Chapter II

REVIEW OF RELATED STUDIES
CHAPTER II
REVIEW OF RELATED STUDIES

(Prefatory note: This chapter is divided into four sections. First, studies in India have been reviewed. This section indicates that music education is a neglected area. It concludes with some constructive studies from which the present study takes off. The second section presents the studies from progressive systems. More than twenty languages and cultures are represented in his collection. The first segment in this section is from International Society for Music Education and Kabalevsky et al (1974). Since this has been already touched by earlier investigators from Kerala only a few illustrative cases have been reviewed. The second half includes those which the investigator was able to collect direct from the respective countries. The documentation from New Zealand were particularly helpful because they give the abstracts and title in the source language as well as in English. Since the double reference would consume much space, footnotes are eliminated, and all references for this chapter is given in BIBLIOGRAPHY: B. STUDIES. The third section includes studies incidentally referred in scholarly discussions about music and music education. The last section presents studies gathered by Stanley Hall about a hundred years ago. Most of the studies are from German sources. Though a century old, there is something modern about these approaches, and probably indicates the 'timelessness' of genuine exploration into music and music education.)

A. INDIAN STUDIES

The Indian studies are placed first to indicate the gaps in knowledge, which needs to be covered in order to give a research base for making school education effective as well as enjoyable. It also seeks to identify those studies, which may serve as a take-off point for the present study.

Review of Related Studies

and the Indian aesthetic schools are cited and an excellent philosophic perspective is presented. The few studies reviewed to build up the content of the Trend Report are from foreign sources and do not relate to music education as such. Ten areas (17 studies) of related research have been listed in the Report (pp.413-14) covering the period 1964 to 1986. No study on music education has been reviewed in this volume and the Trend Report does not note this as a serious gap. L. Vasantha's (sic) study on Comparative Music Education is mentioned incidentally in the running Report, but not drawn upon for drawing the content for the Trend Report or inclusion in the list. The distinct aspects of music education which has emerged during the past four decades, some of which were explicitly brought out in L. Vasantha's study (vide infra) are not touched. At least three other studies in or related to music education (vide infra) have not been noted at all. More than thirty studies conducted from 1984 to 1991 constitute the concluding 'Reference' and almost all of them pertain to value education in general. Thus the latest Survey or Research available at the time of the investigation provides the justification for the present study as dealing with a relatively unexplored or even unrecognised field.

Sukumaran Nair (1965) was one of the earliest in India to tackle this area scientifically in his Master’s dissertation in the University of Kerala. He developed An Aptitude Test in South Indian Music on the lines of Seashore’s Musical Aptitude Test. A preliminary validation study showed that the following three sub-components of Seashore tests (pitch, rhythm and tonal memory) may be used as reasonable predictors of musical ability under Indian conditions. The tests, after the usual item analysis procedures were standardised on a sample of 1338 covering three representative districts of Kerala. The sample was distributed almost equally
Review of Related Studies

(around 133) among the age groups, 10,11,12,13,14,15,16 and 17, with 288 in the group of 18 and above. Percentile as well as Mean/Standard deviation norms were provided. The test was validated with external criterion of eminent musicians (N=12) whose percentile scores were clearly higher than those of the sample on each of the dimensions. The test-retest reliability ranged between 0.84 to .93 for the three sub-tests. The split-half reliability was almost identical, with a range of 0.83 to 0.93. Valuable suggestions for further research in the field were offered, which, however, were not taken up in the country.

The area was taken up after ten years in Kerala under the guidance of Dr. Vedamani Manuel, and this school has contributed the bulk of music education studies in Kerala.

Chandrakumari's M.Phil study (1982) on the Potentials of Music for Enrichment of Hindi Education showed that simple songs in Hindi and particularly Hindi film songs helped to create interest in learning as well as in helping to master words and structures. The study used a variety of analytical procedures, depth interviews with experts, an attitude scale and a judgement scale. The attitude scale and judgement schedule were also used along with the experimental procedure which involved rendering of various types of Hindi songs in their pedagogic setting. The attitude scores revealed favourable approach of the participants towards the approach of teaching Hindi through songs. Individual item scores of items and correlation of the total scores with certain criterion measures indicated very interesting results. Close analysis of Lata Mangeshkar's Meera Bhajan neend na āve, Jesudas's film song Gori tera gāv badā pyāra, and P. Susheela Devi's special
recordings of Hindi classic songs from pre-degree texts brought out revealing findings pertaining to enrichment of poetry through music, and delicate shades in rāga, rasa and bhāva. The judgement scales showed how the participants received them and reacted to them. Several distinguished persons spent hours to state their views on the subject. K.J. Jesudas recalled that when he was a student, film song lines helped him to construct sentences in Hindi and even to get an insight into its grammar. He endorsed several advantages of using Hindi songs as pedagogic devices. He was however against imposing the fine nuances of Urdu on Kerala children, for whom the Sanskrit base would be a greater help to enter Hindi with greater confidence. He explained how he himself acquired these nuances with difficulty, and demonstrated the sounds in khyāl and ghair, which were very different from the Sanskrit sounds corresponding to kh and gh. The head resonance produced by the maestro in ghair without blocking the glottal passage showed the distinct beauty of Urdu as well as the difficulty in acquiring the sound perfectly.

Venugopu’s Master’s dissertation (1980) was on A Task Analysis of Certain Teaching-Learning Situations in Music. The conceptual complexities of the Carnatic raga system were simplified through this analysis. He tested Manuel’s seven-step formulation of the 72 Sampurna ragas of Carnatic music through vocal recording of L.Vasantha and flute recording by himself. Another area taken up for analysis was the difficulties faced by he beginners in learning to play the flute. Incidentally his experiments with improvising the flutes and treating ‘sa’ (the tonic)
as the position with all the holes closed helped to correlate some elements of physics.

Jacob Idicula (1981) conducted a Task Analysis of different Schools of Violin Playing for his Master's dissertation. He conducted an elementary analysis of the schools of Honeyman, Spohr and Berthold Tours. The first (British) school was a more psychological approach starting with the scales easier to play on the violin and introducing songs very early. The other two (by a German and a French composer) were more logical and rigorous, but would pay off in the long run for students who persist. Idicula also analysed one North Indian and one Carnatic school of violin playing.

Vasundhati (1977) analysed the folk songs of Kerala in terms of (a) theme (b) form (c) geographical regions. One set of classification is in terms of: occupational, recreational, ritualistic, devotional, heroic, philosophical, mythical, love, mystic, lyrical, riddle, vadakkan (northern), tekkan (southern), lullaby, warding off evil etc. Another scheme of classification is more pedagogical: poetical, rhetorical, prosodic, linguistic, moral, historical, political. She concludes that folk songs reveal the life of the common people, including the existing social system and relationship. They show a regard for nature, many songs give injunctions – do’s and don’ts. Many of them teach children good habits. They have a great fascination, particularly for the lower strata of society whose life experiences were closely connected with music and songs. They made work in the fields and other settings enjoyable. Many deal with indigenous medicines. Analysis of these songs show that our unknown and
perhaps illiterate ancestors who composed these songs had made a deep study of emotions like jealousy, love, inquisitiveness, false pride, fear etc.

Madhavan Nair (1981) conducted a study on "The Potentialities of Malayalam Film songs in Teaching Malayalam". He analysed about four hundred film songs according to certain pedagogic criteria. He found that these songs cover almost all types of major learning components prescribed for study in prose as well as verse, including imagery, figures of speech, meters, synonyms, antonyms, difficult words, different forms of poetry, riddles and proverbs. He concludes that the use of film songs as aids in learning will increase pupils' interest in language learning and help them to appreciate poetry. They can be helpful in non-formal, informal as well as formal education.

Suri and Suri (1960) conducted a study on "Musical Discrimination of School-going Children in relation to Cognitive and Non-cognitive Variabilities," using a sample of 200 high school pupils of the urban areas of Jammu District. They concluded that an individual possessing musical ability, which is a constituent of intelligence can better grasp and discriminate the basic concepts of rhythm, pitch, harmony, notes phrase and sequence. "Personality patterns have not been recognised as the sole base for musical discrimination and musical preference" (sic.)

The first doctoral study in this area was conducted by L. Vasantha (1984) on Comparative Music Education. She analysed the teaching systems and textual material in South Indian Music, Hindusthani Music and Western Music. The texts analysed included Sambamurthi's texts on South Indian Music, Vishnu Digambar's
on North Indian Music, school texts from the UK and the USA and some specialised tutor books for violin and piano. She also analysed the broader concepts and practices with reference to music education in a comparative perspective. The Western books analysed represented different schools, but most of them could contribute something unique to music education in India. The American school texts reflect a clear analysis of the different components of musical experiences such as singing (the core of the music programme), listening, playing, rhythmic activities and creative activities. They also take the students to much higher levels in listening and appreciation as compared to their level of performance. The books are profusely illustrated and the wide thematic coverage facilitates interdisciplinary learning. Sambamurthi's texts are systematic and comprehensive combining Indian music with insights drawn from Western analysis. But he has had to condense his presentation on economic grounds, and could not afford the profuse illustrations used in American books. The traditional studies in Indian music have an inbuilt task analysis in a logical order. Indian texts generally give a heavy loading of abstractions, metaphysical discussions and generalisations. Concrete pedagogically processed illustrations to clarify deep concepts are generally lacking. Most of the students tend to memorise the theory texts. In many schools the practice part tends to become mechanical. But the best teachers try to introduce a lot of flexibility and creativity.

Very little of textual materials were available from then Soviet Union, but some of their approaches and those of other socialist countries could be of interest for countries with a history of discriminations in the past and now struggling to provided equalisation of opportunities. These include universalisation of music education,
raising the level of mass education through music, innovative approaches in music helping to improve other curricular areas, through rhythm, creative composition (Kodaly, Asafiev, Yavorsky), approaches to explaining complex musical ideas in a way which children can comprehend (Kabalevsky), have been brought out. Some of these ideas are prevalent in Western democracies also. Special innovations from Japan (Suzuki), Germany (Orff) and the U.K. (improvisations from simple materials and a lot of flexibility) were also analysed. Vasantha interviewed some of the greatest South Indian musicians, such as M. Balamuralikrishna, M.S. Gopalakrishnan and S. Ramanathan, and analysed the cases of some innovations by creative Carnatic music teachers and brought out some significant findings.

Varghese (1991) conducted a doctoral study on Folk Arts as a Medium for Nonformal Education. His methods included documentary analysis, interview, observation, questionnaire to headmasters (N=100), opinionnaire, construction of pedagogic art forms and experimental tryout. He analysed about forty folk arts of Kerala, some of which had music as the dominant aspect, and some in which music was auxiliary to dance/drama, and extracted some educational potentialities. The newly introduced lower primary textbooks (1984) in Malayalam (Bhasha Paricchayam) were analysed to identify the folk art component in them – riddles, debating songs, children's folk songs etc. - and some of these were pedagogically analysed. But the questionnaire answered by headmasters showed that though the textbooks and the songs were taught by all, lower percentage of affirmative answers were obtained with reference to questions relating to higher objectives, suggesting that teachers did not draw out the full potentials. The interviews with
some prominent experts in folk artists also helped to extract some educational values of folk arts.

Some literacy songs composed by Joshi, Varghese and Sivarajan (on the themes of workers' education, women's education, agriculture, overcoming superstition, anti-alcoholism, development education, forest protection, happy family norms etc.) were tried out and appraised. Joshi's literacy potential analysis of some of the songs are insightful. One special feature of the study was pedagogic composition and singing by the investigator himself to test the educational potentiality of folk art forms. One of these was a pedagogic song accompanying girls dancing *Tiruvadirakkali* for teaching Malayalam *vibhaktis* (post-positional particles). Another was a strongly rhythmic song accompanying a vigorous *kolkali* (stick dance) by four tribal boys. The third was a *kathaprasangam* (musical discourse), a popular art form performed by the investigator himself, with several educational objectives inbuilt. The discourse was taped, subjected to close analysis, and judged by experts.

Venugopu (1992) conducted a doctoral study of Youth Festivals and Institutional Music Climate in Schools and Colleges of Kerala. The investigator adopted the survey method, using questionnaires administered to purposive samples of 315 school pupils, 350 college students, 230 accompanying teachers (schools only). The data were supplemented through interviews and observation. He also conducted an elaborate documentary analysis. The consistency between different modes of data collection provided a measure of validity of the findings.
Though music is provided as a curricular subject for all in the time table, the school provides formal music instruction only for a very small percentage of talented ones. In this sense, the music festivals provide a kind of opportunity for music education of students. But the festivals have a very high component of competition-orientation – to win prizes for the individuals and the institution. Though the schools celebrate the cups and prizes, the chief factor which accounts for success is the home (and within the home, tuition master and parent constitute then dominant influences) self-learning with various kinds of appliances come next. The extent of training got at school is less than half of the home training and much lower than self-learning. Training in the ‘fringe of the institution’ (peer group, interaction with interested teachers and artists) comes close. Semi-participant observation showed that a healthy music climate provided in the ‘fringe of the school’ in informal music practice and a number of ordinary pupils without then benefit of home training do benefit by these. Many schools encourage music practice by potential prize-winners just before the music festival, but this encouragement stops immediately after the festival, and the ‘Back to the Book’ climate is resumed. In some schools a kind of informal music club is present. In some cases the Old Boys (past prize-winners) organise such musical training. In some cases, community leaders and temple musical festivals provide the impetus.

Shukla (1987) constructed and standardised a Musical Aptitude Test for Gujarati Children drawing a sample of pupils from classes 5 to 9. He concluded that pitch discrimination, tonal length (?), tonal memory and rhythm discrimination are the key components in determining musical aptitude.
Manuel (1981) analysed the Hidden Curriculum in Work Experiences and Folk Art Forms as one of the themes in his National Lectures on Education. The inbuilt mathematics and physics in music and other arts, and the mutual enrichment dimension with poetry were the important aspects touched. In this presentation 'hidden curriculum' is used in a positive sense – of the deuto-learning (Bateson), a kind of working knowledge which ordinary people possess, without explicitly spelling it out in formal or verbal terms. But this is a potential resource, which can be recalled, tapped out and associated at the appropriate stage with verbal and symbolic forms, which alone count as learning in the formal system.

One recent Master's study from Manonmaniyan Sundaranar University (Tirunelveli) suggested some ideas for the present study and is reviewed at some length. Bhavani (1998) conducted a study on the animation of school physics using music. She first conducted an analysis of textbooks and identified Standard 8: Sound as the main portion directly relevant for her work. But other portions like mechanics, force, tension, main scale and vernier scale in screwguage etc, could also be illumined by experiences with musical (string and percussion) instruments. She analysed the application of physics in instruments like the violin, guitar, veena and flute. Bhavani also experimentally tested the effect of music-based intervention on achievement in the topic Sound in Physics. She concluded that at the post-test stage there was significant improvement in achievement for the total group as a result of the experimental intervention. There were some interesting sub-group variations. There was no significant difference between boys and girls at the pre-test stage. At the post-test stage the girls showed significant superiority over boys, suggesting that musical treatment affects the sexes differently, and in favour of
Review of Related Studies

The sub-sample of pupils who already knew some music, as many would surmise, scored significantly higher than non-music-knowing pupils in the pre-test stage itself. (This too suggests that the music factors have operated favourably for this group even before the experimental intervention introduced by the investigator.) At the post-test stage, the music-knowing group has slightly increased its superiority over the non-music-knowing group - difference which was already quite high. The critical ratio also has slightly increased.

Bhavani also attempted to draw some refined inferences from inspection of the distributions. Not only was the shift of the mean and main modal point to the right very obvious in the post test very clear, but a conspicuous unimodality was visible in the post-test, whereas the pre-test presented a trimodal appearance with the peak at the lowest mode. This points to a probable inference that the experimental intervention, while helping all categories of pupils significantly, tends to polish out the heterogeneity factors in the sample and tends to make it more homogenous, by helping the low-scoring and average pupils more.

The ideas presented in the National Lecture were given a concrete shape in a collaborative project at the Centre for Educational Research, Innovation and Development (CERID) in a workshop conducted with NCERT-aid (Manuel, 1990). The philosophical frames drawn from Tagore, Gandhiji, Dewey, Marx and Freire and the psychological constructs drawn from Piaget, Bruner, Gagne, Maslow and Vygotsky are 'read' in the various work experiences in Mitraniketan such as tailoring and embroidery, tie and dye, batik, weaving, woodwork, plastic wire patterns, art and cultural activities. Instead of applying the philosophical and
psychological frameworks 'forward' in work and art, the theory is read 'backward' from the accomplishment of the worker or artist. Hence the workers and artists were shown as co-workers in the paper.

The technique of this extraction of theory from practice in work/art was spelt out clearly in a paper (Manuel, 1989) presented in the Asian Regional Conference on Educational Technology:

The analytical task was applied not only to the units of Mitraniketan, but also to individual art and craft phrases, e.g., the fingers of a craftsman working patterns in mat-making or basket weaving, or of a veena vidwan performing a niraval in Carnatic music may be intuitively working with a 'logic' which, superimposed with certain mathematical symbols, can be seen as working problematically with complex arithmetic/algebraic tasks. Compared to the skills, sequences and problem-identifying and problem-solving approaches already achieved intuitively, this symbolic superimposition is a relatively easy task, comparable to the lower orders of the Gagnean hierarchy. A large number of workers and artists who performed these physical (concrete) operations are co-researchers of the paper, while the verbal presenter of the paper is only reading the formal operation in them.

... The educational technology products take the form of bridge materials in enactive, iconic and symbolic forms. They can be used in different ways for those who have mastered the art or craft form and wish to acquire formal education and for those who have verbally got a formula without understanding it. For the former, the bridge tasks will be to make explicit what has been implicit (sometimes by slowing down and deliberating on the process), to form associations with symbols and to follow up with operating on the symbols alone (backed by the activity to reinforce meaning). For the latter, liberation from verbalism can be achieved by 'descent' into the enactive/iconic form and then moving up to genuine symbolic experience.

Manuel (1991) conducted a qualitative study of the potentialities of music and allied arts in education. This project has several dimensions — theoretical, analytical, constructive, and try-out of constructs, and cuts across many disciplines. The historical preamble recalls the mathematical significance of the quadrivium, which includes music among the four sciences — arithmetic, geometry, astronomy and
music. The justification is that geometry studies static figures, astronomy studies bodies in motion; arithmetic deals with numbers standing, while music deals with numbers in motion. The Italian literary critic Tommasio brings out the relation among poetry, song and music: "Il verso è calcolo; il calcolo è conto, e fa cantare; l'aritmetica è una Poesia reinforzato" (Verse is calculus and calculus is song and makes us sing; arithmetic is reinforced poetry) (In Wellek, 1965, p. 298 Notes). Similar and even deeper constructs are drawn from Sanskrit, Tamil and other Indian languages.

In South Indian musical expositions, the mathematical form of elaboration is plainly called kaṇakku. In western music the mathematical forms of composition like the sonata and fugue are being used by some music educators as a model for lesson planning. Though this complex model was not attempted in the project, simpler models like intersection of musical rhythm, mathematics and poetry were attempted. The Malayalam vṛttamanjari rules were made clear through the enactive-iconic–symbolic sequences. Apart from mathematics emerging from the talas, the mathematics of the 72 complete ragas of Carnatic music was analysed, and the 72 ragas which music students memorised with difficulty could be presented in just 7 steps – in a 6 x 6 matrix for the first 36 ragas, followed by a single mapping of the first 36 ragas (pūrvaṇīla) into the second (uttarāṇīla) (vide infra).
B. DOCUMENTATION FROM PROGRESSIVE SYSTEMS

(In this section the first segment includes illustrative examples from Kabalevsky et al (1974) and from the International Society of Music education (1974) papers; the latter half presents those collected by the investigator directly from the respective countries)

Sarai analyses the distinct elements in Hungarian music education, especially the contributions of Zoltan Kodaly. Music is conceived as a collective need and as a collective problem. It is a need and problem of the whole society. One aspect of the problem is the need of the youth of the ‘uncomfortably comfortable’ society. The development of science and technology has led to the learning of more skills, but learning has become mechanical. Art tends to be excluded from the upbringing of the individual, though it is now even more important than before. The melodies and tunes that emerged from man’s infancy to the space age sounds of concrete and electronic music are there with the potential of music giving us an awareness of the oneness of human culture. Since singing was man’s first artistic experience, music can make us aware of other arts.

Kodaly used folk music of various genres, from simple arrangement to full scale music dramas and operas. The rationale was "to give back to the widest sections of population the treasures which they themselves had created. Since Kodaly did not have an audience capable of appreciating his music, he planned a scheme of music education which would make them ready — to lead them through an appreciation of music to an appreciation of human culture. Music education incidentally helped to change the state of unbelievably backward social relations of Hungary. Kodaly’s model showed how the imagination of a composer could be
applied to educational problems. He involved himself in the duty of training school
music teachers. He wrote easy choral works for children and organised nation-
wide choral societies. In this system students at all levels actively made music.
When a group of people sing together, a dialectical unity is at once created
between an individual and almost atavistic emotional experience and the collective
experience which welds separate individuals into one whole. The Hungarian
experience influenced music education in different parts of the world.

Friedman presents the scheme of music education in Argentina, based on the
Kodaly model. At a time when mass media is tuning music into a commercial
commodity, the taste and susceptibility of the individual and the formation of his
personality needs to be specially nurtured. The Argentine music teachers have to
work under these conditions to preserve the national cultural heritage and make
music a part of general all-round education. Art is inseparably and organically
linked with the life of people. The first musical experiences should be from the
native musical language of the folk songs. The regeneration of the native Indian
steam, the Spanish influences and other streams is a major challenge. The
demands of youth who are attracted by the popular music from the United states
also poses a problem.

Budik presents the new trends in music pedagogy in the Czechoslovakia. He notes
that pedagogical theory and practice have failed to keep pace with current trends
and the exciting developments in modern music. Music needs to conform to the
cultural and aesthetic demands of modern society as well as to new developments
in music. There is a new poetics in music. Completely new modes of expression
are being born. Music education should be considered as an active formative field of pedagogy needed by everyone. It should bring out a child's creative musical inclinations, to develop his musical thought, imagination, and memory. Creative musical activity for all children involves work in four areas: vocal, instrumental, listening and dance. It includes rhythmic-melodic 'etudes' written by children under the guidance of their teachers, various singing games, programmemes of familiar music, supplemented by verses, dancing, riddles and instrumental music played by students.

Five age groups are identified with their characteristic level of musical development. For kindergarten children (age 4-6) music is associated with games. Children 'play' with music, which becomes an enjoyable part of their daily routine. At the next stage (6-9), children become more conscious of music. Certain 'rules' are introduced into musical games. In the intermediate school years (10-12) children acquire the skills necessary for singing in choir and playing in ensembles. In the upper grades (13-15) children are encouraged to become one with the world of music of their own. Choir and instrumental ensembles are introduced. Finally the youth (16-19) who wish to specialise in music continue their music education undergo a four-year course of instruction in special institutions called gymnasiums.

The new approach brings entirely new attitudes towards content, form, methods of work, student-teacher relations, the process of instruction and so forth. The role of the musician-teacher is not confined to developing the student's technical mastery of music, but extends to developing a love of music. A new teacher-student relation emerges, making them co-workers. Music education inside and outside the school is to be treated as a single process. Music education is not to be rigidly structured,
but dynamically organised according to the nature of the subjects offered, the educational goals, and students' individual skills. Significant modern music will be included, but folk music will not be ignored.

Barenboim describes the contribution of Asafiev and Yavorsky, two outstanding 'music enlighteners' in developing the cultural level of the Soviet Union in its formative years. These innovators invited the attention of music pedagogues and musicians to the role played by children and youth in music making in mass music education. Their systems included novel theoretical conceptions as well as practical experiences.

Yavorsky, who was put in charge of the music schools of USSR just after the October Revolution considered it imperative to introduce an element of creativity in school music programmes. Schools should teach pupils not just to read what is written, but also to speak words of their own. He stressed musical thinking (the theory of modal rhythm). He evolved methods which would activate pupils' musical reactions. Choir singing, movement to music to activate musical perceptivity, children's creative motor reaction, creative encounter in music as well as literature, pictorial art and drama were introduced with this objective. But Yavorsky believed that composing music was too difficult for children. Children's musical creativity, in whatever form it was revealed, was precious. But the most valuable thing was not the output itself, but the process of mastering musical speech.

Asafiev stressed the theory of intonation. He suggested three different, yet related, kinds of activity, conducive to the development of creative musical initiative:
to observe music, its movements, its life. The pupil should take on practical activities along with listening – reproducing music, and even composing. Asafiev believes that composing is not the privilege of a closed circle of specially gifted specialists. Even people who do not know the theory of music can compose.

(2) to stimulate creativity through reproducing either a familiar or a newly learnt song. Techniques common to folk music and oral music tradition can be very useful.

(3) to stimulate children’s creativity using a text liked by children as the starting point for making a melody. Accompaniment by pupils who can play an instrument, and melodic improvisation by the teacher can also be helpful.

Asafiev carried into music Leo Tolstoy’s method of teaching literary composition to the peasant children by writing a composition on the given theme in the presence of the children, reasoning aloud, questioning, and inviting them to critical discussion of what was being created in front of them.

Werner describes the activities of the Contemporary Music Project funded by Ford Foundation in the United States in 1959 enabling artistes to involve themselves with youth and make suggestions for improving the music climate and appreciation of arts in the universities and colleges. Through this programme:

(1) Young composers were given an opportunity to master their craft in an atmosphere which had a need for their music and where it was performed by those for whom it was written.

(2) A unique repertoire of appropriate contemporary music for school performance was created, and is disseminated.

(3) Hundreds of students had their music horizons widened through personal and professional contact with a living composer who wrote, rehearsed, studied, performed and truly exemplified the spirit of the contemporary musician.

(4) Many of those responsible for the advanced education of composers in colleges and universities have come to see the value of a working relationship between developing creative artistes and public school music programmes.
Werner says that this programmeme provided a bridge of musical confidence between scholar, performer, teacher and student, young and old – a bridge badly needed in the fragmented musical world we find in many countries.

Janicot conducted an interesting inter-disciplinary study as part of the French National Institute of Pedagogic Research on musical awakening activities. The experiment attempted to relate music to drawing and painting. Some pictures were projected on the screen and extracts of music from Debussy, Ravel (orchestra), d'Ohana (percussion) were played. Children were asked to recall the types of visual imagery evoked by the different types of music. Precise results are not reported in the publication, beyond saying that the discussions were very passionate in the context of the pictures and the music.

(Studies collected by the investigator though correspondence with foreign agencies follow.)

Vogt explains music education in the Waldrof schools as integral to Steiner's anthroposophical doctrine and its pedagogical applications. He critically reconstructs and evaluates the epistemological, aesthetic, pedagogical, and musicological foundations and consequences of the Waldorf pedagogy. Music education is deeply rooted in a pre-modern view of the world, whose attractiveness can only be explained as a reaction to the manifold processes of modernisation and rationalisation of the last few centuries. Vogt feels that it may be difficult to start a dialogue between Waldrof and public school music educators about the basic principles of music pedagogy.
In a historical analysis, Yang has noted that in spite of minor changes, music education in China follows the 2000-year-old history of a constant intellectual model; it was and still is considered as a means towards encouraging civic virtues. All decisions regarding didactics and methods are derived from this theory. In comparison with the Chinese system, European music education exhibits a more individualising and even emancipatory tendency.

Yob stresses the need to consider the religious underpinnings of a people's historical development and cultural expression as a prerequisite to understand the people. Teachers of music and the other arts have a particularly significant role because of the close affinity of religion and the arts. If the study of a religious work (music or art) is controversial, teachers may use the occasion to help students learn appropriate ways to dissent. Among the purposes of a multicultural education is the development of an awareness of, and the skills to respond to, diverse groups in a democratic society.

Alten traces some key features in the history of music in French schools. Beginning in 1882 music became obligatory in the primary school curricula. But it was not possible to study music according to the criteria or under the evaluation framework of other disciplines. The unique subject matter of music, however, functioned as a link between the school and the community. Understanding the historical developments in music pedagogy means understanding the ongoing relationship between the internal dynamics of the school world and the technological, social, political, and cultural changes occurring in the country at
large. At the moment initiatives in music in most French schools relies on the good will of the instructors.

Beuermann defines the goals for future music school education in Slovenia. The music education of children is provided by both primary schools and music schools, the latter providing for the needs of children who are exceptionally talented in music. Accordingly, these talented children must be found and encouraged to undertake additional study at music schools. This can occur only in co-operation with kindergartens and primary schools. At present music schools have enough participants and the number is likely to increase when more programmes in future.

The French interdisciplinary groups formed by l'Institut National pour la recherche et la documentation pédagogique have a tradition of including neuropsychology as one important component especially in early childhood education. This concern can be seen in French-Canadian music education too. Despins argues for the use of neuropsychology in music education to provide a global context for child development. It must not be used to satisfy cultural or social expectations, as some methods imply. Diversified paths must be favoured, enabling children to find their own way.

Espi-Sanchis discusses a workshop conducted with the objective of giving participants the resources and confidence needed to implement a story-telling approach to music education. Two stories, intended for children, were presented. Instruments were used to enhance the storytelling, and elements that make a story
successful were examined. Games designed to free the imagination towards creating and telling stories were played.

Camellini discusses how to teach twentieth century music to young persons. The musical work is considered as a 'sonorous fact', to which two complementary approaches are applied. First, the student must be taught to understand the musical organisation and its relationship to the sound of the work. Second, students must approach the historical background of the work, understanding the social, political, and personal events that contribute to its creation.

The role of music education in coping with a noisy environment is discussed by Chapuis, a Spanish music educator. In the present-day world of scientific and materialistic technology, a child, even before born, is already immersed in a nearly incessant barrage of sound images. The effect of this bombardment may be dealt with by means of a proper music education: training in receptive listening, harmony, melody, and rhythm; the playing of instruments; rhythmic movements; and learning songs.

Gregory examines the pedagogic philosophy and practice of the Pécs Free School of Arts in Ans, a Hungarian arts education programme for children that focuses on musical improvisation and interdisciplinary integration of musical and visual arts. Its founders, Mária Apagyi and Ferenc Lantos have developed an innovative pedagogical system in which Free School students, ages five to eighteen, improvise and compose visual and musical art organised by universal structural...
principles relevant to other arts and sciences. The Free School effectively develops student creativity and an appreciation of the relevance of art to life.

Gruhn presents an early childhood music pedagogy based on how children learn differently from adults and focus on different features. Jeanne Bamberger's observations of daily learning situations, experiences with figural and formal representations are considered. Her general distinctions between different forms of representation is supported by the neurobiological study of E. Altenmüller et al., on the influence of learning on cortical aural-activation patterns.

Hansen describes the system of independent music schools for children from infancy to 25 years of age, which is financed in various ways by cities, school fees and the state. A law enacted in 1991 encouraged these schools, which are very popular. The instruction takes place at three levels. Pre-school begins with basic training up to the age of nine. The principal school encompasses instruction on an instrument and in theory, ear training, improvisation, arrangement, and composition. Finally, the choral and ensemble school permits participation in various groups, e.g., in gospel choirs, chamber groups, orchestras, or rock bands.

Howe presents the sources of the folk songs in the school of Suzuki (1898-1997), the Japanese educator and violinist, who studied Western music in Japan and Germany and created his pedagogical method. The traditional songs employed by the Suzuki method are found in the Japanese textbook Shōkasū, L. W. Mason's National Music Course, and German textbooks. Suzuki's philosophy is similar to
Mason's. Both educators emphasised rote teaching and ear training, and were interested in developing a method for children around the world.

Hongsmeier describes a method for American piano students merging technical skills component with the philosophy and methodology associated with Kodály and other Hungarian music educators. This practice-oriented method promotes the beginning student's experience of the synergism of music heard (aural aspect), music seen in score (visual) and music performed at the keyboard (physical). Principles, terminology, and teaching techniques and tools are defined. Rhythmic, melodic, and technical piano concepts and skills are presented separately and discussed in detail. Students and teacher are active partners during lessons, which are structured within a rhythmic framework, with movement, listening, and singing preceding realisation at the piano. A personal teaching resource called a retrieval system is explained; it includes an analysis sheet for collecting data from individual selections and a cross-referenced index.

Kowal-Summek focuses an auditory problem other than hardness of hearing. It has to do with erroneously processing information from the ear canal, and thus with a qualitative, rather than quantitative, hearing loss. The causes, effects, symptoms, and diagnosis of the problem are presented, as are typical signs of the problem that can be spotted by teachers. The consequences for music instruction are then discussed, for the problem can be alleviated by training in acoustical alertness. This training should be presented in a context of fun and games, but systematically focused on the children's needs for developing the ability to distinguish phonetic, kinaesthetic, melodic, and rhythmic stimuli.
Laufer describes the important structural elements of music education for the mentally handicapped, utilising the concept of the didactic triangle as a starting point. The relationship between the three corners of the triangle - teacher, student, music - is explored. The resulting interdependencies can be seen as constituent elements of two poles: education in music and education through music.

Levi presents an Italian study on musical puzzles and recomposition. Instrumental study, particularly of piano playing, should coincide with a grounding in the basic principles of theory and musical technique. It is particularly difficult to develop students' interest in solfège or analysis, and deficiencies in these matters noticeable affect performance. A means of introducing beginning piano students to theory and composition is presented in the form of musical puzzles - short excerpts of phrases, homophonic or polyphonic passages, accompaniment patterns, etc. - that the student must recompose into larger musical passages according to theoretical rules.

Montgomery and Waskwicz present a model of CAI involving special needs students. Though there are many approaches in the literature to music for the mentally handicapped, he most common suggestion is for multi-sensory input and reinforcement. While the multi-sensory tack has already been adopted by many teachers, the authors plead for trying the computer, an educational tool with multi-sensory capacity. The following suggestions are given for special education teachers in music, who need innovative an unusual means to communicate with their students: (1) Teachers should request that the music industry produce
Review of Related Studies

computer programmes that guide students to perform, describe, and organise musical behaviour without much reliance on words; (2) computer programmes should allow for alternative ways of responding and provide for levels of interaction accessible to students with special needs; (3) with the increased presence of computers in the schools, some students can progress with suitable software, while the teacher attends to the needs of other students; (4) programmes that maintain the format of game-playing can be a useful tool to study how brain-damaged or retarded students learn and therefore how to improve their learning; (5) methods can be developed to find out how many times a child needs to learn to sing, play or describe a song.

Oblak discusses the complexity of music education that requires of general music teachers such qualities and capabilities that enable them to perform a variety of activities connected with music. The majority of music teachers in general schools are also the school choir directors, a role that requires additional training and capabilities. As choir directors, music teachers have the opportunity to transfer their experience and expertise into practice.

Rasmussen describes a singing reform in Danish schools that took place around 1920, with Carl Nielsen and Thomas Laub as central figures. The very popular Melodier til songbogen Danmark, containing some 50 new songs (by Nielsen and other composers), was one of the most important publications in the field. Together with the composer and teacher Hakon Andersen, Nielsen arranged many of the tunes for two or three equal voices, and his preference to the book expresses thoughts of a general nature on good popular tunes.
Richter outlines the theory and practice of presenting music to children through the medium of movement and gesture, using a practical example: the two movements from Bach's orchestral suite in B minor.

The only analysis from Croatia comes from Rojko who discusses the possibilities of approaching a two-part music education in the primary school. Unlike one-part music dictation, two-part dictation involves considerably greater previous knowledge and the procedure for its realisation is quite complex. Music pedagogy allows for various approaches to two-part dictation and different methods for its realisation. The process of first approaching homophonic and then polyphonic two-part dictation is discussed.

Rosbach presents an approach in which the teaching of music could reduce mistakes in orthography. Linguistic and musical abilities develop in children at the same time. Indeed, the way information is processed is the same in language and music. A presumption, therefore, arises. Perhaps music can help elementary school children overcome deficiencies in orthography. Instructional material for such an attempt is presented.

Rosbach uses the 100th birthday of Carl Orff as an occasion for fresh reflection of his work and teachings untarnished by fabricated dogmas of musical progress and populistic properties of primary school teachers with different musical backgrounds, family environments, and formal education in general. The quality and quantity of musical knowledge in teachers is better when they complete teacher training.
However, music education programmes are not aimed at developing basic musical abilities in teachers. Rosbach argues that these abilities, together with musical skills and musical knowledge, should be developed before university-level education and that this is the only way to achieve a homogeneous population of primary school music teachers and high-quality music education.

Wiesenthal observed the way blind and sighted children under ten perceive and use musical notation. He compared conventional notation with Braille and with a third system, a box notation (Kästenschrift) developed by him for young blind children. He discusses the difficulties children experience in understanding notations and performing them and the comparative ease of the three systems. He also discusses memorisation and sight reading in connection with sighted and blind children making music together and demonstrates the limits and possibilities of the systems.

Amchin investigated the effects of teacher-led verbal interactions with modelling techniques on students’ creative musical responses in melody-completion activities and tasks involving creative uses of sound based on teaching materials from the Margaret Murray edition of Orff-Schulwerk, Vol I, and Orff-related teaching procedures. A pilot study of fourth-graders (N=40) indicated that limited instructional treatments had no effect on creative thinking scores, as measured by Wechsler’s Measure of Creative Thinking Version 2 (MCTM-II) and the research-designed Measure of Instrumental Creative Musical Response (MICMR). The main investigation, a test-retest design, included a 23-week instructional treatment with 129 fourth- and fifth-grade students. The study indicated that teacher-student
interactions neither aided nor hindered students' creative musical responses as assessed in melody-completion activities, measured using MICMR and creative use of sounds, measured by MCTM-II. MICMR scores and music aptitude, as measured by Gordon's Intermediate Measures of Musical Audiation (IMMA), showed significant positive relationship. Instructional treatments had no significant effect on IMMR scores. There was an apparent increase of students' interest in music as a result of the treatments.

Auh using a sample of 67 fifth and sixth grade students in a public elementary school examines the best predictors of musical creativity in composition among selected variables: formal and informal musical experiences, musical self-esteem, musical aptitude, musical achievement, academic grades, IQ and gender. Musical creativity was measured by a composition task. He found that (1) compositional creativity was significantly related to informal musical experience, tonal musical aptitude, musical achievement with pitch and academic grades; (2) of these, the three variables other than tonal musical aptitude accounted for 25% of the variance in total composition ratings; (3) the strongest predictor of compositional creativity was informal musical experience, which alone accounted for 11% of the variance. Results suggest that music teachers should encourage students to enjoy creating music at home or outside school with friends and family members and should emphasise the joy of music-making in class.

Benes-Lafferty created musical activities to teach geometry, measurement and the concept of money to 22 second graders and compared the results with 22 other second graders instructed using a traditional method. Students were found to enjoy
learning music through musical activities. The Aikin Attitude Scale did not reveal significant differences between the two groups, but the daily record showed significantly higher positive attitudes for the experimental group. All the mathematical standard tests showed significantly higher scores for the experimental group.

Blaker presents findings from a four-part survey (covering 67 schools of which 41 responded) designed to investigate the scope and implementation of Suzuki violin instruction in community music school programmes. Results showed that these programmes are generally successful in implementing the basic principles of the Suzuki Method.

Bondurant-Koehler investigated the effects of selected modes of instruction (Orff, Kodaly and traditional) grade level and gender on music preferences in third- and fifth-grade elementary school children. The subjects were 30 teachers and 1370 students, classified by mode of instruction. A researcher-designed Music Preference Measure consisting of 18 Likert-scale items covering six categories was used. It was found that overall preferences for the six style categories differed significantly among mode of instruction, grade level and gender. Orff instruction yielded significantly higher preferences for avant-garde and country-western; Kodaly instruction yielded significantly higher preferences for art, ethnic, jazz improvisation and pop/rock. Third graders revealed significantly higher preferences than fifth graders among the six musical style categories. Males preferred avant-garde; females preferred art and country-western.
Bradford investigated the aural and oral difficulty levels of selected rhythm patterns among kindergarten children (N=102), Shawnee, Oklahoma, considering the effects of gender and age, as well as the relationship between aural and oral abilities. The subjects' echo performances of the patterns were taped and evaluated by three independent judges (inter-judge reliability was 0.97). Subjects were most successful in aurally discriminating usual triple macro/microbeat patterns and unusual paired division/elongation patterns, and least successful in duplicating unusual paired division/elongation patterns, lending support to the idea that aural discrimination accuracy and oral reproduction abilities are not strongly related at the kindergarten level. Subjects were capable of aurally discriminating and orally reproducing the selected rhythmic patterns. No significant correlations were found between the subjects' scores and ages or between aural discrimination and aural abilities by gender.

Cook develops a 'cultural metaphor' with music in describing a multicultural approach to music education that uses Navajo holistic world view to teach Western classical music concepts to Navajo students in Tuba City, Arizona. Navajo culture and music are inseparable. Songs are viewed as re-enactments of the mythic past, and have the absolute power of restoring wholeness from imbalance. By relating the composition of fugues to the Navajo process of rug weaving, the Navajo holistic view may be applied to teaching music. Fourteen students composed fugues using the insights gained from the comparison of the Western fugue with an art form central to their own Navajo culture. By means of this exercise two seemingly disparate artistic expressions are shown to be linked, just as modern education and traditional philosophy may be combined holistically.
Concha reports on the results of a study conducted from 1974 to 1981 on children up to the age of six in kindergartens of Regio Emilia, Italy. On the basis of his study, a proposal is given for an active and creative approach to the interaction of infants, pre-school children, sound and music. The theoretical bases, values, and principles that influence the approach to music and to the classroom are outlined.

Fischer presents evidence to show that beginning instrumental instruction for children rarely contributes to artistic and musical learning. Objective cognitive responses and motor skills are taught, but the child's creative potential, which finds expression above all in subjective action, is starved. Studies and experience show that children have a ready interest in and appreciation of musical and physical shapes and structures, and the expressive character and quality of musical and physical phenomena. A practical teaching example is included.

Flynn reports research carried out with a group of teachers to define the activity of appraising music in the Music National Curriculum in a way that takes accounting of real classroom situations, and that can be used by the 90% of primary teachers who are not music specialists. The definition is developed by teachers and is likely to be understood by other teachers. The study includes nine areas of appraising, an explanatory definition and four stages in the process of appraising as well as an understanding of the progression including the identification of a 'putting in' and 'drawing out' stage.
Hoffman examined the possible transfer of cognitive skills gained through a comprehensive, sequential, keyboard-based music education (KBME) programme to achievement in reading, mathematics, and language skills. The subjects were 2331 fifth grade students in 26 South Carolina schools. Subjects in the treatment group were taught music via the KBME programme. Subjects in the control group received traditional text-based musical instruction. The schools were matched on 1992 Stanford Achievement Test scores and demographic information. The eleven subtests score averages were submitted to a matched pairs t-test, with the school mean as the unit of analysis, and to an independent t test using the individuals as the unit of analysis, to determine if the scores of the KBME students increased significantly. The results do not seem to indicate that "insofar as academic achievement is concerned, the KBME programme is superior."

Hickey compared the intonation accuracy of elementary school children when singing diatonic major and pentatonic melodic patterns in ascending and descending forms in familiar and unfamiliar music. Subjects from grades one to six in a singly elementary school (N=128) were tested on eight melodic patterns that ranged from four to eight notes. The combination of test patterns included pentatonic and diatonic major patterns, ascending and descending patterns, and familiar and unfamiliar music. Intonation accuracy was measured in Hertz on a Visi-Pitch computer as the deviation of the sung response from accepted pitch frequency standards. Data were presented: A: as the mean deviation of three definitive pitches of each pattern, B: as the mean deviation of three definitive pitches of each pattern, and C: as a Likert ranking of recorded samples based on a music educator's aural assessment. Statistical analysis of the data included paired
Review of Related Studies

t tests of combinations of test patterns, t tests of independent samples of gender by test patterns, with pentatonic patterns showing greater accuracy of intonation than diatonic patterns in all significant cases. The consistency of accuracy was higher in the case of pentatonic patterns Accuracy in descending and ascending patterns and results by gender showed inconclusive results.

Johnson investigated Ausubelian approach with three and four-old children attending two university-based pre-school programmes of 19-weeks of music instruction. Control (13) and treatment (33) groups received twice-weekly instruction in understanding dynamics, tempo, pitch, and rhythm. The treatment group instruction was based on Ausubel's subsumption approach to learning with advance organiser presentations. The control group received traditional classroom music instruction without advance organiser presentations. Pre-and post-tests were administered and the musical backgrounds of the subjects' parents were determined from survey responses. ANOVA analysis of results found no statistically significant group differences. However, percentage gains were higher in the treatment group for all musical concept areas. Significant correlations were found between pre-test scores and parents' musical backgrounds in the concept areas of dynamics and tempo. These correlations disappeared, however, at the post-test assessment. This finding implies that Ausubel music instruction can compensate from less advantaged backgrounds.

Keenan-Takagi examines the effect of 'mental rehearsal' during observational learning on chorister's critical listening achievement and concludes that this type of rehearsal is logically connected to musical cognition. High school choral
ensembles in western New York involving over 300 students in seven intact classes participated in the project. Students completed Weymuth's Choral Music Achievement Test (ChorMAT) as both pre-test and post-test, and evaluated their performances using Larkin's Five Dimensions of Achievement in Choral Music rating sheet.

Kinslow examines how Mental Imagery (MI) is actually used in an elementary school music classroom. Principal attention is devoted to the types of imagery that help students learn, the facilitative role of the teacher, and relationships between students and teacher. Initial work done in a pilot study showed the promise of MI techniques for connecting cognitive and affective learning while improving student accomplishment and interest. In an ongoing, naturalistic study, the use of MI as created by teachers and students to facilitate student learning of music has been recorded, documented, and analysed as educational events unfold. Through the use of interviews, document review, on-site observations, and triangulation through qualitative research methodology, it has proved possible to portray how students learn in this setting using MI techniques.

Nabb analyses the data collected by Texas Educational Information Management System (TEIMS) about educationally disadvantaged groups - economically disadvantaged, at-risk, limited English proficient, and black and Hispanic students. Separate analysis were conducted for band, choir, and orchestra. Subjects included 907,327 students from 1048 districts. Music performance programmes were available to nearly every Texan student from 9th to 12th grade. Educationally disadvantaged students consistently enrol in music performance programmes less
often than do non-educationally disadvantaged students. Choir came the closest to achieving equal enrolment among contrasting student groups. Within existing programmes, large suburban districts had the greatest disparity between enrolment rates of contrasting student groups. In contrast, small and rural school districts came closer to achieving parity among contrasting groups.

Ortner studied the effectiveness of a computer-assisted instruction programme in rhythm using a pre-test-post-test control group design with 40 high school music students randomly assigned evenly to the experimental groups. Over a six-week period, the experimental group used the Magic Piano Rhythm Game programme (on the Apple II computer) for a minimum of 40 minutes per week in addition to their normal music instruction. The control group subjects received no additional instruction. The criterion measure, a rhythm reading test (RRT), used rhythmic patterns extracted from the Watkins-Farnum performance scale. The RRT pre-test accounted for more than 97% of the RRT post-test variability, and there were no statistically significant differences between the experimental and control groups on the RRT post-test. Low correlations among the influence variables suggested that the variables (rhythm aptitude, gender, principal instruments played, years of instrumental study, private lessons, performance ensembles, and amount of composer experience) were heterogeneous, and that other than the RRT pre-test, none of the variables provided significant predictive power for improvement on the RRT post-test.

Reames investigates and describes the repertoire and characteristics of a group of beginning high school choirs, using a questionnaire distributed to 263 high school
choral conductors in Virginia who were also members of the Music Educators National Conference. There was significant correspondence between selected characteristics and different levels of high school student enrolment, choral enrolment, and teacher experience. The analysis found only one significant relationship between teacher experience and repertoire selection. Larger school and choral enrollments had a positive effect on both the number of sequential course offerings and the number of beginning boys' and treble choirs. While 40% of the schools offered three levels of instruction for all students, and half offered three levels of instruction for females, only 25% offered three levels of instruction for males. Auditions were not required for registration into a beginning high school choir; the beginning mixed choir was the most prevalent. Directors valued contemporary sources. They programmed twentieth century repertoire most frequently, and report successful performances by beginning choirs. Few similarities were found between directors' recommendations and published lists prepared by choral experts.

Vospernik conducted a doctoral study in the Academy for Music in Ljubljana, Slovenia on speech communication and the introduction of music terminology in the music teaching of early elementary school grades.
C. STUDIES EXTRACTED FROM OTHER THEMATIC PRESENTATIONS

Tusa presents a series of recent studies conducted in Hungary and documented in Roscher et al. (1991) Polyaesthesia (pp. 50-55). The interdisciplinary theoretical base is first presented. Zoltán Kodály the composer and Alfréd Rényi the mathematician have independently from each other formulated the same idea: "The root of art and science is the same". Music, with its acoustic and artistic laws, is especially suitable for bringing to light the comprehensive correspondence of cosmos, nature and mankind, thus creating a new united scientific-artistic view. Thus we get to qualitative "key" knowledge which can open the doors towards other values as well, instead of simply accumulating quantitative data. "Integrated education can be considered a development of the Kodály-concept: as relative solmisation is a "key" which can be transposed everywhere, in the same way the key-problem of the integrated education can be transposed on every area".

A great number of integrated projects are being conducted in educational establishments throughout Hungary. K. Simon (teacher in music school of Kaposvár uses "sing-a-song games" involving Hungarian folk-songs dramatised or accompanied by drawing or painting. She also elaborated Multiple Choice Programmes to aid the intellectual approach to the elements of music. The methodology of the singing games stems from K. Forrai, an internationally well-known kindergarten music specialist and former president of International Society for Music Education. She designed the singing-music curriculum for kindergarten and also runs complex music playgroup activities, both based on Hungarian folk singing-games. Movement is the inherent natural component of children, and they
can be accompanied by imitative symbolic actions like role plays. The singing-games offer good opportunities for inventing variations. In each case here are rules, restrictions which set limits to free imagination (e.g. the plot, the given rhythm, the number of syllables, etc.). It makes these situations analogous in this respect to the conditions of the adult’s creative activity. It has been proved that the Kodály-based integrated music education has a beneficial role in the children’s mental development.

M. Gallai, piano teacher in Kaposvar elaborated a method using the same “logic-toys” (plastic geometrical shapes used in classes of mathematics) in music classes to illustrate the structure of music. By demonstrating conformity, similarity or diversity, she makes children become aware of these structural analogies between mathematics and music.

*Komló* Music School led by T. Osváth uses methods of education completely based on the principle of integration. (inspired by F. Lantos and initiated by piano teacher M. Apagyi). Analogies were first sought between music and visual field. Later the experiences gained were applied to movements and conceptual behaviour, like language and mathematics. The guiding principle of this work is one of A. SzentGyörgyi’s reflections: “Nature is built on large principles”.

The children recognise the relationships by various analyses. In this way they arrive at the smallest parts, the basic elements (in the language of music: tone, melody, cluster - and their visual analogies: dot, line and patch) as well as the constructional principles (e.g. parallels, contrasts, proportions, symmetry, asymmetry, golden
Review of Related Studies

section) which are implemented by the pupils in their creative work. In this activity, improvisation has an essential role in facilitating the fluency of the language of music, art, movement etc.

The jazz-specialist and ingenious music educator J. Gonda stresses Improvisation. He believes that jazz will stand the test of time only if it is organically integrated to the mainstream of classical music. Gonda and Apagyí agree that music is a language to be spoken.

Kárpáti, an art historian and educationist working on integrated curricula of art, music and literature has chosen three ways of integration: (1) the linguistic approach focusing on similar structural laws, aesthetic or logical principles and compositional phenomena of music, art, literature and mathematics; (2) the thematic approach, providing multisensory experiences and exercises in several forms of art, to enlighten common themes, ideas and ‘messages’; (3) the cultural-historical approach, encouraging stylistic analyses, preference studies and an acquaintance with the lifestyles of the ages, intending to show the roots of arts and sciences, masterpieces and inventions in the mirror of their age. These are being realised in several schools in Hungary including the Kodály Music School of Kecskemétt, where a project of linguistic integration, “language-music-mathematics” is being carried out.

M. Winkler and A. Szeberényi conducted a project in Váli Street Budapest: Learning about the canon the children formulated the following ideas. It is the task of the first voice to articulate musical ideas clearly and in a way easy to follow. The
task of the others is to pay attention to each other and in the meantime to keep to their own course. Thus the structure of the canon reflects the basic principle of social interaction. Analysing this ‘model’ children can encounter good and bad examples of the fulfilment of social values. Principles learnt in the course of the subjects are adapted to the others.

Tusa attempted an experiment in a vocational secondary school at Szonbathely (age group 15-19) where pupils lack aesthetic experiences. Some people thought this situation cannot be improved. The “Tusa method” was to ‘compose’ together with the children. They themselves decide about the character of the beginning and the ending phrase of the musical piece, the way of reaching the climax, the usage of simple instruments they can handle. They discuss musical solutions and ways of interpretation.

J. Dimény describes the experiment of the education section of Hungarian radio ‘language-music-mathematics’ with integrated approach and rich collection of vivid musical games. K. Kokas, an early childhood education specialist at Kodaly institute described integration of music with the spontaneous creative movement of young children (ibid. pp.54-55).

Kolago (In Roscher et al pp.72–83) made an attempt to “amalgamate text and music”. The narrative “Tonio Kroeger” by Thomas Mann is used here as an example of such a form, structured according to a musical rule. It was constructed in the sonata form, which consists of three parts: the exposition, the main part and the reprise. A coda sometimes concludes the sonata movement. The exposition
Review of Related Studies

has many parts and begins with a more or less rounded musical thought. This melody in the main key is called the main theme. The melodic material of the movement is introduced in this part. In most cases a modulating transitory part directly follows the main theme. This sequence leads to the subsidiary key - "second theme". The second part of the theme is not as closed as the first art, it often has a lyric-cantabile character and is in contrast with the energetic main theme. The finale is in the subsidiary key. There then follows the main part. The full exposition is in the dominant key - to the parallel of the main, dominant or subdominant key here follows a transition and often an epilogue.

The reprise begins with the first part of the exposition in the main key. After that comes the transition which no longer modulates. The epilogue is analogous to the coda or the musical 'tail'. Thus Kolago conducts a close analysis of the literary piece on a musical model.

Anfilov (1966) conducts a deep analysis of various aspects of the physics of music. He reads the physics principles from primitive instruments to those of ancient and medieval cultures. He sees a musical instrument as a combination of a vibrator and a resonator. An acoustical vibrator must be elastic - metal, cane tongues, stretched films, guts, wires (not soft wax). They are fitted into wind instruments, violins or drums - some instruments consist solely of vibrators - xylophone, gong, bells and cymbals.

Among the specific episodes analysed by Anfilov that of Thomas Young - acrobat and multiple genius - is most interesting. In his leisure time he would experiment
with the tight ropes - stretch them tighter - and note that they would transmit motion quicker. The same effect could be produced by a shorter rope. Multiple vibrations are produced in a musical instrument. The string vibrates as a whole, at half the length, at one-third etc producing overtones. From these Young formulated the laws of harmonics. Natural and artificial harmonics can be played on the violin, producing flute-like sounds. He found that the string's chorus could be controlled. When plucked suddenly, rapidly, short standing waves are produced; when pulled softly, waves are slow and long. The contrast between the mandolin and the guitar brings out several principles.

The point at which string is excited is also important. If plucked at middle, a good proportion of harmonics are lost because it is node common to all the odd overtones. Hence string instruments are rarely struck or bowed in the middle though it may be easy to set them vibrating from the middle.

Air is like a string - columns of air poured into tubes of horns, flutes, trumpets, trombones are also elastic and behave like strings. But the string vibrates transversally, and air lengthwise. If the flutist blows harder we hear more overtones. The overtones in resonators have to cut their coats according to their cloth. Oboe and basoon can 'cook' richer mixture of overtones. The clarinet has a hole one-third of the way of its length. When this hole is opened the odd partials are eliminated.

The shape of the violin, the 'king of instruments' was evolved by the Italian masters through intuition and trial and error. The most famous of them was
Stradivarius. As a rule, the ratio of the length of a violin to its width is the same as the ratio of the velocity of sound along the belly to that across it. When the ratio is strictly observed, the wooden resonator works best. Then the belly flexes up and down equally along and across the grain, and the resonator has the greatest swing, vibrating as a single whole. This ratio can be found only through experiment. Three are other factors besides the ratio. The body of violin is not flat, but bent and arched. The sound of the air inside the body is added to that of the wood, and what we hear is a “duet between wood and gas. Numerous: “air strings” vibrate inside the body of a violin, making a well-fitting assembly of millions of flutes of different length and bore, open and stopped. Together they take part in a very complex and involved acoustic process. Physicists have failed to produce a comprehensive theory. Savart attempted to produce an instrument better than a Stradivarius violin of scientific principles, but succeeded only in producing a monstrosity nicknamed “Savart’s coffin”. But several successful experiments have also been done combining physics and music. The most revolutionary of these is in the field of electronic music.

Heimholtz conducted very intricate analyses covering physics, physiology, and mathematics. In the inner ear he was looking for and found tiny semblance of the piano with 20000 “strings” - nerve terminals in the form of small hairs differing in length - a string for each frequency of the sound wave. This live resonator analyzer, called the basilar membrane is hidden in the cochlea, a bony spiral tube and three-quarter turns filled with fluid. - the sound wave travels through the fluid of the cochlea across the strings and the hair cells respond at once by resonating and
Review of Related Studies

exciting nerve fibres running to the brain. Later scientists modified some of the ideas, but the basic conceptualisation of Helmholtz is a major landmark.

The Italian violin maestro Tartini reported a peculiar phenomenon which some called 'ghost sounds' - he himself called it terza suona (third sound). When he bowed two strings together, he heard a third sound lower than the two notes which were played. Here too Helmholtz provided the solution. The third sound was created by the inner ear according to the laws of resonance.

Tame (p.97) cites several episodes analyses and researches bringing out the disturbing effects of modern music and the value of classical music.

The music of The Rite of Spring by Igor Stravinsky (1882-1971) is nothing if not pagan, being wild, aggressive, and fiercely ungodly. The melodies seem designed to frighten; the harmonies to disrupt the mind...The rhythms race compellingly, driving relentlessly onward, breathlessly, and with dark undertones of violence and dread.

...the première of The Rite of Spring, over forty years before the coming of rock, and yet strangely akin to the music of later decades in the irrepressible violence of its rhythms, likewise resulted in a riot...the audience sat and listened in silence...for two minutes. Then here came catcalls and shouts of outrage. People seated next to each other began to fight with fists and canes. Next, the attention of the audience became directed towards the orchestra, towards which everything conceivable that was loose and remotely aerodynamic was thrown. But resolutely, the musicians played on through a hail of abuse and a torrent of missiles. The conclusion of the ballet was greeted by the arrival of the gendarmes. Meantime, the composer at the cause of it all had escaped through a window backstage.

Studies have shown that there is scarcely a single function of the body which cannot be affected by musical tone. Dr Tartchanoff (cited in Tame, p.137) discovered that: (1) Music exercises a powerful influence on muscular activity,
which increases or diminishes according to the character of the melodies employed. (2) When music is adagio or of a slow rhythm, and in the minor key, the capacity of muscular work decreases to the point of ceasing entirely, if the muscle has been fatigued from previous work. Sounds are dynamogenic. Muscular energy increases with the intensity and pitch of the sound stimuli. Isolated tones, scales, motifs and simple tonal sequences have all been found to have an energising effect upon the muscles.

Larson (in ibid. pp. 137-38) who gave up playing rock guitar on becoming a Christian cites the absurdities to which he had been a party when he was a rock player:

A recent teenage fad was that of taking soft eggs to rock concerts and placing them at the foot of the stage. Midway through the concert the eggs could be eaten hard-boiled as a result of the music. Amazingly few rock fans wondered what that same music might do to their bodies.

Tame (p.138) cites evidence that modern popular music with emphasis on fast, loud and syncopated rhythm has adverse physiological effects: It exerts a very strong influence over the heartbeat, tending to bring it somewhat into conformity with the rhythm of the music itself. Musical syncopations are also reflected in syncopations, or unnatural emphasis, of the heartbeats. Jagged jazz and rock rhythms have been experimentally demonstrated to cause the beating of the heart to lose its perfect rhythm. Research has discovered rock music to be bad for digestion. Further, since rock raises the blood pressure, it is bad for cases of pre-existing hypertension.
Tame (pp.138-39) cites the conclusions of Julius Portnoy that music can definitely change metabolism, affect muscular energy, raise or lower blood pressure, and influence digestion. It may be able to do all these things more successfully and pleasantly than any other stimulants that produce those changes in our bodies.

Since fast rhythm releases into the bloodstream chemicals which excite the organism, such music can literally be said to give a 'kick'... Such kicks literally become a form of addiction, and a sense of emptiness is experienced if for some reason the music cannot be listened to for a prolonged period of time.

Neurologists Newman and Saunders (in ibid. pp. 139-40) identified a mysterious malady known as musicogenic epilepsy. Some of its victims have been tormented to the point of committing suicide or murder. Seventy-six cases of this malady have been documented. The case is reported of a 39-yr old British woman who always felt anxious and sweaty when certain tunes were played in places such as the supermarket or at the local pub. When Gilbert & Sullivan, Messiah, or Ninth Symphony were played no symptoms were observed. Only when a line by the Dooleys was played, ‘I'm Gonna fall in Love With You’, did an attack occur.

The effect of the sheer volume of modern music has also been documented. (ibid. p. 140-41). Human health is endangered by any sound at 90 decibels or above. The average decibel rate in the middle of the dance hall is a little under 110 decibels. In front of the band the sound often reaches 120 decibels. A three-year study of the university students by investigators at Germany's Max Plank Institute showed that 70 decibels of noise consistently caused vascular constriction.
It is particularly dangerous if the coronary arteries already are narrowed by arteriosclerosis.

The study of the effect of music on plants has been documented (ibid. pp.141-48). In one experiment conducted by psychologists, rats were given the free run of two separate but connected boxes. Music was being piped through two separate but connected boxes in which rats were given free run. Bach was piped into one, rock into the other. Though otherwise the two boxes were identical, the rats spent their time in the Bach box. When the music was changed between the boxes the rats moved into the Bach box. Other experiments showed that certain types of music (e.g., Strauss’s *Blue Danube*) caused hens to lay more eggs and cows to give more milk. Two independent series of experiments in the Soviet Union and Canada showed that the seeds of wheat treated through tones grew faster. Tame’ own experience showed that geranium plants treated with Bach’s Brandenberg Concertos grew faster. Another side experiments showed that the full Brandenberg Concerto’s had better effect than just the dominant parts of them: “This suggests that while the individual tones of Bach’s music exert a certain regenerative influence upon plant life, the effect is greater if the frequencies are played in the precise and beautiful rhythmic, melodic and harmonic orders in which Bach actually placed them.”

Mrs Retallack (in ibid, pp.143-44) played the music of two different Denver radio stations to two groups of petunias. “The petunias listening to KIMN [a rock station] refused to bloom. Those on KLIR [a semi-classical station] developed six beautiful blooms. By the end of the second week, the KIMN petunias were leaning away
from the radio and showing very erratic growth. The petunia blooms hearing KLIR were all leaning toward the sound. Within a month all plants exposed to rock music died. Retallack raises the question whether listening to rock music so long and so often by the younger generation is responsible for their erratic behaviour: "Could the discordant sounds we hear these days be the reason humanity is growing neurotic?" The phenomenon of individuals today 'liking' or 'enjoying' bad destructive music, while not being able to enjoy or understand good music, would be explained by the fact that the individuals have become 'tuned into' the wrong tonal patterns, simultaneously losing their attunement with Reality and universal principles.

Dr T.C. Singh of the Botany Department at Annamalai University showed that sound waves of a musical instrument increased motion in cellular protoplasm. Dr Singh found the violin to be one of the most life-enhancing instruments of all. Dr Singh also found that later generations of the seeds of musically stimulated plants carried on the improved traits of greater size, more leaves and other characteristics. Music had changed the plants' chromosomes! (ibid. p.145)

Bailey (in ibid. p. 158) cites the case of adaptation of musical instrument for the physically handicapped. A guitarist with no right arm with which to pluck the strings might learn, for instance, to play the guitar with an attachment connected to his right foot. Within such individual adaptations, many handicapped people have taken to music with profound concentration. Such adaptations have proved exceptionally effective in the development of sensory-motor coordination, helping the disabled to move.
Shepherd argues that music is an open mode suited to the structuring of social life and in imparting social meanings.

Music is ... an open mode that, through its essentially structural nature is singularly suited to reveal the dynamic structuring of social life, a structuring of which the 'material' forms only one aspect. Music is consummatory... because social meaning can arise and only continue to exist through symbolic communication originating in consciousness - communication of which music forms a part.

Shepherd also suggests that tonality encodes the industrial world-view.

The architectonics of the tonal structure articulates the world sense of industrial man, for its is a structure having one central viewpoint (that of the keynote) that is the focus of a single, unified sound-sense involving a high degree of distancing. It is, in other words, a centre-oriented structure with margins...

It is, moreover, a dialectic correlate of the spatialised time articulated by tonality that industrial man, in becoming increasingly objective and self-conscious, is able to stand back and objectify the passage of time.... By bringing the corporal pulse of music into such continual high relief - and thereby altering and negating its original 'timeless' and hypnotic characteristics - the rhythmic structure of tonality helps to maintain industrial man's intense and constant awareness both of the passage of time, and of his own consciousness. (In Ibid. pp.161-162)

Virden and Wishart interpret Shepherd's line of reasoning as: 'medieval music articulated an idealism of its society', 'tonality expressed musically the nationalised and centralised hierarchy that was actually emerging throughout economic, political and cultural life', and 'tonality expressed musically the nationalised and centralised hierarchy that was actually emerging throughout economic, political and cultural life'; and 'transformational generative rules for tonality were thus established as a musical accompaniment to the emergence of a new general sense and organisation of the human world'. Shepherd has explicitly noted that traditionally tonal classical music both encodes and articulated the structure of a centralised
political-economic system. Tame argues that the Soviet authorities were consciously using these principles to control, stabilise society, to keep the masses in order and to prevent counter-uprising. Lenin acknowledged the right of every artists to create freely, but added: "We are communists. We must not allow the chaos to ferment as it chooses". The Soviet authorities found classical music perfectly acceptable for the purpose - (In ibid. pp.162-163)

History has also shown that music can also be a potent rallying, unifying force - for individuals, movements, classes and cliques. They have even created nations. The American Revolution has a tonal side as exemplified by the Liberty Song of John Dickinson, 1768, which became an obsession, Yankee Doodle and a host of other patriotic songs. This can be seen in the growth any emerging nation, including India.
D. STUDIES EXTRACTED FROM STANLEY HALL

Platt (In Stanley Hall, pp. 99-100), a poet and musician, observed his own children, reared in a musical atmosphere, in their dreamy moods, crooned melodic sketches which were utterances of sheer emotion. He inferred that the drawings of the child are whimsical oddities. But the true evolution of the child's soul from within is found in song. The second boy, at seventeen months, uttered a distinctly musical call, imitated a trumpet and showed a distinct preference for key, with leanings towards plagal cadences. The second child was quite as musical as the first but less prone to dreamy soliloquies. Some of these songs showed tonality; others were in very marked cantabile style. The real minor is rare. The spontaneous music of these children was easily more in tune than music that they had learned. The author believes that canon, instead of being a late refinement of musical art, is one of its earliest developments, and is led to this view by observations of his own children. When children were inventing in unison it was difficult to tell which one was the leader. So when the father invented tunes, the children followed with startling ease, as though all three were inventing the same thing at once. Hall comments that in the history of the race, the plagal cadence is earlier, and children redevelop it for themselves, but in the history of concerted music, canon is an early feature, and this children rediscover.

Koerte concluded from a number observation of cases that children could early learn to combine tones in melody, with the same degree of creativeness that they can mould sand. Some of his other observations are also interesting. Preyer's child was quieted by music at the age of six weeks. Strümpell found a child who was
interested in the piano at the age of twelve weeks. Rhythm comes very early. Preyer observed tact movements at eighteen months. Mystics have thought that a child might hear "divine sighs in the air which it breathes". Of course the music must be very simple and not polyphonic. According to Groos, primitive music is connected with war. Speech and music give to hearing its first significance and lift man into the psychic sphere. [pp. 100-101]

Miss Hofer [p. 101] says self-activity, spontaneity, self-expression, play spirit, must be the watchwords in music as in all things; inceptive work, which recognises native impulses, needs more attention. Unmusical teachers do great injury. ...Language should be more inflected and not hurried or chattered. Song should be musical conversation, and speech, music and language should blend. Musical good mornings and perhaps simple original creations with imitative songs, help the child to appreciate the music of nature. The child can understand what occurs to the ear and mind long before it can produce. Music ought to be a means of communicating ideas.

Monroe [p.101-102] found that young children give to musical sounds degrees of sustained attention quite out of proportion to the normal control of their activities, and often learn to sing before they can talk. Rhythmic measures of tonal kinds very early cause pleasure and pain. From data concerning 161 children under six, he found that 29 of the boys and 49 of the girls could be taught to sing the scale. From four to five years, 34 per cent of the boys and 59 per cent of the girls could learn it. At six the proportions were: boys 41 per cent, girls 71 per cent. The memory of songs exceeds that of scales, although it is more complex. This is due
Review of Related Studies

perhaps to rhythm and to association with the concrete subjects of such sounds; 27 per cent of the boys and 59 per cent of the girls seemed to have special tastes for music, the male curve dropping as age advances, while girls' interest rises. Jastrow and Morehaus showed that women students' hearing is more acute than that of men. All this indicates feminine superiority in tone perception and musical interest, although women have done little in musical composition.

Gamme [p. 102] collected and edited ancient movement songs from English children. She noted that there is a great deal of movement and rhythm, and otherwise much imaginative and mimic action -- milking, riding, weeping, dancing, dandling babies, washing, ceremonial salutes, ancient rural games, often with intense emotional colouring, drinking, murdering, loving, and death. There could hardly be a greater disparity between these and the more recently made games and plays for, of, and by, children.

Charles E. Keyes, [p. 102] studied for several years and recorded the progress made in musical education. He usually taught from thirty to fifty rote songs each year, beginning with thirty in the first and reaching fifty in the third grade. In rote work the child follows a good form of music far better than the jangle usually taught.

Gilbert [pp.103-104] experimented on the comparative power of discrimination between notes by the method of minimal gradation. Each experiment was composed of two tones and a judgement as to their likeness. The tone varied from A (=435 vib of international pitch). The variations were in 32nds of a full tone. First
A was sounded, then one, two, and higher, until the child several times decided that the second tone was different, ten experiments being made on each child with a tone tester. Five boys and girls of each age from six to nineteen were thus tested. The steep descending curve (X= age, Y=no. of 32nds of a note) shows rapid increase of discriminating power from twelve to five at nine years of age and then a less steep descent reaching just over two at nineteen years; spurs at ages of 10 (from 5 to 6) and 15 (spurt from 3 to 5) are also noted. 'Only three needed more than half a tone. This increase was very great until nine, and then to ten there was a rather marked remission, and another from about fourteen to fifteen. With these exceptions the curve is rather smooth and asymptotic. This was verified with tests on other children. After 20 there was another augmentation and drop.

Fanny B. Gates (pp 104-105) studied 2000 papers from 150 boys and equal number of girls of each age from seven and under to sixteen and over, indicating their favourite songs, which were collected and classified. The largest class was social, including folk, negro, home, school and love. Under 7, these were often lullabies. Home songs gradually decline up the grades. School songs, beginning with 43 per cent each at seven years, fell to two per cent in girls and five per cent in boys at sixteen. Negro melodies were twice as often favourite with boys as with girls. Religious songs increased in general up the grades. Patriotic songs attained their maximum of 29 percent with girls at twelve, and 40 percent with boys at fifteen. The choice of songs on account of words in general decreases with age, and music comes to the fore. Rhythm begins as a dual balance, and in its simpler forms is always based upon two. The author suggests that if we had three arms and legs triple time would predominate. In recalling music rhythm often comes first.
It gives a sense of movement. Very young children sometimes have strong favourites because of the lilt. The bushman sings in his dance till exhausted, and from this grows the symphony. Children often prefer certain keys and rarely minor ones. In southern Mexico the jolly songs of the natives are sad, and their merry ones seem to us melancholy.

Hall (pp.105-106) recalls the view of scientists about the origins of music. Darwin thinks music and rhythm originated as a sex charm. It excites tenderness, ardour, war. Spencer derives it from emotional speech. It awakens dormant sentiments of which we had not conceived the possibility and do not know the meaning. They appear like mental reversions to the emotions and thoughts of a long passed age. Wallaschek dissents from Darwin and Spencer that music grew out of speech or that the original music was love song transmuted. He says only music can tell what it expresses. Views from those who have studied bird songs were also collected. Hudson says the song of the male birds on La Plata during the pairing season is feeble and sketchy, interspersed with love antics; but only after the mate is chosen are songs melodious. Hence he thinks that conscious sexual selection on the part of the female is not the cause of music. Wallaschek thinks there is no speech in songs. It arises purely from the rhythmic impulse. Time preceded melody. Gurney thinks the vocal expression of a particular emotion came first and then followed vocal expression in general. The vital element in emotion is this idealised rendering.

Hall (p.106) analyses a number of interesting cases of coloured audition. Vowels have most colour, while consonants are faded. A is usually red. One lady saw
green when she heard Haydn, blue when she heard Mozart, yellow on hearing Chopin, etc. When she hears an oboe she sees a white pyramid; on hearing a 'cello or a trumpet, sees flat, undulating ribbon of white fibres; in an orchestra when the violins strike up, she sees a shower of white dust. Some see mosaics. Only a few prefer minor songs or have preference for keys.

Norton (p.106) concludes from his analysis that music must conform to the actual present interests of the child and to the potential adult. The best songs are those in which most are interested and whose effects last longest. One function is to unite child and adult and not to sever them. The earliest songs should be simple, not complex, possibly on the five-note scale, with bright tempo, allegro rather than adagio, the two-rhythm rather than the three rhythm, closely related to life. The two-step rhythm arouses animal spirits, puts vitality into motor play and subdues everything to its own form.

Fairweather (p.107) holds that music is the chief expression and method of training of the heart and all the sentiments and emotions. The lack of it makes men dessicated and 'unhearty' and, though they may be smart, leaves their emotional life shallow and dry. If the feelings languish the imagination does so. Music teaches by contagion and like poetry "lifts the veil from the hidden beauty of the world." As a universal language music transcends all differences of age and culture and makes for social unity. . . It is a moral law and gives the soul over to the universe, the ideal of order, and suggests the invisible.
Meyer (pp. 107-108) concludes that the chief object of musical training should be to make the pupils enjoy music rather than to read notes or sing and play. It is often hard to understand a complex musical production like a sonata, and he advises the aid of visual sensations, and especially approves Hovken's scheme. His pictures are used at the first instruction to call the pupil's attention to the fact that every song is composed of partial tunes or phrases, each of which is represented by a figure. These pictures, however, help far more in helping to understand coexistence than they do succession. Very young pupils can thus associate figures with tunes.

Hovken (pp. 107-108) had devised a graphic scheme of presenting music, particularly fugues and sonatas, to the eye, which were used by Meyer in his studies cited. For this purpose he dispenses with all but the heads of notes and connects these by lines, omitting all time signs, and carrying the chief theme in a form picture...By supplementing this method with coloured dots and lines and by the occasional use of small circles, it is possible to represent one, or indeed, a number of parts and instruments in an orchestra. Verbal explanations appended show the leading motive, subordinate phrases, elaborations, and the various other divisions. By this means those who do not read music, it is claimed, are able to follow it more intelligently and to recall the chief motives. Their attention is called to symmetry, opposition, reversal, and other aesthetic elements, and particularly for those eye-minded, and also for those who desire assistance in penetrating the mysteries of musical theory, it may be of assistance.
Kratz [p.108] had three selections of very different character played and asked high-school pupils to note and later write down the impressions each piece gave, and to give it an appropriate title. One represented the mad pranks of the harlequin and was rightly interpreted by a great number. A cradle song was most difficult, perhaps because the sentiments were not adequately conveyed by the composer. To meditate, muse, be soothed, and hear a lullaby, opens the heart to many emotions. Girls had more natural views on music and understood their inner selves and discriminated more closely in their attempt to portray feeling than did boys. A wide range of both sensations and emotions was aroused, such as the impulse to dance, feeling nervous thrills, muscles twitching, happy moods, desire to run a race, do a great deed. Perhaps, much, normally too deep for words, can be uttered by practice.

Hall (pp. 109-110) attempts to reinforce his culture epoch theory in his interpretations of primitive music. In listening to primitive music like 'Hiawatha' he gets the impression that there are rudiments in the child's soul that will respond to, and could best be developed by, some of the crude elemental music, when we really know what is most typical of it, and what age it suits best, and that even old folk songs, and far more the usually 'babyfied' music in our first courses, now force the child to skip an important stage in its indigenous musical evolution which could be made good use of, and the present expression of which is a lost chord between the child and the race which we should seek to restore in the interests of humanistic musical culture. Present methods isolate music too early from its broad nourishing basis of rhythmic movement, action, cadenced inflection, and feeling generally, and make it an independent cult, specialised and, worst of all, technical,
before it has performed the supreme function of its nascent state in cultivating the emotional life and, if not creating, at least conserving important factors of it.

Music in the modern sense is one of the hardest and latest as well as one of the most intricate products of human culture, and this fact must be invoked in addition to lack of training in order to understand why we find children at every stage of "undevelopment" and arrest, from amusia and musical idiocy up. He also cites cases of juvenile prodigies, who, though rare, are better known.

A girl of ten months beat time accurately to even complex music; another in her second year learned to sing many tunes and "had sung before she could talk"; a boy of four who had had no instruction knew and hummed some two score pieces of very different character; a girl of five sang nearly all she said, and kept it up at her play about all day, answering questions in crude rhythmic songs of her improvisation, her converse with her doll and other children being mostly in song, etc. Some before school age acquire considerable familiarity with the scale and various tempos, and even sing solfeggios and have a highly developed sense of rhythm, this being more stressed with boys than with girls; but musical precocity in general is more common with girls...[p.111]

Hall suggests that singing is best learned by imitation, and a good collection of songs by rote should always come before all exercises, scales, and intervals, and long before note reading, which is a purely intellectual process. Children get a better grasp of pitch, rhythm, etc., if melody is not distracted and harassed by notes. Notation comes very late in the history of the race, and it is just as monstrous to teach it before the child knows many songs by heart as it would be to teach reading before the child had a vocabulary or could speak: These, the analogies between alexia and agraphia on the one hand, and the various forms of amusia on the other, bring out in the clearest way when these defects are
analyzed. He follows this with a series of studies on amusia from Wallaschek and others (p.113ff. footnotes):

Wallaschek (pp.113-114) has shown that there is a marked parallelism between certain forms of aphasia and certain forms of defect in musical expression and that some of the same defects that exist between writing and drawing, are found between speech and singing. Under expression, for instance, there is motor or sensory amusia or paramusia and musical amnesia. There is also musical agraphia or paragraphia, alexia and paralexia, amimia and paramimia. Three theories, not mutually exclusive, have been offered to account for the errors in musical representation (1). Localization view of Hitzig; (2). Separability of intellectual and emotional expression; (3). Analyzability of entire process of expression into components. These theories are related to the theories of the origin of music - some derive music from speech, some from dramatic action or dancing, others from feeling, especially love.

Dr Brazier [p.114] suggests that the theory of three images can be applied to music. Auditive images predominate more even than they do in speech, but motor images are more prominent than visual. The Knoblauch view that there were nine types of amusia has not held good. But there is a distinction between total or complex and simple amusia. The later may be grouped into those of reception, of transmission and of expression, corresponding to tonal deafness (auditive field), musical alexia (visual or natal blindness and vocal motor amusia (loss of motor images - in singing or in playing instruments. Amusia may be a corollary of aphasia or be an independent species of it.
Marinesco [pp.114-115] sketches aphasia in relation to amusia, noting the close relation between speech and music, the latter being a language "more energetic than speech". As Balle puts it, "auditory musical representations are usually organised before those that are verbal, and the latter disappear first. That is, verbal deafness in disintegration normally comes before musical deafness." "Music thus presents a very close resemblance to language... The cerebral process is absolutely the same and the similitude in education is identical just as for words."

Hall argues that Signs and symbols and all that mentalises should be everywhere subordinated to what emotionalises. [p. 116]

Rhythm is the first aspect which is so emphasised in all primitive music... Its chief features are repetitions and cadences. It is a system of beats, accents, stresses, time keeping, and markings, stepping, patting, tapping, striking, measuring, arsis and thesis with the feet... Poetry is older than prose, and everything possible in the kindergarten and primary grade should take rhythmic character... Lack of rhythm often goes with disorderliness, and excessive love of it often makes children prefer catchy, trashy music... It has social value in strengthening unison of movement... A cardinal trait of music at this stage is... that it should be marchy, dancy, motor, for it must get into the muscles [but] the child may hear other music... Music should go with steps and steps with music.

Hall advocates that education should be through sounds in nature (P.117):

The wind is the bandmaster, loved or feared, according to the loudness with which his orchestra plays. The rattle of the hail, the drip and platter of rain, the silent fall of snow, the roll of distant and the crash of near thunder, the ripple of streamlets, the roar of waterfalls, the beating of waves, and all the many voices of water are great music teachers. Then too there are the symphonies of bees, crickets and even mosquitoes... bleating of sheep... cooing of the doves and the song of the warblers... Living creatures do not talk to each other, for they have no vocabulary of words, but their utterances are all of them are either love calls, warnings, or danger signals, and are more musical than verbal.
Dr. Ireland (p.131) concluded that the brain seat of musical feeling must not be limited to that involved in sensory or motor aphasia but that it must be located at least in both hemispheres and could be extinguished only in lesions on both sides. He finds that the musical faculty may survive after very extensive disturbances of the cortex.

Dr Legge [p.131] finds that in acute mania there is great incoherence of musical as of other thought. In chronic mania musical performance is without expression and everything is played not as the music requires, but as the feelings of the moment prompt. Melancholiacs are not pleased at music. In general paralysis there is great exaggeration of musical and other powers. In dementia the aesthetic feelings decay early and perhaps first. In partial manias the musical faculty may be unimpaired. Only in general paralysis is the musical ear affected.

Hadden (p.131) reviews studies on therapeutic value of music towards then close of the nineteenth century and found conflicting views. Some think its action is on the heart; others think that it acts on respiration, or skin, causing fatigue to vanish. Ameliorative power of music was well understood in classical antiquity. Some ascribed magic powers to music and considered it effective in driving away the devil and effect cure from insanity.

Smith (p.131) gives concrete illustrative cases. He reports the experiments of Patrici who found a patient whose brain was so exposed that he could test the
influence of different kinds of music upon his cerebral circulation. He found that all music calls the blood to the brain.

Stratton (p.132) found that certain kinds of music are particularly nutritive. For those who have musical capacity its curative value is far greater than is now suspected. But there must be careful adjustment. Allegro is not suitable for high strung nerves, nor is adagio to lethargy. The major triad brightens, promotes cheerfulness, while the minor triad depresses and should be used very little.

Lamprecht (p.132) advocates exposure of deaf-mutes, especially those who are only partially deaf, to music, even when the response is chiefly in the form of sensations of vibrations in stomach, hips, feet, or sensation of cold in the forehead or others among the many sensory reactions noticed in the deaf. The reflex tonicities that music causes are of pedagogic value. Sometimes the deaf take peculiar and very likely affected pleasure in coming into contact with music. Certainly rhythm can be greatly helped thereby.

Finally music gives us confidence in and respect for, human nature. One reason why we enjoy a great work of musical art is that we realise that it was produced more or less spontaneously out of the depths of the soul of a genius....The composer must sing as the bird sings, because he cannot help it. Music is thus a message to the ordinary and more superficial conscious and self-conscious life from the profounder regions of the unconscious and instinctive substrata of the human nature which constitutes nine-tenths of life - a message which says "all down here is beautiful, harmonious, and there is overflowing superfluity of vitality."
This is the voice of the race saying to the individual, "You may be sore bestead, weak, vacillating, ignorant, in doubt; but, if your bark sinks, it is to a larger sea, and there are everlasting arms beneath in your own soul."

Hall concludes that music gives us confidence in and respect for, human nature.

One reason why we enjoy a great work of musical art is that we realise that it was produced more or less spontaneously out of the depths of the soul of a genius....The composer must sing as the bird sings, because he cannot help it. Music is thus a message to the ordinary and more superficial conscious and self-conscious life from the profounder regions of the unconscious and instinctive substrata of the human nature which constitutes nine-tenths of life--a message which says "all down here is beautiful, harmonious, and there is overflowing superfluity of vitality." This is the voice of the race saying to the individual, "You may be sore bestead, weak, vacillating, ignorant, in doubt; but, if your bark sinks, it is to a larger sea, and there are everlasting arms beneath in your own soul."

The above survey would show that music education research ranges from philosophical analysis to deep constructs with sophisticated approaches in research design, model, free exploration and phenomenological sensitivity.