'Pretty Joe', me - the calm and steady tone by two green parrots 'Love Birds', and so on. The *Bird Modulator* was supplemented by flash cards which could be arranged to form melodic phrases for sight singing. These teaching aids, together with French time names and hand signs for pitch and rhythm, were used in conjunction with the specially composed Bird Songs to teach music reading from sol-fa notation. (See sample page from McBurney's *Kindergarten Musical Training* next page.)

This clever and educationally well-conceived method appears to have formed the basis of McBurney's in-service training courses for state school teachers during the 1890s. McBurney's other major publication was a chapter on 'Pronunciation and Musical Terms', which appeared in a revised edition of Curwen's *The Standard Course* in 1901. He also devised an improved system of Braille for Tonic Sol-fa notation, which was introduced to Blind Asylums in Scotland in 1889 and to the Victorian Institute for the Blind in 1895.

To my mind, Samuel McBurney epitomises the dedication, resourcefulness, and inventiveness of an important music educator of whom we can be proud and from whom we can draw inspiration in our professional work. If historical research in music education can provide us with such exemplary models, it is certainly fulfilling a useful purpose.

In conclusion, I would refer you to the attached 'Bibliography of Research into the History of Music Education in Australia', which I trust is reasonably complete and up to date. As you will see, there are many gaps to be filled before we have anything like a complete history of music education in this country. Australia, in comparison to many European countries and even to the Unites States, has vast stores of official records in which the history of music education in state schools and state-affiliated institutions of higher learning is well documented. Many of our universities and independent schools have archives in which individual school or university histories of music education are also well documented. I would therefore commend historical research to you as an important and useful area of research in music education.

Who can tell me the bird I sing?

No. 7. KEY F.

TEACHER OR PUPIL.

d	:—	:d	m	:m	:m	s	:—	:s	s	:—	:—
Who		can	tell	me	the	bird		I	sing?		

CLASS.

s .s	:s	:s	s	:—	:—	s	:s	:s	s	:—	:—
Pretty Joe		we	know			al	-	ways sings	Soh.		

TEACHER.

d	:—	:d	s	:s	:s	m	:m	:m	m	:—	:—
Now		come	tell	me	the	birds	in	the	ring?		

CLASS.

m	:m	:m	m	:—	:—	m	:m	:m	m	:—	:—
Love-birds		we	see			al	-	ways sing	Me.		

TEACHER.

d	:—	:m	s	:m	:s	d	:—	:d	d	:—	:—
Who		can	tell	me	what	now		I	sing?		

CLASS.

d	:—	:d	d	:—	:—	d	:d	:d	d	:—	:—
Old		black	crow			al	-	ways sings	Doh.		

Doh doh, old black crow.

No. 8. KEY D.

d	:d	d .d	:d	m	:m	m .m	:m	s	:s
Doh	doh,	old black crow;		Me	me,	love-birds we;		Soh	soh,

s .s	:s	d' .d'	:d'	s .s	:s	m .m	:s .m	d .d	:d
pretty	Joe;	Jackdaw, doh,		pretty	Joe,	Love-birds singing,		old black	crow.

Birds are singing.

No. 9. KEY D. C.

d	:d	m .m	:m .m	s	:s	m	:—
1. Birds	are	sing-ing	in the	morn	- ing	light,	
2. Flow'rs	are	blooming	in the	fields	so	gay,	

s	:s	d' .d'	:d' .d'	s	:s	d	:—
Gay	and	joy- ous	as the	sun	- shine	bright.	
Now's	the	hap-py,	hap -py	time	for	play.	

Figure 1
Sample page from McBurney's *Kindergarten Music Training*, London, J. Curwen and Sons, n.d., 1894.

NOTES

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23 Stevens, op. cit., pp. 174, 176.
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25 See Stevens, op. cit., pp. 353-360.

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PROBLEMS OF COMPARTMENTALISATION: REPORT OF RESEARCH IN PROGRESS

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For several generations now, music seems to have acquired the reputation for being an elitist subject at the secondary level, particularly in the senior grades. Class sizes in senior school music still tend to be pitifully small, and many schools in England and Australia have to combine year 11 and 12 classes in order to raise a viable class size of six or more students. When one considers the importance of music in the lives of most teenagers today, the situation seems difficult to justify, and in these days of economic setbacks the problem needs urgent solution before education authorities are forced to cut music out of the senior school curriculum altogether.

Centring my researches on music education in Queensland, I soon found that, as Musgrave states in *Society and the Curriculum in Australia*: '...Primary... education was... greatly influenced by what was happening in Britain. The influence on secondary schools from Britain was, however, less direct in that it was mediated largely through the universities and their entry requirements...'[1] He also states that before federation '...similarities in the colonies' educational systems were not due to interaction between themselves concerning educational problems, but to their independent imitation of the mother country.'[2] Therefore, a comparison was made between the present-day situation in Queensland state secondary schools and similar schools in South Australia, Western Australia, Victoria, New South Wales, and comprehensive schools in England. The schools involved in the study in Australia were all in the metropolitan areas of the states concerned, and served a mixture of Australian, English, Italian, Greek, Asian, and Australian aboriginal students. Similarly, schools in the London, Peterborough, and Greater Manchester areas in England served a mixture of English, Irish, Jamaican, Arabian, Indian, and Pakistani students. Although overall socio-economic status might differ slightly between one school and another, in both England and Australia, there was a wide spectrum of socio-economic levels represented *in any one school*. Another important similarity which came to light during the study was the lack of uniformity in the primary school music experiences of the students; within any one class, there would be a range from virtually nil to considerable experiences in practical music-making of all kinds. Reynolds and Skilbeck, in *Culture in the Classroom*, maintain that schools with mixed cultures, mixed socio-economic levels, and mixed primary school backgrounds '...have a duty ot maintain openness of outlook and variety of belief'.[3] This suggests that students in these schools need a broadly based curriculum in music which is flexible in its teaching strategies in order to cater for the wide range of ability levels and backgrounds.

Study of the syllabuses for secondary school music put forward by the various education authorities revealed two interesting differences between Queensland and the four other Australian states. Firstly, Queensland was the only state in which a single comprehensive syllabus for secondary music

from the year of entry (year 8) to year 12 was in operation. In the other four states, the music syllabuses for years 7 or 8 to year 10 were under review, so that the only official music syllabuses in operation in these states were for years 11-12. Secondly, Queensland was the only state in which school-based assessment controlled by moderation operated for Senior Certificate; in all other four states, senior-certificate students were required to sit for public examinations. In England, although every area would differ marginally from the rest, in general there was no set syllabus for years 6-8 (some areas taking year 6, others taking year 7 as the first year of entry), while public examinations were required for CSE, O level, and A level courses.

Time and space will not permit exhaustive perusal of all these syllabuses, so extracts from the Queensland, New South Wales, and two English syllabuses have been selected as an Appendix to this paper for further study.[4] These extracts show significant differences between the Queensland syllabus, the New South Wales 2 Unit A course, and the English CSE course on the one hand, and the 3 Unit course (New South Wales) and A level course (England) on the other. The former are all more broadly based and student-centred, particularly the first two; however, discussions with music teachers in New South Wales and England revealed that the 2 Unit A and CSE courses have a low status in the education hierarchy, and teachers were often pressurised by parents and administration to forego such courses in favour of the high-status 3- or 2-Unit courses in New South Wales, and the O/A courses in England. As Michael Apple says in *Ideology and Curriculum*: '...One major reason that subject-centred curricula dominate most schools, and that integrated curricula are found in relatively few schools is at least partly the result of the place of the school in maximizing the production of high status knowledge',[5] which, when translated into Australian, means that the educational rat race tends to discourage schools from offering broadly based, student-centred curricula! Therefore, since there is no choice of courses within the Queensland secondary music syllabus for Senior Certificate, one might expect to find no such drawbacks operating in Queensland schools, but alas, such is the strength of the high-status knowledge hegemony that not only does music suffer a low status within the secondary school curriculum but, to compound the problem, many secondary music teachers in Queensland disapprove of the vague, open-ended nature of the syllabus, and try to 'adjust' it into a more orthodox, compartmentalised format.[6]

The study of the secondary school students shows that, despite the wide cultural range of students in the schools visited, there was a noticeable consistency in their musical tastes at the three main age levels (see Fig. 1).

Most noticeable of all is the poor opinion most students appear to have of so-called 'classical' music, even in South Australia, Western Australia, and New South Wales, where special music centres run by the education authority were included in the study. The small population of year 11-12 students involved in the study in Victoria will be supplemented in the very near future, and it will be interesting to see whether the unusual 43 per cent preferring 'classical' music at this level in Victoria is really representative. Another important point to notice in these figures is the way in which the category 'All types of music' tends to become more popular as the students mature, implying that their tastes do not *switch* so much as *broaden*. Certainly, Reynolds' and Silbeck's point about the need for schools to maintain openness of outlook seems to hold true.

Population:	Qld	SA	WA	Vic	NSW	Eng
Year 7-8	660	122	113	69	123	130
Year 9-10	276	83	65	105	38	54
Year 11-12	106	35	31	7(!)	46	25

Fig. 1. Student Tastes in Music (Percentage Scores).

(Some students would tick 2 items)

	All Types						'Classical'						Jazz and Symphonic Rock						Top 40 or Country/Western						No music					
Age Level	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E
Yr 7-8	25	40	49	22	28	28	3	5	1	1	11	2	51	34	39	65	35	36	70	57	47	71	56	68	1	0	1	0	3	0
Yr 9-10	41	47	65	32	39	46	5	4	14	4	18	9	41	23	25	48	26	17	52	46	29	47	34	59	1	4	0	2	0	1
Yr 11-12	58	83	48	43	57	68	12	9	16	43	13	16	25	6	42	0	22	20	28	9	32	14	22	20	0	3	0	0	0	0

Fig. 2. Student Tastes in Learning Approaches to Music (Percentages).

	Theoretical						Practical						Both equally +						Both equally -					
Age level	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E
Yr 7-8	2	2	4	0	0	2	82	79	88	99	88	89	8	19	8	1	11	11	8	0	0	0	1	2
Yr 9-10	1	2	3	4	3	2	80	89	74	69	76	74	17	8	25	19	16	22	1	0	0	5	5	2
Yr 11-12	5	3	0	0	0	8	62	71	61	57	72	76	33	26	39	43	28	16	0	0	0	0	0	0

Fig. 3 Student Tastes in Practical Activities (Percentages).

(Most students would tick more than one item.)

	Movement						Singing						Playing inst.						Composing						All equally						None					
Age	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E
7-8	52	53	57	49	52	50	39	30	32	12	24	27	40	53	38	36	37	63	10	8	3	10	18	29	7	16	17	4	11	4	7	2	2	7	5	3
9-10	33	27	34	35	32	22	43	19	38	25	24	17	61	66	65	58	63	63	13	17	23	13	16	15	12	11	18	4	3	15	1	2	2	14	5	3
11-12	30	23	13	0	39	12	83	54	52	14	30	28	57	71	84	86	72	88	35	37	16	29	15	24	16	17	6	14	7	0	0	0	0	0	0	0

Student tastes in learning approaches for music, as shown in Fig. 2, indicate a similar trend, from the decided preference for practical approaches in early high school to a more tolerant 'Both Equally' point of view in later years, but it is important to note the very small number of students who prefer theoretical approaches at any age level, especially when we come to compare these figures with the classroom situation later on.

Student tastes in practical activities, as shown in Fig. 3, surprised a great many of their music teachers, who apparently had been under the impression that teenagers dislike movement to music. A look at the first column in Fig. 3 shows that this is not the case, particularly in the earlier years of high school. The Schools Council Project, *Music in the Secondary School Curriculum,* directed by John Paynter, was being piloted or had greatly influenced the junior school curriculum in most of the schools visited in England. The higher proportion of English students opting for Composing Music in years 7-8, shown in Fig. 3, augurs well for the Project, which promotes experimentation and creativity in secondary school music classes up to year 8, using avant garde, musique concrete, and aleatoric techniques.[7] At the same time, it should be noted that there is a stronger preference for movement to music shown by English students at this age level.

Comparing student preferences with their classroom situation, it soon became clear from discussions with students in all three age groups that, in practically all the schools involved in the study, the students were not satisfied that all types of music were included in their courses. At the year 7-8 level, a frequent complaint was that in class '...all we get is that classical stuff... we never get to hear the music we *like*...'[8] Even students in the special music centres in South Australia, Western Australia, and New South Wales seemed to disapprove of the narrow range of musical styles involved in their courses. In fact, the year 10 and year 11 students in the New South Wales music centre were thoroughly angry about it. Elsewhere, the older students tended to be more varied in their opinions, several sharing their teacher's view that 'they could listen to pop music at home', and that ethnic music and jazz 'were not relevant to the examinations'. However, many more seemed to resent the compartmentalisation of music into what should be done in class, and what should be done after school; they claimed that this was a major factor in the rejection of music by most of the peer group. This was particularly noticeable in Queensland, despite the global aims of the official syllabus; only the senior students taking the new 2 Unit A course in New South Wales showed thorough satisfaction with the range of music covered in the course.[9]

As shown in Fig. 4, student opinions concerning the balance between theoretical and practical approaches experienced in class music indicate that there is a heavy emphasis on theoretical approaches in Queensland at all age levels, despite the aims of the syllabus. The sudden change from the happy emphasis on practical approaches in years 7-8 to the very heavy theoretical bias in years 9-10 in the English schools is a sad reflection on the change from the Schools Council Project's creativity to the more traditional O level and CSE courses. Sixth form classes taking the A level course in England seemed to be more resigned to their situation than their Australian counterparts, and would often explain that it would be impossible to pass their examinations without a continual nose-to-grindstone approach. According to Fig. 4, English students seem to fare better than Australian students at the senior level; most of the English sixth form students involved in the study were in special Sixth Form Colleges, where they were allotted one afternoon each week for free activities. This gave students

Fig. 4. Learning Approach Most Often Experienced in Class (Percentages).

	Theoretical						Practical						Both equally					
Age Level	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E
Yr 7-8	59	27	38	62	76	19	16	36	26	4	11	55	25	35	35	33	13	29
Yr 9-10	71	53	35	65	71	85	9	42	25	21	8	2	20	8	26	1	21	11
Yr 11-12	74	74	87	43	80	48	2	6	0	57	2	8	24	20	13	0	17	44

Fig. 5. Practical Activities Most Often Experienced in Class (Percentages).

(Some students would tick more than one item.)

	Movement						Singing						Playing Inst.						Composing						All equally						None					
Age	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E	Q	S	W	V	N	E
7-8	4	0	10	1	2	1	38	29	21	36	72	35	36	52	28	48	2	69	14	17	7	0	20	22	8	7	4	1	4	5	17	3	30	3	8	4
9-10	5	0	0	1	3	3	23	2	45	42	29	3	52	65	37	25	13	44	26	28	8	6	45	30	11	8	6	5	5	7	6	8	6	15	18	24
11-12	0	0	0	0	0	0	29	17	77	0	46	16	33	63	23	86	24	32	34	31	0	0	30	12	8	3	3	0	7	24	13	3	6	14	0	32

the opportunity to join jazz groups, chamber ensembles, madrigal groups, etc., and so helped to redress the balance. However, it should be remembered that these activities did *not* form an integral part of their A level course, and these English students tended to agree with Australian senior students that the majority of their peers would never be able to or even wish to take music for A level or Senior Certificate.[10] Again, the disgruntled students in the special music centre in New South Wales were consistently vehement in complaining that, whereas in the practical component of their course they were constantly challenged to develop their skills to the highest degree, in their class music they were never extended in any direction. Evidently, the course was so compartmentalised that class music consisted solely of history and analysis studies, aural dictations, and highly structured writing techniques, involving a rather narrow range of music styles. In other words, their course was no different from the courses offered in most of the year 11-12 classes seen in England and Australia, and these students felt that their acknowledged high ability level in music was being stultified.[11] In the one or two schools where more exciting things seemed to be happening in year 11-12 class music, the music teachers had encouraged their students to arrange pieces of music, either self-composed or taken from a set work or favourite song, for the class ensemble to play. Others had embarked on projects involving synthesisers and tape-recorders.[12] By and large, however, particularly in places where public examinations dominated the school music curriculum, both teachers and students were inclined to think that there was simply no time for practical activities other than the occasional sight-singing exercise.[13]

As shown in Fig. 5, students' opinions as to which practical activities were most often experienced in class music indicate that, despite the younger students' interest in movement to music, nowhere was this activity an important feature of the music class. Even in England, where year 7-8 students were otherwise enjoying their creative music-making activities associated with the Schools Council Project, they would often complain as loudly as their Australian counterparts that there was no movement to music and not enough singing in their classwork.[14]

Thus it seems that, despite the needs of secondary school students for broadly based curricula involving a wide range of musical experiences, the success of music as a class subject in secondary school is still seriously hampered by compartmentalisation, both regarding the types of music involved and, more seriously perhaps, learning *processes* adopted by the teachers. Class music in the older grades seems to be as doomed to become a sedentary study of endless music scores and eight-bar exercises in harmony and counterpoint in the 1980s as it was in my young day, even in Queensland, where the official syllabus specifies a far richer and more varied musical diet.

Interviews with music teachers, advisers, consultants, and supervisors threw some light on the problem, especially in Queensland. This was the last Australian state to introduce music into the secondary school curriculum. It turned out that, of the twenty-nine music teachers involved in the study in Queensland, only one of them, an English lady, had experienced class music as a secondary school student. Virtually all the rest had learnt music privately through AMEB or Trinity College Examination systems, both of which are recognised to be thoroughly English in heritage, closely resembling the Associated Board Music Examination system. Consequently, not only were the Queensland teachers used to a music class of one teacher/one pupil, they were also used to an extremely compartmentalised system of

instruction in which Practical Music was a separate study from Theory in Music, in which the repertoire consisted largely of Western music composed between 1700 and 1900, and which relied heavily on past examination papers for its teaching material.[15] Moreover, when they went on to tertiary education, music continued to be compartmentalised: History of Music classes were distinct from Theory classes, while both were isolated from Practical classes, and *all* classes were preoccupied with the study of Western Art Music, most of which was pre-1900. Similarly, Education and Psychology lectures were never related to music; lecturers in charge of Education courses, if asked how one would apply an educational theory to the music class, were apt to reply that they knew nothing about music, as though the subject were a complete mystery to them, and a rather unimportant one at that.[16] Music teachers elsewhere seemed to have similar views on their experiences of compartmentalisation within their music courses and the isolation of music from other disciplines. Music Method courses undertaken at the tertiary level were criticised by music teachers everywhere, but particularly strongly by teachers in England, Queensland, and Victoria. The main complaints were:

1 That the lecturers in charge had had little or no experience in teaching music at the secondary level, and were totally out of touch with present-day multicultural conditions in high schools.

2 That music methods, particularly Dalcroze, Kodály, and Orff-Schulwerk, were presented from a primary school point of view, and secondary music teachers could not see how they could be successfully applied to the secondary school situation, especially in state schools, where students' primary school music backgrounds were so heterogeneous. All the teachers involved in the study seemed to have found Teaching Practice to be the most valuable part of their training, but university graduates everywhere complained that they had had too little teaching practice, and that there was little or no feedback between practising school and university.[17]

Although the English music teachers who were involved with the Schools Council Project were enthusiastic about their own experiences with it, they shared the predominantly pessimistic view of their music supervisors and advisers as to its success as a nationwide project: firstly, because the creative approaches required absolute classroom control, and few music teachers could cope with it; secondly, because of the stranglehold of the compartmentalised O/A level courses which followed from year 9 onwards; and thirdly, because of the highly conservative and compartmentalised attitudes towards music held by the majority of secondary music teachers in England. Hopes rest on the possibility of changing the A and O level courses to allow for more broadly based, more student-centred curricula throughout the secondary school.[18]

Since the introduction of just such a broadly based, student-centred syllabus in Queensland does not seem to have revolutionised the music curriculum in many Queensland secondary schools, it seems likely that syllabus reform is only a first step towards solving the problem. What is also needed is a scheme which is already in operation in South Australia, the Inner London Area, and Cambridgeshire, through which successful music teachers are seconded by the education authorities to act as music advisers and consultants in their areas, visiting secondary schools and helping, encouraging, and instigating more creating approaches to class music. Such a scheme, though time-consuming, seems to have a more lasting effect than in-service crash courses or extensive literature bombardment.[19] No such scheme for secondary school music has been initiated in Queensland as yet,

and the Supervisor of School Music has one assistant supervisor and one Education Officer to cater for the needs of secondary schools in the entire state.

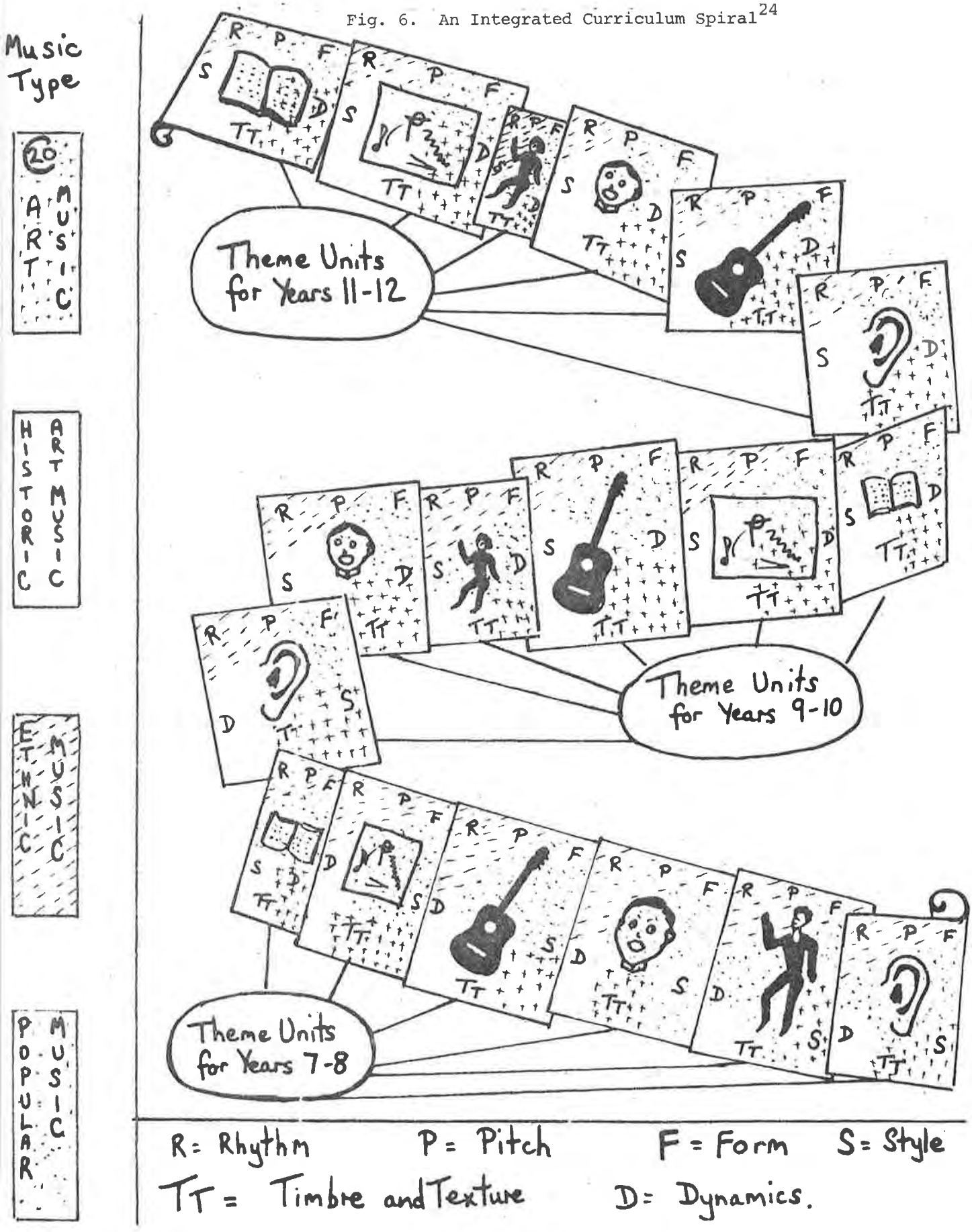
Musgrave suggests, however, that above all, the lead for curriculum change must come from the tertiary institutions, for '...in the case of... teaching or medicine... a whole structure of values that govern occupational behaviour is learnt during the initial training period. It is difficult for persons in these occupations to change their ideologies after starting work in them because so much of their identity and their future has become invested in a given stance to life.'[20] If this be so, then clearly, the tertiary institutions must grapple with their own problems of compartmentalisation, particularly with regard to the isolation of Music from Education and Psychology. We cannot expect a two-hour formal lecture on the discovery learning approaches of Jerome Bruner to be applied to music in the secondary school classroom *unless we give concrete examples of how this could be done*. We cannot expect secondary music teachers to include jazz, rock, and ethnic music in their school curricula if we do not include them at the tertiary level. Nor can we expect them to integrate music-writing activities with listening and performing activities if we not only isolate these activities ourselves, but also fail to present integrated approaches in Music Method courses suitable for use in secondary schools.

Even the more creative projects, such as the Schools Council Project and the Manhattanville Music Curriculum Project, show signs of being compartmentalised by teachers. One or two of the teachers associated with the Schools Council Project, for instance, seem to have developed an aversion towards the teaching of conventional notation and the use of any historical music whatsoever, and several English year 7-8 students complained about this; they wanted to learn about *all* types of music, and they wanted to be able to read and write what they *still* referred to as 'real music'![21] Similarly, with the Manhattanville Music Curriculum Project, the presentation of a spiral of only cognitive learning with sample strategies which employ only one basic learning process is apt to delude teachers into creating very monotonous work programmes for their classes.[22]

Perhaps in our Music Method courses we could teach our trainees to plan their curriculum in terms of a more *integrated* spiral, to ensure that a proper balance of music styles and musical activities is maintained in the teaching of content, using a theme-teaching approach similar to the one put forward by David Holbrook for the teaching of English.[23] The example shown in Fig. 6 is based on the proportions which seemed to suit one particular state high school in Brisbane. Since the backgrounds of students would differ from one secondary school to another, the amount of time devoted to the various music types and musical activites would tend to vary; nevertheless, student tastes encountered in the research study in Australia and England indicate that the proportions put forward here would be near enough for a great many secondary schools to be able to use the Spiral as a basic model.

Finally, it must be remembered that, if ever we do succeed in introducing an integrated curriculum of broadly based, student-centred activities in music, the end product, ie, the students who leave school at the end of year 12, will not be the same as the end products of more compartmentalised courses dominated by public examinations. Once more, it is the tertiary institutions who can make or break the integrated music curriculum, depending on whether their entry requirements will allow the change to

Fig. 6. An Integrated Curriculum Spiral[24]



take place. For example, will universities insist that all their entrants must be expert in the writing of eighteenth-century-cum-Annie-Warburton vocal harmony, or will they accept, as an alternative, students who have written pieces for chamber ensembles in various styles, composed musique concrete with graphic scores, and written songs, dances, and rounds? I know which *I* would prefer in our Music Department!

NOTES

1 P. W. Musgrave, *Society and the Curriculum in Australia*, Sydney: Allen and Unwin, 1979, p. 65.
2 Ibid., p. 59.
3 John Reynolds and Malcolm Skilbeck, *Culture and the Classroom*, Melbourne: Macmillan, 1976, p. 86.
4 See Appendix A.
5 Michael Apple, *Ideology and Curriculum*, London: Routledge, Kegan, Paul, 1979, p. 38.
6 Reports on the low status of music in the high school curriculum were given by music teachers in area secondary music teachers' meetings, in which the syllabus was also severely criticised by the teachers present. Evidence of teachers' 'adaptation' of the syllabus to conform to a more compartmentalised format was found in moderation meetings, to which the author was invited to attend by the Supervisor of School Music.
7 The Schools Council Project, *Music in the Secondary School Curriculum*, under the direction of John Paynter, has recently produced an excellent film, *A Place for Music*, and numerous publications written by different people involved with the Project, particularly teachers in the field. For details, contact: Schools Council Project: Music in the Secondary School Curriculum, Department of Music, University of York, 86 Micklegate, York, UK.
8 This comment was heard frequently in all five Australian states, and also in schools visited in the Cambridge, Peterborough, and Greater Manchester areas. See also, year 7-8 written comments in Appendix C.
9 This information was collected through recorded discussions and written comments made by students. For samples of written comments made by year 11-12 students, see Appendix B.
10 See Appendix B.
11 See the written comment made by a year 11 student from school N. 4 in Appendix B.
12 For example, schools Q.1, Q.10, Q.14, and N.3.
13 This viewpoint was most strongly held by music teachers and their students in S.2, S.4, W.3, V.3, V.5, V.6, N.5, E.1, E.4, E.5, E.8, and E.9.
14 See Appendix C.
15 The rise of the Trinity College and AMEB examination systems is discussed in Dr Doreen Bridges' 'The Role of the Universities in the Development of Music Education in Australia, 1885-1970', doctoral dissertation, University of Sydney, 1970.
16 From recorded interviews with music teachers in schools Q.1, 2, 4, 6, 7, 9, 13, 16, 17, and 18.
17 Only in recorded interviews with music teachers from Q.14, Q.19, S.6, and E.3 were positive statements made concerning Music Method courses.
18 Recorded interviews with music teachers from E.2, E.3, E.5, and E.6, and with music supervisors, consultants, and advisers in Exeter, Stockport, London, and Cambridge.
19 Recorded interview with music advisers in the Inner London Area.

20 Musgrave, op. cit., p. 27.
21 Recorded interviews with year 7-8 students in schools E.5 and E.8. See also Appendix C, written comment from school E.5.
22 Ronald B. Thomas, 'MMCP Synthesis', typescript of the Manhattanville Music Curriculum Project, New York: Media Materials, n.d.
23 David Holbrook, *English for the Rejected*, Cambridge: Cambridge University Press, 1964.
24 Symbols of music activities in Fig. 6:

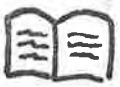
listening

Playing Instruments

Singing

Reading and writing Music

Movement



Reading and Writing about Music

APPENDIX A

The items in Appendix A have proved unreproduceable in this report, and can be obtained from the author, Helen Stowasser, University of Queensland, St Lucia, Qld 4067. These items are:

i Extract from the Queensland Syllabus in Music - Grades 8-12 (1975).

ii Extract from the New South Wales 2 Unit A Course (Interim Syllabus, 1978).

iii Extract from the North Western Secondary School Examinations Board Certificate of Secondary Education Syllabus (1976, UK).

iv Extracts from the New South Wales 3 Unit Course (1976).

v Extract from the University of London General Certificate of Education Examination: New Syllabuses in the Field of Music at the Advanced Level for June 1980 (1978).

APPENDIX B
Examples of Written Comments Made by Year 11-12 Students

Queensland

'We study mainly in the area of History of Music. Then we do aurals and some playing of instruments. Our class is only of five people because so many other students dislike History and aurals. Maybe we should have a little less History and a lot more of learning instruments and playing

music written in class and of our own choice.'
(School Q.7.)

'...I would rather spend less time on the history of music. I would rather spend more time actually performing arrangements. The aural work and theory could come in useful so I think it should be kept. Some history is fun but too much is a drag.' (School Q.15.)

South Australia

'...There is in my opinion too much study of history of music and study of form and analysis, whereas we should be trying to breed musicians capable of professional positions and getting as much musical experience as possible.' (S.2, Special Music Centre.)

'...I feel Matric. music students should be allowed to choose which particular areas of music they would like to study, eg, history and practical. I suggest two separate groups should be run for music, eg, A - Classical; B - Non-Classical...' (S.5, ordinary state high school.)

Western Australia

'We do: violin-playing, singing, aural, history and analysis, harmony, "guess the composer". I like: violin, singing, and "guess the composer", but the rest I can live without. *MORE singing in class*!!' (W.2, Special.)

'The high school course is a good one except that I think that we go into too much depth in the history and theoretical side, and a lot of that could be cut out.' (W.3, Ordinary.)

Victoria

'Composition writing and more work in rock/modern music should be discussed. We do too much on the literature side instead of creative writing in music. I think there is a lack of interest in music among students at this level, perhaps because music as a subject discusses the literature and theory side with less emphasis on rock and modern music.' (V.3.)

New South Wales

'Year 7-10 was all classical and was boring. I found Senior music to be more enjoyable because we study what we wanted to learn about rock music.' (N.2, a 2 Unit A student.)

'Music in class tends to become boring and one does not take everything in as we are not extended in our learning. Everything is according to the syllabus. I don't know anything about jazz, Eastern music, other cultures' music. Everything is within the classical periods. Harmony and melodic writing are too structured, everything has a specific form. *Needs expansion.*' (N.4, Special Music Centre.)

England

'...By 14-15 years theory, etc, is understood and accepted. By A level standard, it's OK but then again directed towards the exam. (No pop!!!)' (E.1, Sixth Form College.)

'More chance to find out views of others - lectures - study in much more depth theoretical aspects. Practical side still fun, lots of activites going on - but it's a shame that these things should be done either after school or during the lunch hour.' (E.8, Sixth Form College.)

APPENDIX C
Examples of Written Comments Made by Year 7-8 Students

Queensland

'I don't like high school music very much because you only learn about notes and history and not much singing and dancing.' (Q.2.)

'We don't do enough singing, and not enough pop. Too much notation work.' (Q.11.)

South Australia

'High school music is good also, with singing songs, playing instruments. But I miss dancing to music.' (S.2, Special.)

'It isn't good because we do a lot of Beethoven and junk like that.' (S.5, ordinary.)

Western Australia

'More popular music could be used and we should do more dancing and drama instead of doing nearly all theory.' (W.3.)

'Should have more practical than theory. They shouldn't have just practical and theory. There should be different ways of enjoying music.' (W.4, elective student.)

Victoria

'It's okay but if we didn't have to do so much theory it would be better. The practical part is good.' (V.2.)

'At high school there is lots of instruments and we don't get the chance to use them all. We just sit in the class and do theory and stare at all the instruments. If we don't do much interesting things in form 1 nobody will want to do it when they are older.' (V.6)

New South Wales

'I don't like high school music because it's boring and you can't listen to rock 'n' roll here and because you can't dance.' (N.2, ordinary.)

'It's so boring, all we do is theory and classical and that turns people off music.' (N.5, ordinary.)

England

'In music we could do dancing and learn more about playing instruments and about learning notes. But otherwise music is good.' (E.5, SCP pilot school.)

'We don't do enough singing. I like playing instruments, but if we had our own choice of music it would be more enjoyable.' (E.7, ordinary.)

CURRICULUM RESEARCH AND DEVELOPMENT PROCESSES

Leon Burton,
University of Hawaii

The theme 'processes in curriculum research and development' is a very broad one (and can be a boring one), and I trust that the different processes I describe will be those most appropriate to your current interests and needs. It should be mentioned at the outset that I will be speaking from my own set of biases, as you must suspect that I would do. These biases have been formulated from experience as a classroom teacher assigned to serve on committees to develop curriculum materials for one school; they also are based on my background and experience for the past fifteen years in full-time, large-scale curriculum development work to produce materials for many schools. Some comments I shall make, therefore, will suggest advantages and disadvantages of school-level *and* large-scale institutional research and developmental activity. My intent today is to present suggestions and ideas that have a theoretical base, but which are completely practical from the point of view of implementation.

CURRICULUM THEORIES

Several years ago I embarked upon a venture of questioning teachers individually concerning *how* they made decisions about *what* to present to students in a music programme. It was soon apparent that no teacher was devoid of some kind of curriculum planning theory. After compiling comments by teachers, I began to observe some very interesting planning theories to which I have arbitrarily assigned titles.

1 Happy-Happy Theory.
2 Correlation Theory.
3 Community Service Theory (Shopping Centre Theory).
4 Technique Theory (instrumental, vocal).
5 Festival-Completion Theory.
6 Cupboard Theory.
7 Activity Theory.
8 World Excursion Theory.
9 Comprehensive Musicianship Theory:
  (a) Content (concepts, elements).
  (b) Processes.
  (c) Sequential development.
  (d) Knowledge structure.
  (e) Literature.
  (f) Relationship with cultural events.
  (g) Concern for music values over traditions.

SYSTEMATIC CURRICULUM RESEARCH AND DEVELOPMENT

Systematic, large-scale curriculum research and development is a rational,

organised approach to educational change that gives due attention to all factors that affect each stage of the process. Many believe that systematic large-scale development and installation hold a better promise for change than other models of curriculum change. And, all research and development activities should be viewed as part of a continuous process of planned educational change aimed at the classroom teaching-learning situation. There is considerable risk-taking involved with any new educational venture. For this reason, development activities, including trials and testing of materials (usually four or five cycles), need to be done in an environment where administrators, teachers, policy-makers, students, and all other related audiences are *interested* in change. Essentially, curriculum research and development involves:

1 Identifying needs.
2 Application of research.
3 Design of prototype teaching and learning materials.
4 Testing and revision of prototypes in cycles of expanding trials.
5 Mass procurement of materials.
6 Dissemination, installation, and implementation.

It is of great importance in systematic, large-scale work that there be a mix of discourses: (1) teachers; (2) scholars; (3) evaluators; (4) curriculum theorists; (5) media specialists; and others. And the nature of the particular discipline or subject area will always have its own unique effect on the nature of the various processes.

DEFINING CURRICULUM

If a person is involved in curriculum research and development work, what precisely does he do? From discussions with colleagues in the US and other countries, I have learned that the word 'curriculum' means different things to different persons.

1 One view of a music 'curriculum' is a listing of courses offered within a given school, district, state, or country.

2 Another view of 'curriculum' is a series of topics to be embraced by different music classes.

3 A third view is a content outline (musical structure) for each music course offered.

4 A fourth view is the listing of broad goals, objectives, and performance expectations for different music courses.

5 A fifth view is a 'framework' statement which states goals, objectives, performance expectations, and includes extensive outlines and descriptions of various aspects of the music program.

6 There are probably many other views which may include adaptations and combinations of the five mentioned. But I see my job in curriculum research and development as working from theoretical and philosophical understandings of the music discipline to craft instructional materials for student and teacher use in the classroom. In recent years I have served as a consultant to several groups concerning curriculum research and development needs, and one of my first objectives in this role is to help individuals decide exactly what it is they are talking about when they use the word 'curriculum'. As you might suspect, some still have not decided, and their proposal for a curriculum project is resting comfortably on a dusty shelf - where it probably belongs.

Below I will discuss general areas of processes. The order in which they are presented is not intended to suggest a hierarchy or chronology.

Process 1:
NEEDS ASSESSMENT

The first process in any curriculum research and development activity should be what is referred to as 'needs assessment'. Questions such as the following should be asked: Are there deficiencies in the music programme currently offered in the schools? (Or school? This question could apply to individual school and groups of schools.) What is the nature of the deficiencies? What evidence is available that identifies deficiencies? And is the evidence considered to be valid? Deficiencies can include:

1 The lack of an overall programme design.

2 Insufficient variability in the quality and quantity of music offerings.

3 Lack of continuity between grade levels in a school and between schools (primary, secondary).

4 Insufficient scope and variability in the musical content of a programme.

5 A general lack of attention to music as a discipline of knowledge which has its own integrity in the activities of man.

6 Outdated materials which do not embrace new areas of knowledge and incorporate new information concerning learning and instructional methods.

7 Materials which are difficult to use, uninteresting, unattractive, falling apart and pages missing, etc, etc.

Needs assessment activity is a process which is absolutely necessary before becoming directly involved in research and development activities, and it is important in guiding the work of three teachers in one school, or a staff of developers whose work will impact many schools.

Process 2:
DESIGN STATEMENT

Another area of processes which I view as essential to embarking upon a research and development journey is the preparation of a 'design statement'. This statement should be a summation of findings from the needs assessment activity and identify the what, why, when, and how (theoretical, philosophical) of the research and development work to be completed, and a preliminary description of anticipated products (HEP). The nature of the work to be undertaken, its unique characteristics, how the work is expected to bring about improvements over what currently exists, and all other elements which lend justification to mounting a project, should be presented in explicit detail. If a school, district, or state can afford the luxury of permitting its staff to have a period of free exploration and experimentation, then a 'design statement' may be produced after that activity is ended. A 'design statement' will, of course, continue to be modified and refined throughout any research and development work, but, until a 'design statement' in some acceptable level of presentation has been reviewed and approved, I would put a 'hold' on the investment of resources in research and development activity.

Process 3:
THE MUSIC DISCIPLINE

The most important area of processes in any music research and development work is to determine *what* constitutes the music discipline, or, the field of music. If this work has been completed at an earlier time and proven to be acceptable by the professional community of musicians and music educators, then the next process may be undertaken. My experience has been, however, that few have given much serious and prolonged thought to this essential process.

In considering music as a discipline of knowledge, I use the model King and Brownell have presented in their book titled *The Curriculum and the Disciplines of Knowledge* (published in 1966 by John Wiley and Sons, Inc.). Incidentally, most of the research and development work undertaken by the University of Hawaii (CRDG) uses the King and Brownell model. In using their model you describe the music discipline by answering questions such as *'What persons are included in the universe of music? What do they do? How do they do it?'* Since a music curriculum should be an authentic representation of the full field of music, it should include all of the *musicianly roles* of man - composing, performing, conducting, listening, evaluating, researching, analysing, improvising, and others. Another question the model requires one to ask is *'What are the literatures, the tools, the artifacts of these musicianly persons'* The answer to this question clearly indicates that the music curriculum should include a representative collection of *all musics*: music of *all peoples, all styles,* and of *all times.* This does not prohibit one from honouring certain biases and giving emphasis to music from a selected geographical area which upholds the traditions of a particular people.

The next question from the model requires one to ask: *'What are the key concepts in music? What are the connections between these concepts, and how do they relate to concepts in other disciplines of knowledge?'* Answering this question should result in the development of a taxonomy (hierarchy) of concepts which will serve as a useful device for identifying course content, building sequences of courses, and determining how activities of one course or several courses will ensure the sequential musical development of students over a prolonged period of time. The model also requires one to ask: *'Does the discipline or field of music provide guidance for the teaching and learning of music?'* I believe that, if you want to learn about successful instructional patterns in music, essential teacher competencies, successful learning modes for students, the physical environment conducive to teaching music, and other similar concerns, you should seek answers with a *'musicianly'* attitude. This suggests a need to learn more about the procedures, insights, values, and objectives of those who have demonstrated a high level of success as teachers of music, rather than consulting learning theorists and psychologists, as some think we need to do (MENC). Every discipline of knowledge has its *own* instructive community, and those who are successful practitioners in the music field have the best understanding of the nature of instruction and learning in music.

The process of defining the music discipline or the field of music is basic to all further research and development activities. Work in this area provides a distinct advantage for large-scale or institutional research and development. The expertise required in this area is not always available at the school level. (Incidentally, I believe that the discipline approach to planning is the most productive way to initiate curriculum research and

development work. Themes such as personality theory, current trends, student interests, values education, individualisation, team teaching, student motivation, modular scheduling, and others have not proven to be fruitful approaches to curriculum design and construction.

Integration, Inter-Disciplinary Approaches

Caution is urged in developing curriculum materials in music which are intended to integrate music with one or more other arts or different subject areas. It is important that caution be exercised to ensure that integration does not destroy the authenticity and integrity of the discipline. Perhaps the best statement to make in giving caution to curriculum developers is: *Take disciplines of knowledge as they actually exist in the activities of man, and not as we want them to exist.* The use of the same or similar words or concepts such as 'line', for instance, is not a basis for integration. 'Line' in music is an entirely different concept from 'line' in other arts. It is generally assumed that there are vital touch points between disciplines in the arts, but until these have been identified, tested, and validated, we have declined in our work to attempt integrative approaches.

Process 4:
SELECTING PERSONNEL

Another important area of processes is concerned with selection of personnel. The selection of personnel - whether for school level or large-scale project work - is vital to the success of all curriculum research and development efforts. The needs are many. Successful teaching and some acceptable level of proven writing skills are essential for those who will craft instructional materials. Expertise in research methodology, management systems, editing, textbook designing and formatting, evaluating, media production, and other areas are very important. For a large-scale project, there must also be a clerical staff and junior level professionals to process work and bring it through the various states of development. Large-scale projects also may require periodic input by

1 Community and professional groups.
2 Review committees consisting of university and field (teachers) personnel.
3 Policy committees.
- and others.

A school level project has the advantage of not having to work through the maze of professional groups with multivaried interests, but there is a disadvantage at the school level in not having the valuable input and response of experts in the music and education communities.

Process 5:
RESEARCH

Research is an area of processes which begins with the needs assessment process and is conducted simultaneously with all other processes. The type of research conducted in curriculum work is generally referred to as 'applied research'. This involves:

1 Finding out what is going on in the field.
2 Determining how good it is and deciding if there are better ways to do it.

3 Gathering specific data to determine if students are learning.
4 Conducting a continuous review of professional literature.
5 Testing out instructional patterns.
6 Hypothesising programme design elements and validating their usefulness.
7 Developing prototype materials and initiating the testing and revision cycle.
8 Evaluating the feasibility of implementation.
- and others.

In the research process there are many advantages large-scale work will have over school level efforts because of the availability and wide-ranging expertise of (1) more personnel; (2) more organised access to research documents; and (3) usually more resources available to pursue research interests.

Processes 6 and 7: SCHEDULES, PLANNING SYSTEMS

The next two areas of processes are of little interest to some persons, but of great interest to me - these are the processes concerned with establishing a schedule for all research and development activity. (A few weeks ago I was appointed director of a project to develop a one-semester course in the area of guidance and career education for Hawaii's high schools. The delivery date is 31 March 1982. I insisted that a general development schedule be set and key personnel be selected prior to departure for Melbourne. From experiences of this kind in the past, I have learned that twelve months are really just six, two years are only one year, and so on.) Curriculum projects which have been initiated in different parts of the world and which have been underway for a long time probably will continue until they suffer a slow, but not necessarily agonising, death. Sometimes we even welcome the gradual, unceremonial, and quiet demise of some curriculum projects.

A schedule for research and development activities is of utmost importance. The best that can be said about a schedule is, perhaps, that if you get behind, the schedule helps you identify the problem areas and the tasks that need to receive priority attention to meet required delivery dates. And everybody in this hall might attest to the fact that some of their best professional writing was during those critical days and hours just prior to completion and delivery (or, their *only* professional writing).

In discussing the scheduling process, I would like to introduce the *Educational Programme Planning Model* developed in co-operation with Arthur King of the University of Hawaii. The scheduling process introduces another process which is concerned with planning systems. Whether developing materials for one school, or participating in a large-scale project that will serve many schools, it is essential that all parts of the total programme be identified, and the interrelationships of these parts be understood. The orchestration of all parts of the system into a related and unitary whole is known as 'Systems Planning'. If you will look at the *Educational Programme Planning Model*, you will see many small cells (and many others could be added) which, theoretically, are all related to each other in some significant way. By approaching the scheduling process with a 'Systems Planning' orientation, planners are more likely to accommodate all of those seemingly unimportant details, such as the electrical power potential of a primary school facility, and such things as advanced

ordering of paper, cover stock, and binders for duplication, and binding of whatever materials have been developed. *The Educational Programme Planning Model* is a useful device in considering whether to mount a research and development project, and to ensure an ongoing awareness of:

1 The elements of a programme design.
2 Processes concerned with the design and development phase.
3 Processes concerned with programme installation and administration.

Another planning system we have used with some success is the *Programme Evaluation and Review Technique*, which involves identifying all major tasks and sub-tasks to be completed, arranging them into strands of similar tasks, showing visually on charts the relationships and constraints between the strands and between tasks, and working out anticipated lengths of time for completion of tasks (most pessimistic - most optimistic - average).

Process 8:
COSTS

The next area is concerned with costs. Cost overruns and inflation rates requiring extra dollars are typical today in industry and big business. Unfortunately, curriculum projects I know about have not been permitted that kind of luxury. The process here is one of learning the total funds available (if any), the nature of the funds (personal, supplies, equipment, facilities), and determining the best ways to expend funds. The 'Systems Planning' approach, or a similar plan, is essential to identify the full range of activities to be conducted and cost projections for each. Whether mounting a project at the school level, or a large-scale project with outside funding, it is very important (particularly in the arts) that complete records of all costs be regularly updated. Records should include valid estimates of 'in-kind' costs (donated services). Future approval and/or funding for other projects often depends upon successes and failures of earlier efforts and the judicious use of personnel and resources.

In the 60s, when vast sums of money were available in the US for large-scale curriculum research and development work, the Massachusetts Physical Science Study Committee conducted a project in physics. This group had $1 million per year for five years to revise a course of study for one grade level and one group of college preparatory students. Another $5 million was expended for teacher training, and keeping the course up to date required $300,000 annually ($11,500,000). Projects of this nature in the US have made many curriculum research and development activities suspect. Usually, if $5 million is available, that is what the project will cost. A project I directed last year was funded for the amount of $51,000 - so that is what the project cost. Our organisation has been able to achieve a high level of production at costs which are probably not more than a quarter of the costs of similar projects elsewhere. School level projects generally do not receive the necessary funding and other resources required to conduct substantial curriculum research and development work. Large-scale projects have a definite advantage in this respect.

Process 9:
MATERIAL DEVELOPMENT

The next area of processes, and probably the one in which you may have a higher level of interest, is that of design and development - or, the

transposition of lofty ideals, philosophical values, theoretical commitments, and cherished instructional sequences into words, sentences, and paragraphs that can be understood by all. Here, the goal seems to be:

1 To reveal one's knowledge of vocabulary and syntax;
2 To be profound;
3 To illustrate full understanding of the deeper recesses of the music discipline;

but to write in such a way that the average person (including administrators, budget office personnel, and others in the 'lay' educational community) will completely understand. Curriculum materials, whether developed at the school level or by a large-scale project, must be shining examples of clarity, without turgidity or verbosity; terse; interesting; inspiring; challenging; motivating; attractive; impeccable format and design; authentic; appealing to teachers and students; without sex-stereotyping; consistent with traditions of the past and with current and anticipated trends; non-racist; appealing to all immigrant groups; accommodate ability grouping; meet all special education needs, including mainstreaming; uphold the tenets of civil rights; counter negative social factors; address important needs of biculturalism and bilingualism - and you could probably add another set of thirty or more concerns indigenous to the good life and education in Australia. My intent here is to be facetious, but actually all of the above are very real concerns in curriculum research and development activity.

All curriculum materials need to be consistent with whatever set of education goals and objectives are accepted for the school or school system, otherwise goals and objectives are an exercise of a vintage known as futility. Commercially published curriculum materials theoretically are selected for their consistency with stated goals and objectives, but materials developed specifically for a school or school district provide an excellent opportunity to meet realistically the needs of students and teachers in a given area. (Although it is a pleasant thought to imagine that materials I have personally developed are usable in and appropriate for the entire universe, I have to let the pin enter the skin of the ego balloon and acknowledge that it is just not possible.) There is an obvious and great advantage locally developed materials have over large-scale project work intended to serve many districts, or an entire country. If a school or district really believes in the goals and objectives they have adopted (and the goals and objectives are good, of course), then why not exercise strict control over material selection and material development? A project I directed last year to develop lessons for career education and guidance in grades K-12 was the first set of materials developed in Hawaii to be totally consistent with stated goals and objectives, which were adopted a few years ago. We found great flexibility within the context of that structure, but at the same time there were specific landmarks that provided a thread of continuity and an answer to 'why' we were developing the material.

I would like to refer again to the *Education Programme Planning Model*. There are three Level II categories beneath the Level I heading, *Programme Design Elements*. These are *learner considerations, knowledge considerations,* and *instructional considerations*. I hear colleagues today say: 'I teach where the students are and present only those things in which they are interested.' And some teachers at times get caught up with the structure of the music discipline and fail to recognise student needs and interests. Still other teachers use their 'bag' of procedures (tricks), and their personal instructional kit becomes the only means through which educational encounters are presented to students. A comprehensive curriculum programme

requires due attention to all three; hence, curriculum materials need to accommodate and embrace the full range of considerations dealing with learners, knowledge, and instructional matters. All three need to be dealt with fully during the design phase to work toward determination of the kinds of products that are to be developed.

Music - as we should continually remind ourselves - is organised sound. We, as aestheticians, work in the areas of creativity, feelings and interpretation, human expression, beauty, and some of the most sensitive realms of the human psyche. (Some believe that most musically sensitive persons will be disfunctional in a curriculum research and development role.) We spend a good percentage of our lives trying to instil artistic qualities and appreciations in our students through experience in sound. There is an apparently wide chasm between our mode of operation as expressive and creative musicians and aestheticians, *and* the role one must assume as a developer of curriculum materials.

The three domains of learning to which most of us will probably ascribe (cognitive, affective, psychomotor) (also referred to as thinking, feeling, and doing) must receive attention in some form in all materials. But I will be first to admit that curriculum materials alone will not and cannot generate affective response in students. In past years, when showing and demonstrating materials developed in Hawaii, presentations are ended by saying that the best music curriculum materials in the world will not work in the classroom unless the teacher has a 'twinkle in the eye'. And the affective domain of musical learning must be impacted by a teacher who is musically sensitive. So a good set of curriculum materials *and* a musically sensitive teacher are essential to the learning process. Curriculum materials, therefore, should embrace all three domains of learning, but be developed as aids to help a sensitive teacher. Materials should not be based on the false assumption that they will, themselves, result in the development of musically sensitive students.

Curriculum materials in music should induce all elements essential to a total instructional programme. Concept identification and definition, statements of essential musical behaviours students should be able to demonstrate, performance and listening repertoires, musical examples, instructional strategies and activities, supplementary activities, evaluation guides, material and equipment lists, and reference lists have become generally accepted as the set to include in materials. There are direct advantages for teachers at the school level who develop materials of this nature (and those who can and will engage in development work). They learn more about what they *have* been doing and what they *will* be doing in the future.

Unfortunately, many outstanding teachers and performers of music do not become good developers of instructional materials. At one point in our work, developers of music curriculum materials were hired who had (1) proven ability as outstanding teachers of music; (2) proven ability as outstanding performers of music; (3) national recognition in their area of specialty; (4) demonstrated ability as writers; and (5) an earned doctorate degree. This group worked fulltime at their jobs (professional appointments) with no other professional pressures or distractions, and they had *great* difficulty developing materials. And some of what they developed is still resting on a shelf and will not be published. My comments are intended to emphasise the point that (probably) few in the field of music will ever develop this kind of expertise. A large-scale project obviously will have advantages over school level work because personnel who have disciplined

themselves to develop this kind of skill are usually sought out and hired.

Many view curriculum development work by a team of professionals as absolutely essential to the production of quality materials. And it is believed that a team approach is the only way to achieve vertical consistency in a music programme (horizontal uniqueness). A developer working alone, or with one or two other persons at the school level, usually will not be able to achieve a continuity of language and symbols with materials developed by persons at other levels of the educational spectrum. Limited time, geographical isolation, and specialised individual interests in music are prohibiting factors. But *whoever* develops materials must know the subject matter extremely well; the long-range educational consequences for students should be of prime concern. Materials developed by single authors are much more likely to have educational and theoretical problems than those developed by a team of developers.

There are many other similar comments concerning material development I could and would like to make, but presenters must be aware of the consumption limitations of the consumers.

My final topic also is concerned with processes related to material development, and I shall refer to the item titled *A Planning Matrix for Designing and Developing Curriculum Materials*. A planning document of this type will benefit only those who bring to it an in-depth understanding of the music discipline, philosophical understandings of the role of music in the lives of people, educational theory, and extensive background and experience in working with students. One of the most difficult tasks for curriculum developers is the generation of a consistent flow of ideas that relates to all elements of the programme. I have observed developers sitting and scratching the scalp frantically as if to extract an exciting idea for an activity out of the top of the head. I have observed others in tears (and when a person reaches this point, the well is usually dry). But one of the greatest joys of this kind of work is to observe the soft, confident smile of a developer as he places a set of materials on your desk, and there is an immediate feeling that you have something good that will work in the classroom.

The *Planning Matrix* is an aid to help writers recall categories of items that occasionally seem to evade the thought processes of the mind. Actually, the *Matrix* is only a reminder list. Let's look at the categories, and I should mention that the list of items in each category is extendable. *Repertoire,* I believe, should be of prime importance in developing materials. You may initiate a plan from any item in any category (such as a need to continue development of skills in recorder performance; see *Equipment*), but then immediately select repertoire for the activity. My concern here is that we should let the repertoire of music teach what it will, rather than impose some kind of educational objective on it which is not well suited to its expressive content. The category *Knowledge* should be explained. You will observe that I have classified knowledge as (1) technical; (2) comeptual (musical, performance, aesthetic); and (3) behavioural. I must mention that I do not suffer from that apparently contagious disease common among educators known as a 'hardening of the categories'. I have used these classifications due to the lack of better words ('This is all wrong.'). It is not really important what you call things in a *Planning Matrix*; it is more important what you do with them as you develop materials. Let me just explain briefly how I might use the *Matrix* in developing a lesson or lessons.

Since I mentioned the recorder earlier, I may decide that, within the

sequence of materials I am developing, the recorder should be used for the next lesson to continue skill development. I therefore will select repertoire at a level consistent with current development of skills, but introduce something new - such as performing in a *meter* of 3/8. The *notation* of the selected piece may include dotted quarter notes, which students may not have previously seen in the context of 3/8 meter. Musical concepts such as *meter, beat divisions,* and *accent* may then be appropriate for emphasis in the lesson. Since performance on recorder will be involved, I may decide to give emphasis in the materials to *articulation, attack,* and *release.* Aesthetic notions concerning the *unity* of the selection may be appropriate for emphasis. And, to maintain a wide range of behavioural knowledge related to musical learning, the materials for this lesson may involve students in *memorising* the selection. Since it is important always to think in terms of involving students in the *musical (roles) operations* typical of those who are practitioners in the discipline, I may determine that students in this lesson should have a *conducting* as well as a *playing* experience. If the physical facilities will permit it, the materials could be developed to organise students in *small groups* to learn to play the piece and work out rhythmic and fingering problems. And I believe you will use your imagination to select items from the categories *evaluation, supplies, materials,* and *equipment* to complete the lesson.

As I develop materials, I keep charts displayed on the wall so I can regularly look up to learn what has been presented earlier, what remains to be presented, and consider how I may develop the materials to make them interesting. This prevents serving up the same fare that has been served previously for so many educational meals. I have found a *Planning Matrix* approach to be useful and helpful in many ways, and recommend its use in developing materials.

Process 10: IMPLEMENTATION

There is a host of processes concerned with 'curriculum programme implementation'. 'Entrepreneurship' is one of the greatest needs in implementing a curriculum programme. Processes include such things as teaching training, co-ordination and monitoring, mandated vs. voluntary participation, evaluation and feedback, pacing and scope of implementation.

CONCLUSION

Curriculum materials in music must be accurate and they must have authenticity, contemporaneity, durability, teachability, and learnability. They must be a good representation of the discipline of music. Whether you will be developing materials in the future, participating as a teacher in the classroom, or preparing teachers at the tertiary level, I trust that you will do a lot of 'twinkling', and try to instill in students and the materials you might develop those appreciations and values that make our area of specialisation so unique in the activities of man. I obviously do not have all the answers for the subject 'processes in curriculum research and development', and I encourage you to help in seeking answers. The result of our efforts could mean that in the future we will have available excellent curriculum materials that really meet learner, instructional, and knowledge needs, serving to help teachers and students become excited about musical learning *and* musical performance, and not just be another commercial venture by a publishing company seeking to sell books and make money.

PROPOSED MODELS FOR RESEARCH DESIGN AND REPORTING FORMAT IN MUSIC EDUCATION

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Since the early part of the twentieth century, music education research has expanded dramatically in many directions. Today, a list of music education theses would probably include studies that border on or interact with the fields of psychology, educational psychology, administration, aesthetics, musicology, ethnomusicology, acoustics, and even human physiology (eg, Gordon, 1978).

Internationally, there are already three English-language journals which specialise in research on music learning (ie, *Psychology of Music, Journal of Research in Music Education,* and *Bulletin of the Council for Research in Music Education*), not to mention many journals in other subject fields that publish musically related studies.

In accordance with this research expansion is a growing sophistication of systematic investigation and evaluation, particularly in the area of empirical research. Gone are the days when untested instructional programmes reported in action (theoretical-speculative) or status (descriptive) studies, with inconsistently organised and incorrectly interpreted questionnaires, are taken very seriously. Historical and philosophical studies seem to be receiving ever-increasing scrutiny for factual or conceptual accuracy and logical development. Even experimental studies are constantly being criticised for methodological and evaluational inconsistencies in the implementation of research designs (see critiques in most issues of the *Bulletin of the Council for Research in Music Education*).

In turn, this research sophistication is setting up a new language for intellectual inquiry, sometimes referred to as 'researchese', and a formalised approach to testing and evaluating educational programmes, particularly in empirical research, organised along the lines of the scientific method.

It is delineating music education into almost discrete areas of inquiry, with increasing emphasis on quantitatively evaluated evidence of learning behaviour, modelled after psychological research designs. Historical research work continues to move pretty much along the lines of inquiry established by musicological research methodology, frequently without the scope of international scholarly significance, and minus the range of musical skills and foreign-language interpretative capabilities required for musicological studies. Aesthetic inquiry seems to have found a berth in the field of aesthetic education, which is frequently either dismissed by empiricists as non-corroborable in behavioural terms or left unchallenged, since any effort to analyse its theoretical components tends to obscure the success attributed to its function as a holistic experience in learning (regardless of the field to which it is applied). Philosophically based research, which is informatively pursued by some music educators, seems not to have radically changed as a method of inquiry (excepting the introduction

of new approaches), with the basic requirement of logical development of the thesis as the primary requirement for oneself engaging in this exercise.

These observations are made with the understanding that research in music education is still operating very much in the infancy state, as far as systematic research is concerned, and as such, the efforts of scholars in this field to legitimise its existence as a respectable professional pursuit need some attention. This issue becomes evident when one listens to criticism, particularly by members of the psychology and education professions, who find much music research rendered useless by questionable implementation of research design and project objectives. Another concern is the well-known if not well-documented observation that music education seems to serve only a small proportion of the music teaching profession (Hedden, 1978). From many personal observations, it is quite clear that much formal music research (if not most of it) goes unread by the people who should be the ones to benefit from it the most - the rank-and-file school and studio music teacher.

Many music teachers are put off by research jargon, seemingly complex research designs operating under controlled conditions unrelated to the everyday educational environment, and bewildering statistical manipulations that characterise empirical research studies. It is not surprising that they express feelings toward research endeavours which suggest that such studies do not yield much evidence applicable to the daily teaching situation (Hedden, 1978; Murphy, 1980). These feelings are further demonstrated by the apparent lack of post-doctoral research that is maintained by many of those individuals who have engaged in some form of systematic research for their higher degree studies (Madsen and Madsen, 1970).

The current problems which confront the development of music education as a respectable research field are due to a couple of reasons. First of all, unlike psychology and sometimes educational psychology and musicology, research training in music education does not begin in the undergraduate programme. The sincere music education major's primary concern is (besides attempting to survive the academic course) to develop survival skills in music teaching, with secondary concerns placed in musical skill areas like instrumental/vocal performance and, less frequently, conducting, composition, and music history. Second of all, the years which follow undergraduate study are usually devoted toward developing and refining teaching skills in the classroom or studio, sometimes keeping performance capabilities going by giving recitals or participating in community ensembles, and, once the teaching situation has stabilised (if not before), establishing a family. Therefore, it is not usually until the music teacher has begun work on an honours or masters level degree, and, in many cases, even a doctoral level programme, that some study of systematic research techniques in music education will commence. This means that a minimum of four years plus each year of working in the field will separate the music education graduate from his or her counterpart in psychology, who would have begun acquiring some research skills in the first year of university study.

In addition to maintaining a full-time job, and possibly raising a family, the postgraduate-enrolled teacher-turned-aspiring-researcher must now face the prospect of acquiring a new body of knowledge relevant to personal research interests. This prospect is particularly daunting where empirical research is concerned, as a set of research skills unrelated to musical study must be acquired. Since many teachers are interested in programme development and evaluation, particularly to improve self-performance in the teaching

situation, it is likely that they will have to acquire empirical skills to successfully execute their studies, at least according to current tertiary-level research standards. The intellectual distance that the teacher must cover between pedagogical and research concerns can present a major psychological hurdle, particularly where, quite frankly, the building of a repertoire of skills, which may assist in correctly organising and implementing projects according to classical research principles, will probably bring him or her little closer to practical teaching solutions (Murphy, 1980).

This issue points toward an important understanding of music education. Its primary concerns include seeking ways of effectively relating musical knowledge and experiences to the learner, and assisting the learner in acquiring musical skills that lead, at a level of personal satisfaction, to effective self-expression through music. If this description of music education is valid, then the music teacher has more than a lifetime's work just dealing with the practical teaching problems of music study.

A working description of music education research would then read as the study of ways by which musical knowledge and experiences can be effectively related to the learner, and which assist the learner to acquire musical skills that lead to effective self-expression through music.

Therefore, if one considers music education research as serving the entire profession of music teachers and not just the classical research concerns of academics who are fortunate enough to hold the tertiary-level positions that provide research time, then the concept of music education post-graduate studies must focus on effective pedagogical applications in everyday teaching situations. This focus is more important to the music educator than it might be to the psychologist or theoretical education researcher who is pursuing a problem in music learning where basic research concerns are of greater importance.

This condition may serve as a cut-off point between the basic research concerns of psychologists, acousticians, philosophers, and musicologists with interests in investigating research problems in music as a subject or an area of learning, and music educators who would like to take that body of knowledge and attempt to apply it successfully in the everyday teaching situation. To be sure, honest, basic researchers would like to see their hypotheses proven in the everyday world. However, at least some researchers of this ilk may not know how to transfer basic research findings effectively into practical solutions for the classroom or studio. Presumably, this is the point where the music education researcher, by description, would be most capable of functioning.

According to Phelps (1969, 1980), the researcher in music education works in one of the following categories: historical, experimental, descriptive, philosophical, or aesthetic inquiry. Madsen and Madsen (1970) identified the same first four categories as legitimate research areas. As educational researchers, Isaac and Michael (1972) indicated historical descriptive and true experimental research as viable research categories, but bypassed philosophical and aesthetic categories and added the case field, correlational, causal-comparative, quasi-experimental, and action (theoretical-speculative) studies as alternative categories. Actually these additional fields are incorporated by Phelps under the descriptive research category, excepting quasi-experimental and action studies which do not seem to figure very seriously in current research approaches.

Phelps did not identify each research category by definition, but offered collections of definitions by various writers per category. Therefore, to avoid misrepresentation of these categories, no synthesis of Phelps' categorical compilations of definitions will be attempted here. (See Table I for the Isaac and Michael research category descriptions.) One important observation that can be made is that, in virtually every category, Phelps included a definition focussing on the application of the scientific method to related research. This emphasis was quite interesting to note, particularly in the historical, philosophical, and aesthetic inquiry categories. It indicates an increasing focus on scientific inquiry as a means of obtaining meaningful results in music education research (Greer, 1980; Madsen and Madsen, 1970; Phelps, 1980).

Isaac and Michael (1972) identified the basic steps in planning and conducting educational research (see Table II) which outlines the scientific method. All of the steps can be applied to any of the research categories listed by Phelps, with the obvious difference that, in the cases of philosophical and aesthetic inquiry, steps 6-8 would imply that the empirically based research design procedure would be replaced by less controlled evaluative criteria and probably less clearly defined physical parameters of the variables to be measured (due to the qualitative rather than quantitative nature of their properties). Even historical research can be investigated according to the steps (although measuring tools would be different), as consistent development of the argument, with clear discussion of music techniques, attributes, or other artistic concerns and their apparent effects on the topic under study could easily be interpreted through this design.

Phelps (1980) brought this design under the umbrella of a reporting format (see Table II), which essentially included all of the steps of Isaac and Michael, except the actual evaluation of results and statement of conclusions. This design was his architectural basis for the research proposal. It also serves, for at least some institutions, as the basis for the first chapter of the thesis (see Table III).

The basic function of the first chapter is to frame the study. From the information contained within, the reader should be able to learn about the nature or the corroborable existence of the research problem, why it is being investigated, what the probable factors are that created it, what possible variables may be manipulated to move toward solution of the problem (keeping in mind here that the music education researcher is not necessarily interested in dscovering what variables affect the problem, as may concern the basic researchers, but how known variables may be manipulated effectively), the manipulation of those variables with a specially designed programme that could possibly reduce the problem, and a system of evaluation that could clearly present evidence of change generated by such programme variables manipulation.

The second chapter essentially justifies the study of the variables to be manipulated and measured and the hypotheses to be tested. Looking at another study, one will see that the second chapter has been expanded to six chapters, not at all unusual among non-empirically-based music education theses, and similar to the organisation of musicology theses (Table IV).

The methodology chapter (Chapter III) forms the centre of the five-chapter arch, with concentration on how the variables and hypotheses discussed in the previous chapter were applied in the laboratory situation. This laboratory could well be a group of subjects, a set of musical works, or a

TABLE I

NINE BASIC METHODS OF RESEARCH

Method	*Purpose*
Historical	To reconstruct the past objectively and accurately, often in relation to the tenability of an hypothesis.
Descriptive	To describe systematically a situation or area of interest factually and accurately.
Developmental	To investigate patterns and sequences of growth and/or change as a function of time.
Case and field	To study intensively the background, current status, and environmental interactions of a given social unit: an individual, group, institution, or community.
Correlational	To investigate the extent to which variations in one factor correspond with variations in one or more factors based on correlation coefficients.
Causal comparative or 'ex post facto'	To investigate possible cause-and-effect relationships by observing some existing consequence and searching back through the data for plausible causal factors.
True experimental	To investigate possible cause-and-effect relationships by exposing one or more experimental groups to one or more treatment conditions and comparing the results to one or more control groups not receiving the treatment (random assignment being essential).
Quasi-experimental	To approximate the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all relevant variables. The researcher must clearly understand what compromises exist in the internal and external validity of his design and proceed within these limitations.
Action	To develop new skills or new approaches and to solve problems with direct application to the classroom or other applied setting.

(Isaac and Michael, 1972)

TABLE II

BASIC STEPS IN THE PLANNING AND CONDUCT OF RESEARCH

1. Identify the problem area.
2. Survey the literature relating to it.
3. Define the actual problem for investigation in clear, specific terms.
4. Formulate testable hypotheses and define the basic concepts and variables.[1]
5. State the underlying assumptions which govern the interpretation of results.
6. Construct the research design to maximize internal and external validity.[2]
   a. Selection of subjects.
   b. Control and/or manipulation of relevant variables.
   c. Establishment of criteria to evaluate outcomes.
   d. Instrumentation—selection or development of the criterion measures.
7. Specify the data collection procedures.
8. Select the data analysis methodology.
9. Execute the research plan.
10. Evaluate the results and draw conclusions.

(Isaac & Michael, 1972)

Figure 2
Format for a Research Design

Title
Subproblems
Definitions of Terms
Delimitations
Basic Assumptions
Basic Hypotheses
Need or Significance of the Study
Related Literature
Methodology
Bibliography
Personal Qualifications
Appendix

(Phelps, 1980)

TABLE III

CONTENTS

(Rees, 1976)

TABLE IV

TABLE OF CONTENTS

(Triplett, 1972)

hypothetical construction that the researcher has devised which shows the logical development of his or her thesis (ie, those constructions employed in philosophical or aestehtic inquiry studies). Table III clearly illustrates the organisation of this chapter. Table IV also includes the methodology, which in this case is obscured by the titles of Chapters VIII and IX, where applications of the thirteen variables from Chapters II-VII are applied.

The data analysis chapter (Chapter IV), which scrutinises the results of measurements taken during programme implementation of the manipulated variables, permits the reader to decipher how well the manipulation of variables has affected the subjects, the set of musical works, or the hypothetical construction. Again Table III illustrates this approach in empirical research and Table IV illustrates the approach obscurely, as the researcher chose to analyse data within Chapters VIII and IX.

The last chapter includes the summary of the study, which bears an abbreviated discussion of material presented in all preceding chapters, plus conclusions or implications drawn from the study's results that may be applicable to the everyday teaching situation, followed by recommendations, usually for further study of the thesis research problem. (See Tables II and IV.)

The result is a research design and reporting format that correlates with the scientific method (see Table V).

The current weakness of most music education research, particularly of the empiricial study design variety, is the inability of the researcher to provide answers of immediate value to the classroom and the studio teacher. Inevitably, study conclusions rarely get past the phrase 'research findings may suggest...' coupled with the usual pleas for more research on a given thesis or study topic. Yet the ethical researcher can offer no more positive a response, as rarely does any effort get made to test a given study beyond laboratory conditions.

This situation undermines the external validity of such studies, as the attempted control of most empirical research in music education that one sees usually exists at the price of restricting the movement of other variables, particularly those associated with creativity. Also, the conditions which differ between the testing laboratory and the everyday classroom are frequently so drastic that it is very difficult to argue in favour of generalising research findings beyond the limitations of the study.

Internal validity also suffers in music education studies. For example, the different teaching styles and methods of music educators, the tremendous variation of musical abilities in a given class that also change from year to year, attrition rates in voluntarily attended music classes, small sample sizes in studies of musical instruments that do not generate large numbers of students, as well as the usual problems of school scheduling, reading abilities, sex, socio-economic and ethno-cultural differences make meaningful research, beyond studies of classroom music or other large-population, multi-district programmes, very difficult.

What really needs to be built is a bridge between the music education researcher, whose slow, painstaking work will probably pay off someday, and the needs of the music teacher. Why not start generating studies which measure the differences between the results of laboratory experiments and ongoing classroom programmes employing the same variables? There might even

prove to be less difference between experimental and normal teaching situations than teachers think exists.

A corroborative study, as one might call this kind of research, would involve the comparison of a treatment, already effectively tested to initiate positive change under controlled conditions (a positive change as defined by the respective researchers' needs for such a treatment), with the same treatment applied in the everyday classroom/studio teaching environment. Presumably, we might be able to determine what variables alter the performance differences between the two treatments, to give us a glimpse of how movement from experimental to everyday educational environments alters treatment effects. From this point, maybe we can build into successfully tested programmes in the educational laboratory some kind of 'reality' coefficient which will compensate for the variations between the two environments, proven not only statistically but through observable improvements in the music programmes that music education researchers are presumably interested in upgrading.

After all, music education research is wasting a lot of precious time if only a few people are capable of comprehending the work of a small number of others, when we have only to look around us to see that music education needs the co-operative effort of all who claim to be members of this profession just to build a survivable musical product in Australia.

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Research Design & Reporting Format

TABLE V

[Study Frame]	[Study Justification]	[Means of Assessing the validity of hypotheses]	[Scrutiny of Test Results]	[Corroboration in the real world context]
(Chapter I) - Introduction	(Chapter II) - Review of Related Literature	(Chapter III)-Methodology	(Chapter IV) - Analysis of Data	(Chapter V) - Summary, Conclusions, (Implications), and Recommendations.
Statement of the problem (includes research which indicates existence of the problem).	Studies which support or question the effectiveness of the variables to be manipulated and the hypotheses to be tested within the program.	Research design	Descriptive assessments.	Study review.
Purpose of the study.		Discussion of how variables and/or hypotheses have been tested in a laboratory situation.	Logical evaluation.	Possible or probable effects of experimental results on the everyday teaching situation.
Importance of the study.			Statistical reports.	Recommendations for future research.
Hypotheses.				
Research procedure.				
Assumptions.				
Delimitations.				
Limitations.				
Definition of terms.				
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RECENT RESEARCH IN SINGING: THE WORK OF LUCIE MANEN

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Lucie Manen is one of the most interesting and original investigators today into the art of singing, and in particular into the technique of the *bel canto*, the classical school of singing of the seventeenth, eighteenth, and nineteenth centuries. Possessing professional qualifications and experience in music and human physiology, she combines to an unusal degree the ability to illumine what is both a science and an art.

Born in Berlin some eighty years ago, Lucie Manen received her singing training there from Anna Schoen-Rene, who herself had been a pupil of Pauline Viardot-Garcia. Following a successful career in Europe, she came to England in 1934, appeared at Glyndebourne with Fitz Busch, and continued her career in England. During the Second World War she qualified and practised as a physiotherapist at Guy's Hospital in London, and her abiding interest into research of the *bel canto* tradition dates from then. From 1950 until the present time she has remained active both as a teacher and as an investigator. Her pupils have included Geraint Evans, Peter Pears, Elsie Morison, Elisabeth Harwood, Thomas Hemsley, and many others now before the public. The results of her research have been published: her early work at the Nuffield Institute in Oxford and at the University of London;[1] her recent manual, *The Art of Singing*,[2] now about to enter a second edition; and her latest findings, reported in the musicological journal of the University of Western Australia.[3]

My own involvement with Lucie Manen's work has been in both practical and theoretical areas: as one of her oldest surviving students! (I first went to her London studio in 1950); and as one whose historical work in seventeenth-century performance practice - and in particular into the significance of Caccini as the first to expound the principles of the classical school of singing - has been complementary to hers.[4] Some of you will recall the memorable lectures and classes given by her at the ISME Congress in Perth in 1974.

Unlike Lucie Manen, I have no special expertise in the physiology of the voice, and my discussion of her work in this area will be limited to what is necessary to clarify the purpose of this paper, the consideration of the artistic significance of the application of some of her principles. For Lucie Manen the essential impulse for singing is human emotion: 'Singing is the artistic expression of human emotion in sound.'[5] A spectrum of vocal timbres derives from basic 'exclamatory' vowels:

> ...The exclamation of the human voice follows laws common to human beings of all races. For describing events with little emotional content and in neutral mood, the human voice uses exclamations in its lowest range. As soon as the individual changes the emphasis of what he speaks or sings, the pitch of the voice changes. It rises with increasing emotional content. For the exclamation of pleasure the natural

exclamation is 'ah'. The exclamation 'ee' denotes disgust and hatred, whilst 'oo' denotes fear and horror. These are the basic exclamatory vowels.'[6]

These vowels, in Lucie Manen's view, represent the inborn laws of the voice, which were exploited by composers of the seventeenth and eighteenth centuries, and remained central to the *bel canto* tradition, thus retaining the essential natural relationship between vocal tone and emotion.

Application of this principle in singing has results which appear to contradict a number of tenets of vocal pedagogy which have been widely accepted over the last hundred years. I refer again to Lucie Manen:

> Let us imagine a short scene and analyse it in slow motion. The singer enters a room and sees a letter on the table addressed to him. He picks it up, looks at the handwriting without recognising it, opens the envelope and reads something. He is startled. His reaction will involve a change of his facial expression from indifference to agreeable surprise. In physical terms
>
> i. He draws a quick snatched breath; his larynx closes, he holds his breath.
>
> ii. His jaws separate and are kept horizontal.
>
> iii. His chest is lifted, the abdomen is flattened.
>
> iv. His cheeks are lifted, the nasal space is widened.
>
> v. His eyebrows are raised, eyes open. Now the singer gives expression to his joyful reaction to this agreeable surprise.
>
> vi. His larynx opens, he exclaims 'ah'; the larynx closes. The jaws remain separated, the chest remains lifted.[7]

Thus in this production singing does not require a great inspiration of air, only a 'snatch' breath. That this singing breath, a form of gasp, is significantly less than the so-called 'deep' breath has been confirmed by Lucie Manen in recent tests carried out at the University of London.[8] The sensation of a 'deep' breath often referred to by singers can result from the movement of the diaphragm and the abdominal muscles as a result of the intake of this 'snatch' breath. Emission of tone is controlled not by the muscles of the chest or abdomen, but by the larynx, which serves as a 'valve'. Lucie Manen believes that this form of tone production, called by her 'ventricular mechanism', was cardinal to the *bel canto* technique: '*Bel canto* did not mean just beautiful singing, but making use of this specific type of breath control, coupled with a particular mechanism of the larynx and its resonators.'[9] It differs from what she calls the 'vocal chord' theory, in which the primary function of the lungs is to act as a bellows - a concept which, in her view, developed only during the nineteenth century as a result of the pseudo-scientific experiments of Manuel Garcia (fils).[10]

The essential difference between the two concepts, as far as the resultant tone is concerned, is the more marked emotionally orientated timbre and the consequently greater variety of vocal colour which use of the 'ventricular mechanism' makes possible. Initiated not by breath pressure but by the impulse of emotion, the voice thus embodies the singer's direct response to the music before him. In its most simple form, this involves a more or less spontaneous application of the basic exclamatory vowels which embody the mood of the music: thus 'ah' (happiness) as in 'Yarmouth Fair'; 'oh'

(melancholy) as in 'Dafydd y Gareg Wen'; 'ee' (aggression) as in 'Sound an Alarm'.

Singing, however, is a sophisticated art, involving more than spontaneous reaction or embodiment of a single mood. To be effective artistically, it requires a total response to the varying demands of a score, including its melodic, rhythmic, and harmonic features. Even in the simplest examples, these factors are present: for example, linear considerations of tessitura in the first two, rhythmic precision in the last. And, extremely significantly in all the three, the degree to which the mood of the song is implied by the voice, that is to say, by implication of its harmony. It is this last factor which I would like to consider briefly now.

The human voice is unique among instruments in the extent to which it can vary its overtones. When the voice is initiated by exclamation, the resultant sound takes on a 'three-dimensional' character quite different from the 'two-dimensional' quality of a quasi-instrumental tone production. When applied to music, singing in this manner can imply tonality and mode, implying chords as well as single strands of texture. Lucie Manen believes that this characteristic was exploited by singers of the classical school, and that to develop this innate ability was one of the aims of the empirical teaching of singing at that time. This, for example, was the purpose of the preliminary exercises for the *messa di voce* (the 'swell tone') on which the *bel canto* technique relied, to achieve a 'tutti' effect. The *messa di voce* itself epitomised this concept:

> It is a variation of intensity on a single note, coupled with a variation of colouring. The note is started softly with little colour. Its intensity is then increased with a simultaneous deepening of colour. Having reached a climax of intensity and colour it is decreased and diminished to the colour and intensity from which it started.[11]

In this way it becomes possible for the singer to imply not only linear, but also vertical features of music - the harmonic colour of a song, and the expressive changes of mood which occur as a result of this. The manifestations of these differ with the styles of music, but the one technique is equally suitable to music of the seventeenth, eighteenth, or nineteenth centuries. Suitable examples are Caccini's 'Amor ch'attendi'; Mozart's 'Das Veilchen'; Schubert's 'Liebesbotschaft'; and Brahms' 'Feldeinsamkeit'.

Although, of course, no aural record remains of the extent to which singers of the seventeenth and eighteenth centuries implied harmonic nuances, and the theorists of the time did not observe this phenomenon precisely (which is perhaps scarcely surprising), old recordings indicate that it was certainly part of the nineteenth-century tradition: this is evident in Donizetti's 'Una furtiva lagrima', sung by the great tenor Enrico Caruso, late representative of a tradition which speaks - or rather, sings - for itself.

This technique, which can provide such variety of expressive colour by implying the harmonic features of a song, is only one characteristic of the method of singing expounded by Lucie Manen. It embodies, however, basic principles of her approach to the art. On the one hand, the instrument itself, the voice, is considered essentially in the light of its natural laws; on the other hand, its application is governed by the musical requirements of a score. When all questions of historical veracity and scientific accuracy are settled, the final criterion of a singing technique

will not be the power or euphony of voice which it engenders so much as the extent to which it makes possible the realisation of these musical considerations and the fashioning of a faithful interpretative instrument.

NOTES

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INTERDISCIPLINARY CO-OPERATION REVISITED: A REPORT ON THE DEVELOPMENT OF MULTI-ARTS CURRICULUM IN AUSTRALIAN SCHOOLS WITH PARTICULAR REFERENCE TO THE CDC MULTI-ARTS PROJECT

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DELINEATION

The XIth International Conference of the International Soceity for Music Education held in Perth (1974) had as its theme: *Music Education - New Challenges in Interdisciplinary Co-operation.*[1] This conference has had a considerable influence on the research and practice of music education in this country. A number of papers by distinguished speakers from all over the world included one by Egon Kraus (then president of ISME), entitled 'Integrated and Interdisciplinary Approaches in Music Education'. He drew attention to a new wave of curriculum planners and arts educators who were investigating new concepts and approaches to relating the arts in education. The old concept of 'education in the humanities' or 'related arts', which was in vogue in schools in Europe, England, and the USA from the 1920s, came under question in the '60s. In part, this was the result of the increasing acceptance of new educational philosophies - in particular, those of the humanists who placed emphasis on developing aesthetic sensitivity and judgement, and on the creative process. In addition, there was a wave of *avant garde* experimentation in the arts which, by de-emphasising techniques and products, helped to break down the barriers between the arts. In music, for example, one could perhaps cite the performance in 1958 of *Poeme Electronique* at the Brussels World Fair, or the 'happenings' of Cage, Tudor, and Cunningham, which go back as far as 1952. This tradition of multi-media experimentation has continued in the works of Kagel, Berio, and Stockhausen. In music education, the emergence of the 'contemporary' music in the classroom movement,[2] led by Orff, Paynter, Schafer, and the CMP, also brought an increased demand for arts collaboration in the curriculum.

In Australia, I can well remember attending (as a student) the UNESCO conference on school music in Sydney (1965) and my first amazed reaction to the works of Peter Maxwell Davies, Wilfred Mellers, and Nigel Butterly. In 1971 the Australian Society for Education through Art had changed its name to Australian Society for Education through the *Arts*, in recognition of the importance of creating an umbrella organisation for arts education. Following close on the heels of the ISME (Perth) 1974 conference, in January 1976, ASEA held a cross-disciplinary arts conference in Tasmania entitled *Explore the Arts*.

In 1976 the Curriculum Development Centre (Canberra) formed a study group to report on 'The Expressive Arts in Education'. The Study Group met during 1976-1977 to investigate the 'place of the arts in schools'. Its report highlighted the isolation of the arts in schools and society, in spite of some breakdown of the traditional division between them. It emphasised the importance of focussing arts curricula on the local culture of that area and embracing the artistic community in the educational process. The report also noted the rigid stratification between the different levels of schooling and its effect on arts education, and the decline of student involvement in

the arts in upper secondary schooling. One of the recommendations of the Study Group was that CDC 'create a pilot project to initiate and evaluate a genuine multi-arts curriculum'.[3]

Simultaneously with the CDC initiatives, the Schools Commission and Australia Council had undertaken an Australia-wide study of Education and the Arts and had established a National Steering Committee to plan and co-ordinate the enquiry. The committee was to study the place of the arts within the education system, to investigate the opportunities for Australians to experience the arts and for the talents of the young to be recognised, and to study the role of the media in arts education.[4] It is outside the scope of the present paper to discuss the findings and impact of this report - although the multi-arts project, which finally had its genesis in 1978, was clearly one of the tangential aspects of the Education and the Arts developments in this country. The years 1975-1978 saw levels of unprecedented Commonwealth spending on the arts (through the Australia Council), and it is no coincidence that all this appeared to climax in 1978.

In 1977, in my position as Music Consultant (SA Education Department), I undertook four projects in schools which involved interdisciplinary co-operation. The XII ISME Conference (August 1978) in Ontario included several papers on an interdisciplinary theme, including one by myself.[5] Caroline Hueneke, who was to become the National Director of The CDC Multi-Arts Project, simultaneously published the results of a series of adult workshops to explore awareness and expression entitled *Exploration Creativity*.[6] Concurrent with the ISME Conference in Ontario was the 23rd World Congress of INSEA, held in Adelaide, which took the theme, *Arts in Cultural Diversity*. Although slightly biased toward the visual arts, there was still an enormous collaboration of the arts evident in the conference. Topics for the Conference included: 'Community Arts Today and Tomorrow'; 'The Unity in the Diversity of the Arts'; 'Arts vs Education: Which is the Cultural Reservoir?'; and 'The Arts for the Handicapped'.

During this same period, ASME (ie, the National Executive) sought to create a situation of dialogue between a number of arts education bodies (it had been successful in organising its National Conference in Canberra (1977) along these lines). As one outcome of these efforts, a combined national arts publication entitled *Communicating Arts* was published with funding and support from the National Association of Drama in Education; Australian Association of Dance Education; ASME, Art/Craft Teachers' Association; Association of Teachers of Film; and ASEA. 1978 also saw the beginnings of the CDC school-based multi-arts programme, which was accepted as a pilot project by the Education Departments in NSW, SA, and WA.

EXPLORATION 1978-1979

The aim of the project was to involve teachers and arts educators in workshops as the central focus in the development of arts curriculum and methodology; evaluation and documentation were intended to be incorporated into the project as an integral feature. The aims of the project were as follows:

1 Articulate possible rationales for a 'multi-arts' programme in schools.

2 Employ a task force of arts educators in five art forms (drama, writing, visual arts, music, dance) to work with teachers to extend teachers' experiences and act as a support group in implementing new ideas in the classroom.

3 Involve teachers in planning, implementation, and evaluation phases of the curriculum development process.

4 Design situations allowing opportunity for compositional activity in the arts for teachers and pupils.

5 Investigate the educational significance of these situations and the issues of arts education they give rise to.

6 Evaluate and document the curriculum development process in print and audio-visual terms.

7 Design curriculum guidelines for multi-arts programmes.

8 Disseminate findings.[7]

The project was intended to be an *action research model* for school-based curriculum change in arts education - it was intended to focus on a junior secondary school with feeder primary schools. A case study approach (originally two schools in two states) was favoured to maximise on resources and allow a detailed 'close-up' of particular situations. The research was primarily seen in qualitative terms - thus developments in the project were to be centred around the participants evaluating the processes as they were engaged in them. The incorporation within the project team of classroom teachers, workshop leaders, project co-ordinator(s), state liaison officer, evaluation documentor, and project consultants anticipated a complex and highly fruitful interaction between these people - representing inevitably the variety of arts 'perspectives', levels of teaching experience, and curriculum designing experience. The project was designed as a totality, to progress from:

1 The workshops, to
2 Schools implementation, and subsequently to
3 State and national dissemination.

A lengthy national paper for the project entitled *Thinking About Multi-Arts*[8] was written by Warren R. Lett (Reader in Education - La Trobe University). In this paper he discusses a mode of experience called the 'expressive mode' and its connection with the arts and with the arts in schools. He asked the question, 'Why multi-arts?' and then defines eight approaches to multi-arts:

1 The single unit (multi-arts person).
2 Naturalistic play (happenings).
3 The compositional workshop.
4 Integration (Arts with capital A).
5 Parallel and serial ordering (related arts).
6 Thematic activities.
7 Formal elements.
8 Immersion.

MULTI-ARTS IN SA

In SA the project was centred at Fremont High School, with three 'feeder' primary schools, Elizabeth North, Downs, and Parks. There was considerable delay and uncertainty in the setting up of the initial stages of the project. The advertisement for participants in the project met with little response, and many people were 'encouraged' to join. The disparity of background and experience of the project participants was to be a major problem for the SA facet of the project. Considerable negotiation within

the schools and by administration personnel of the Education Department had occurred before the workshop leaders were appointed. The pattern which emerged in SA was of one-day (and one two-day) workshops, interspersed with planning meetings (mostly leaders) and informal gatherings. The workshops were at approximately monthly intervals - a significant departure from the original CDC plan, which anticipated only weekly intervals. The factor of the INSEA Conference, although allowing an enormous boost to the project, did create a hiatus, as a number of multi-arts personnel were heavily involved in the conference. It was difficult to achieve the level of group coherence that would facilitate the maximum interaction and co-operation of the group (which consisted of 5 administrators, 6 leaders, 9 primary and 5 high school teachers).

The general structure of the workshop sessions was:

1 Coffee and orientation to the day.

2 The whole group participated in 'one' of the arts (as a stimulus).

3 Small groups chose one art combination, eg, art/music, drama/dance.

4 After lunch a combined session to discuss/share in the morning's activities. A feature of this session would be 'feedback' - both verbally and written (butcher's paper usually spread around room).

5 Forward planning.

The workshops in Term II (1978) involved free choice and generally were freely structured. In Term III most of the group felt the need for more systematic teaching in the arts, and this led to more structured product-oriented workshops - also, the workshop planning group was expanded to include teachers. This group went ahead to write a 'rationale', which was intended to be a policy document for the SA multi-arts project. A two-day residential conference was held, which was devoted to feedback on the project, curriculum and learning theory, and the rationale, but did not include any arts workshop (ie, practical activity). At the end of the year, a full-day session was held to plan the schools' implementation and continuation of the project in 1979. The daunting calendar of events was to include workshop leaders working in all three primary schools, in-service and promotional activities with school staff and parent bodies, school principals, Regional Education and Advisory staff, and general media publicity; monthly planning meetings were scheduled for the whole project group and several residential conferences were planned.

A number of issues[9] emerged from this phase of the project.

1 Definition of Multi-Arts

(i) Rationale: What began as a small group exercise eventually involved most members of the project; it enabled them to crystallise many of the key processes and factors in multi-arts.

The key points in the Rationale were as follows:

Multi-arts is:
An umbrella term encompassing all arts activities involving expression, response, and performance.
(i) Education through the arts in other subjects.
(ii) Using combinations of the arts.
(iii) Education in the arts.
(iv) Combining the arts in various ways.

Reasons for Multi-Arts

1 *In society:* Multi-arts allows us to interpret, learn about, and understand the world and ourselves in relation to the world.

2 *The child:* Multi-arts more accurately reflects the way the child sees the world; it facilitates the transfer of knowledge and experience between the arts and with other areas of the curriculum; it contributes to the development of the child by providing both a personal and group focus; multi-arts allows both communication and symbolic expression at the child's own level of need and expertise.

3 *Multi-arts for itself:* Multi-arts will only occur when there is a planned and conscious process of development within the school and curriculum.

(ii) The 'skills-versus-experience' argument surfaced in a number of ways; it was apparent in the different perspective of the classroom teachers as compared to arts specialists; it was also reflected in the basic tension between those who saw the aims of the workshop as experience in the arts and those who emphasised 'product' (both artistic and educational products).

(iii) A number of related-arts approaches (as in the W. Letts Rationale) were tried during the workshops. Most of the teachers in the project were unhappy (and quite insecure) with the non-directive, unstructured approaches (eg, happenings and immersion) which relied on a willingness to trust, allow spontaneous change, experiment with new forms and materials, and allow free association between the arts. Most teachers preferred a limited combination of two (rarely three) arts and used a thematic and occasionally integrated approach.

2 *Curriculum Development*

(i) The seventh CDC aim involved designing curriculum guidelines for a school-based multi-arts programme. This was one of the major areas of uncertainty in the project. At the time of the workshops this was seen as a conflict between those who favoured 'personal' artistic development and those who wanted direct 'classroom' application. Ironically there was never any chance of the former occurring, since the workshops were too brief and tentative for that to have happened. My later participation in the national dissemination workshops has given me a clearer perspective on the SA workshops. I feel that what was intended could have been an enlargement of what could/would happen in a school if a multi-arts project were envisaged - in other words, the workshops could be seen as an enlargement of the processes of group dynamics, organisation, learning, and personal discovery and growth which ideally would occur in the classroom. Taken in this sense, the so-called implementation in primary schools was premature and based on a total misconception. However, having said this, I must hasten to add that the work in primary schools was valuable in a number of ways (even if not always furthering the implicit aims of the multi-arts project).

(ii) The CDC aims provided for a link between upper primary school and junior high school. This proved to be a very difficult goal. The primary teachers were non-specialists in the arts and lacked confidence in the workshops; the high school teachers who were specialists lacked experience in working across the disciplines, except in the area of stage productions. Attempts by the high school teachers to create a new multi-arts subject within the school timetable were largely unsuccessful. Generally the primary and secondary teachers were

each ignorant about what the other did, and some fruitful informal exchange occurred, although the possibilities of primary-secondary interface were abandoned during the schools implementation phase.

3 *Organisational Matters*

One of the problems for the SA project was that, although the members included expert administrative and evaluative leadership, there was no one person to assume overall conceptual and artistic leadership. The members of the group did not know one another before the project, and they were presented with a structure for the project which they had not planned. Thus a number of processes occurred simultaneously:

(i) Development of group focus, coherence, motivation.
(ii) Preparation, planning, and evaluation of workshops.
(iii) Writing and evaluation of curriculum materials (rationale resources guide, publicity material).
(iv) Planning for lessons in schools.
(v) Physical organisation - documentation in (audiovisual) school liaison; relief teachers' travel claims; obtaining and setting up of materials and equipment; and so on.
(vi) Interaction/negotiation of multi-arts project (teachers and leaders, ie, the people) with 'outsiders' - Education Department hierarchy, CDC personnel, visitors from Perth/NSW project, school principals, and so on.

Considering that the project was essentially only spread over three terms, workshop, Terms II and III, 1979, and schools implementation, Term 1, 1980, the outcomes, in spite of the problems and pressures, were very considerable! The reports on the two phases total some 300 pages and provide a comprehensive qualitative evaluation (as well as some quantitative data).

MULTI-ARTS IN NSW AND WA

In order to make some comparison and give some sense of the overall shape of the project, I will briefly describe the NSW and WA projects.

The NSW project[10] team included two liaison officers who were active in the arts field (a music and a media consultant). The decision was made to centre the project in the Liverpool region (a rural area 80 kilometres from Sydney), namely Picton High School, a cluster of seven feeder primary schools (14 teachers), and Wirrimbirra Field Studies Centre. The selection of workshop leaders, evaluator(s), and documentors were made by the liaison officers, which helped to create a coherent team structure. The workshop leaders had five planning meetings prior to the commencement of the workshops. Three two-day and a one-day workshop were held - they were approximately two weeks apart:

Days 1 and 2: Getting acquainted; introduction to the arts.
Days 3 and 4: The arts in greater depth.
Days 5 and 6: Teacher-led workshops. Planning for the future.
Day 7: Curriculum discussions.

Recurrent Curriculum Issues

The importance of 'warm-up' and 'wind-down' activities was seen as fundamental in the 'rhythm' and structure of the workshops. Issues such as the place of pre-requisite skills and the role of performance (ie, a

a 'polished' presentation) were discussed. A formal questionnaire for the workshop participants was used to assess teachers' opinions and attitudes to the project.

It is evident that the NSW workshops went a lot more smoothly, in the sense of planning and execution, than those in SA. However, one of the positive aspects of the SA project was that it was multi-faceted right from the beginning; although there was a lot of tension generated between the various aspects, there was an enormous amount of 'spin-off', both in terms of individuals and the group, eg, the SA project generated sufficient momentum and material resources (both written and audiovisual) such that it became feasible to spread the implementation process to other schools and regions.

The WA project[11] took a significantly different approach, both in the administration and conduct of the workshops, by appointing a project director (Mr Raymond Omodei) who was given the task of planning the workshops, and of liaising with the WA Education Department and CDC. In addition, three project officers were appointed, representing the fields of art/craft, movement, and music. A metropolitan senior high school (City Beach) in the NW region and 6 feeder primary schools (13 teachers) were involved. From the outset a number of year 8 classes at City High School were programmed to undertake 6 periods (40 minutes) a week of multi-arts work. The evaluation of the project was undertaken along the same lines as the SA, ie, with a person who was especially appointed to the position (a tertiary lecturer) who participated in the project as well as observing, recording/documenting, and interpreting the sequence of events. The workshops were seen as the fundamental centre of the project, ie, that the teacher needed to be involved in the process in order to be in turn a 'catalyst' to others (ie, the students and other teachers).

Three workshops were held:

1 x 8 day block - held in drama studio - City Beach High School. (25 participants - August 1978).
2 and 3 x 5 day block - held at Floreat Park PS (MA centre) (April 1979).

The workshops were based on a 'learner-centred' approach aimed at fostering the professional and personal development of the teachers' awareness of the importance of creative processes. Thus the teachers were seen as the learners - it was not a matter of being given a 'few tricks' to take back to the classroom. Critical issues which were seen as the foundations of the workshops were:

1 Time for direct and continuous contact of participants and project personnel.

2 Time to develop a working climate in which participants could experiment, without fear of judgement being passed upon them as to their performance.

3 Time to allow participants to be free of interruption and rigid timetables.

4 Time for participants to develop an appropriate 'climate' which would allow them to focus on and evaluate the creative process.

The emphasis on an experiential approach ('learning/problem-solving') gave the workshops the appearance of being unstructured and lacking in aims and objectives. However, on the contrary, the workshops had a coherent

conceptual and structural basis which was not imposed and was largely 'invisible' to the participants. Also important was the emphasis on a 'neutral' (non-judgemental) atmosphere, rather than the prescriptive or over-supportive atmosphere which is so common in the classroom. The emphasis was clearly on the process and not the product. As with the SA project, individual participants were encouraged to continually reflect on what they were doing (by verbal and written means, eg, cards or graffiti) by reflecting on one art form, by using another art form, and by 'brainstorming'. One of the central features of the workshops was the use of 'starting points'. These initially focussed on the individual and then widened out to smaller groups, and then perhaps to the whole group. Normally there was a 'preparation' period, which aimed at relaxation and dissociation (from external matters) - a general 'rhythm' of much of the work involved 'extension-relaxation-tension', ie, with a gradual increase of risk-taking.

REALISATION 1980

It is not surprising that the approach of the WA project was heavily influential in the setting up of the National Dissemination Workshops, and that Raymond Omodei was asked to direct these. A five-day workshop was held in each state, and involved also the CDC Multi-Arts Project Director and one or two of the original state-level workshop leaders. A detailed report of the Adelaide Dissemination Workshop, written by the Project Director, can be found in the *ASEA Journal* (December 1980).[12] Ms Josephs, in this article, explains why the workshop is central to the multi-arts project:

> The multi-arts workshop illustrates the fusion of theory, organisation, and practice with which the project is concerned. Creating one's own *theory* of arts education is part of the process. This is done by constant experimentation and by modifying *practice* in the light of observation, sharing, and reflection. *Organisation* of the workshop or classroom, of the physical space, of the time available, and of the group processes should mirror one's theory and indeed is the *medium* through which theory is translated into practice... Looking into the implications that lie behind the specific conditions of *one* workshop will give us a 'way into' understanding the project; the workshop with all its tension, ambiguity, chaos, joy, fluidity, laughter, music, movement, sculpture, construction, colour, painting, poetry, drama, discussion, tears, anger, harmony, conflict, risk, excitement, wonder, care, thought, courage, fear, frustration, feeling, perception, insight, aspiration, intuition, rationality, expectation - this exemplifies the learning theory, the organisation, and the practice of the multi-arts project.[13]

As a further stage in the dissemination process, Ms Josephs is currently preparing a fullscale national report (ie, collating the materials from the SA, NSW, and WA projects) - this may include a fullscale audiovisual presentation.

On a state level, there has been a continued attempt to publicise the project and encourage schools to take up and devise 'multi-arts' courses. In SA, one of the original participants (a primary teacher) has been appointed as a multi-arts adviser in the Central Northern region (her original school region).

With the drying up of funds, the formal aspects of the project have (literally) fizzled out, and have been subsumed under the general 'Arts

Education' umbrella of the Education Department. An undergraduate course in Multi-Arts has been established at Sturt CAE.

What does the future hold for this project and similar research work in the future? In the current political/economic scene, there is intense pressure to economise, to systematise, and generalise. The complex, subtle, often tenuous 'vision' and discoveries of the project all too easily become distorted and/or destroyed as they are applied, adapted, and rationalised.

The 1980 Festival of Arts in Adelaide presented a veritable feast of overseas (and local) presentations which were interdisciplinary in approach. This included the Peter Brook productions (an amphitheatre in a disused quarry) of *Ubu*, *The Ik*, and *Conference of the Birds*; the La Claca Theatre Company of Catalonia and Mabou Mines (New York); *Futuresight*, an exhibition from the Museum of Holography (NY) with laser kinetics by J. S. Ostoja Kolkowski (a South Australian); there were numerous dance and ballet companies, a brilliant performance of Britten's *Death in Venice* and a number of music-theatre presentations, including *The Fires of London* (Peter Maxwell Davies) and the Stoppard/Previn work, *Every Good Boy Deserves Favour*. This last work reminds me of the machinations of the political world and leads me to my final statement.

With the current funding cutbacks (and the possible destruction of CDC and the Schools Commission) and an increasing emphasis on elitism[14], will the CDC multi-arts project and other arts research projects be adequately disseminated, so that their results may form the basis of a comprehensive and planned development of arts education in Australian schools? I am afraid that there is a real danger that the arts will continue to be seen as a 'cultural periphery', an expensive 'frill' (ie, luxury extra for the wealthy) in our society, and of no consequence in schools. CDC recently (June 1980) published the findings of a national working party (chaired by Sir Mark Oliphant) entitled *Core Curriculum for Australian Schools*. There is no doubt that this document is partly a response to the political pressure of the 'back to the basics' movement. May I close by calling on all arts educators and administrators to respond to the statement that 'the neglect of particular art forms, divided opinions about the need for general aesthetic education as distinct from expression through the arts... suggest the need for a comprehensive review of these areas of the curriculum'.[15]

The multi-arts project is a major response to that need. Will its important but fragile vision be carried forward?

NOTES

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2 NB my other paper during the ASME Conference, 'Six Myths in Music Education: Why the Composer in the Classroom is So Important'.
3 *Report of the Study Group into the Expressive Arts*, CDC, Canberra 1977, p. 16.
4 *Education and the Arts*, Schools Commission and Australia Council, Canberra, December 1977.
5 D. A. Simper, 'Projects in Music and Interdisciplinary Co-operation: Towards the Education of the Whole Person', *ISME Yearbook*, IV, 1979, p. 77.
6 C. Hueneke, *Exploration Creativity*, Canberra: Centre for Continuing Education, ANU, November 1978.

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13 Ibid., p. 4.
14 'Eggs, Abuse Hurled at PM', *Advertiser*, Adelaide, 9 May 1981, p. 1.
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IMPLICATIONS OF PIAGET'S THEORIES FOR MUSIC EDUCATION

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In this paper I will present an outline of Piaget's theories of intellectual development, and then draw general conclusions about the implications of these theories for music education. The third section contains a survey of literature available on the research programmes that have been carried out, using Piaget's theories applied to music development and education.

Piaget is undoubtedly recognised as the most important contributor to the field of intellectual development. His studies of children have spanned more than fifty years, and his output, with his collaborators, has been very extensive. Naturally he has critics, and there are some whose ideas differ from his, but it is of utmost importance that all those whose lives involve learning to understand children - parents, educators, child psychologists, therapists, and others - should have a working knowledge of the concept of development that the work of this man presents.

Piaget's terms need definition for an understanding of his theory, and these are best given in an outline of his general principles of functioning. Heredity provides physical structures which set broad limits on intellectual functioning, and also behavioural reactions which occur in the first few days after birth, and are then modified with interaction with the environment. Piaget postulates a third influence on intelligence - the inherited two basic tendencies or 'invariant functions', Organisation and Adaptation. Organisation is the means whereby all species systematise their processes into coherent systems, either psychological or physical, eg, an infant initially looking at and grasping an object separately, and later combining the two into a system or structure.

All species adapt to their environment, but the way this is done varies with the species, the individual, and the stage of development. Piaget divides adaptation into two complementary behaviours - Assimilation and Accommodation. Assimilation is the act of incorporating elements of the external world into the individual's structures, and accommodation is the modification by the individual of his structures to allow for external demands. These invariant functions of organisation and adaptation are intertwined with psychological structures, but the differences are that the functions remain the same but the structures vary. Thus the individual moves through a series of stages in intellectual development. Every organism tends towards equilibrium with its environment. This leads it to the organisation of structures into coherent and stable patterns which give balance. The child develops structures which are effective in his interaction with reality. As he grows, more and more structures are acquired with increased experience, allowing him more readily to adapt to new situations. Piaget labels the structures of the 0-2-year-old 'schemes' which are patterns of behaviour, and those of the 7-11-year-old 'operations' in which the child manipulates his thinking to make sense of his environment, eg, classifications of a group of red beads into a hierarchy of beads in general.

Piaget's theory divides the development of intelligence into four stages: 1. Sensori-motor; 2. Pre-operational; 3. Concrete-operational; and 4. Formal-operational. These stages are not bound strictly by ages, but are cumulative, ie, a child must move through the earlier stages before reaching the later ones, but he may move from one stage to another at different ages in different areas of development, and two children may make the transition at different ages.

SENSORI-MOTOR STAGE

The sensori-motor stage occurs from birth to approximately 18 months to 2 years, and the child's behaviour is characterised by motor responses and manipulation of concrete objects. By the end of this period there has been the development of some reasoning power and the invention of new problem-solving methods. Piaget found that within this one period there are six sub-stages which again are flexible in age determination, but stable in regular order.

During the whole motor period, the child is developing various categories of reality, including permanent object, space, time, and causality. His early behaviour is on the level of 'plane of action' and, as he develops and internalises his manipulations of his external environment, he moves to the 'plane of thought'.

These six stages of infancy are a process of decentration. The development advances from an 'adualistic' or undifferentiated state to a separation of self from the environment. As the child comes to understand the nature of his environment, his knowledge of himself grows also. Piaget's emphasis is on a number of points in this period:

1 Age norms are only approximate.
2 Ordering of the stages is invariant.
3 Development is a gradual and continuous process.
4 Behaviours characteristic of a given stage do not disappear when the next stage is reached.

PRE-OPERATIONAL STAGE

The Pre-operational Period, from approximately 2 years to 6-7 years, is the stage of language and symbolic function. Two sub-stages are suggested: Pre-conceptual, from 2-4 years; and Intuitive Thought, from 4 to 7-8 years.

During the pre-conceptual period, the child constructs symbols, and uses language and make-believe play in developing symbolic function, imagery, and genuine representation. Because he begins to be able to distinguish between the signifier (the symbol) and the signified (the object being represented), he is now able to think about objects and activities, manipulating them symbolically, and is not restricted to behaviour which deals with real objects only. This is, however, only the 'pre-concept' stage, and these pre-concepts are concrete rather than abstract. The child is still centred upon himself without the ability to step outside himself, either to explain his thinking to others or to examine his own thinking critically. He centres upon one aspect at a time and is incapable of viewing various facets of a problem at once.

The mental symbols of a child are probably partly visual images, but also

other forms, eg, sounds and movements. They may be unconscious and not involve language to any great degree, but are a necessary pre-requisite for a mature object concept. The acquisition of mental symbols began with imitation in the sensori-motor period, which eventually became internalised. The symbol remains personal, resembling the thing it refers to, unlike language, in which a word bears no resemblance to the object. The child's intellectual construction or understanding of the real object is the true signified, and his symbol or signifier is arrived at by internalised imitation and, therefore, accommodation. Both symbols and words are given meaning by the child and assimilated into his mental schemes. Therefore both are personal, although words have the possibility for communication if the meaning given to them by others is reasonably close to his meaning.

Symbolic play is a very important stabiliser for the child's emotional life, providing him with an avenue for adjustment to reality. The child uses concrete symbols and provides meaning for the piece of wood or material by assimilating it to his previous schemes. By this process he arrives at symbolic meaning.

In his language development the child moves from the use of words relating to his ongoing actions, in stage 6 of the sensori-motor period, to the use of words to refer to absent things at about 2 years. Thus the words assume symbolic meaning, but this meaning has no necessary relationship with the meaning attributed to them by adults. Culture provides the child with language, but this cannot immediately socialise the child's thought. This lack of comparability with adult meaning is also seen in the child's reasoning methods, which fall into three types. One is reasoning concretely in terms of what has happened in the past, and the second is what adults see as distortion of fact in accordance with what the child desires. Transductive reasoning is the third, which is between inductive and deductive, the child moving from particular to particular without touching upon the general.

As the child moves beyond the pre-conceptual stage into the period of intuitive thought, he continues to develop the skills acquired at the earlier stages, but also to expand the areas of development. His conceptualisation is extended; the concepts become more complex, as do also his representatives, thoughts and images. There is an ability to group things in classes - although his percpetion of these classes may not be adult. The limitations may still be present in terms of his own perceptions and concentration on a single aspect at a time. Therefore he is still unable to draw logical conclusions, because his thinking is still at this stage irreversible. The most extensive development seems to be in language. There are several varieties of communicative and non-communicative or egocentric language. In the egocentric type, there are Repetition, Monologue, and Collective Monologue. The repetitive language is an example of the child's need to exercise his schemes - Piaget's functional assimilation. In a monologue, the child is able to fulfil his own wishes, and in this behaviour the words and action are not differentiated, the words being part of the action. In a collective monologue, the child may appear to be talking to others, but he is really just again talking aloud - his statements are not clear enough for the other children to understand and pay him some attention.

These three types of early language reinforce the understanding of the child as being centred on himself. He is as yet incapable of seeing another's point of view. His inability to express causal relationships and tendency towards juxtaposition prevent him from being able to tell a story

as a coherent and integrated whole. Even in his communicative language he does not at this early stage give explanations or causes, proofs or justifications, and the idea that his listener may have a contrary opinion seems not to occur to him. As he grows older this egocentrism declines and he increases in his powers of communication, but the early stage is characterised by the child talking of himself, to himself, by himself. This language tendency is paralleled in other areas too. In a game of marbles Piaget found the 4-7-year-old being entirely egocentric, playing for himself using his own rules. Two 4-year-olds could be playing side by side, but not playing the game together, although they may outwardly appear to be doing so.

When Piaget investigated the content of children's thought, he found the first stage included animism, artificialism, and participation. The world of nature was attributed with human characteristics, was created by a force outside nature, and there was some connection between human and inanimate parts of the universe.

CONCRETE-OPERATIONAL STAGE

The stage of Concrete Operations, 7-11 years, is characterised by the acquisition of a number of skills which were unavailable in the Pre-operational stage. In brief, these are Mental Representations, Conservation, Relational Thinking, Class Inclusion.

Mental Representation, or Imagery, is present when a child is capable of making a map or a mental picture of the entire route between home and school. This is obviously an extension of the symbolic thought of his earlier years. As a Pre-operational child, only mental images of static situations occurred, but in the concrete stage kinetic and transformational imagery is possible, eg, the child can imagine the movement of a ball through the air.

Conservation, which will be discussed in more detail later in this paper, is the ability to understand that not all properties of an object change when there is a change in one. The child now begins to realise that a volume of water remains the same when poured into a container of a different shape.

Relational thinking is one of the more slowly developing areas of thought, and involves a child being able to place a group of objects in order of size or length, etc: ie, $a<b<c<d$. This is called ordinal relationships, or serialisation. The other area of part/whole relations is the concept of 'a' being included in 'b', therefore 'b' is larger than 'a'. Piaget gives the example of a pre-relational thinking child acknowledging that Geneva was a town in Switzerland but being unable to grasp that people who live in Geneva were therefore Swiss. He also points out that there is a lack of correlation between verbal and action-based thought in this area, which he calls 'vertical décalage'. The above child may be able physically to realise part/whole relations, where he could not think in the more abstract Geneva/Swiss terms.

Included in the development of relational thinking is the ability to match in one-to-one correspondence. The child at this stage can work out a problem which involves matching a number of children with the same number of chairs, or a number of blocks with the same number of balls without the

individual counting of each group. Because of his new ability to conserve, he now also realises that the numbers do not change if one group changes spatial relations.

Class Inclusion or Classification has reached a fairly mature level in the concrete-operational child and, as with relational thinking, the level is higher when the child is dealing with concrete objects. He is now able to place a bunch of yellow daisies within the larger group of all daisies, within the larger group of all flowers, and so on. This is called Grouping I, which mathematically describes the mental processes enabling the child to do this.

The concrete-operational child has a different set of problem-solving methods from those of the pre-operational child. When in the concrete-operational stage his thinking gives evidence of decentration, tranformation, and reversibility. He is beginning to lose the egocentric focus of his pre-operational years; the static imagery and single-focus concentration is changing to transformational imagery and multiple-focus thinking, and he can now realise that the water poured from a short wide container into a tall thin one may be poured back again, and therefore the volume of water remains the same.

EQUILIBRATION THEORY AND NOTIONS OF LEARNING

Piaget's thoughts on the reasons that a child moves from one stage to another produced his equilibration theory and notions of learning. He distinguishes between Development, which produces genuine learning, and Learning, in the narrow sense. Development is limited by physical structures, experience, social transmission (reading and instruction), and equilibration. It is the final one of these four which needs some explanation. In the early part of this paper, during the definition of Piaget's terms, the fact that every organism tends towards equilibrium with its environment was stated in discussion of Accommodation and Assimilation. This equilibration process assumes the concept of the human being as an open system which is constantly exchanging experience with its environment. Piaget sees the constantly fluctuating seeking and finding of equilibrium as the result of conflict which is resolved before a further conflict emerges. In the simpler terms of assimilation and accommodation, the child tries to assimilate a new experience into his present structures. This causes conflict when his structures cannot contain it. This conflict is resolved once he accommodates and changes his structures. Then development occurs.

Learning in the narrow sense is the acquisition of specific responses which deal with individual situations only. This type of learning is therefore very superficial and does not help a child to generalise his experience to a broader frame of reference. A child may be taught to give the correct response '4' when asked '2+2?'. This may not enable him to solve the problem of finding a total of 4 tomatoes in the vegetable garden when he has been able to find 2 only, and needs to work out the number he has yet to find. Only if developmental learning or learning in the broader sense has taken place is the child equipped to interact with his environment in this way. Piaget stresses, in this theory, the activity of the child in interacting constantly with his environment, and also the knowledge that perfect equilibrium is never achieved.

CONSERVATION

Conservation was defined earlier as the ability to understand that not all properties of an object change when there is a change in one. This aspect of Piaget's theory has had such a wide impact on those who are interested at any level in exploring his ideas that it needs more than a brief definition.

There are various applications of the idea of conservation to a child's intellectual development: conservation of number, of continuous quantity, of substance, of weight, of volume, of length.

A child in the pre-operational stage finds it impossible to concentrate on two aspects at once. Therefore, when confronted with a row of beads, he concentrates on the length or the density of that row. If a row of equal number of beads is placed beside it, he sys it is the same number, provided the length or density looks the same. If one row is spaced more widely, thus giving a longer row, he will say there are more beads. If the beads are bunched in a dense cluster, he may say there are more beads than if they are scattered. When he reaches the transitional stage, his concentration fluctuates between density and length, showing the beginnings of decentration. Once he has reached the age of approximately 7 years, and has entered the concrete-operational stage, he is able to think about both aspects simultaneously, and, co-ordinating them, arrive at a logical conclusion. When a child is able to conserve continuous quantity, he will realise that a quantity of water poured from one container into another of dissimilar shape has remained unchanged in quantity in spite of the changed shape.

Conservation of substance may be assessed in a very similar manner with two balls of clay which are the same size. The child rolls one ball into a sausage shape and is asked if the amount of clay in the sausage is now the same amount as in the other ball. If the child is able to conserve substance, he will maintain that the amounts do not vary, although the clay may be changed into various shapes. Conservation of weight is tested by asking the child to weigh the same two clay balls. When it is observed that they are of equal weight, one ball is taken from the scales and changed in shape. If the child is able to predict that the weight of the second clay ball has not changed when its shape is changed, then he has acquired conservation of weight.

Displacement of the two clay balls in beakers of water may be used in a similar way to test the conservation of volume, and changing the shape of a length of wire from a straight line to a semicircle is a method of testing conservation of length.

The common factors in all these conservation experiments are:

1 The recognition by the child of the equality of two amounts: liquid quantity, substance, etc.

2 A visible transformation done either by the experimenter or the child;

3 A further assessment by the child of whether the equality of amount has remained constant throughout the change.

Piaget found that children of around 4 or 5 years were able to recognise the equality of amounts in the first step, but were unable to conserve. By 5-6 years, there is variation in the responses, and a child may

concentrate on height one day and on width the next when faced with conservation of continuous quantity problems. When a child has reached the third stage in this specific area of his development, he is then capable of conservation and is able to give logical reasons for his conclusions (involving reversible thinking, identity, description, or reciprocity).

The development of each area of conservation seems to follow the same general sequence, but the factor which Piaget calls 'horizontal décalage' has much relevance to the application of these ideas to music development. The ages at which children master the different areas of conservation may vary not only between children but also in the one individual as much as 6 years, ie, conservation of continuous quantity (the water in the beakers) is usually achieved by 6-7 years, but conservation of weight not until 9-10 years, and conservation of volume not until about 11-12 years. Thus there is not a transfer of reasoning from one situation to another.

THE STAGE OF FORMAL OPERATIONS

By adolescence, from approximately 12 years onwards, the individual's system of mental operations has reached a high level of equilibrium. He now uses thought processes as flexible and effective tools. His advanced cognitive structures are able to adapt to a great variety of problems, and are stable enough to assimilate a great variety of novel situations. Given a problem which requires specific combinations for solution, the adolescent will exhaustively test for all possibilities of combinations. In general the statement can be made that reality is of secondary importance to the adolescent. Possibilities in multitudes are of far greater interest to him. He imagines many possibilities in each situation and proceeds to hypothesise about each one and carry out carefully designed testing procedures to eliminate the ones he cannot prove.

Piaget puts forward two models to describe formal operations: he calls them '16 Binary Operations' and the INRC Group - Identity, Negation, Reciprocity, and Correlativity. The explanations of these models require logico-mathematical discussion which is too detailed for the purposes of this paper. Suffice to mention here that the simultaneous reversibility of thought available in a combination of Negation and Reciprocity allows the adolescent a greater flexibility of thought than was available to the concrete operational child who was able to use these mental operations only individually.

The effect this change of mental mode of operation has upon the boy or girl in his or her teens is obviously quite profound. Abstract and theoretical matters absorb the intellectual sphere in the form of elaborate political theories and philosophies. Abstract ideals rather than only people are now the recipients of the adolescent emotional energy. 'The possible and the ideal now captivate both mind and body' (Ginnsburg and Opper, 1969, p. 205).

GENERAL IMPLICATIONS FOR MUSIC EDUCATION

Having outlined the four stages of intellectual development suggested by Piaget's theory, I would now like to move to that area which is more obviously of concern to those who are involved in music education. The implications of Piaget's theories for musical development are of great importance. It is a regrettable fact that many who are involved in teaching

music in various areas are not familiar with Piaget's ideas or the general ideas of educational psychology at all. For too long we have taught music rather than the child. I therefore make the plea in this paper that the child be the centre of our attention and an understanding of that child be foremost on our list of objectives. Understanding children is too important a task to be left to our sometimes ailing intuition. I suggest it is the responsibility for every person involved in teaching music to children of any age to educate oneself in the area of knowing how students function - psychologically, emotionally, and intellectually.

Sister Cecilia Schmitt, in her article, 'The Thought Life of the Young Child: Jean Piaget and the Teaching of Music', states the necessity for music educators to look beyond music for answers to our teaching dilemmas - to psychology, to anthropology, and to the social conditions in which our students live. She says, 'A teacher to be most effective must place his teaching presentation and activities in thought forms relevant to his students... A true educator bases his plans, objectives, and evaluations on student thought processes that are demonstrated by the kinds of success and failure they have in achieving concepts' (1971, p. 24). Robert Lathrop asks if music educators may find an alliance with education psychology a more useful aid to their work than the more historically close ties to music. He then outlines the role of the music educator as a facilitator of student learning in which he must organise effective music learning experiences, motivate students to want to make music part of their lives, and serve as a diagnostician and critic of student musical efforts. To do this he must have a good command of his content discipline, but equally so a competent understanding of how children learn.

The comments made by Sister Schmitt on the methods of teaching a pre-operational child are worth consideration. She states that a highly structured skill approach type of teaching should never be imposed on a young child. In a 4-year-old there is a sense of wonder. His cognition is naive, impression-bound, and lacks organisation; he approaches the world with freedom, excitement, and uninhibited drive. His imagination lifts him beyond the realities of the adult world. To constrain this child with the facts and rules of the multi-conceptual method of piano teaching is almost cruelty in ignorance. 'Piaget's theories imply that music can be learnt most meaningfully through action and manipulation' (Schmitt, 71, p. 24). This suggests then that those teachers who encourage students to use their whole bodies as musical instruments, and who use aural, kinaesthetic, and visual imagery before introducing symbols to represent what the children have already learnt experientially, are teaching effectively (in placing their presentation in thought forms relevant to the children).

Piaget's theory suggests a child begins to show intelligent responses by the fourth stage of infancy, 10-12 months, which is before verbal communication is developed. Music is a non-verbal form of communication. An exploration of the use of the child's sensori-motor capacities, when he is developing his early forms of communication, is of great importance if one considers music as an important means of growth. A pre-school child grows as he interacts with his environment. If that environment is musically alive, the child has available the stimulus he needs to begin developing musical perceptions and responses. That environment must be rich in a variety of melodic, harmonic, and rhythmic patterns, and the child must be an active participant, as listener, performer, interpreter, creator, for growth to occur. Piaget's statement, which follows, has such an obvious yet profound understanding of the mind of the child and the adult: 'Even in order to

understand we have to invent, or that is to re-invent, because we can't start from the beginning again. But I would say that anything is only understood to the extent that it is re-invented.' (Schmitt, 71, p. 25.)

The 7-11-year-old needs to operate concretely rather than abstractly and he needs to use one system or grouping at a time. Previously received perceptions should now be developed into stable concepts as the child's aural, tonal, and rhythmic vocabulary is acquired. A perception of highness and lowness may now be formed into a concept of relationships between pitches, and later the concept of scale or chord. The teacher needs to know the child's level of perception, and present him with tasks to challenge him to further development. Activity of the child is always necessary, and the aim is a gradual development of a musical organisation within his mind.

The teenager and the pre-school child have much in common. There is in adolescence a return to freedom and intuitive thought. Possibilities rather than realities occupy the mind. The teenager's involvement in self-expression and communication should lead the aware teacher into exciting experimental paths in the company of his students. Obviously the student should be presented with the traditional structures, but these should not become straitjackets. The teacher's way should not be put forward as the only way. If the adolescent in the stage of formal operations has developed his skills in the concrete operational stage, he should now have the freedom to explore, experiment, and discover new ways. This enthusiastic love for creativity should be encouraged and not repressed.

A final quote from Sister Schmitt:

> Musicians have wrapped themselves in the specialisation of their field too much to notice that the ability of the student to 'speak the language' of music is of prime importance. Using the theories of developmental psychology teachers can find a new framework and focus for student perception, expression, and creation of music. Thus, music lessons will be lessons in personhood as well as musicianship. (71, p. 26.)

SURVEY OF RESEARCH USING PIAGET'S THEORIES TO INVESTIGATE MUSICAL DEVELOPMENT

This section of the paper contains a brief discussion of five pieces of research which have been carried out since 1964. Marilyn Pflederer's report in 1964, entitled 'The Responses of Children to Musical Tasks Embodying Piaget's Principle of Conservation', gives the purpose of her study as:

(a) To devise musical tasks embodying Piaget's principle of conservation of meter, tone, and rhythm.

(b) To determine responses of 8 five-year-olds and 8 eight-year-olds to these tasks.

Each task represented the hypothesis: Developmental trends in the conservation of the specific musical concept could be discussed through administration of the task to children of two different ages.

Pflederer suggests that the development of musical intelligence in the light of Piaget's theory could be outlined as:

1 Rudimentary musical response: sheerly emotional.

2 Perceptual development: differentiating pitch, rhythm, meter, timbre, and intensities.

3 Aesthetic approach: responding to the expressive form.

4 Performance medium: development of executant ability.

She then states that the study is concerned with the rational aspects of musical development, as in Piaget's research into concept of quantity, weight, volume, and class inclusion. The development of Musical Intelligence is stated as: 'Building a stable framework of rhythmic, melodic, harmonic, and formal concepts through progressive organisation of musical experiences.' The goal is a 'superior form of musical organisation represented by equilibrium of cognitive structuring of musical elements that is built up through a utilisation of the principle of conservation' (64, p. 255).

Six musical tasks were given to eight kindergarten children and eight third-grade children in Illinois, with the only criterion of selection being that they had received no private music instruction. The tasks were designed to test for conservation of:

(a) Metre.

(b) Rhythm pattern under deformation of tone.

(c) Melody under deformation of tone.

(d) Tonal pattern under deformation of pitch.

(e) Tonal pattern under deformation of rhythm.

(f) Melody pattern under deformation of accompaniment.

The results show a definite development in the acquisition of conservation between the 5-year-olds and the 8-year-olds. Only the final task - conservation of melody under deformation of accompaniment - showed no difference between the two groups.

The implications of these results for music education are outlined in Pflederer's paper as:

1 Stages of conservation were apparent in rhythmic tasks involving conservation of meter. Many correct solutions were obtained after the use of clapping or other physical movement. Therefore opportunities for children to be active in their interaction with a musical problem need to be provided.

2 Children need models to imitate and the models need to be properly matched to the child's existing mental schemata.

3 A variety of musical experiences is needed to stimulate maximum amount of growth at each stage. The musical problems to be solved should be within the child's understanding. Clarification of concept should precede intellectualisation.

4 The child's ability to discriminate between tonal and rhythmic patterns, and follow thematic development, is only improved after experience with a large repertoire of theme patterns.

5 When children participate in learning situations, as in becoming actors in a story, the varied repetition by the child of his own original rhythmic patterns aids the clarification of tonal and

rhythmic relationships and provides the experience in which the child builds a conceptual framework.

In 1970 Marilyn Pflederer reported on a research project at Northwestern University, which was 'designed to discover how a child organises conceptually the musical sounds he hears' (1970, p. 5). In this project, 679 children of primary and junior high school age were tested in five experiments for their ability to conserve an invariant aspect of music stimulus.

In Experiment I, six tasks were given to test the ability to conserve duration, meter, tonal patterns, and rhythm patterns. Experiment II contained 4 tasks which tested for conservation of phrases under variation of instrumentation, mode, tempo, harmony, rhythm, contour, and intural. Four familiar songs were used with similar variations in Experiment III. Experiment IV contained double variations using the same four familiar songs as in the third experiment. In Experiment V, the children's ability to conserve tonal patterns was compared with their ability to conserve rhythmic patterns.

The results of the first four tests indicate that performance on the tasks becomes better as the children grow older. The results of Experiment V, which used notation, suggest a plateau is reached in music conservation, as measured by these tasks, by fourth grade. Conservation of metre and rhythm patterns was found to be more difficult than conservational tonal patterns, and minor mode rhythmic patterns were more easily conserved than major or atonal. Change of instrument, tempo, or added harmony was less disruptive of conservation of tonal patterns than change of mode, inversion, and rhythm pattern. It was found that the initial teaching of music structure is best approached using familiar music.

In the conclusion of this report Pflederer makes a number of comments which are assumptions from this piece of research, and very relevant for music educators in general:

1 Even young children are capable of comprehending fairly complex musical concepts, eg, inversion, mode, and rhythm patterns.

2 Music education should involve more active participation and experimentation by the students, so they may learn to manipulate tonal patterns, rhythm, tempo, or intervals as they do clay.

3 Primary school music teaching should be focussed on decentration. Each aspect of music needs to be taught perceptually so a child may form clear concepts about the various elements before moulding them into a whole musical concept.

4 Music curricula in primary schools need to be organised sequentially, based on the intellectual and musical abilities of the children at each level. Proper musical terminology should be taught from the beginning, and instruction should be given in mode, inversion, and rhythm pattern. A system of notation to clarify aural stimulus can be used as early as age seven.

William B. Sloan, in 1973, presented a report entitled 'The Child's Conceptions of Musical Scales', which was a 'study of young children's perception and conceptions of the patterns and relationships in a simple musical scale, based on Piaget's model of intellectual development' (1973, p. 10). He took as his hypotheses:

1 The logical thinking systems of young children will be broadly similar for the organisation of patterns of sounds to those involved through other sensory experiences.

2 The developmental pattern of behaviours observed through responses to the tasks of the investigation will be more or less parallel with the existing Piagetian models.

Forty boys and 30 girls aged from 5 to 12 years from 6 primary schools in Yorkshire were selected to take part in the study, 10 from each year level. The clinical method of investigation was used, and 6 experiments were carried out. These experiments were concerned with observing:

1 Recognition of sameness or difference in pitch.

2 Ordering and classifying sounds by pitch.

3 Attempts at building a scale from its various parts.

4 Attempts at construction of visual patterns of symbols in one-to-one relationship with a pattern of sounds.

5 Development of perceptions and representations of auditory intervals, which involved mental image of heard intervals and visual symbolic expression.

6 Matching of pitches over a range of variable timbres and intensities.

The results of this study gave support to the hypotheses in showing a clear developmental trend. The conclusions Sloan draws are:

1 Typical behaviour patterns are only able to be described in the sense of success or non-success in problem-solving. Almost all the children in the study used a unique approach to the solving of problems before them.

2 Perception of pitch differences was established in almost all the children. Establishment of pitch identities was not secure.

3 Children under 9 years could not generally construct an auditory series of 8 pitches. This then is a later development than the comparable construction of a visual series.

4 Only the oldest children could match pitch identities when the timbre and intensity varied. This too is a later development than in the comparable visual and spatial tasks.

However, there is obviously in the results a pattern of development broadly parallel to the pattern established by Piaget for other senses. The development of auditory concepts seems later than the development of visual or tactile concepts.

Martin S. Rider's study, 'The Relationship Between Auditory and Visual Perception on Tasks Employing Piaget's Concept of Conservation', presented in 1977, compared the conservation of rhythm and tempo with the conservation of area and volume in 40 disabled children aged 7-13 years. He states that the purpose of this study was to develop a cognitive assessment tool using music.

The relationship between aural and visual conservation was tested using six hypotheses:

1 Conservation of area will be significantly related to conservation of rhythm.

2 Conservation of area will be significantly related to conservation of tempo.

3 Conservation of area will be significantly related to conservation of volume.

4 Conservation of volume will be significantly related to conservation of rhythm.

5 Conservation of volume will be significantly related to conservation of tempo.

6 Conservation of rhythm will be significantly related to conservation of tempo.

The results found that all conservation tasks were positively and significantly related, and therefore the hypotheses were all accepted. The significance of these results was that aural conservation tasks may be used in answering cognitive developmental level in children.

The order of acquisition of these four conservation abilities was:

1 Rhythm.
2 Area.
3 Volume.
4 Tempo.

It appears that conservation of rhythm is one of the earliest conservations to appear in a child's development, probably during pre-operational stage. The conservation of tempo results seemed to correlate with Piaget's results on conservation of speed. It would appear that a child who can conserve both rhythm and tempo is close to entering the formal operations stage.

Rider outlines the implications of this study for music therapists and music educators as:

1 These tasks are a tool for determining developmental readiness for musical learning, note-reading, improvisation, and composition.

2 These tasks provide information in readiness for non-musical behaviours involving mathematical operations, proportionality, and abstract thinking.

3 These tasks may be necessary in evaluating the cognitive development level of visually handicapped children.

In Larsen's 1972 study, 'Levels of Conceptual Development in Melodic Permutation Concepts based on Piaget's Theory', he 'examined the transition of musical thought from the concrete to the formal operational stages of development'. The scope of the study was stated as 'cognitive reasoning as it applies to melodic permutation'. The hypothesis was that three forms of melodic permutation - inversion, retrograde, and retrograde inversion - require formal operational thought for their conceptualisation. The object was to discover the ages at which children perceive the principles of inversion, retrograde, and retrograde inversion as suitable means of melodic variation.

Twenty-four students were randomly selected, 8 from each of third, fifth, and seventh grades, and given a four-step musical task which involved the use of five resonata bells. In the first step, each child at his individual interview was asked to match the order of his set of bells aurally to correspond with a five-note melody played by the tester. Step 2 involved

the student being asked to vary the melodic pattern. In step 3 a second set of bells of different pitch was given to the child and he was asked to match the shape of the original melodic pattern played again by the tester on this new set of bells. Step 4 presented the child with visual diagrammatic representations of the melodic contour and its inversion, retrograde, and retrograde inversion, and the child was asked to explain the relationships and construct the permutations with the levels. Discussion of the question of validity of these permutations as melodic variations followed.

The results of these interviews brought Larsen to the following conclusions:

1 There were differences in the way subjects at different age levels solved the musical task involving melodic permutation - older children worked faster with fewer repetitions.

2 Only the older subjects accepted the permutations of inversion, retrograde, and retrograde inversion as valid means of melodic variation, and used different mental structures of reasoning to arrive at this opinion.

3 The differences between the different age groups were compatible with Piaget's theory of cognitive development.

When Piaget died in September last year, aged 84, he had spent sixty years observing, studying, playing with, and thinking about children. His work has opened up a very different approach to our understanding of intellectual development. He broke down barriers between disciplines, and I suggest we use his ideas as foundations in our own exploration of the musical development of children.

Piaget did not consider himself an educator, but his words which follow are evidence of the breadth of his understanding:

> The principle goal of education is to create men who are capable of doing new things, not simply repeating what other generations have done - men who are creative, inventive, and discoverers. The second goal of education is to form minds which can be critical, can verify, and not accept everything they are offered. The great danger today is of slogans, collective opinions, ready-made trends of thoughts. We have to be able to resist individually, to criticise, to distinguish between what is proven and what is not. So we need pupils who are active, who learn early to find out by themselves, partly by their own spontaneous activity, and partly through material we set up for them; who learn early to tell what is verifiable and what is simply the first idea to come to them. (Ripple and Rockcastle, 1965, p. 5)

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KINDERGARTEN PUPILS' RECOGNITION OF AFFECT IN MUSIC VARYING IN TEMPO, MODE, AND REGISTER

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The research reported here is based on three experiments conducted with children of about five years of age. The aim was to test their ability to systematically attribute emotional meaning to musical pieces which were specially composed for this study and varied in tempo, mode, and register. The emotions chosen were happiness and sadness.

In the writings of musicologists there are some unquestioned assumptions about some musical elements and their supposed affective content - in Western culture, for example, the minor keys are very frequently associated with sadness, melancholy, and distress. The question presents itself immediately whether it is the fact that a particular piece has a minor key which makes it sad, or whether the sadness comes from other factors that often go hand in hand with a minor key, as for instance a slow tempo.

The most interesting question is ultimately this: if there are relations between certain musical properties and particular affects or emotional meanings, do some of these relations apply invariantly across the species? Are some of them candidates for universals while others are arbitrary or culturally learned?

To date, most experimental research into the emotional meaning of music has been conducted with adults, notably in the 1930s by Hevner and Rigg. They studied people's perception of happiness and sadness in classical compositions which were varied in tempo or presented either in major or in minor keys. More recently, some pioneering work was done by Wedin, who applied the Semantic Differential technique with more than 40 adjectives to emotion recognition in excerpts from classical, folk, and pop music. This line of investigation has later been continued in Canada and elsewhere in Europe. Wedin's work (in Sweden) again used only adults as subjects and, what's more, university students.

I chose young children as subjects because they provide a target population in whom the mix of culturally based and more universal, biologically constrained recognition of emotion in music may be weighted in favour of the latter, if it exists. Of course, any preliminary findings will have to be subjected to cross-cultural research to allow us to make any decisions about their possible universal validity. Similarly, within any one population group we may want to study the development of affect recognition in music from early childhood to adulthood.

Before doing research with young children, one has to establish first what method or technique suits them and, in work with emotion recognition, which emotions they generally know. It would of course be absurd to present them with the subtly differentiated list of emotions which adults can distinguish.

Research by Izard, and by Odom and Lemond, into emotion recognition and emotion labelling of facial expressions has shown that children of about five years of age are only able to distinguish between the most basic emotions such as joy or happiness on the positive and distress and anger on the negative pole. I therefore felt it was safe to choose happiness and one of its opposites, sadness, as response variables.

Instead of simply asking for verbal responses, I used a modified technique developed by Hartje, a German. His interest lies more in the field of the sociology of music, that is, in group decision-making about affect in excerpts from classical compositions, but the use of visual aids, namely stylised faces expressing happiness and sadness, proved to be very successful. As an alternative to responding verbally to the question whether a tune is happy or sad, a child has the opportunity to indicate non-verbally which of the two emotions it associates with the tune. Furthermore, the use of a stylised face, or in my case a puppet, turns the test into a game which engages the child's attention and imagination, making him or her participate actively. For the main experiments I made a puppet with fixed, neutral, but alert eyes, whose mouth, however, was not sewn on. It could be put either into a smiling or a frowning position. That the mouth alone is an adequate cue for the relevant emotions, happiness or sadness, was established by several researchers whose work is reviewed by Izard and Ekman.

Each child was tested individually. I explained to each one that the reason the puppet's mouth was not sewn on was the fact that it liked to change it sometimes. I showed the puppet with its mouth in either position and asked the child what was different. Most children readily labelled the smiling position as happy and the frowning one as sad. Less than 10 per cent were not up to the spontaneous labelling task, but, once given the adjectives happy and sad, were able to recognise them. After establishing whether a child understood the puppet, I told her or him that we were going to pretend that the puppet was a musician who loved to play the piano all the time and who used the piano to tell people whether it was in a happy or sad mood. I asked the children whether they wanted to listen to some of the pieces the puppet would play and tell me what the puppet was feeling during each piece; that the puppet was going to play 12 little tunes, after which it probably needed a rest. It turned out that most children gave verbal responses as well as, and often before, arranging the mouth. But some remained silent throughout and only responded via the manipulation of the puppet. So much for the technique.

From the multitude of stimulus variables that present themselves, such as different tempi, rhythms, meters, timbres, registers, and so on, I chose the following three main variables: tempo, mode (major and minor), and register.

As I mentioned above, the notion that tempo determines the happiness or sadness a tune communicates has been tested years ago by Hevner and Rigg. The latter had presented subjects with musical items at six different speeds and found a 'general principle that fast tempo tends to make music happy while slow tempo has the opposite effect' (1940, p. 571). In experiments with what one might call micro-music, where a pair of crotchets one tone apart was repeated six times to form a basic unit which was followed by a new element, Swanwick found that subjects associated accelerated tempo in the new element with happiness.

Register was singled out, following speculation that similar principles

determine the perceived affect of human speech and music. That register strongly influences the affective quality of speech has been demonstrated by E. R. Skinner in 1935. His experiments showed that a high vocal pitch expresses happiness, while a low pitch expresses either sadness or a neutral emotion. Hevner and Rigg produced supporting evidence that this principle applied to the affect of music, again using adults as subjects and giving no statistical analysis of their data.

Finally, I chose mode as a variable because Hevner and Rigg had found it to determine happiness and sadness for Western adults. My own hypothesis was that it would not produce an effect with young children, and post hoc I came across evidence which would support this hypothesis. Research into the recognition of melodies conducted by Imberty and Zenatti has shown that children of eight years of age are able to notice tonal shifts from one key to one which is a semitone removed, and that they can recognise tonal melodies better than atonal ones because by that age they have 'internalised' the tonal scale systems. Five-year-olds, on the other hand, found tonal and atonal melodies equally hard to recognise, which suggests that they had not yet learned and internalised their scale systems. Since the major and minor modes depend on our diatonic scale systems, it is obvious that they can only be distinguished when these systems are mentally represented in our brain.

EXPERIMENT 1

In the first experiment I used tempo and mode as the two stimulus variables. In a pilot study I had established that children usually make their choice of happy or sad within about ten seconds from the onset of a tune. The three basic tunes I composed were therefore quite short and resembled children's songs in their simplicity. They had the following points in common: each was in the key of G, in 4/4 meter, and had the same rhythmic pattern (modified slightly in tune B with dotted crotchets at the beginning of the first and third bars); each had two two-bar phrases, a similar overall melodic shape (an inverted U-shape), and was recorded with the volume kept constant and without rubato. An accompaniment of full triads was added to the melody to strengthen the sense of major and minor. The fast tunes were recorded at MM = 278, the slow ones at MM = 56. The relative duration of the fast and slow versions was kept similar by a repetition of the fast versions. From the three basic tunes and the two variables resulted 12 different items, which were re-recorded in three random orders to avoid an ordering effect.

A total of 43 subjects were tested in the first experiment, 26 girls and 17 boys. They were selected in alphabetical order from several classes in two state school kindergartens. Their ages ranged from 4:9 to 5:4. In the pilot study I had found that some pre-school children barely four years old can fulfill such a task, while others do not have the necessary attention span or the ability to settle down. This led me to test only kindergarten-age children. Each child was tested in the manner outlined before while I recorded its responses.

Only 32 of the 43 subjects completed the task, that is, were able to listen to all 12 items and provide a judgement for at least eight of them.

Chi-square was used for the evaluation of the data in all three experiments, in spite of the fact that each subject contributed more than one response. In case there was some violation of independence, and for the sake of

TABLE 1

Happy and sad score point frequencies for fast and slow tunes in the major or minor mode, reduced data, Experiment 1.

	Score Points	
	Happy	Sad
Fast Tunes		
Major	26	5
Minor	23	9
Slow Tunes		
Major	10	21
Minor	6	25

conservatism, the original data were reduced in the following way: as there were three tunes in each category (eg, in fast-major), the responses had to be two thirds consistent, at least, to be recorded at all in the reduced data. Table 1 shows the reduced data. A multiway contingency chi-square showed that tempo and mode did not interact in determining the responses ($x^2(1) = .016$, p .80). Hence I was justified to collapse the frequencies of either variable to consider each one's effect separately.

In the examination of the tempo effect, the reduced scores for the major and the minor versions were combined at each tempo. The fast tempo produced 49 happy and 14 sad points, the slow tempo 16 and 46 respectively; a fast tune was therefore associated with happiness, and a slow one with sadness, with a ratio of more than 2.5:1 ($x^2(1) = 33.81$, p .001), which seemed very remarkable for that young age.

In order to determine whether there was a mode effect, the reduced scores for all the major items were compared to those of the minor ones. Major produced 36 happy and 26 sad points, minor 29 and 34 respectively; the difference is statistically non-significant ($x^2(1) = 1.81$, p .10). The fact that the results showed a non-significant trend in the direction one would expect from previous research raised the possibility that there may have been psychological masking of the mode effect by the strength of the tempo effect. This consideration motivated the second experiment.

EXPERIMENT 2

In the second experiment, mode was retained as a variable, but this time coupled with a variable that was not expected to produce an effect, namely meter. In order to avoid psychological masking by tempo, the tempo was kept constant across all items at MM = 100. This speed was chosen because it had been found to be most neutral or ambivalent in a study of the

subjective rating of tempo by Behne, falling on average halfway between fast and slow. The second variable, triple (3/4) in addition to duple (4/4) meter, was chosen as an alternative to composing three more basic tunes within the set standard of similarity, since I still wanted to arrive at a total of 12 different items. In the 3/4 versions, the same overall melodic contour, basic pitches, cadences, and harmonic progressions were retained. The items were re-recorded in two random orders.

The testing was done in the same way as in the first experiment, using 18 new children from the same classes who were all able to complete the task. At this point no further testing was done, since preliminary analysis showed no indication of the emergence of an effect for either variable.

The data were again reduced in the same manner as in the first experiment, and the result scores are shown in Table 2. If we consider the two variables separately, it can been seen that the major mode produced 13 happy

TABLE 2

Happy and sad score point frequencies for major and minor tunes in duple or triple metre, reduced data, Experiment 2.

	Score Points	
	Happy	Sad
Major Tunes		
Duple Metre	5	11
Triple Metre	8	10
Minor Tunes		
Duple Metre	9	8
Triple Metre	9	8

and 21 sad score points, while minor resulted in 18 and 16 respectively. The difference is not significant ($x^2(1) = 1.48$, p .20).

A follow-up mini-experiment conducted recently with 14 older children from an open classroom, whose ages ranged from 9:10 to 11:7, using the same stimulus material and response variables, showed quite a different picture. Their reduced scores showed 24 happy and 4 sad points for the major mode, and for the minor mode 4 and 24 respectively. At the age of around ten, these children, in any case, seem to associate the major mode very consistently with happiness and the minor mode with sadness ($x^2(1) + 28.57$, p .001). Meter, on the other hand, produced absolutely no effect, with 14 score points in each of the four cells.

The conclusion reached from the first two main experiments and the follow-up experiment with older children is this: the major and minor modes are

probably not even recognised as such, and certainly not associated with any affect, by five-year-old Australian children; yet by the time they are around ten years old, they very strongly associate major and minor with happiness and sadness, at least when these emotions are the only choice they are presented with.

EXPERIMENT 3

In the third experiment I tested the effect of register, adding low versions two octaves below the original ones. Furthermore, I reintroduced different tempi as the second variable, since it interested me to find out whether this variable (previously shown to produce a strong effect in itself) would in any way interact with the register variable. However, in case of psychological masking of the register effect by the extreme tempi, I again included the medium tempo. Thus the two registers and the three tempi produced six versions of each tune. Only two of the basic tunes were used, tunes B and C, to keep the duration of the experiment the same as in the first two.

Instead of using full triads in the accompaniment, only two-note chords were used, to avoid too thick a texture in the lower versions. The three tempi were still MM = 276, 100, and 56.

In all, I tested 58 children, none of whom had taken part in the other two experiments. A greater number was needed here for a conservative statistical analysis of the scores, because of the three, rather than two, tempi. Fifty-four children were able to complete the task. The raw data were again reduced, and this time the two answers in one category had to be the same, or totally consistent, to provide one point towards the reduced score. Table 3 shows the reduced data from which we can see that register and tempo seem to act additively rather than to interact with each other. In each register, a decrease in tempo is accompanied by a decrease of the proportion of happy score points. Statistical analysis confirmed that there is no significant lack of consistency in the register effect across the three tempi, or in the tempo effect across the two registers, supporting the proposition that tempo and register act additively rather than modify each other ($x^2(2) = 1.33$, $\underline{p}$ .50).

The fast tempo, disregarding register, retained the same affective content as it had in the first experiment, being associated predominantly with happiness (79 per cent). At the medium tempo, there still were more happy than sad score points, 43 and 29 respectively. However, contrary to expectations derived from the first experiment, the number of sad score points was not much greater than that of happy ones at the slow tempo, 32 and 25 respectively, yet the overall tempo effect was nevertheless very significant ($x^2(2) = 15.61$, $\underline{p}$ .001).

Similarly, the register effect was very significant ($x^2(1) = 16.68$, $\underline{p}$ .001), the high register being associated with happiness rather than with sadness in a ratio of nearly 3:1, while the low register produced only a small majority of sad points (55 per cent). The latter result is reminiscent of Skinner's findings about the human voice, showing that a low pitch has a more ambivalent emotional meaning or affect - between neutral and negative - than a high pitch.

TABLE 3

Happy and sad score point frequencies for high and low tunes at fast, medium and slow tempo, reduced data, Experiment 3.

	Score Points	
	Happy	Sad
High Tunes		
Fast	33	6
Medium	29	8
Slow	16	13
Low Tunes		
Fast	16	7
Medium	14	21
Slow	9	19

SUMMARY AND CONCLUSIONS

The research reported here aimed to establish two points, one concerning the stage of development reached by five-year-olds in their perception and appreciation of music, and the other concerning the relationship between certain controlled elements in music and their respective emotional meaning, specifically in the gaiety-gloom or evaluative dimension of affect.

The proposition that the ability of five-year-olds to distinguish between the most basic emotions in general can be applied to their perception of affect in music has been supported by the results of these experiments. It was shown that they make consistent judgements, rather than mere guesses, about the emotions communicated by simple musical items; they do understand music as a language of emotion. The combined results of the experiments showed no difference between girls and boys in the way they understood the emotional meaning of music.

Concerning the musical material, the three experiments showed that there seems to be a strong correspondence between a fast tempo and happy content and, at least in combination with a non-significant variable such as mode, between a slow tempo and sadness. Similarly, the register of a piece of music determines its affect, high being associated with happiness and low tending towards sadness. This register effect, which is also inherent in speech, may be reflected in our figurative use of high and low qualifying our emotions (being in high or low spirits standing for happy or sad, respectively). What the origins of these form/affect links are remains a fundamental question to which no answer has yet been found, but

cross-cultural research may at least show us whether they exist universally.

Where tempo and register are combined in contradictory fashion, as was done in Experiment 3, it would seem that the happy effect of the fast tempo takes precedence over the sad effect of the low register, while the happy effect of the high register takes precedence over the sad one of the slow tempo. This is reminiscent of the 'Pollyanna' principle, discussed by Osgood, in language processing - positive affect takes precedence over negative affect.

Further research needs to be conducted to find out more about the interaction of variables such as tempo and register, with groups of older children and adults. It is possible that greater differentiation in our understanding of emotions allows us to resolve, as it were, apparently conflicting messages. Fast tempo and low register, for example, might be understood neither as sad nor as happy, but rather as something like stormy, furious, angry, or agitated - in other words, belonging to, or shifting towards, the activity dimension of emotion.

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SPONTANEOUS MUSIC-MAKING OF PRE-SCHOOL CHILDREN: RESEARCH REPORT

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Rather than a report on research completed, or in progress, this paper is concerned with research beginning. The general area of my work is the spontaneous music-making of pre-school children, and I am interested in relating the structures of this spontaneous singing to the children's psychological development and their interaction with their environment.

In 1980 I collected data consisting of recordings and written observations of my two children, Peter and Keinwen, who were then aged 4 years and 4½ years. These recordings were each 45 minutes long, and were made at kingergarten, Sunday school, Dalcroze eurhythmic classes, and at home and in the car. The total recording time was 18 hours 50 minutes, made up of:

* 13 structured observations at kindergarten, Sunday school, and Dalcroze class.
* 5 relatively structured observations at home.
* 2 recordings made in the car, and 3 hours 30 minutes of shorter recordings made both in the car and at home.

My hypothesis for the preliminary part of this work was: 'It is possible to make recorded observations of two kindergarten children such that a collection of data on their (1) structured music-making at kindergarten, Sunday school, and Dalcroze classes, and (ii) spontaneous music-making at other times, is the result.'

Having collected this data, I have now embarked on an analysis of the material in an attempt to prove the hypothesis: 'The structures in the spontaneous music-making of two pre-school children are evidence of their psychological development and interaction with their environment.' I have not as yet made enough progress in this analysis to be able to provide any definite results, but you may be interested in hearing some details of my observations. There seem to be certain trends appearing which I hope to follow through and discover if they are indeed patterns. When these patterns become observable, my long-term plan is to compare them with the patterns in the next lot of data I have collected this year, 1981, on Peter and Keinwen, and ultimately to test these individual patterns against data on a wider selection of children. Both children chose to sing at times which provided a continuing pattern. There was less singing when the weather was raining or overcast and more when the sun shone. The health of the individual influenced the inclination to sing. When either one was unwell with a cold or stomach upset, there was no song. If there had been an argument or any other reason causing a darkening of mood, the children would not sing. In the mornings there would be more likelihood of spontaneous singing on the way to kindergarten rather than on the way home. In the afternoons, singing would occur most often in the hour or hours before the evening meal rather than immediately after lunch.

I noticed frequently how nebulous was the dividing line between singing and speaking, and both children would alternate in the course of one conversation, although this was more prevalent in Keinwen. I suspect this was for a number of reasons, the most obvious being her more advanced language development. The differences between the children's personalities became obvious through the differences in the times when they chose to sing as well as the type of singing.

Peter sang more frequently when physically still - in the bath, in bed, sitting playing with blocks or drawing. However, Keinwen sang usually when moving either of her own volition, dancing or jumping,on a jumping board, or in the car or on her bike. The words of her songs also show her affinity with movement.

Peter's singing contained fewer words, more sound syllables and more complicated rhythms. Keinwen's songs were more meaningful in the words and story line, with simpler rhythms and, as far as I can tell from a small amount of analysis, a fairly strong tonal centre.

During the two-month period of the observations, there was a development in the relationship between the two children which could be followed through their music-making. As Peter gained confidence and became more independent of Keinwen, he sang more frequently and there was more relaxed movement to music and more frequent singing in the car. This was reflected in his development in Dalcroze class, also. During this time Keinwen gradually lost her leadership role in the relationship, and this led to obvious loneliness, especially at kindergarten, where she retreated into a fantasy world. Her songs reflected this withdrawal and her lower level of confidence. By the end of the observation period, accommodation, in Piaget's terms, had taken place - she had adjusted her view of the relationship and returned to reality and more confident singing.

One fascinating observation I made during one session at home contains a very curious piece of evidence. Peter and Keinwen were sitting at the kitchen table drawing. Peter was the only one who sang, but it was when he did so which I found fascinating. My notes later revealed an exact five-minute lapse between each burst of rhythmic noise syllables - at 5, 10, 15/16, 21, 26 minutes. Unfortunately the tape of this session was ruined so my notes are the only proof that it ever happened. This is one tiny fragment of evidence which I hope to investigate further, to discover whether children do in fact have an inner clock which times their pauses as much as their sound.

To sum up these general points - weather, health, and mood, time of day, linked probably with tiredness and temperature - all affected the probability of the child choosing to sing. Singing and speaking for a child are not two very separate behaviours, and a child's emotional stage and personality are observable through his or her music-making.

The areas I found of most interest were the link with movement or physical resting, and the possibility that a child has some intuitive knowledge of time span. When the analysis is completed, it will be a valuable exercise to compare the melodic and rhythmic structures of the child-created songs with those which are taught to the child by adults in the various spheres of the child's environment. I suspect already that children are capable of learning much more sophisticated songs than is often recognised. I make this statement as a suspicion only, for I have much work to do before I will know whether these ideas are verifiable.

RESEARCH IN PROGRESS: THE EURHYTHMICS OF EMILE-JACQUES DALCROZE

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INTRODUCTION

I am currently involved in the writing of a major thesis at Melbourne University, entitled: *Freedom Through Rhythm: The Eurhythmics of Emile Jacques-Dalcroze (1865-1950)*. The thesis presents an historical unfolding of the reforms proposed by Dalcroze as necessary if the music education of his time were to cease to be a purely intellectual process, and to become, instead, a vital and living force. In so doing, the thesis also implies that much of what Dalcroze abhorred in the music teaching of his day has continued to exist, and consequently proposes that the Dalcroze method may still offer one relevant approach to a sounder, freer, and more creative approach to the music experience.

EARLY PROBLEMS ENCOUNTERED IN THE PREPARATION OF THIS THESIS

1 Very few of Dalcroze's books and articles have been translated into English. Many publications concerning the Dalcroze method are in French and German. Consequently, an enormous amount of translation has had to be done, and is still being carried out.

2 Translations aside, the more arduous task was to obtain materials. It was fortunate that my interest in eurhythmics was a practical as well as an academic one. Very few of Dalcroze's texts are obtainable through the usual library outlets in Australia. Many overseas requests for books were refused because of their age and often fragile condition. Nevertheless, while studying for the Dalcroze Licentiate, I made a number of valuable Australian and overseas contacts. Via these, I was able to acquire many official Dalcroze documents, publications, texts, and even original music manuscripts, which would otherwise have been inaccessible to me.

REASONS FOR WRITING THE THESIS

1 The Dalcroze method plays a significant role in a number of music institutions overseas. At Pittsburgh University, for example, one may obtain a Bachelor of Music with Dalcroze Eurhythmics as the major component. When I was studying for the degree of Bachelor of Music (Education) at Melbourne University, all music education students received in their first year a one-hour lesson in Dalcroze per week. Why it was decided that only education students should receive Dalcroze lessons I do not know. This question aside, the very limited time available to the Dalcroze teacher meant that only a few very basic elements of the Dalcroze method could be concentrated upon. During

this same year, in another subject called Aural Training, I battled, I think along with many others, to sing melodies at sight, and to notate what at the time seemed unbearably long passages of melodic and rhythmic dictation. In an endeavour to improve my musical shortcomings, I looked at a number of books on ear-training, but these tended to supply an exhaustive number of tests rather than suggestive ideas for improving one's musical hearing. It was not until I studied for my Dalcroze examinations that I was shown *how* to sight-sing, *how* to listen to melodic intervals singularly and in succession, *how* to feel, experience, and comprehend rhythm both muscularly and mentally, and *how* to improvise. Why, I often wonder, was the Dalcroze teacher not given the time to show me these valuable strategies for musical appreciation during my conservatorium days?

2 Basically, my thesis enquires into the aims of the Dalcroze method, both in musical and general education, and asks what practical means Dalcroze offered for the implementation of these aims. During his lifetime, Dalcroze wrote innumerable articles dealing with his theories regarding both the musical and general education of the child *and* adult. Many of these articles were republished in chronological order in such texts as *Rhythm, Music and Education, Notes, Souvenirs, and Critiques,* and *Eurhythmics, Art and Education*. Nonetheless, although he considered doing so, Dalcroze never recast the ideas contained in his articles according to a logical plan of thought. As a consequence, many authors, in writing about the Dalcroze method, have seized upon a doctrine advocated in the early years of the twentieth century, without being aware that Dalcroze had completely rejected this same doctrine in later years. One of the aims of my thesis is therefore to present the gradual unfolding of Dalcroze's theories and the subsequent alterations which they incurred.

As the title of my thesis would suggest, Dalcroze was convinced that eurhythmics affected a particular kind of freedom which was of benefit, not only to the musician, but to the general condition of the human race. He perceived eurhythmics from both the individual and social perspective, and believed that a world existing in 'right rhythm' would be a world of hitherto unknown 'joy'. At times, Dalcroze's use of the word *rhythm* becomes totally abstract. What is important, however, is that at no stage does Dalcroze isolate his philosophical ideas from the practical context of the eurhythmics lesson. The successful eurhythmics lesson, according to Dalcroze, must provide the participants with a sense of freedom and joy. But this does not imply that the eurhythmics lesson should be just fun and games and 'do-as-you-please'. A true understanding of Dalcroze's use of the concepts freedom and joy is an important factor in revealing that it is upon these two elements and not a mere succession of eurhythmic exercises that the vivacity of the Dalcroze method depends.

3 An important reason for my writing about Dalcroze is that I believe it provides the music educator, whether primary, secondary, or tertiary, with a great variety of approaches through which to bring the child or adult to a greater understanding and feeling for music. This is not to say, however, that eurhythmics provides an immediate answer to all the difficulties which can be encountered in teaching music in the school situation. There are a number of problems to be overcome by the Dalcroze teacher:

(a) Teaching eurhythmics involves a constant mental alertness and much physical activity. The crowded timetable would therefore need to be carefully planned so that Dalcroze, particularly

movement activities, would be interwoven with less physically tiring activities. More easily said than done, of course, especially in a one-music-teacher school.

(b) Class sizes can be a big problem. I think a class of twenty students is the maximum for movement activities. Even in a hall, and with a group of the most co-operative students, to try and watch, let alone correct the shortcomings of the movements of forty students, is a rather trying experience.

A FEW AREAS OF CONTENTION DISCOVERED, AND A FEW AREAS NEEDING FURTHER RESEARCH

1 Many authors are of the opinion that Dalcroze solfege allows the student to acquire absolute, or perfect pitch. This was not a claim made by Dalcroze. He considered absolute pitch to be an inherent factor not achieved merely through practice - a conviction shared by a number of recent investigations. What Dalcroze did claim was that through solfege the student could acquire what he termed a relative-absolute pitch. This differed from the normal meaning given to relative pitch, in that, by training the muscles of the throat to sense a number of fundamental tones, the student would be enabled to pitch any other tone through reference to these, without the need to resort to any mechanical means of musical reproduction. This physiological approach to pitch development is fundamental to the Dalcroze method.

2 It is interesting to note that Dalcroze conducted experiments which appeared to reveal that those who began instrumental studies without a previous study of solfege frequently declined in their perception of sounds after the first few years of instrumental study. Dalcroze ascribed this loss of aural acuteness to his belief that, in instrumental tuition, the ear is not educated to take an active part in the production of the sounds produced. The validity of Dalcroze's theories on loss of aural acuteness and too early instrumental study would seem to have received little research.

3 A significant controversy is how the physical realisation of musical rhythms in relation to their mental perception takes place. Dalcroze advocated that the various exercises of eurhythmics led to a movement response to musical rhythms which was unconscious and free of all intellectual pre-occupations. Many authors appear hesitant to support this claim, and prefer to describe the movement response in such vague terms as 'an easy response', or an uninhibited response. Most authors ignore the question altogether. Research into this area would be of great value to the Dalcroze movement.

CONCLUSION

I am very fortunate that in July and August of this year there will be held an International Congress of Dalcroze Eurhythmics in Geneva. I am sure this will inspire me with a number of new thoughts before the submission of my thesis early in 1982.

SEX ROLES IN MUSIC EDUCATION IN VICTORIAN SCHOOLS

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A SUMMARY OF SOME DATA PRESENTED TO
THE FOURTH NATIONAL AMEL CONFERENCE, MAY 1981

This project attempts to assess the extent to which musical involvement and attitudes of adolescents are influenced by traditional sex-role stereotypes about music and musicians.

RESEARCH METHODS

For the purposes of this study, 282 year 10 (form 4) students were surveyed at three schools within an outer-eastern, predominantly middle-class suburban area of Melbourne. The students came from:

1 An independent girls' school.
2 A Catholic boys' school.
3 A state co-educational high school.

As a pre-test, 30 students in years 8-12 at another eastern suburban high school were surveyed during 1978. These were all students of music. However, to extend this study, it was decided to include all year 10 students at their respective schools, for two reasons:

1 To give a more general picture, with opinions from children *not* involved in music as well as from those who are.

2 To gain an accurate percentage of students involved in music, whether at school or not.

The students were asked two types of questions:

1 Information concerning their own musical involvement (if any), the various influences on this, plus the family background, the latter including parents' occupations as well as the family's involvement in music.

2 Attitudes towards music and musicians and the images of these, particularly from a sex-role perspective, as well as opinions on men/women conductors. The students were also asked their intended occupations.

The survey was carried out during April and May 1979, with the students filling in questionnaires.

Information was coded onto punch cards and analysed using the Statistical Package for the Social Sciences (SPSS).[1]

RESULTS

Sex roles have affected many of the results of this survey. The fact that

so many girls learned the piano reflected traditional roles. Many boys learned the guitar - showing some cultural influences of popular music. There appeared to be little or no differences between the sexes, other than a bias towards boys playing brass instruments amongst students learning orchestral instruments. Numbers of students in the last category were somewhat unexpectedly low.

Sex-role stereotypes also affected the students' attitudes. Both boy and girl students thought men and women could play some instruments better than others. Women were expected to play the piano better, followed by violin, flute, and harp, for reasons mainly appropriate to women's perceived sex roles. More boys than girls expected men to be superior players of percussion, drums, and brass instruments, for reasons that included the greater physical strength, control, knowledge, and leadership ability required to play these instruments. Similar reasons are offered for boy and girl students seeing men as better conductors.

Conclusions drawn from this survey indicate that many of the above types of responses match existing attitudes. It may be argued that this situation needs changing - all those concerned with professional music, as well as those involved in music in the classroom and even the home, must change their attitudes and allow old prejudices to lapse.

In the words of the Report on Equal Opportunity:

> 26 That schools attempt to counteract unnecessary notions of appropriateness in music education programmes so that both boys and girls can participate in and enjoy the full range of musical activities.
>
> 27 That music education be taught in such a way that the many vocational avenues in music may be seen as viable choices for both boys and girls.[2]

NOTES

1 Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, K. Steinbrenner, and Dale H. Bent, *Statistical Package for the Social Sciences*, 2nd edition, New York: McGraw Hill, 1975.

2 'Sexist Music Educators Revealed: Extract from the Report of the Committee on Equal Opportunity in Schools', reprinted in *Agitato*, No. 2, Victoria: Curriculum and Research, Education Department, 1978.

DIRECTIONS AND ISSUES IN RESEARCH IN MUSIC AND MUSIC EDUCATION: PANEL DISCUSSION

Dr Doreen Bridges, Dr Fred Rees, Gillian Bonham, Dr Catherine Brown

HISTORICAL BACKGROUND

Dr Bridges expressed a feeling of excitement that AMEL had been the initiator of a conference entitled 'Research in Music and Music Education'. Music education research is comparatively young in Australia, as the first ASME conference in 1969 proposed that areas of research in music education be identified. In 1971 a research committee comprising Arnold Bentley, Doreen Bridges, Frank Callaway, and Gordon Spearritt was established, and the first government grant for music education research by Dr Bridges resulted in the ATAMS tests. The ISME Research Commission was a forum for Dr Bridges' research activities for the period 1972-80. In Australia the last decade has seen a growth in educational institutions with incipient demands for courses of instruction for additional qualifications by the teaching profession. Music education research is becoming a growing field.

ISSUES AND DIRECTIONS

- Identification

  Reference was made to Dr Lett's paper and the need to identify research areas by addressing seminal issues such as:

  'What questions should we be asking about arts education?'
  'What expertise do we have to answer the questions and what current available theories exist to support our argument?'

- Format

  The presentation of research papers at a conference necessitates a pre-reading of the paper, a ten-minute supporting statement by the author, and a thirty-minute discussion. The aim of this is to improve the quality of the content of the methodology. Critical co-operation will promote research integrity and a demystification of the statistical data.

- Publications

  The Australian Journal of Music Education will accept abstracts of research projects for publication, and a catalogue of research titles in progress will be compiled. In addition the publication *Studies in Music* (University of WA) will accept contributions.

- Dissemination

  Using libraries, RILM abstracts, AUSINET, American computer data bases, and music indices, *Australian Dictionary of Music Research* (1977) will give access to reference materials. Considerable information is available in psychology journals.

- Process

  Research can be seen to be a spirit of co-operative curiosity and reflective thinking. This requires the simple ability to talk to one another without the hindrance of territorial constraints. Clear definition of terms is critical in the validation of research findings. For example, studies that use words like 'rhythm' in music may need careful explanation, as readers may retain different concepts of the one term, thereby obscuring the context of the word and possibly misinterpreting the findings of the study. Other concerns include the need to question the validity of the pre-test as one of the tasks of the researcher in developing properly conceived measuring instruments at the outset.

Dr Bridges concluded by saying that research is absolutely vital in music education and that it needed a great deal of care in its preparation and evaluation.

RECOMMENDATIONS

1 That the *Australian Journal of Music Education* devote one section in each issue to research in music education.

2 That AMEL assist people with research skills by producing appropriate publications.

3 That information concerning music education research programmes be given to ACER and AUSINET.