

A Cross-cultural Study on Children's Perception of the Expressive Components in Music and Language

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Abstract

The close relationship between music and language has long been discussed by various researchers and it is clear that music and language share common modes of expression such as pitch, duration, loudness. Many researchers believe that music and language perception share a common root and some even argue that music and language are not independent mental faculties. Thus, studying them in parallel allows us to understand human auditory communication and cognition in a broader perspective than studying them separately. However, cultural differences in music and language perception have been demonstrated. Therefore, questions arise as to what extent music and language perception are related.

This study is a direct attempt to look for a relationship between the perception of expressive components in music and language. The hypothesis is that if cultural difference exists in music perception due to differences in languages, music and linguistic perception can be shown as closely related. From the results, certain relationship between children's perception of expressive components in music and language has been found, though it does not follow the original expectation. Instead of showing that children perceive differently according to the relationship between the sound and their mother-tongue, it is shown that children of different cultures have different styles of perception in music and language due to their mother-tongue.

Introduction

The close relationship between music and language has long been discussed by various researchers (Sloboda, 1984; Lerdahl & Jackendoff, 1983; Cooke, 1978; Reimer, 1970). When comparing their modes of expression (Cooke, 1978; Cruttenden, 1986), it is clear that music and language share common modes of expression such as pitch, duration, loudness. Furthermore, many researchers believe that music and language perception share a common root (Trehub & Trainor, 1993; Fassbender, 1996). Patel and Peretz (1997) even argue that music and language are not independent mental faculties. Thus, all these suggest that music and language perception are inter-related.

On the other hand, cultural differences in music and language perception have been demonstrated. These can be seen from the fact that African listeners perceive rhythmic patterns differently from American listeners, and that speech sounds are categorised differently among various languages in the world (Lipscomb, 1996). Such differences can be accounted for by social acculturation, which leads to the development of different schemata according to the characteristics of the music and language of one's culture.

Therefore, questions arise as to what extent music and language perception are related, and whether differences in languages and language perception can account for the cultural differences in music perception. The present study intends to compare music and language perception between English and Hong Kong children who speak non-tonal (English) and tonal (Cantonese) languages respectively.

Since communication of emotion is a common function shared by both music and language, for the purpose of comparison, this study focuses on emotional response as an indication of music and language perception. If children employ similar strategies in music and language perception, they would have similar emotional responses to the sound no matter if it appears as music or language, as long as they bear the same characteristics in their modes of expression. This possible relationship, if proved, can give important implications to music and language education.

English and Cantonese, which have different means of emotional expression, are good contrasting languages to explore this issue. In English, intonation is extensively used. Within an English sentence, the relative pitch level can be changed in order to express emotion without

disturbing the meaning of its words. In Cantonese, the use of intonation is very limited due to its tonal characteristics. Cantonese has nine tones, each with a designated pitch level and movement, and two words with the same syllable have different meanings when spoken in different tones. Thus, the relative pitch level within a Cantonese sentence is predetermined by the meaning of its words. A more common means of expressing emotion is through exclamatory and affective particles, which are words that have no meaning in themselves and are added mostly at the end of a sentence or phrase in order to give some 'emotional colouring' to a statement or exclamation (Matthews & Yip, 1994). Thus, the use of pitch in emotional expression is indeed very different in English and Cantonese.

Objectives

The purpose of this study was therefore to look at the relationship between music and language perception in children and whether this would result in different emotional responses of children of different cultures. It was hypothesised that children use similar strategies in perceiving the expressive components in music and language. Thus, they would be able to perceive the emotional implications of the 'sound' of speech in their mother-tongue which is disguised as music, more accurately than children of another culture who do not speak the language.

Design

Subjects

44 English- and 48 Cantonese-speaking children, aged nine to ten years, from two schools in England and two schools in Hong Kong respectively, were randomly selected as participants. They were required to listen to a tape-recording and to rate their feelings about the music on some answer sheets.

The test material included fifteen short bits of musical sound, which was the 'electric piano' sound generated from a synthesiser. Each bit of musical sound was a conversion of a spoken sentence. In this way, we can focus on the expressive components of language in the form of music by taking away the words and putting in musical sound. The sentences were spoken either in English or Cantonese by native speakers. Seven sentences were made up to imply ten emotional responses. An additional sentence was used as example and practice items. Each sentence had its English and Chinese versions. All the ten emotions were arranged in a bipolar 7-point scale for rating (see Figure 1).

Figure 1. The rating scale and the ten emotions studied

	very	quite	sort of	nei- ther	sort of	quite	very	
Happy	_____	_____	_____	_____	_____	_____	_____	Sad
Angry	_____	_____	_____	_____	_____	_____	_____	Calm
Brave	_____	_____	_____	_____	_____	_____	_____	Fearful
Worrying	_____	_____	_____	_____	_____	_____	_____	Sure
Energetic	_____	_____	_____	_____	_____	_____	_____	Tired

Two scores were assigned for each of the ten emotions from the English and Cantonese items respectively. A score of 1 to 7 was given according to how closely the rating was towards the expected emotional response. The scores for each emotion were organised into four groups of data.

- Group 1 – English children perceiving English items;
- Group 2 – Hong Kong children perceiving English items;
- Group 3 – English children perceiving Cantonese items;
- Group 4 – Hong Kong children perceiving Cantonese items.

The hypotheses were that the English children would score higher than the Hong Kong children in perceiving the English items (i.e. Group 1 > 2) and vice versa in perceiving Cantonese items (i.e. Group 4 > 3); the English children would score in the English items

higher than in Cantonese (i.e. Group 1 > 3) and the Hong Kong children would show the contrary results (i.e. Group 4 > 2).

The mean scores of each group for the average of all the emotions and each individual emotion were calculated and analysis of variance was carried out. In order to see if the small difference in the mean scores was due to a large number of answers falling into the neutral rating (4 – neither), frequency distribution was also performed. The number of responses scoring between 5 and 7 were considered as the number of ‘correct’ responses and those scoring 1-3 as the number of ‘incorrect’ responses, while those scoring 4 were discarded. The percentages of ‘correct’ responses against the total number of ‘correct’ and ‘incorrect’ responses were calculated. Comparison was then drawn among the four groups and chi-square test was used.

Findings

Both the mean and frequency distribution illustrated that the English children scored higher than the Hong Kong children in their emotional response whether the items were English or Cantonese (see Table 1 & 2). However, only the differences in frequency distribution between the two groups of children in English items were statistically significant ($p = .05$). On the other hand, the Hong Kong children scored higher in Cantonese than English items, and so did the English children as shown in the mean scores. However, these differences were not statistically significant.

Table 1. The MEAN SCORES in all the ten emotions of the four groups

Group	Children	Items	Scores
1	English	English	4.214
2	Hong Kong	English	4.111
3	English	Cantonese	4.258
4	Hong Kong	Cantonese	4.203

Table 2. The PERCENTAGES OF ‘CORRECT’ RESPONSES in all the ten emotions of the four groups

Group	Children	Items	Percentages
1	English	English	57%
2	Hong Kong	English	48%
3	English	Cantonese	57%
4	Hong Kong	Cantonese	55%

Instead of showing that the English children scored higher than the Hong Kong children in the English items and vice versa in Cantonese items, it was found that the English children scored higher in both items, though the difference in Cantonese items was not statistically significant. On the other hand, although the Hong Kong children have shown that they perceived Cantonese items more accurately than English items as hypothesised, the English children did not do better in English items than Cantonese items. They just did better for both languages. All these suggest that cultural differences and the relationship between music and language perception do not work as hypothesised. It seems that perception strategies are not limited to the specific qualities of the language that one speaks. Instead, it affects the whole pattern of perception strategy.

Among the ten emotions studied, ‘happy’ scores were found to be the highest whereas ‘fearful’ scores were the lowest. Only three emotions, ‘sad’, ‘calm’ and ‘fearful’, achieved statistically significant differences in their results (see Table 3). For ‘sad’, the difference among the groups came out as expected (i.e. Group 1>2, Group 4>3). For ‘calm’ and ‘fearful’, the differences among the groups corresponded to that in the mean scores of all the emotions (i.e. Group 1>2, Group 3>4).

Table 3. The MEAN SCORES in three individual emotions of the four groups

Emotions	Group	Children	Items	Scores
SAD ($p = .02$)	1	English	English	4.917
	2	Hong Kong	English	4.216
	3	English	Cantonese	3.361
	4	Hong Kong	Cantonese	4.216
CALM ($p = .00$)	1	English	English	4.526
	2	Hong Kong	English	4.027
	3	English	Cantonese	4.917
	4	Hong Kong	Cantonese	3.054
FEARFUL ($p = .04$)	1	English	English	3.722
	2	Hong Kong	English	2.838
	3	English	Cantonese	3.889
	4	Hong Kong	Cantonese	3.622

Although 'happy' scored the highest among all emotions, it had no statistically significant difference among the four groups of data. This means that all children scored high in all items, which can be due to the fact that the expressive components of 'happy' are prominent and clearly related to 'happy'. On the contrary, 'fearful' scored the lowest among all emotions. But it has statistically significant differences among the four groups of data. This implies that the expressive components of 'fearful' are relatively less explicit, so less children could relate such components with 'fearful', and cultural differences are present. Therefore, cultural differences in perception may vary according to the degree of explicitness of the expressive components of the emotion. It is only when the expressive components are not explicitly related to a particular emotion that cultural differences may exist.

Like the results on all the emotions, the English children did better than the Hong Kong children in English and Cantonese items except 'sad' in Cantonese items. This implies that there are certain expressive elements in 'sad' in the Cantonese item that Hong Kong children are able to perceive better than English children. Looking into the Cantonese 'sad' item, it was characterised by a slow tempo and a low pitch level, and with lots of slides which are typical Cantonese sounds. It may be that the Hong Kong children are more able to relate these characteristics in the context of the sound of their mother-tongue to the emotion of sadness.

Conclusion

The main finding is that the English children were more accurate in perceiving the emotional implications of both English and Cantonese test items than the Hong Kong children, though the difference is statistically significant only in English items and not in Cantonese items. Thus, cultural differences do exist though it does not follow the hypothesis. The implication is that the English children and the Hong Kong children have their own style of perception of expressive components in music and language, which can be accounted for by the linguistic differences in English and Cantonese.

In English, extended pieces of language are more important than individual sounds for the perception of meaning and emotion. Due to the extensive use of intonation, English people when listening to their speech very often listen to the whole set of sounds. On the other hand, in the Cantonese language, the constituent elements are quite important since the relative tones of each individual words give meaning and emotion to the speech. The Hong Kong people when listening to their speech very often pay more attention to the individual sound. Thus, this may suggest some differences in the styles of perception in English and Hong Kong children.

The fact that linguistic differences can influence perception and emotional responses to both music and language leads us to the conclusion that music and language perception are closely related. A close relationship between music and language perception in children has important implications on education – we should perhaps put a closer link between music and language in

teaching and learning so as to enhance one another. In fact, many famous music educators have long been promoting the integration of music and language in education. Kodály recommended the use of traditional folk materials in music teaching because they are perfectly suited to the language and culture, and thus, children learn them as easily as learning their mother tongue. He believed that the learning of one's music and language in relation to each other can possibly generate a positive influence (Forrai, 1988). In Orff's *Elemental Music*, his 'elemental approach' in music education, children's vocal languages including both spoken and sung, are unified (Orff, 1978). Thus, the approach of integrating music and language is perhaps most beneficial to children and should be carefully considered.

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‘Are We Ready to Follow the Leader?’

A Survey on the Use of Technology in Classroom Music in the Secondary Schools of Hong Kong

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Abstract

This paper provides a description of a survey on music technology distributed to the music teachers of 378 secondary schools in Hong Kong that was designed to: i) review the provision of electronic equipment and computers in the music room; ii) reflect how much computer technology has been used to assist music teaching; iii) find out the attitude of music teachers towards technology, and iv) draw their views on students' response towards music teaching and learning through computers. Findings revealed that music theory, score arrangement and composing were the areas that used computers most. Software on Chinese instruments was in greatest demand. the majority of teachers believed that music technology could motivate students to learn music, and provide more opportunities for music activities, develop creative thinking and promote self learning. Reasons for not using the computer and training needs were also revealed.

Introduction

Music technology (MT) has been used to assist teaching and learning in the West and in technically more advanced countries for decades as compared to Hong Kong where MT has only started to develop in the 1990s. Its pedagogical underpinnings in music education were discussed by Moore (1992) and Stevens (1994) under the computer-assisted instruction and technology-based education approaches. Baltzer (1996) stressed how the interactive multimedia could introduce students, who were mainly visual learners, to music which was an aural art. He believed that in order to lead students to experience the joy of music, one must not approach music through listening alone. According to Kemp, computers not only offered visual feedback to aid students' thought processes in sound, they also developed their aural / symbolic skills through games, hence enhancing their intellectual concepts and symbolic experiences (Kemp, 1986). Both Kemp and Hodges were concerned about some poor quality packages that the software producers devised. Hodges remarked that there was a danger of sacrificing aesthetic awareness and musical development to the development of low-level skills in manipulating the equipment (Hodges, 1996).

Background

Ever since the return of sovereignty from Britain to the People's Republic of China in July 1997, Hong Kong has undergone gradual changes. The Chief Executive, the Hon. Tung Chee Hwa has distinctly addressed the issue of Information Technology (IT) in Education right at his first policy address (Tung, 1997). Besides bringing the high capacity communication systems and networks together, he also laid emphasis on skillful people to use the new tool and a cultural environment that stimulated creativity and encouraged technical advancement. He was determined to make Hong Kong a leader in the information world.

Mr. Tung further proposed a Strategy for IT in Quality Education, resulting in a consultation document drafted in June, 1998 by the Education and ManPower Bureau (EMB) of a 5-year strategy from 1998/99 to 2002/03 with a vision to i) arouse and sustain students' motivation to learn; ii) broaden students' horizons and facilitate the creative mind; and iii) promote life long learning and generate team spirit (EMB, 1998).

From 1998 to 2000, each primary school would be provided with forty computers and each secondary school with eighty-two computers. Suitable teaching software would be developed under the IT Education Resource Centre (ITERC) and training courses for over 30,000 teachers would be conducted at four levels over four years. Twenty pilot schools of best practices using IT in teaching and learning were identified and all Hong Kong schools would have access to the Internet. Hopefully within the next five years, 25% of the curriculum would

be supported through IT and within ten years, all teachers and F.5 graduates would comprehensively use IT in all secondary schools.

Questionnaire Survey

In December 1997, some months after the Chief Executive's first policy address, a postal questionnaire survey on music technology was designed, piloted, revised and conducted in all the secondary schools. The objectives of the survey were: i) to review on the provision of electronic resources and facilities in the music room; ii) to reflect on the use of computer technology in music teaching and learning; iii) to find out the attitude and competence of music teachers towards music technology and iv) to draw teachers' perception on students' response to computer-assisted teaching and learning.

Findings

Background of Schools and Music Teachers

Questionnaires were sent to 378 secondary schools' music teachers with 176 returns (47%). Among the replies, 17.6% of the schools were from band 1; 18.8% from bands 1 to 2; 5.7% from band 2; 12% from bands 2 to 3; 8% from band 3; 14% from bands 3 to 4; 3.4% from band 4; 9.7% from bands 4 to 5 and 10.8% from band 5.¹ In summary, 42% were from the top three bands (74 schools), 34% were from the middle three bands (60 schools) and 24% were from the lower three bands (42 schools).

Apart from two missing values, the majority of the music teachers (77.6%) were female. More than half (56.3%) had taught from 1 to 10 years, a quarter (25.9%) had taught from 11 to 20 years and the remaining 17.8% had already taught for over 21 years.

Technology in Music Teaching and Learning

A small number of music teachers (14%) had used the computers in their music teaching, of which only 16% were from the lower bands. This could be the reason why the lower band schools did not make enthusiastic response, as the majority of the teachers had not used music technology in their teaching before so they did not have the information or the experience to comment. Among the teachers who had used the computers in music teaching, 40% were from the middle bands while 44% were from the top bands.

The more common usage of the computer was to assist music theory and score arrangement (56%); composing (52%); introducing music and music appreciation (40%). Some teachers also used it for aural training (28%), song accompaniment (12%) and setting music examination papers (8%).

The Encore sequencing software seemed to be more popularly used (68%) than Cakewalk (48%), and various CD-ROMs were used to introduce the Western orchestra, Cantonese and Peking operas, Western music history and rudiments (60%). Except for two missing values, the majority of the teachers (64%) thought that Chinese software was more suitable for the students than English ones. This was in line with the recent policy of promoting Mother Tongue (i.e. Chinese) as the medium of instruction, which granted only 114 secondary schools out of over four hundred to use English as the medium of instruction. The software that music teachers found most lacking was for Chinese Instruments (68%), Chinese Music Appreciation and Aural Training (52%), These were followed by Composing (32%) and Theory (28%).

Software for music arrangement and Western musical instruments were found most sufficient (12%).

Computer-assisted Music Teaching and Learning

All the 25 teachers who used the computers to assist music teaching gave positive feedback of their experiences and students' response. Indicated by the 5-point scale, 44% most agreed (ranked 5) that using the computer could arouse better motivation for students learning music and another 44% also ranked 4. 32% most agreed (ranked 5) and 56% ranked 4 that the

computer could enable students to understand music better. A great majority of teachers (92%) agreed that the computer could provide more opportunities for music activities (ranked 4 & 5). While 82% ranked 4 and 5 that the computer could promote self study in music, another 80% agreed with ranks 4 and 5 that it could help the students to cultivate an interest in music and about 72% ranked 4 and 5 that the computer could develop creative thinking in music. None of the answers indicated least agreed to the above areas (Table 1). However, a teacher did comment on the inadequate provision of hardware and software for the whole class and another addressed the present unsatisfactory provision of facilities for music teaching.

Table 1: Computer Assisted Music Teaching and Learning

Score	5	4	3	2	1	Mean
Motivation	11	11	3	0	0	4.32
Creative Thinking	6	16	2	1	0	4.08
Music Making	14	9	2	0	0	4.48
Self Study	8	14	1	2	0	4.12
Music subject	8	13	4	0	0	4.16
Interest	12	8	5	0	0	4.28

Reasons for not using the computer in Music teaching

86% of the music teachers (151) did not use the computer to assist music teaching. Only 15% strongly agreed that there was a lack of positive reinforcement from the students and another 46% strongly disagreed with this view, suggesting that students did have positive feedback with the use of the computers in the teaching and learning process (Mean Value 2.6). 55% mostly agreed and 28% strongly agreed that there was a lack of financial resources to set up music technology for teaching and learning (Mean Value 4.33). If financial resource was adequate, teachers would very likely use music technology in their teaching. 60% strongly agreed that the lack of space in the music room was a main reason for not using computers (MV 3.6). About 55% strongly agreed that the lack of computers and software knowledge were the main reasons for not using it in the music lessons (MV 3.57). Slightly fewer than half of the teachers, 45%, strongly agreed that there was a lack of support from schools for computer-assisted music learning (MV 3.49).

Electronic Equipment

Very few teachers had electronic instruments and equipment in the music rooms. Only 16% had the synthesizers, 14% had the computers, 11% with CD-ROMs, 9% with sound cards, 7% with the electronic drum kits and only 1% with the sound modules. The majority (65%) had not got any of these for teaching. 10% of the teachers had to supply their own computers for music teaching. A few of them (6%) had one computer in the music room, a handful (2%) had two computers to assist teaching and learning and only 0.5% of the teachers had the privilege of having three or more computers. Three-quarters of the teachers (75%) did not have computers at all in the music rooms to assist music teaching and learning. The majority of the computers in schools (73%) did not have multimedia provision to facilitate music teaching either. Only 10% had one computer with such a provision, 4% had two computers with multimedia and 6% had three or more computers with such a provision.

Financial Resources

Slightly more than half of the music teachers (55%) indicated that their annual budget for music, including government subsidy, was not fixed. About 23% of the teachers got up to HK\$2,000 per year, 11% got up to HK\$5,000 per year while 10% indicated that they didn't get a cent for music which suggested the poor status of it within some secondary schools' curriculum.

Technology Competence

More than half (57%) of the music teachers had taken computer/technology courses related to music teaching before.

About 90% have computers at home and about 48% regarded themselves as beginners using the computers. 30% regarded themselves fairly competent, 14% competent and some 6% indicated that they were technophobic with the computers. The majority of them would like to join the training courses on music composition with music technology (76%). Quite a lot of them (62%) wanted to join the training classes on computer-assisted theory and aural training and music arrangement/score editing. A similar number (61%), wanted to have courses on music appreciation with technology, and a few of them (0.5%) wanted to have technology courses on vocal training. Only a few were very competent and indicated that there was no need for any training courses and another 2% indicated that they had no interests at all for learning. It seemed certain that the majority of music teachers wanted to have training in using technology for composing, aural training, teaching rudiments, music arrangement and appreciation. They had computers at home and they had started some courses on it.

IT Subject in Secondary Schools

There was 1% missing value from the replies. Three-quarters of the secondary schools (76%) offered IT subject for students in form one. 7% offered it in form four, 5% in form three and 4% in form two. There were still 7% that had no IT lessons in their curriculum.

Teachers' Perception of Students' Response to IT in Teaching and Learning

75% of the respondents were from co-educational schools, 13% were from the boys' schools and 12% were from the girls' schools. Since not many music teachers had actually used the computer for music teaching and they might not have asked the IT teachers of the students' response to IT, there were 2.8% missing values to the information about the students' response. However, 74% of the 128 co-educational schools did reply. A total of 62% indicated that the students were keen on computer-assisted music learning, of which 34% indicated all the students were keen and 28% indicated boys were keener than girls. Only 6% indicated all the students were not keen and 4% indicated that girls were keener than boys.

82% of the boys' schools responded. The majority (64%) indicated that most boys were keen and only 18% indicated that they were not keen. 57% of the girls' schools responded and the findings were less distinct. 33% indicated that most girls were keen while 24% indicated that most girls were not keen. It was obvious that boys were keener on the computers and this was consistent with the results from both the co-educational schools and the boys' schools.

Conclusion

The questionnaire survey found out that Music Technology was not yet commonly used in the secondary schools of Hong Kong, though its advantages were positively acknowledged by the music teachers. The reasons for this were mainly due to i) insufficient financial support, ii) inadequate hardware and software provision, iii) the lack of space in the music room and iv) the lack of MT competence of the teachers. The EMB's five-year strategy of IT for quality education seemed to be determined to address the financial, technical issues and training needs in a more general perspective. However, a recent interview with some music teachers did not reveal much high hope as the school principals had direct decision power over their distributions in schools. Tertiary institutes should assist to provide relevant MT training courses for serving music teachers and to facilitate the implementation of MT in education. Music teachers need to grasp every opportunity to equip themselves and to request at least two computers in the music room for demonstration purpose and student use in composing, project work and self study. As there is a great demand of suitable software especially in Chinese, tertiary institutes and schools need to collaborate in producing tailor-made teaching aids appropriate for their local needs.

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1 Secondary schools in Hong Kong are divided into five bands according to the students' academic standards.

An Investigation and Analysis of Environmental Stress Factors Experienced by K-12 Music Teachers

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Abstract

This study aimed to identify stress factors, sources of stress and manifestations of stress among practicing music educators. The Fimian (1988) *Teacher Stress Inventory* was distributed to 166 music educators within one Area Education Agency in a Midwestern state. Four case studies provided information which aided in explicating stress among elementary and secondary music teachers; among choral, general music, orchestral and band teachers; among teachers of both induction and post-induction status; and among urban and non-urban instructors. The results suggest that insufficient time for tasks, work demands, and requirements of the job is a pervasive problem for the music practitioner. Class sizes, school pace, insufficient salary, student discipline and apathy, lack of support for music programs, and the lack of professional development opportunities were also identified as profound stressors. Significant differences were demonstrated between urban and non-urban teachers in regard to discipline and apathy issues as well as those related to lack of professional improvement opportunities and contributions to school decision-making. Manifestations were negligible in most areas, but did demonstrate significant differences for men and women. Data from this and other studies suggest there is a discrepancy between the teacher preservice program and the realities of the music educator's job, ultimately creating stress.

Introduction

The subject of stress is pertinent to nearly every person who is engaged in the professional setting. While blue-collar workers have long been the target for discussion concerning stress and burnout with regard to tedious, boring jobs, the focus has now shifted to those in the personal help professions, e.g., consulting, nursing, law enforcement, and teaching (Bardo, 1979; Cherniss, 1980; Golembiewski & Munzenrider, 1981; Hamann, Daugherty, & Mills, 1987). Stress and burnout are manifested in low staff morale, a high degree of absenteeism, recurring tardiness, and attrition (Kalker, 1984).

The teaching profession, in particular, appears to be one in which stress is a common malady. According to Farber (1984), "... emotional and physical exhaustion, irritability, depression, and reduced professional dedication are resulting conditions and behaviors of stressed-out teachers." Several studies have suggested that differences exist in regard to gender (Farber, 1991; Okebukola & Jegede, 1989); school setting (Bainer, 1993; Grant, 1989); teaching experience (Huling-Austin, 1990; Gold, 1996); and teaching discipline (Hamann, 1986; 1989). Hamann (1986) noted that music teachers have significantly higher burnout rates than contained classroom teachers. For the music educator, distinct and particular stressors have been identified: (a) difficult teaching schedules; (b) quantity of students; (c) lack of recognition for the program and the teachers; (d) lack of support by administration, colleagues, parents, and students; (e) heavy workloads; (f) lack of adequate facilities, budgets, and equipment; (g) fear of program cuts; and (h) student discipline and apathy (Brown, 1987; Hamann, 1985). This is, indeed, a hefty list. The purpose of this study was to identify the most prevalent sources of stress and their subsequent manifestations among practicing music educators. The research questions focused on those factors in the teaching environment which contributed to stress, the manifestations of the stress, and differences with regard to gender, music disciplines, school setting, and level of teaching experience.

Design of the Study

This study was composed of both quantitative and qualitative elements. The former component was utilized to provide the identification of stress factors while the latter was intended to provide more in-depth explication of the stressors, their sources, and the degree of pervasiveness of those factors that impact music educators. The subjects for the quantitative component consisted of all music educators in one Area Education Agency, a

total of 166, who received "The Teacher Concerns Inventory" (Fimian, 1988). For the qualitative component of the study, five teachers, identified as successful music educators, participated as case studies. The surveys yielded a return rate of 62 %, with validity and reliability established at .60. For the case studies, the teachers participated in three formal interviews. Face validity was established by the music education faculty and one statistician at a Midwestern teaching institution. The data collected from the surveys were analyzed, producing results which were obtained through *t* tests, ANOVA, and descriptive statistical analyses. For the qualitative component, interviews were transcribed, sorted, categorized, and meshed with quantitative findings to establish relationships. Triangulation was achieved through survey results, supportive literature, the researcher's observations, and the utilization of an external reviewer.

Findings

The findings are organized categorically, representing the major stress factors identified in the Fimian (1988) survey. Both the quantitative and qualitative data are meshed to provide the reader with the identification of the stressors as well as the explicatory information provided by the case study participants.

Time Factors

Time was identified as a preponderant stressor for both the survey population and the case study participants. While no significant differences were found among the groups with respect to gender, school setting, or teaching experience, time was a pervasive problem irrespective of the particular teaching environments. The induction status teachers noted the demands placed on their time and the lack of adequate preparation time for classes and rehearsals due to travel between schools. The post-induction status teachers identified the number of hours needed to sufficiently complete the job requirements as sources of stress. They worked many evenings and weekends due to the demands and rigors of festivals, contests, musicals, and sports events performances.

Work-related Stressors

Within the school environment, school pace, class sizes, and the amount of work to complete were problematic issues for the population. Contrary to the review of literature, no significant differences emerged when urban and non-urban teachers were compared.

Professional Distress

It is not surprising that inadequate salary was a major source of stress for the teachers. The post-induction status teachers expressed great disappointment that their salaries did not reflect the number of hours devoted to the job nor the quality of the programs that were delivered. Furthermore, the lack of promotional opportunities, the need for more job status and respect, and the lack of recognition for job accomplishments were moderately stressful to the sample.

Discipline and Motivation

Student apathy and lack of motivation were suggested to be of great strength as sources of stress. Although apathy appeared to be the most problematic issue, frustrations with discipline problems, student monitoring, poorly defined discipline policies, and rejection of teacher authority surfaced only as moderate stressors.

The urban teachers noted significantly greater stress with these issues than the non-urban teachers. Perhaps this can be attributed to the variety of behaviors, attitudes, and expectations one would anticipate in any given urban population. Non-urban populations may tend to be much more homogeneous, thereby requiring much less attention to the diverse cultures. The case study participants noted major stress in the area of Discipline and Motivation, suggesting that their large class sizes of 70-member choirs or 250-member bands were quite difficult to manage.

Professional Investment

The veritable lack of control over classroom decisions and lack of professional improvement opportunities were suggested to be moderately stressful for the teachers. The urban teachers were significantly more stressed in this category, perhaps due to the geographical distance between them and the central administration. The case study participants related numerous instances in which classroom teachers attended professional conferences, meetings, and workshops, and the obvious lack of those opportunities provided for the music teachers in their respective districts.

Manifestations of Stress

Behavioral, Gastronomical, and Cardiovascular Manifestations were negligible for the survey sample. In the area of Fatigue, physical exhaustion, quick fatigue, and procrastination were of moderate proportion. Emotional Manifestations were indicated to be of great strength in reference to anxious feelings, and of moderate strength for feelings of depression and insecurity. The case study participants suggested a variety of manifestations, including "kicking trash cans," sleeping, illness, crying, and procrastinating.

Frustrations and Stressors: The Case Studies

The frustrations were categorized into five sources of stress: (a) negative attitudes, apathy, and discipline problems with students; (b) lack of demonstrated support for the program and music teacher by administrators, colleagues, and parents; (c) budgetary and facility constraints which negatively impacted the music programs; (d) time limitations with students, class meetings, preparation time, and required work to be completed; and (e) insufficient preparation for music teaching, i.e., lack of adequate methodology, pedagogy, curriculum design, and discipline/management. (See the Findings Chart for an overview of the stress data).

Conclusions and Recommendations

Conclusions

The music teaching environment appears to prompt a variety of stressors according to the findings of this study as well as those reviewed in the literature. The data from both components of the study meshed quite easily, i.e., similar findings were indicated by both groups of teachers. The issues of Time, Discipline and Motivation, and Professional Investment were problematic for the teachers; while Time was a pervasive problem for all of the teachers in the study, the issues of Discipline and Motivation as well as Professional Investment were significantly different for the urban teachers. From the case studies, preservice education was suggested to be inadequate in terms of preparing the teachers for the rigors of the job in the areas of methodology, pedagogy, curriculum, and discipline/management. The Manifestations of stress appeared to be different for men and women. For men, Cardiovascular Manifestations were more prevalent; for women, Fatigue and Emotional Manifestations were noted. These findings indicated that gender differences existed with respect to the manner in which the stress was manifested. The case study participants discussed the various factors which contributed to their professional vitality and endurance. In particular, these factors were categorized as student successes, the realization of program goals and objectives, and the delivery of high-quality musical programs.

Recommendations

It would seem critical that teachers and administrators become educated regarding the issue of environmental stress in order to collectively combat and solve those problems. Awareness is crucial in order to investigate the particular stressors and develop plans to promote changes within the school environment. Apparently, this is an issue which permeates all educational environments, including higher education. It is plausible to assume that those of us engaged in teaching in higher education may well be teaching our students how to become stressed. It could become a learned behavior, consuming teachers in virtually all school settings. Stress may not only result from inadequate teacher

preparation, but also from the *way* in which the program is delivered. These suggestions should cause us to rethink the curriculum as well as the attitudes and behaviors we model for our students. The first recommendation, then, is to examine the issue of stress and dialogue among the various strata of the educational environment. This is an issue which needs to be vigorously "attacked." Perhaps we can employ some of the tactics of the business world to identify, plan, and problem solve in order to address the stress issue and begin to ameliorate it.

Second, preservice preparation should include core courses in music curriculum design and implementation, methodology and pedagogy, and classroom motivation and management so that our teachers can concentrate on delivering quality programs. While effective classroom management and motivation are requisites to quality teaching and learning, few institutions of higher education include rigorous preparation for teachers in these areas. In effect, we are sending teachers out into the profession without fully equipping them to meet the challenges of the classroom. It is feasible that the initial realization that one is unprepared for the classroom may initiate professional stress. Once again, the curricula need to be reviewed and restructured to provide the necessary tools for the job.

Third, the time factor, while pervasive and insidious, appears to be one of the easier problems to address. This will, of course, require that faculty and administrators commence dialogue in order to more effectively redesign the class schedules, preparation time, and extra duties. Not only is the time factor problematic within the timeframe of the school day, but it also is impactful in terms of the number of hours required for the job. A more equitable solution may be obvious in terms of comparing the teaching hours across all curricular areas with definite and equal distributions of duties and responsibilities appointed to each faculty member. While this decision might well change the complexion of the music program in that the number of extra-curricular activities might be curtailed, the curricular program may be strengthened as a result.

Fourth, professional development opportunities and shared decision making are luxuries for many music educators. Perhaps the source of this problem can be identified as one of passive acceptance of "policy" or "procedure." It is quite possible that music educators are not assertive in seeking those opportunities or in finding the means to accomplish those goals. In effect, we may need to become more concerted in our efforts and creative in our approaches. This will require that we seek and participate in school-wide committees, teams, and evaluative systems in order to proffer and contribute a voice for the fine arts.

Fifth, the manifestations of stress may be greatly reduced in direct proportion to the number of stressors which are ameliorated. The responsibility for solving the issue of stress depends on each of us, both individually and collectively. Science and medicine offer us much in terms of health, exercise, and psychological aid if we seek out ways in which to help ourselves. Certainly, inservice programs and school workshops can serve as vehicles for addressing the stress issue. Teachers, administrators, and school boards are in positions to broach the issues and provide a myriad of ways to solve them, beginning with dialogue and planning in communal fashion. Educators must become more aggressive in their attempts to solve this problem.

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An Overview of Research Results

Factors	Literature Review	Survey Results	Case Study Findings
Time Management	<p>Documentation</p> <ul style="list-style-type: none"> * difficult teaching schedules (Brown, 1987) * too much work and not enough time to complete it (Hamann, 1984) * stress accumulates quantitatively and qualitatively in relation to time induction resources (Blase, 1986) 	<p>Findings</p> <ul style="list-style-type: none"> * overcommitment and polyphasic behavior * insufficient time * time was a pervasive problem * significant difference for post- 	<p>Findings</p> <ul style="list-style-type: none"> * large numbers of students to serve and not enough time to reinforce them or meet individual needs * extended teaching hours beyond school day * servicing more than one school creates time problems and causes "cameo appearances"
Work-related Stressors without	<ul style="list-style-type: none"> * contact with many students (Hamann, Daugherty, & Mills, (1987) * teaching role requires the teacher to wear many hats (Edgerton, cited by Smith & Milstein, 1984) * "performance" by teacher every day 	<ul style="list-style-type: none"> * too little time for preparation * too much work to do * class sizes are too large * too much paperwork * personal priorities shortchanged * pace of the day is fast 	<ul style="list-style-type: none"> * classes are scheduled breaks * constant on-task teaching * large programs with little administrative support * insufficient
budgets/facilities	<ul style="list-style-type: none"> (O'Hair, 1995) * insufficient facilities and budgets (Hamann, 1985, 1989) * difficult working conditions (Gold & Roth, 1993) 	<ul style="list-style-type: none"> * significant for post-induction 	<ul style="list-style-type: none"> * teacher wears many hats
	<ul style="list-style-type: none"> * teachers feel hindered in areas of professional growth (Schutt, 1983) * absence of recognition, inadequate salaries, lack of promotional opportunities (Brown, 1987; Hamann, 1985) 	<ul style="list-style-type: none"> * inadequate salary * lack of promotional opportunities * lack of respect, status, and recognition 	<p style="text-align: center;">Professional Distress</p> <ul style="list-style-type: none"> * salary should be "doubled" * administration often supports parents before teachers * fellow colleagues are often uncooperative or hostile

Discipline and Motivation

* frequent disruptive behavior and violence (O'Hair, 1995)

* student apathy
* unmotivated students

* significant difference for urban teachers

* motivation and discipline with large groups is difficult
* great deal of class time used to teach social skills
* discipline constant problem
* students point out inconsistencies in discipline

* urban teachers are most prone to stress; discipline is constant (Haberman, 1987)
* insufficient teacher preparation for urban schools (Payne, 1994; Haberman, 1987)

* apathetic and difficult students are common (Brown, 1987; Hamann, 1985)

Professional Investment

* lack of input in school and program decision-making (Hamann, 1985)
* lack of support by administration (Hamann, 1985)

* lack of opportunities for professional development

* administrative support is minimal

* powerlessness to change anything significantly (Dedrick & Raschke, 1990)
* feeling professionally "stuck" and solve with colleagues powerless (Hamann, 1984)

* lack of control over classroom decisions
* significant difference for urban teachers
* no opportunities to problem-

* professional development is not equal to that of regular classroom teachers

Emotional Manifestations

* emotional exhaustion, lack of significance in one's work, and lack of control in one's environment (Hamann, 1984)

* anxious feelings
* depression and insecurity
* significant difference for women

* constant battle for program produces emotional wear and tear

* increased negativism and pessimism (Cherniss, 1980)
* feelings of helplessness and hopelessness (Kalker, 1984)

Fatigue Manifestation

* physical exhaustion decreases tolerance for frustrations (Dedrick & Raschke, 1990)
* accrued fatigue can affect sleeping habits, apathy, physical disorders (Alschuler, 1980)

* procrastinating
* quick fatigue
* physical exhaustion
* significant difference for women

* procrastinating
* increased sleep

Cardiovascular Manifestations	<ul style="list-style-type: none"> * psychological symptoms accompany or parallel physical symptoms (Hamann, Daugherty, & Sherbon, 1988) * high blood pressure is common (Hamann, 1985) 	<ul style="list-style-type: none"> * little to no strength among respondents * significant difference for men 	<ul style="list-style-type: none"> * not mentioned * not mentioned
Gastronomical Manifestations	<ul style="list-style-type: none"> * stomach ailments are common (Hamann, 1985) 	<ul style="list-style-type: none"> * no strength 	<ul style="list-style-type: none"> * not mentioned
Behavioral Manifestations	<ul style="list-style-type: none"> * depersonalized behavior and reticence to participate (Hamann, 1985) * sudden anger, frequent crying, yelling and screaming, boredom, high-risk taking, and increased substance abuse (Freudenberger, 1974) 	<ul style="list-style-type: none"> * no strength 	<ul style="list-style-type: none"> * kicks trash cans

Strategies for Enlargement of the Usefulness of Resource Materials with Diverse Musical Aspects in Teacher Education Programs

Hongsoo Lee

Abstract

In this paper recent developments in the Korean elementary and secondary music curriculum are described. These developments have necessitated a re-examination of the resource materials provided to teachers. Currently one of several obstacles to overcome in music teacher education is the lack of diverse materials. Strategies for the enlargement and usefulness of resource materials for music education are provided.

Introduction

Since 1982, Korean music educators have developed a relatively advanced music curriculum. The recent music curricular for elementary and secondary schools were developed especially emphasizing the ideas of the conceptual approach and aesthetic music education. There is much interest in these approaches combined with the need to develop instructional guidelines and materials focused on universal and diverse musical aspects including traditional Korean music idioms. However, still the lack of diverse resource materials appropriate for grade schools use is one of the significant problems. The lack of diverse materials is one of several obstacles to overcome in music teacher education too.

In preservice and inservice programs for music teachers, generally the improvement of music teaching abilities is sought despite limited time and resources. In the programs, to improve music teaching abilities, student teachers and teachers sing, play instruments, improvise, compose, and listen to music, analysing and synthesizing this experience. This process of analysing and synthesizing through music listening heightens students' appreciation of musical pieces. In the listening classes, they mainly consider which pitches, durations, harmonies, and tone colors are present and how they are organized in certain modes or scales. The aesthetic experience of music, however, requires more than simply an objective recognition of its constituent parts and musical activities. They have to investigate the effects created by the elements and the ways in which they interact upon each other. For doing that effectively they need musical pieces with diverse musical aspects culturally and stylistically.

Musical Pieces Suitable for Diverse Experiences

Gardner (1993) says that "no person can learn everything there is to learn". He stresses "culturally-diverse experiences" and "a new educational model embodying the values identified". In the world there are numerous musical works composed in previous centuries, and this century, and in many different areas. Therefore, we need to select the most efficient resource materials in an educational sense among those musical works. To put it briefly, the music teacher education programs should provide musical pieces suitable for diverse experiences to do in music teachers limited time as intensively as they can do. If we make a success of selecting musical works with diverse musical aspects in terms of cultures and styles, the works will actively bridge the old music in tradition and contemporary music in new styles as well as their own national music and others. Those musical works can be provided for teachers in order to develop their aural awareness in listening classes and in order to use such diverse aspects for their composition. Such diverse musical experiences will help the teachers achieve the improvement of music teaching abilities.

Strategies for Enlargement of the Usefulness

In the following section of this paper, example pieces and strategies for enlargement of the usefulness of the musical resource materials are provided.

Example 1 *Susim-ka* (Song of Yearning) - Reime for Oboe and Piano

(1982) written by Yangseok Yoon

This three-movement work can be regarded as a series of short comments, alternating in tempo and intention, on one single basic theme which consists of a melodic idiom with four core tones of an ascending perfect fourth, major second, and minor third in Korean folksong *Susim-ka*. The first movement is mainly polyphonic in structure with an introduction-like theme. The second movement is characterized by a free rhythm and improvisation with the suggested notes of a melodic idiom. The finale has a fairly free, rondo-like structure, and is thematically linked with the other movements.

Major musical aspects to discover in the music

- oboe melody reflecting folksong *Susim-ka* and piano accompaniment
- theme consisted of an idiom with four core tones
- series of short comments alternating in tempo and intention
- polyphonic structure and rondo-like structure

For the growth of aural awareness

- focusing ears on the raw materials: pitch (four core tones), texture, timbre, and articulation, pace (how frequently any elements above occur and change), structure (within which musical events are organized), and, tension and release effects
- talking in groups of three or four: one listener describes his observations and others ask and penetrate questions about the observations, if one describes hearing timbral quality of the oboe, the others might press for details - was it ordinary sound or out of ordinary. "Did the player have a strongly characteristic sound such as a 'Daegeum' vibrato?"

In the composition classes

- using more than two among such diverse musical aspects in composing

Expanding repertoire for comparison

- authentic folksong *Susin-ka* reflected in the piece and other folksongs from the same area in Korea
- *Fantasia for Soprano Saxophone and Orchestra* written by Villa Lobos (Brazil)
- *Daegeum Sanjo* and *Danso Sanjo* (Korean traditional instrument solo pieces)

Example 2 *Hahn* for Orchestra

(1982) written by Byungeun Yoo

The Korean word *Hahn* has various meanings for Koreans depending upon the context in which it is used. The composer explains the title *Hahn* as following. It could refer to the Korean people, as in "The Hahn people," or it may refer to Korea as in "The Hahn Nation." It also could mean "broad," "one," "whole," etc. If any Korean hears this word as a word without any other words or phrases, however, it is most likely for him to think, first of all, of a special feeling of sorrow which is characteristic to Korean people who have been suffering from the long history of suppression and frustration.

Major musical aspects to discover in the music

- thematic melody based on folksong *Hanobaeknyon* and orchestra (*Hanobaeknyon* expresses one's longing for his parents to live for five hundred years)
- theme consisted of an idiom with four core tones
- parts in the various tempos and intentions

For the growth of aural awareness

- focusing ears on the raw materials: pitch (four core tones), texture, structure (within what musical events are organized), and, tension and release effects
- talking in groups of three or four: one listener describe his observations and others ask and penetrate questions about the observations. "How do the adaptations preserve or change the folksongs?"
- finding similarities to compositional techniques in *Korea Fantasy*
- exploring the design and orchestration of *Hahn* in greater depth

In the composition classes

- using more than two among such diverse musical aspects in composing

Expanding repertoire for comparison

- original folksong *Hanobaeknyon* included in the piece
- *Korea Fantasy for Orchestra* written by Iktae Ahn (Korea)
- *Finlandia* written by Jean Sibelius (Finland)

Example 3 *Shinawi for Samulnori*

(1995) performed by Nanjang and A New Horizon

Try to imagine the sky without a star, a moon
and even though are all so far unreachable is what they are.
But try to imagine a life that is without pain,
Then how would we know happiness?
Then how would we know gain?

We should think about it. We should think about it.
Sometimes we cry in sorrow. Sometimes we laugh with joy.
Sometimes we think tomorrow is just another day.
And just any other, that is what some people say.

Shinawi is originally improvisatory orchestral music which accompanied shaman dances. However, for this *Shinawi*, the Samulnori (four percussion instrument ensemble) plays with singers, a narrator, and the western melodic instrument ensemble. In the piece, we meet many kinds of genres; old and new, vocal and instrumental, language and music, eastern and western, shamanic incantation, suffering, and exciting, so on.

Major musical aspects to discover in the music

- parts in the various tempos and intentions
- blending of *Samulnori* and western ensemble, vocal and instrumental, language and music
- unique aspects of traditional Korean folk music

For the growth of aural awareness

- focusing ears on the raw materials: pitch (four core tones), texture, structure (within which musical events are organized), and, tension and release effects
- talking in groups of three or four: one listener describe his observations and others ask and penetrate questions about the observations. "How do the adaptations preserve or change the folksongs?"
- exploring the design and orchestration of *Hahn* in greater depth
- exploring blending of *Samulnori* and western ensemble, vocal and instrumental, language and music
- discussing some aspects they think are uniquely traditional Korean music

In the composition classes

- using more than two among such diverse musical aspects in composing

Expanding repertoire for comparison

- authentic *Shinawi* reflected in the piece
- original *Samulnori* included in the piece
- *Rhapsody in Blue* written by George Gershwin (USA)

Epilogue

Aural awareness for musical sounds can grow through these kinds of various musical activities. Therefore, we have to try to select musical pieces with diverse musical aspects culturally and stylistically suitable for the music teacher education programs.

Resources

- Gardner, H. (1993). *Multiple intelligences*. New York: Basic Books.
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The Development of a Music Aptitude Test for 4th to 9th Grade Students in Korea.

Kyungsil Hyun

Abstract

This paper provides a description of the Korean Music Aptitude Test (KMAT), for 5th to 9th grade Korean students, documenting its development and evaluation.

Purpose

What is music aptitude? The terms "musicality", "musical talent", "musical ability", and "musical intelligence" are often used to describe or explain music aptitude. According to Gordon, music aptitude is "a student's potential to learn music" (Gordon, 1987, p.1). Everyone has some music aptitude, just as everyone has some intelligence (Gordon, 1987). Music aptitude is partially innate and at the same time partially influenced by the environment.

There has been efforts to apply music aptitude tests developed in Western countries to Korean students. Hyun and Seog (1996) administered "Intermediate Measures of Music Audiation (IMMA, Gordon, 1982)" and "The Musical Aptitude Profile (MAP, Gordon, (1988/1965) to 4th to 6th grade students, and obtained the validity of the tests. Cho, Choi, and Jung (1996) administered IMMA to 4th to 6th grade students, and obtained the validity of the tests. These two studies showed that these tests can measure Western music aptitude of Korean students, but they do not measure Korean music aptitude of Korean students. Therefore, Korean students need a music aptitude test that can measure both Western and Korean music aptitude. To address this need we developed a music aptitude test, called Korean Music Aptitude Test (KMAT), for the 5th to 9th grade Korean students from 1996 to 1998. The purpose of this study is to describe how KMAT was developed and its evaluation.

Korean Music Aptitude Test(KMAT)

KMAT was developed from August 1996 to September 1998, through fourteen pilot studies. 4th, 5th and 6th grade students from 36 elementary schools, and 7th, 8th and 9th grade students from 14 junior high schools participated in the pilot studies. The total number of the students is 7,297. After every pilot study, some items were modified based on the item difficulty, the item discrimination and the face validity. Finally, the last version of KMAT was obtained on August of 1998. The KMAT was administered to 2,514 students from 14 schools in August and September 1998.

KMAT consists of rhythm and tonal tests. In the rhythm test, students are required to answer "same" or "different" after listening to pairs of rhythm patterns without pitch. The rhythm test items use 3/4, 4/4, 6/8, 12/8 meters. Every rhythm pattern consists of two measures. One measure steady beat is played by percussion instrument before the rhythm patterns. The rhythm patterns have their own tempo depending on meter. The patterns of 3/4, 4/4 meter were played in the speed of 90 quarter notes per minute. The patterns of 6/8 meter were played in the speed of 70 dotted quarter notes per minute. The patterns of 12/8 meter were played in the speed of 80 dotted quarter notes per minute. The rhythm test consists of 30 items. 20 items are Westerns music (3/4, 4/4, 6/8), and 10 items are Korean music (12/8). There are 6 items of 3/4, 8 items of 4/4, 6 items of 6/8, and 10 items of 12/8.

In the tonal sub-test, students are required to answer "same" or "different" after listening to pairs of 5-note tonal patterns without rhythm. The tonal test items are developed by considering the direction and shape of melodies. The tonal test consists of 30 items. 18 items are Westerns music, and 12 items are Korean music. All items were developed by the researcher. The researcher entered the music of the items into the computer by using

"Encore" program which is the software for writing music. We played the music file by using "Cakewalk" program which is the software for playing music. The instructions of the KMAT were recorded into wave-files. The whole KMAT was recorded in a professional music studio. The length of the two subtests is 30 minutes.

Music Achievement Test

The music achievement tests for the 5th and 6th grades were developed by elementary school teachers and the author for concurrent validity. Music achievement tests were made based on what is taught in school from March 1998 to July 1998. Music was taught twice a week. The tests were recorded using the "Encore" program and music for Korean text books. The achievement test for 5th grade consists of 22 items. In the test, there are 9 rhythm items, 8 melody items, and 5 other items. The achievement test for 6th grade consists of 18 items. In the test, there are 4 rhythm items, 6 melody items, and 8 other items. The length of each test is about 30 minutes. The mean score of the 5th grade achievement test was 15.64 and 6th grade was 12.50. The reliability of the 5th grade achievement test was .79 and 6th grade was .68.

Results

Korean Music Aptitude Test.

The results of KMAT and the achievement tests were analyzed using SPSS+ statistics program. The mean of rhythm test was 24.26 and tonal test was 22.39. The rhythm test reliability was .85. The tonal test reliability was .77. The reliability of rhythm test was higher than that of tonal test. The means, standard deviations, and reliabilities are shown in Table 1.

Table 1. KMAT Means Standard Deviation

	Means			Standard Deviation		
	rhythm	tonal	total	rhythm	tonal	total
4th grade	23.52	21.67	45.20	4.67	4.13	6.95
5th grade	24.15	22.48	46.63	4.95	4.24	7.69
6th grade	23.84	22.02	45.86	5.23	4.38	7.74
<u>elementary</u>	<u>23.90</u>	<u>22.11</u>	<u>46.01</u>	<u>5.08</u>	<u>5.08</u>	<u>4.32</u>
7th grade	24.52	22.70	47.22	5.07	4.03	7.50
8th grade	25.16	23.13	48.29	4.40	4.69	7.55
7th grade	26.37	23.64	50.01	3.61	4.41	6.52
<u>junior high</u>	<u>24.99</u>	<u>22.95</u>	<u>47.94</u>	<u>4.76</u>	<u>4.22</u>	<u>7.39</u>
All	24.26	22.39	46.45	5.00	4.30	7.61

Table 2. Reliabilities of KMAT

	rhythm	tonal
4th grade	.81	.74
5th grade	.84	.76
6th grade	.85	.77
elementary	.85	.77
7th grade	.86	.74
8th grade	.82	.81
7th grade	.80	.81
junior high	.85	.77
All	.85	.77

The item difficulty and the item discrimination of KMAT are shown in Table 3. The item discrimination was calculated using about 25% of highest scores and about 25% lowest scores. We usually believe that if a item has item discrimination over .2, the item is useable. Only one item (Tonal Test No. 14) is below .2, and this item should be improved.

Table 3. Item Difficulty and Discrimination of KMAT

	Elementary				junioir high				all			
	rhythm		tonal		rhythm		tonal		rhythm			
	diff- culty crimi-	dis- crimi- nation	diff- culty	dis- crimi- nation	diff- culty	dis- crimi- nation	diff- culty	dis- crimi- nation	diff- culty	dis- crimi- nation	diff- culty	dis- crimi- nation
1	88	.43	54	.51	86	.49	60	.53	87	.44	56	.51
2	86	.31	57	.51	88	.34	65	.48	87	.31	60	.51
3	84	.42	87	.30	88	.47	87	.26	85	.42	87	.29
4	85	.41	87	.37	89	.36	87	.37	86	.39	87	.38
5	77	.54	92	.28	86	.51	94	.27	80	.52	93	.28
6	73	.43	88	.26	75	.43	88	.23	73	.42	88	.25
7	72	.39	75	.46	80	.36	80	.46	75	.39	76	.47
8	83	.48	73	.45	75	.41	81	.39	82	.44	75	.44
9	66	.32	38	.32	90	.47	40	.37	69	.38	39	.32
10	85	.41	76	.41	89	.41	76	.52	86	.41	76	.44
11	84	.40	91	.29	89	.42	94	.25	85	.40	92	.28
12	87	.42	51	.46	92	.35	50	.43	89	.40	51	.43
13	82	.41	86	.40	84	.35	90	.34	83	.38	87	.39
14	88	.53	77	.18	90	.53	76	.16	89	.52	76	.16
15	84	.43	31	.32	90	.42	38	.37	86	.43	33	.33
16	57	.37	57	.43	67	.41	58	.43	61	.38	58	.42
17	73	.44	88	.28	83	.49	84	.38	76	.46	86	.30
18	85	.40	54	.29	84	.40	59	.39	84	.38	56	.32
19	74	.41	81	.45	79	.46	86	.40	76	.42	83	.43
20	74	.54	36	.36	85	.55	46	.42	77	.54	39	.38
21	78	.42	89	.32	81	.44	90	.29	79	.42	89	.32
22	70	.29	76	.39	65	.27	84	.38	68	.25	79	.40
23	89	.38	60	.34	92	.44	63	.34	90	.40	61	.34
24	79	.36	74	.36	86	.36	80	.43	81	.36	76	.38
25	84	.41	92	.25	89	.43	93	.29	85	.42	92	.26
26	79	.25	90	.26	80	.24	89	.22	79	.24	89	.25
27	79	.41	83	.22	73	.25	84	.28	77	.33	84	.24
28	79	.44	82	.39	82	.38	87	.36	80	.41	84	.39
29	80	.38	89	.26	81	.36	91	.21	80	.37	90	.25
30	85	.44	95	.31	91	.47	95	.39	87	.44	95	.31

Intercorrelation and Concurrent Validity

The intercorrelation between the rhythm subtest and tonal subtest is .41 for the 5th grade and .20 for the 6th grade. It means that the rhythm test and the tonal test for Korean students are not closely related, and so both tests are needed. We obtained the concurrent validities of KMAT for the 5th and 6th grades. Concurrent validity is the correlation between the KMAT scores and the scores of a music achievement test. The concurrent validity of KMAT for the 5th grade is .55 and that for the 6th grade is .40. Both correlations are statistically significant ($p < .01$) but to obtain better validity, music achievement tests whose validities are demonstrated are needed.

Suggestions

The following further studies are needed to improve KMAT.

1. Item discrimination of Tonal Test No. 14 is below .2, so this item should be improved.
2. To measure concurrent validity accurately, we need to develop good achievement tests which have high reliability and validity.
3. KMAT needs to be standardized.
4. We need to find correlations with other standardized music aptitude tests.
5. We also need a longitudinal predictive study for KMAT.
6. We need to administer KMAT to high school and university students.

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Tradition and Cultural Modern Modes: Counterfeit Nineteenth Century European Ideas on Japanese Music Education

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Abstract

The term modernization in the West was used for all modern developments of industrialization and mechanization. Western modernism was originally advocated in the nineteenth century by a class of citizens called the bourgeoisie who were attempting to become independent of the dominant political powers and the authoritarian state of Europe. In order to develop European social structure, several thinkers, Descartes, Hegel and Marx, played important roles, criticising human desire in order to propose a style of modern European ethics. The Japanese nineteenth century, however, differed fundamentally from the nineteenth century of the West. The concept of “man” or “meaning” in nineteenth century Europe was absent from Japan. The introduction of Western music education in Japan was a policy which was cleverly engineered by the Meiji restoration Government in order to westernize the Japanese nation. Music curriculum in Japan has been based on Western aesthetics and many teachers have blind faith in the “power and glory” of Western music. However, the “power and glory” of music should be examined, and any concepts which can possibly bring exteriority to open the closet are urgently needed. In order to clarify these issues, some ontological and epistemological analysis of modern Japanese music education will be provided.

Modernism and the Concept of Exteriority in the West

Kojin Karatani (1989, pp.256-260) says:

What the term “modern” in fact refers to is the nineteenth century of the West, that century which has managed to extend Western culture all over the World and to reorganize world history on a Eurocentric basis.

Modernism, first advocated in the Western World, originally revolved around Europe in the last years of the nineteenth century. It arose in the poetry, fiction, drama, music, painting, architecture, and other arts of the West, and was created to comment on the world in that setting. Modernism obtained some anti-representational concepts by late nineteenth century artists and thinkers. It, therefore, included symbolism, impressionism and decadence at the end of the nineteenth century and fauvism, cubism, post-impressionism, dada and surrealism (Goldberg, 1988). Modernism was advocated in different European countries at different times. In Germany in the 1890s, in England in 1908, in Russia in the pre-Revolutionary years, in America after 1912 and in France “it is a Plateau rather than a peak, though sloping off after about 1939,” (Edward, 1988). The term modernization in the West was used for all modern developments by industrialization and mechanization including de-social-classification; the growth of public education; new procedures of industrial negotiation; the development of social services and so on (Eisenstadt, 1966 & Rostow, 1971). In order to develop this European social structure, several thinkers from previous centuries, such as Descartes, Hegel, and Marx, played important roles. They criticized human desire in order to propose a style of modern European ethics. Kojin Karatani (1989, p.267) has written:

Those who critique nineteenth century thought always look back to Descartes. But for Descartes “spirit” was not the same as thought, nor was it a psychological subject. “I think therefore I am” was but a formula repeated since St. Augustine...Descartes...asks if what we think is not merely a custom peculiar to each community, and if, rather than thinking, we are not just conforming to a prescribed system. Descartes thus doubts, wondering whether or not he is dreaming, and it is this doubt, which constitutes spirit and makes it clear that spirit is exteriority.

Descartes (1988) thought that a feeling sometimes betrays humanity therefore we should doubt everything. After we excluded everything, the one and only thing, which beyond any shadow of doubt might exist, that is to say, you cannot doubt your own existence because you are now thinking. The Cartesian cogito can be explained as “A=A”, and

"A=A" is the concept of identity. The nature of the concept of identity is to seek the sameness among many different things and unify those differences (Foucault, 1994). In order to consider the two as one and the same thing, you have to prove your existence first, therefore European philosophical traditions in the seventeenth century introduced "I think therefore I am" as the foundation of metaphysics and logocentrism. God rationally and reasonably guarantees this proof of the cogito. The reason why Cartesian cogito was proposed might be explained by the period in which Descartes lived. At that time in Europe, some argued about what Heaven and Hell were like. The Skeptics argued that scholarship couldn't prove anything about the world at all. The Skeptics, at the same time became more generally supported because the natural scientific view had already started eroding religious perspective of Christianity. For people in Europe, reason supplanted faith as the ultimate source of knowledge about the world. Descartes found so many different cultures within Europe through his travels. He found so many "truths." He, as a result, felt an urgent need of a new thought to unify people. Karatani (1989, pp. 267-268) says:

As Husserl has observed, the Cartesian cogito is a transcendental ego through which the psychological ego is bracketed. But to be transcendental is to be exterior, I exist in exteriority and can exist only there. The Cartesian cogito is alien to interior certainty, consisting rather in the doubting of such an interior presence. For such a presence to exist, proof of the cogito would have to be guaranteed by God (the Other), which is not the God believed in by the community or by individual conscience.

According to Karatani, this "God" is "the Other" and has to be transcendental, therefore the Cartesian cogito is not the concept for the simple unification of each small community or single human being. Karatani thinks that exteriority is the spirit which broke through previously established human ideas and beliefs. Jacques Derrida (1981, pp. 15-16) explains differently from Karatani about exteriority, as follows:

To "deconstruct" philosophy is...to work through the structured genealogy of its concepts in the most scrupulous and immanent fashion, but at the same time to determine, from a certain external perspective that cannot name or describe, what this history may have concealed or excluded, constituting itself as history through this repression in which it has a stake.

Derrida suggests using a "certain external perspective"(exteriority) as an apparatus to deconstruct philosophy. Exteriority is the concept, "at a particular moment, to reverse the hierarchy," (Derrida, 1981, pp. 56-57). Karatani (1989, p.392), however, is critical of what Derrida suggests:

But this "certain exteriority is nowhere to be found in a positive form. It is a purely transcendental exterior; if it were not so, it could only be a transcendent, imaginary subject.

The concept of exteriority, interpreted by Karatani, is deeply involved in the will (i.e. human intention or desire) since the Renaissance. Derrida, on the other hand, thinks that exteriority is "purely transcendental exterior" (Karatani, 1989, p.268) and no will is involved. However, both Karatani and Derrida share some similarities in terms of their attitudes towards philosophy. They attempt to bring on a new perspective against a preconceived idea. Thus, having "exteriority" should be considered as a strategy for "a general displacement of the system" (Derrida, 1972, p.392). It seems that the concept of exteriority in European philosophy was an important centripetal force for the embodiment of Western modernism.

Counterfeit Territories: Modernization and Japan

In Japan, however, the terms modernism and modernization have been understood differently. They included everything from the West such as naturalism, romanticism, symbolism and even socialism. The Japanese nineteenth century differed fundamentally from the nineteenth century of the West. The concept of "man" or "meaning" in nineteenth century Europe was absent from Japan (e.g., Karatani, 1989). In the early seventeenth century, the Tokugawa Shogunate Government (the Edo period) in Japan closed the door

to foreigners except from China and Holland for 250 years. This isolation was forced to open its doors by the unexpected arrival of an American military presence in Japan in 1854. Reacting to the American presence, the Japanese (Meiji Restoration) Government (1868-1912) found it expedient to enforce the adoption of certain Western practices. By the end of nineteenth century these policies such as enhancing the wealth and military strength and a public school system were implemented with some urgency and speed in order to offset anticipated American colonial ambitions. During the Edo period, even though the governmental isolation policy was quite strict, foreign influences were coming over, and Japanese people liked to adopt them. Yuko Tanaka (1990, p.v) explains:

There were China, Thailand, Cambodia, Taiwan, Vietnam, Indonesia and Philippines behind Japan. Those cultures were always brought by Dutch, Italian and Spanish people to Japan...Susan Sontag's *Notes on "Camp"* Reminds us of "Japanese Modern (*Kinse*).” Sontag (1990, p.280) says: “The dividing line seems to fall in the eighteenth century; there the origins of Camp taste are to be found (Gothic novels, Chinoiserie, caricature, artificial ruins, and so forth.) In the eighteenth century people of taste either patronized nature (Strawberry Hill) or attempted to remake it into something artificial (Versailles). They also indefatigably patronized the past.” Those European aesthetics tendencies are quite similar to tendencies which could be found during the seventeenth century so called “Japanese Modern (*Kinse*).” (Translation: Imada, T.)

Tanaka points out that various influences from abroad during the Edo period can be found in many Japanese cultural aspects including architecture, dress design, accessories, papers, printing technology, medicine, paintings and so on. Those cultural exchanges had presumably kept a natural balance of influence based on the curiosities and tastes of commoners in Japan and no nationalistic pretension was involved. Japan, therefore, was inevitably a part of the world. However, the process of westernization in Japan in the Meiji Period might be considered too drastic because it happened so fast, in spite of the fact that Japan was only a third world nation, which quickly assimilated Western imperialism and reproduced it. In July of 1942, six months after the outbreak of the Pacific War, a group of distinguished thinkers in Japan held a conference in Kyoto to discuss the theme of “overcoming the modern.” H.D.Haroothunian (1989, p.68) has written, as follows:

For the most part, “modern” meant the West, its science, and the devastating effects it had inflicted on the face of traditional social life. A number of writers, like Kamei and Hayashi, recommended that the inappropriateness of science and even technology had, in fact, alienated the Japanese from their founding myths and their gods, to such an extent that the real meaning of “overcoming” required the reintegration of the Japanese with the spirit of the Kami (gods) and the elimination of the effects of reason, with its ceaseless propensity to divide and separate.

According to Haroothunian (1989, p.71), those Japanese thinkers faced the choice between traditional and modern modes of production because of the duplicity of Meiji civilization, and eventually no one ever conceived of turning back the clock. Even though they strongly criticized something called “Americanism” as “hedonistic” and “crass” materialism, which was popular among Japanese urban youth so called “modern boys” and “modern girls” especially after World War I, at the conference, they already knew that Japan could not go back to its tradition of the Edo Period any more.

And Then Music and Music Education

In terms of music education, the introduction of Western music education in Japan was a policy cleverly engineered by the Meiji Restoration Government in order to westernize the Japanese nation. They strongly promoted Western music and introduced the portable reed organ to many elementary schools all over the country to teach Western solmization (Torigoe, 1996). People in the Meiji period, however, still stayed with their own traditions, local tastes and ways of life belonging unequivocally to the Edo period. Japan has been and continues to be stuck with counterfeit nineteenth century European ideas, maintaining a tradition that has reflected neither Europe nor the actual life of Japanese people (Imada, 1998b).

Notwithstanding the rapid economic and political transformations brought about by the Meiji restoration of 1868, Japanese tastes and ways of life did not change radically, people in the Meiji period were still living with their local sound cultures. In fact, popular songs among people in Edo city were also popular among the people in Downtown Tokyo in the Meiji period. For example, Tachibanaya Kichinosuke was a Japanese *Shamisen* (a three-stringed Japanese banjo) player and variety show entertainer at a storytellers' hall in Tokyo. He created *Ukiyo-bushi* (*bushi* or *fushi* means a melody). An elite college boy at the University of Tokyo created *Dekansho-bushi* (the title parodied three famous Western philosophers, Descartes, Kant and Schopenhauer), and those popular songs were based on *Hauta*, a Japanese traditional ballad sung to the accompaniment of the *shamisen* since the Edo period. Those songs purely expressed nonsense based on a satire on political circles and so on (Nakamura, 1988, p.439). Those popular songs so called *Zokkyoku* (secular tunes) were widely supported by ordinary people in Tokyo during the Meiji period. Besides *Musume-gidayu* (ballad-drama form for recitation by girls) so called *Taregita* was quite popular among college boys in Tokyo and there were over a thousand female performers of *Musume-gidayu* in the end of the Meiji period. They were young girls such as Ayanosuke, Kosato, Kokiyo and Rosyo who were big stars and something like today's pop idols in Japan. Since the contents of *Musume-gidayu* were most likely to be sensual, it was making an obvious contrast with a kind of directness being sought by the Meiji intellectuals based on Western humanism (Nakamura, 1988, p.439). At the same time the Meiji Government intentionally ignored and sometimes oppressed those local traditions to accomplish their urgent policy.

Things changed more dramatically after the Second World War. Kensho Takeshi (1996, pp. 91-92) has written, as follows:

Mursell...contributed to Japanese music education after World War II. He was known as a leading figure in music education from 1930s through the 1960s in the United States...Mursell's philosophical and psychological theories provided a theoretical foundation on which Japanese music educators could carry out their teaching. Mursell and Glenn (1938, p.369) stated that "school music teacher should dedicate himself to the task of conveying the power and glory of music to all the children our schools."

The quotation from Mursell and Glenn shows that the school music teacher does not have any exteriority to examine what music is about, because they can easily take for granted the power and glory of music. However, the power and glory of music themselves should be examined and this is one of most important tasks today's music teacher has to do (Imada, 1998,b).

Final Thoughts

Edward W. Said (1991, p. xvi) says, "It is to say, however, that because music's autonomy from the social world has been taken for granted for at least a century...there is a putative, or ascribed, fullness to self-sufficient work that is now much less justified than ever before." The school music teacher therefore should not take for granted music's autonomy but rather should think of music and culture as interconnected. Said (1991, p.xvi) has also written, as follows:

The point I am making is that the study of music can be more, and not less, interesting if we situate music as taking place, so to speak, in a social and cultural setting...Think of the affiliation between music and social privilege; or between music and the nation; or between music and religious veneration, and the idea will be clear enough. The difficulty, however, is to devise modes of articulating musical activity in that larger context, a difficulty only just beginning to be approached systematically.

This is not only a problem which musicologists should think about but it is also a problem confronting music teachers. According to Said (1991, p. xv), today's way of operating culturally has been clarified by Raymond Williams, Roland Barthes, Michel Foucault, and Stuart Hall as well as analysis of text has extensively been discussed by Derrida, Frederic Jameson and Stanley Fish. Addressing the concept of exteriority is the only way to escape

the historical influence of European nineteenth century on Japanese music education. However, the ideas of those post-structuralist thinkers such as Derrida, Foucault and Barthes have not been introduced in Japanese music educational research yet. This lack of exteriority makes today's music education isolated from the actual cultural setting in Japan including some musical aspects such as Japanese traditional music, modern classic music, or contemporary music in the twentieth century and pop music.

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A Study on Undergraduate Education of Comprehensive Musicianship: A Comparison of the CM Curricula between the 1960s and the 1990s

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Abstract

This paper provides a comparative analysis between the Comprehensive Musicianship curriculum developed in the 1960's and current applications of this curriculum in the 1990's. Findings suggest that even though the CM programs in the 1990's show some new features, the programs still retains many old features advocated in the 1960s.

Introduction

The concept of Comprehensive Musicianship(CM), a conspicuous result of the Contemporary Music Project (CMP) was formulated based on the realizations that diverse disciplines musicianship were rigidly compartmentalized, that scope of each discipline was not extensive enough to cover the total heritage of music, and that the contents of these studies were not sufficiently focused to develop creativity. CM intended to replace this inadequate state of learning. Organizing principles of CM were as follows: first, diverse courses were synthesized in such a way that students could see the relationships; second, a wide variety of musical styles was studied including contemporary and early Western music as well as non-Western music; third, common elements in basic musical activities such as analysis, performance, and composition are to be studied. (CMP, 1965; Willoughby, 1970 and 1971; Bess, 1988; Kim, 1997). This idea of CM was experimented through the Institutes for Music in Contemporary Education (IMCE) project between 1966 and 1969 under the sponsorship of the CMP.

CM Programs in the 1960's

San Diego State University

San Diego State University (SDSU) was one of the six institutes which constitutes the Western Region of IMCE. The IMCE courses at SDSU were programmed for four successive semesters, from Freshmen to Sophomore years. Classes met four days a week, two hours a day (total eight hours a week), providing six credits per semester. The program subsumed 24 units of traditional courses such as Theory, 16th-Century Counterpoint, Form and Analysis, Instrumentation and Arranging, Survey of Music Literature and Performance (Whayne, 1969). Table 1 shows the general outline of contents of CM courses.

Avoiding a chronological approach, CM courses dealt with concepts that are common to all music. The two year program was divided into two parts; the first year was devoted to the study of monophonic and homophonic music, and the second year to polyphonic and heterophonic. The unique aspects of the IMCE courses at SDSU can be summarized as follows:

1. A strategy of "great principle" lines that crosses over stylistic boundaries was employed. For example, the concept of "Passacaglia" was introduced through the analyses of the following pieces scattered over diverse styles and historical periods;
-J. S. Bach, *The Passacaglia in C Minor*
-Ravel, *Trio for Violin, Cello, and Piano*
-Britten, a passacaglia from *Peter Grimes*
-Stravinsky, the final movement of *Symphony of the Psalms*.
2. The relationships between music and other arts were emphasized. For instance, medieval canon *Sumer is Icumen in* was compared to Braque's painting *Persephone* and *Helois III* or Rodin's sculpture *The Burghers of Calais*.
3. Whenever possible, the new knowledge was built upon what students already possessed. The study of instrumentation was approached through students'

- demonstration on their own instruments.
4. Great emphasis was put on the use of literature rather than textbooks.
5. Analysis leading to evaluation and value judgments was stressed. Analysis through listening and conceiving sounds without listening are also underlined.
6. Composition and improvisation were stressed through class activities. Students were required to compose music based on models which they were familiar with. Original compositions were always performed in class by the students themselves. (Ibid.)

Table 1. The General Outline of Course Contents of the CM Courses

First Year (8A-B): Monophony, Homophony [6 units/ 8 hours per each semester]	Second Year (58A-B): Polyphony, Heterophony [6 units/ 8 hours per each semester]
A. Cadences	A. Imitation: 1. Motivic and melodic 2. Rhythmic 3. Harmonic
B. Melodic Styles	B. Articulation of Form: Variation, Thorough Composed
C. Figured Bass	C. Improvisation
D. Harmonized Melody	D. Permutation
E. Articulation of Form: Contrast and Repetition	E. Art/Music Analogs (slides): 1. Historical correlates 2. Textual correlates 3. Formal principle correlates 4. Literal correlates
F. Art/Music Analogs (slides): 1. Historical correlates 2. Textual correlates 3. Formal principle correlates 4. Literal correlates	

Northwestern University

Northwestern University was one of six institutes in the Midwestern Region. The IMCE program at Northwestern was designed for Sophomore and met the requirements for Second-year Theory and Music History Survey. Classes met nine hours a week providing six credits per quarter. They were organized by historical periods but not chronologically. In the Fall quarter, the program taught Classic and Romantic Periods, in the Winter Quarter, Baroque and Renaissance music, and in the Spring, emphasis was on the music of medieval and contemporary Periods. The Theory and History courses kept separate, while their contents were coordinated so that music discussed in historical setting was the music analyzed in Theory (Willoughby, 1970).

CM Programs in the 1990's

San Diego State University

By the Fall of 1992, SDSU introduced a completely revised CM program. The New-CM program is a four-year, eight semester sequence that is modularized into three areas; CM Core (theory, aural skills), History I World Music (world music, a systematic survey of six main periods of Western music), and Lab (diverse forms of Western and non-Western

ensembles, computers in music). The CM courses meet four or five hours a week providing three or four credits per semester (total 28 credits and 36 hours) (Kim, 1997). The structure and course contents of the New-CM is provided in Table 2. The unique features of this new programs can be summarized as follows:

1. The program consists of three modules. This program includes History I World Music courses which were offered as separate courses in the old curriculum. Lab courses provide diverse hands-on experiences through ensembles of different cultures as well as softwares in music.
2. Much emphasis is on world music. The first and last semesters of History/World Music are devoted to the study of world music. The half of the CM Core hours provided in the second semester is also reserved for the study of music from many Asian countries. Especially Lab courses provide first-hand experiences on world music through ensemble activities on Javanese Gamelan, South Indian Kanjira, Balinese Gamelan, Africa, Latin America, China, Finnish Folk and Jazz (World Music at SDSU, 1995).
3. Personalized System of Instruction (PSI) method is employed for the Core courses during Freshmen year. PSI provides a programmed learning materials consisting of small units each semester. It focuses on self-learning of music theoretical materials as well as practices in conducting, improvisation, performance, instrumentation, composition, sight-singing, aural skills, and Computer Assisted Instruction (CAI) (Hogg, Bruderer and Stauffer, 1995).
4. The relationships between music and other arts are emphasized. These are skillfully illustrated in a book *Toward a comparative structural theory of the arts* (Ward-Steinman, 1989), which examines cross-influences and correspondences in arts from standpoints of styles, texture, rhythm, and form.
5. Outstanding CM compositions and performance projects are presented publicly through Collegium Concerts each semester. A large-ensemble concert in Spring semester is a culmination of the CM program (Ward-Steinman, 1987).
6. Students are given opportunities to improvise in different musical styles.
7. Students also have opportunities to compose musics based on their musical observations and analyses.
8. Even though no textbook was used in the 1960s, continuing students request for reference resulted in two-volume textbook *Comparative anthology of musical forms*, (Ward-Steinman and Ward-Steinman, 1976). These books are used as basic source and reference in most CM classes in the 1990s.

Northwestern University

The Musicianship program at Northwestern in the 1990s is a six quarter, two year sequence. The CM course in each quarter meet for five one-hour sessions each week; two hours in history lecture and three hours in theory class. The six quarters of Musicianship cover the traditional periods of Western music history, with one quarter of study devoted to music of non-Western cultures, another to music of the 20th century. (Buccheri, 1990) The sequence of learning is presented as follows:

First Year:

- 1st quarter: World Music
 - 2nd quarter: Baroque Music
 - 3rd quarter: Classic Music
- Second Year:
- 1st quarter: Romantic Music
 - 2nd quarter: 20th-century Music
 - 3rd quarter: Medieval and Renaissance Music

Discussion of Changed Features in the 1990's

The comparison of the CM programs in the 1960's to those of the 1990s reveals the following findings. First, even though it is true that many CM programs have been perished in the United States since the 1970s, a few programs survived and have been expanding and systematizing their structures and contents. The New-CM program at SDSU has been stretched out from an original two-year, 24 unit sequence to a four-year, 28 unit

one. This program incorporates History/World Music and Lab courses, making itself more comprehensive and systemized. The original three-quarter sequence program at Northwestern in the 1960s has been extended to six-quarter one in the 1990's. This new one also includes world music, and is more chronologically organized to give students better historical perspectives.

Research shows that CM programs in America have been dying away due to the lack of supports from other faculty members, lack of efforts to publicise the program, difficulties in administration, and difficult and time-consuming nature of courses (Willoughby, 1970; Copeland, 1976; Bess, 1988; Kim, 1997). The program, however, has flourished in institutions where it was well understood and collaborated by other faculty members and administrators and where the heads of program had strong commitment and leadership (Kim, 1997).

Second, more emphasis has been put on world music as CM programs has developed. In SDSU the New-CM incorporates six classes of world music ensembles, as well as World Music Overview and Jazz Survey courses. In Northwestern, the first quarter of the program is devoted to the study of world music, through which the students learn such basic concepts as the nature of sound, rhythm, and pitch. In both schools world music is studied through "commonness" approach which look for shared and related principles between Western and non-Western music (Buccheri, 1990; Kim, 1997). The faculty in both institutions believed that this emphasis is fit perfectly to contemporary educational inclination of "multiculturalism" and is also a way of reducing musical "egocentrism" and enriching student musical experiences (Kim, 1997).

Third, new technology and learning methods have been introduced. In SDSU the Personalized System of Instruction (PSI) is utilized for the first-year Core courses. The PSI approach also includes Computer Assisted Instruction (CAI). Students use the *Practica Musica* software which replaced two or three textbooks used before 1990 (Hogg et al., 1995). In Northwestern, the *EarWork* program is used to develop strategies to comprehend musical structures aurally. The *ScoreScan* and the *Imager* programs are also employed for the trainings in score analysis techniques for rapid recognition of harmonic and tonal operations (Buccheri, 1990). The professors in both institutions expect computers to play an increasingly important role in undergraduate education.

Even though the CM programs in the 1990's show some new features cited above, the programs still retains many old features advocated in the 1960s. These are the emphases on the synthesis of diverse musical knowledge, the relationship between music and other arts, the student-centered learning process, and the music literature. Actually these are the very basic concepts of CM that cannot perish as long as the program exists. In fact, the new features of CM programs cited in this paper can be seen as the consistent efforts to review and update the old CM concepts in the 1960's rather than as an embodiment of new and innovated ideas.

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Table 2. The Structure of the New CM Program

The Structure of the New CM Program

Lecture Content					Activities
Semester	CM Core	CM History (Period)	World Music/Jazz	CM Lab	
1.	155 A Materials of Music Basic Theory, Aural Skills		157 A Area: Overview of World Music Focus: S-E Asia (Indonesia)	156 A Performance Practice: Javanese Gamelan Lab Practice: Computers in Music CM Project: Theme & Vars. or Cantus Firmus composition	
Credits/Class hours [Totals: 4/5]	[2 units, 2 hours] 155 B	157 B Medieval	[1 unit, 1 hour]	[1 unit, 2 hours] 156 B	
2.	Aural Skills Basic Harmony South Asia (India)			Performance Practice: Indian Music Ensemble Lab: Computers in Music CM Project:Ostinato comp.	
[4/5]	[2 units, 2 hours] 255 A	[1 unit, 1 hour] 257 A		[1 unit, 2 hours] 256 A	
3.	Modal Counterpoint Tonal Counterpoint 2ndary harmonic functions	Renaissance		Performance Practice: Folk Music Early Music Ensemble CM Project:2-part invention	
[3/4]	[1 unit, 1 hour] 255 B	[1 unit, 1 hour] 257 B		[1 unit, 2 hours] 256 B	
4.	Tonal Counterpoint Aural Skills	Baroque		Performance Practice: Balinese Ensemble African Ensemble CM Project: 3-part fugue in Baroque style	
[3/4]	[1 unit, 1 hour] 355 A	[1 unit, 1 hour] 357 A		[1 unit, 2 hours] 356 A	
5.	Tonal Harmony Aural Skills	Classical		Performance Practice: Latin-American Ensemble Choral readings CM Project: Composition Classical style	
[3/4]	[1 unit, 1 hour]	[1 unit, 1 hour]		[1 unit, 2 hours]	

6.	355B	Advanced Harmony (Chromatic/Impressionist) Aural Skills	357B	Romantic, post-Romantic		356B	Performance Practice: Chinese ensemble Choral readings CM Project: Composition late-Romantic or Impressionist style
[3/4]	[1 unit, 1 hour]		[1 unit, 1 hour]			[1 unit, 2 hours]	
7.	455A	20th century harmony 12-tone counterpoint	457A	20th century	World Music Synthesis	456A	Performance Practice: World Music ens. electives New Music Ensemble CM Project: Post-tonal or 12-tone composition
[4/5]	[2 units, 2 hours]		[1 unit, 1 hour]			[1 unit, 2 hours]	
8.	455B	Independent Projects Instrumentation Advanced analysis Music since 1950			457B Jazz Survey		Performance Practice: Jazz improvisation New Music Ensemble CM Project: 1. For large ensemble 2. For NME in post-1950 techniques
[4/5]	[2 units, 2 hours]				[1 unit, 1 hour]	[1 unit, 2 hours]	
TOTALS: [28/36]							8
UNITS CREDIT:	12		6		2		
CLASS HOURS:	12		6		2		16

A Sociological Study on the Ordinary Singers of Korean Traditional Children's Songs: From 1910s through 1930s

Young-Youn Kim

Abstract

The purpose of this study was to retrospect a past society from socio-musical perspective through the examination of singing activities of children from the 1910s to the early 1930s when the influence of Western music was weak compared to later periods. The researcher interviewed 13 older Korean women about the ways they learnt Korean traditional children's songs, and their song repertoire as well. They reported that the major ordinary singers of Korean children's songs during this era were the girls rather than the boys, although singing activity seemed to be hardly restricted by fathers. Korean traditional children's songs were frequently sung by the children regardless of their educational background, and finally they still want to preserve and distribute these songs to their offsprings.

Introduction

Korea is located in the northeastern part of Asia, north of China and west of Japan. Korea has a recorded history of over 4,000 years, from 2,333 B.C. to the present, with the Three Kingdoms period (3C A.D.-668), the Unified Shilla (668-907), the Koryo dynasty (907-1392), and the Yi dynasty (1392-1910). Historically, Korea initiated Westernization since the late 19th century by the Western missionaries from Germany, France, Italy, England and United States of America. Formal, systematic education came into being only at the onset of Western influence around this time. From the outset of formal education in Korea, music played an important role especially in the lower level of schools, and Western music was also introduced to Korean society at the same time. After then, Korea had been ruled over by Japanese regime between 1910 and 1945. During this ruling period, the Japanese attempted to introduce and standardize their cultural values while abolishing Korean language and culture, and the Western music explosively became to be popular after 1945. Under such historical circumstance, though Korean traditional children's songs seemed to be decreased during Japanese ruling period, Korean children still sang them with their families and friends. Especially, during the period from the 1910s to the early 1930s, it is concerned that Korean traditional children's songs were less influenced by Western music.

Purpose

The purpose of this study was to retrospect a past society from the socio-musical perspective through the examination of singing activities of children in old days. Historically, the major function of traditional Korean music, unlike in the West, was ceremonial rather than artistic (Lee, 1980). Until the early 20th century of the end of Yi dynasty (1396-1910), music was likely to be considered supplemental to the ritual process for governmental affairs. The music involvement and education of common Korean citizens was largely overlooked. Musicians who played for the weddings, funeral, and other social celebrations of the common people were viewed as lower-class citizens (Chang, 1981). The music of children, and the concept of children as incipient musicians, was typically ignored and rarely documented. Naturally, this study focused to examine the social background and music learning environment of the young singers of children's songs during the specific period.

Method

The researcher interviewed 14 older Korean women whose childhoods were in the 1910s through the 1930s in order to get the data on their ways of learning the Korean traditional children's songs and their song repertoire. This study was shaped through the recordings of their songs, which were sung within a natural context and are enhanced by the information they offered on the songs, their childhood, and their use of these songs. The data collected in this study includes audio and video recordings of ordinary singers of Korean traditional children's songs and their singing and dancing as

well as structured interviews and fieldnotes from singers and others. Data collection occurred in the specific places named *noinjong* in several cities including Seoul over a period of five months, from December 1995 through April 1996. *Noinjongs* are gathering places for elderly people in Korea, a type of community center for the retired.

Findings: Ordinary Singers

Social Background

At the time of the study, all fourteen women who provided their songs of childhood were living in apartments in Seoul and its vicinity, often in extended family arrangements, and were contacted in their *Noinjongs*. At the time of the interview, eight of the singers were widows, three were living with their daughters' families, and five with their sons' families. None lived alone. Their ages ranged from 68 to 91 years, with a clustering of them in their seventies, hence in the 1910s and 1930s they were children between the ages of 5 and 8 years, the ages during which children are most likely to acquire and sing children's songs and singing games (Merrill-Mirsky, 1988). Also this period is considered as an early stage of enculturation from the influence of Westernization and Japanese regime of Korea.

Although fourteen interviewees were contacted in several *noinjongs* around Seoul, all of them grew up in various places throughout the country with the exception of the north part of Korea. Four of the fourteen (singers 1, 5, 6, and 9) were born and raised in the capital city of Seoul. Two (7 and 11) were from Pusan, the second largest city as well as the biggest port in Korea, located in the southeastern part of the Korean peninsula. Two (singers 3 and 10) were from Kyonggi province, which lies in the mid-western section of Korea, near Seoul. Another two (12 and 14) were from southern Ch'ungch'ong Province, located in the central section of South Korea surrounded by mountains. Of the remaining four, one (singer 8) was raised in the southern Cholla Province in southwestern Korea, where farming is the major industry, one (singer 2) in northern Kyongsang Province, one in southern Kyongsang province (singer 13), and one (singer 4) in Inch'on, the second largest port in Korea, located in the western part of Seoul (see Table 1).

The singers described childhoods in families of middle socioeconomic class. The representative occupation of the singers' parents was tenant farming, which was still at that time the predominant means of earning a living. Most singers' fathers were farm labourers, but two described their fathers as landowners who did not labor in the fields. All singers said that they had resided in modest homes during their childhood and through their younger married life and child-raising years. It was reported that most children during these decades did not receive formal school education. Out of fourteen singers, only two attended high school, one singer attended elementary school, but the remaining ten singers did not attend school. All singers in this study married at what is now considered an early age, between the ages of fifteen and eighteen. Each raised children (an average of 4.2 children: 2.3 boys and 1.9 girls) and all now have grandchildren as well. Thirteen of the women had been homemakers and one was an elementary school teacher.

Their Songs and Singing Activities

The subjects of the songs are similar to those sung by children everywhere, focusing on such topics as the seasons, trees and plants, and historic facts. Some of the songs were or are used to teach to the next generation. Other songs tell stories or describe specific settings. As with children's songs everywhere, whether or not the song has another theme, many of the song texts are comprised of nonsense syllables or feature obvious word plays or word combinations that are fun to say and sing. They sang the songs with many others like their sisters or brothers or their mothers. However, their fathers did not sing these songs, either alone or together with the interviewee or other members of the family. As stated early in this paper, music was not highly valued in old Korean society. Therefore it is a well-known fact that the dignified fathers and sons during that era were not recommended to sing in public. Children sang the songs in various place:

the yards of their homes; on trips in the mountains; while walking in the street and alleys; in their sleeping rooms; or in their kitchen. Differing from the researcher's expectation, the traditional children's songs during these three decades were not frequently accompanied either by instruments such as *changgo* (two-sided drum) and *kkwaenggari* (small gong) or by the various plays or games such as jump-rope, bouncing ball game and dance. They simply accompanied a game called "leg-counting" while singing. "Leg-counting" has a similar function to the chant song "Eeny, meeny, miney, moe," in which a designated "it" child touches and taps to the beat another child or children while chanting. The final child to be touched goes first in another game (or is "out"). In Korea, two (or more) children sit facing each other on the floor with legs alternately intertwined. The designated "it" child sings while tapping each of the four legs (on the knees or calves) in succession. The last leg to be tapped is "out" and is folded under the participant. This is repeated by tapping the remaining three legs, then two, until one leg is left - the winner! "Patting" was another common movement among the ordinary child singers during their singing of lullaby.

Conclusion and Implications

The findings of this study are summarized as follows: (1) the major ordinary singers of Korean children's songs of 1910s through 1930s were the girls not the boys, (2) singing activity seemed to be restricted especially by fathers, (3) Korean traditional children's songs were frequently sung by the young singers regardless of their educational background, (4) the subjects of the songs during this specific period are also similar to those sung by children in other countries, and finally (5) they still want to preserve and distribute these songs which they consider to be cultural gem to their offspring.

From these findings, it is emphasized again that traditional Korean children's songs including those from elsewhere have research value as an important cultural heritage and teaching materials as well. Also these findings are not unfamiliar at all to music education researchers, since it is commonly known that the girls are the popular singers of traditional children's songs in other research (e.g., Merrill-Mirsky, 1988; Riddell, 1990; Marsh, 1997) as well as this study. However future study needs to focus on the boy singer of Korean traditional children's songs as a way to enhance understanding of the old Korean music educational society. And there is a need to study on the traditional Korean children's songs of different historical era and of geographic area (e.g., traditional songs from North Korea).

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Table 1 Summary of Demographic Data on the Fourteen Singers

<i>Informant</i>	<i>Pseudonym¹</i>	<i>Age</i>	<i>Born & Raised In</i>	<i>Present Location (Noijong Code)</i>	<i>Present Marital Status²</i>	<i>Number Children³</i>	<i>Currently Living With</i>	<i>Prior Occupation</i>
1	Ch'asong Chong	81	Seoul	Seoul (1)	widow	3b, 3g	daughter	housewife
2	Pyongsun Min	91	Kyong-sang	Ansan (6)	widow	3b	son	housewife
3	Hansong Bang	74	Ansan	Ansan (7)	together	2b, 2g	husband	housewife
4	Enhae Ku	81	Inch'on	Inch'on (3)	widow	1b, 6g	daughter	housewife
5	Kwiye Soh	68	Seoul	Ansan (8)	widow	2b, 1g	son	housewife
6	Hyesun Pak	86	Seoul	Ansan (8)	widow	2g	daughter	housewife
7	Ch'ilwon Kim	74	Pusan	Kwa-ch'on (5)	together	1b, 2g	husband, son	teacher
8	Sundok Choi	87	Cholla	Ansan (9)	widow	2b, 4g	son	housewife
9	Kilnam Whang	72	Seoul	Seoul (2)	together	2b, 2g	husband	housewife
10	Kwinam Lee	81	Inch'on	Inch'on (4)	together	2b, 2g	son	housewife
11	Kannan Song	68	Pusan	Ansan (10)	together	3b	husband	housewife
12	Aegi Shin	79	Ch'ung-chong	Ansan (11)	widow	2b	son	housewife
13	Chomye Nam	75	Kyong-sang	Ansan (11)	together	5b, 1g	husband, son	housewife
14	Puni Oh	75	Ch'ung-chong	Ansan (12)	widow	4b, 2g	son	housewife

¹ Names are in given name, family name order.

² All informants had been married.

³ B = boy, G = girl.

On the Unisex Phenomenon of Young People's Singing Voice

Atsuyasu Kitayama, Yoko Ogawa, and Tadahiro Murao

Abstract

In the field of Japanese popular music, the phenomenon that men and women sing their songs with the same key was found in the early 1990s (Murao, 1998). This paper investigates this phenomenon: the time it arose, the reason it was caused, and the relations with the changes of the society. The songs during the 1940s to the 1990s which have appeared on the hit charts and the complete works of the popular songs were classified into five periods to compare the tendency. *Melody Analysis*, the computer software, was used for calculating the center of the vocal range.

Introduction

In the field of Japanese popular music, the phenomenon that men and women sing their songs with the same key was found in the early 1990s (Murao, 1998). It can be seen when women can not help singing men's repertoires with lower octave, because their keys are too high to sing within the normal women's vocal range. In other words, though women originally sing an octave higher than men, they need to sing with the same vocal range as men because of the rising which happens in the songs for men. The purpose of this paper is to investigate the details of this phenomenon: the time it arose, the reason it was caused, and the relations with the changes of the society. The songs during the 1940s to the 1990s which have appeared on the hit charts and the complete works of the popular songs were classified into five periods to compare the tendency. *Melody Analysis*, the computer software, was used for calculating the center of the vocal range.

Method

Concerning the vocal range of singing materials, most of the past studies simply picked up the highest and the lowest notes. We thought the average and the variance of the vocal range are requisite as well as the highest and the lowest notes. In order to get these information, we developed the special software program *Melody Analysis*¹. *Melody Analysis* calculates the average and the variance of the pitch extent by the following procedure:

- 1 Convert the length of every note which appears in a song into the certain numerical value.
- 2 Multiply the standardized value of the tone length by the index of pitch to turn them into the numerical values of the tone length.
- 3 Divide the numerical values of the tone length by the aggregate of the certain numerical value.

Melody Analysis shows us the center of the vocal range as the average of the pitch extent by standardizing the length of the notes. It also indicates the numerical values of the highest note and the lowest note, and the standard deviation of the pitch extent.

300 songs (150 songs by female singers and 150 songs by male singers) which have appeared on the hit charts during the 1940s to the 1990s were selected from the complete works of the popular songs. They were classified into five periods (1947-59, 1960-69, 1970-79, 1980-89, 1990-95) in order to compare the tendency of each period. It was confirmed that all music was written in original key. After processing of *Melody Analysis*, we examined the data.

¹ *Melody Analysis* was designed by Yamaha Co. in 1994.

Results

Table 1 shows the highest note, the lowest note, the average, the standard deviation, and the center note of the songs sung by female singers in five periods.

Table 1 Female Singers

	highest note	lowest note	average	SD	center note
1947-59 (30 samples)	75.13	56.93	66.12	0.43	66=F#4
1960~69 (30 samples)	72.5	56.03	64.61	0.76	65=F4
1970-79(30 samples)	73.2	56A3	65.34	0.46	65=F4
1980-89 (30 samples)	72.7	56.13	65.14	0.64	65=F4
1990~95 (30 samples)	73.53	56.7	65.22	0.80	65=F4
Total: 150 samples	73A1	56A5	65.29	0.69	65=F4

Table 2 shows the highest note, the lowest note, the average, the standard deviation, and the center note of the songs sung by male singers in five periods. And Table 3 was made to indicate the vocal range in the real pitch from Table 2.

Table 2 Male Singers (written pitch)

	highest note	lowest note	average	SD	center note
1947-59(30 samples)	76.3	57.6	67.26	0.75	67=G4
1960-69 (30 samples)	75.23	58.03	67A5	0.79	67=G4
1970-79 (30 samples)	76.63	60	68.90	0.71	69=A4
1980-89(30 samples)	76.97	60.57	69.54	0.62	70=A#4
1990-95 (30 samples)	81.67	64.23	73.29	0.73	73=C#5
Total: 150 samples	77.36	60.09	69.29	0.75	69=A4

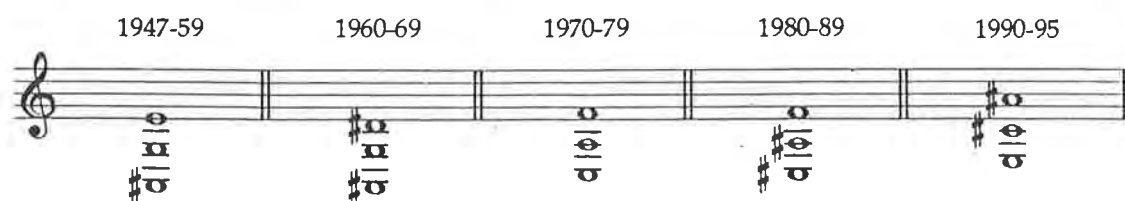
Table 3 Male singers (real pitch)

	highest note	lowest note	average	SD	center note
1947-59(30 samples)	64.3	45.6	55.26	0.75	55=G3
1960~9 (30 samples)	63.23	46.03	55.45	0.79	55--G3
1970-79 (30 samples)	64.63	48	56.90	0.71	57=A3
1980-89(30 samples)	64.97	48.57	57.54	0.62	58=A#3
1990-95 (30 samples)	69.67	52.23	61.29	0.73	61--C#4
Total: 150 samples	65.36	48.09	57.29	0.75	57-A3

Figure 1 Female

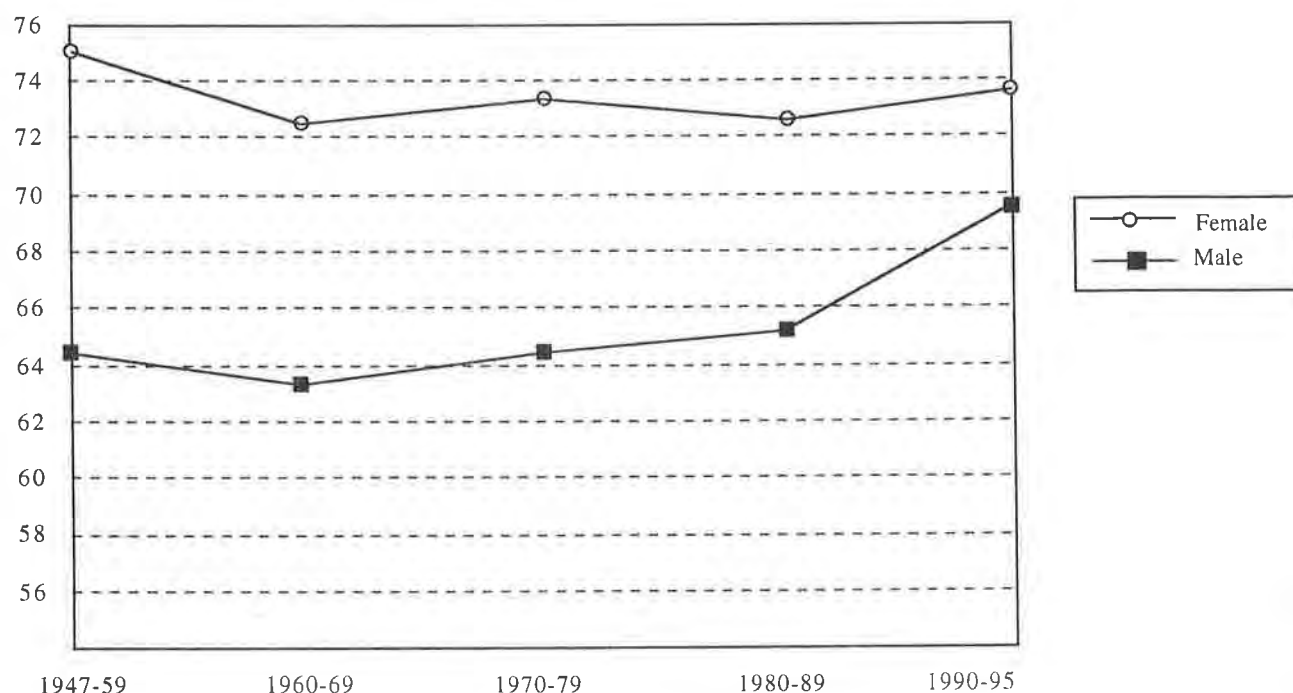


Figure 2 Male



We can read from Table 1 that there was no significant change in the average pitch of women's vocal range. However, Table 2 and Table 3 indicate that the highest note [$F(4,290)=14.02$ $p<.0001$], the lowest note [$F(4,290)=11.96$ $p<.0001$], and the average [$F(4,290)=16.04$ $p<.0001$] of men's vocal range clearly changed in 1990-95. The average pitch of men's vocal range started to rise in the 1970s, and was higher than that of the 1960s by 5 to 7 semitones in the 1990s.

Figure 2 Highest notes



Discussion

The clear difference (almost an octave) was found between the vocal range of men and women in the 1960s when the society regarded as the virtue of masculine and feminine. However, old worth of the gender collapsed in the 1970s. In the 1990s, the unisex phenomenon of young people has been getting more and more obvious in their fashion and culture. It seems reasonable to conclude that the rising of men's vocal range coincides with the shift of the social value.

We are not discussing the teaching materials here. It must be noted, however, that the vocal range of the songs in Japanese music textbook is within the limit of B flat 3- E flat 5 (Ogawa, Kitayama, and Murao, 1995), which was conditioned that young men's vocal range turns to an octave lower after their voice change. Taking it into consideration that the Japanese young love to sing popular songs at Karaoke, the gap of the vocal range between the pop music and the school music must be reconsidered. The results of our analysis implicate that the potential ability of both young women's and men's vocal expression would be unfolded, when we, music teacher, get rid of the preconception of the gender difference.

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A Survey of the Application of Creative Music-Making in Hong Kong Secondary Schools With Implications for Music Teacher Education

Bo-wah Leung

Abstract

The inclusion of creative activities in general music education has become a common practice since the late 1960's in various developed countries such as the UK, USA and Australia. However, creative activities have not received a similar emphasis in Hong Kong, either with curriculum planners or with teachers in schools. In order to assess the current situation of applying creative music-making activities in Hong Kong secondary schools, a structured questionnaire was designed and distributed to all secondary schools. This paper discusses the results of this questionnaire plus some of the most important implications.

Background

As a curriculum subject, music in Hong Kong secondary schools has been a rather marginal one, when compared with other academic subjects such as languages and mathematics. The methods of music teaching in schools have been rather rigid and teacher-centred with mainly lecturing and reading (Foo, 1973). Early in the 1970's, Foo (1973) concluded that music teachers regarded "creativity" as the least important objective among four other objectives, namely, "knowledge", "skills", "attitudes", and "sensitivity". As a result, creative activities were only found in a few schools.

In a more recent investigation, Ng and Morris (1998) found that even in the late 1990's creativity has been given a low priority by music teachers in Hong Kong. The reasons behind this situation include lack of professional training for music teachers, problems with assessment, cultural differences, and the school context. Music teachers in Hong Kong were found to receive insufficient training to conduct creative activities in general music teaching. Also, in order to satisfy administrative requirement for assigning grades or marks for assessment, music teachers seemed to favour listening tests rather than creative music-making activities as their main assessment tool. Lastly, large classes, limited teaching time and space, and inadequate supply of resources discouraged the implementation of creative music-making activities.

This paper reports the results of a questionnaire survey conducted in 1996 which investigated the situation of employing creative music-making activities by secondary school music teachers. Selected data are reported in this paper in order to analyze the current situation of implementing creative activities, and observations as well as implications are made for the improvement of future practice.

Design and Administration of the Questionnaire

The questionnaire was designed for the current music teachers in secondary schools. There are six sections in the questionnaire which sought to obtain data on the following issues: 1) personal data of music teachers, 2) school background, 3) present provisions for music in schools, 4) present application of creative-music making, and 5) personal opinions of the teachers' toward incorporating creative-making activities within their teaching, and 6) general comments on creative music-making activities by music teachers.

Content validity was achieved by consulting two colleagues from the Hong Kong Institute of Education, one of whom had a Ph.D. degree in Music Education and the other with more than 18 years' experience in music teacher training. In addition, the questionnaire was influenced by an earlier study by Wong (1990). For the reliability of the questionnaire, 5 selected music teachers were invited to answer the questionnaire as a pilot study before it was sent to all music teachers in Hong Kong secondary schools.

After completing the design of the questionnaire, a letter together with the questionnaire were sent to 461 secondary schools inviting all the music teachers of the schools to complete the questionnaire. As a result, 54 schools reported that they had not offered music in their school curriculum in that academic year (1996-97). Thus the number of schools with music was 407. Ultimately there were 258 completed questionnaires from 251 secondary schools that were returned to the researcher. This indicates a response rate of 61.67%.

Results

The results of Part IV and V of the questionnaire are reported in this paper. Part IV aimed to collect data concerning the music activities actually conducted in the classroom. Five areas of music activities were identified: 1) singing and/or instrumental playing, 2) listening and music appreciation, 3) music theory and music literacy, 4) aural training, and 5) creative music-making activities such as composing and improvising.

Table 1 shows that the situation of senior forms and junior forms were similar. "Singing and/or instrumental playing" was the most common activity undertaken by music teachers. Listening and teaching of music theory and music literacy were the second and third ones that were also undertaken by music teachers. However, only 5.5% and 9.33 % of time was devoted to implementing creative music-making activities in the junior and senior levels respectively. This result indicates that the situation has remained unchanged since the early 70's: music teaching in secondary levels is still teacher-centred and instructional, with class singing as the main activity, and passive listening to some music as well as transmission of musical knowledge including music theory and literacy. Creativity and creative music-making activities were largely ignored by most of the music teachers in the late 90's.

Table 1: Time distribution of music activities in Junior & Senior Forms

Music activities	Junior Forms (F. 1 to 3) (N=255)		Senior Forms (F. 4 to 7) (N=76)	
	Mean (%)	Standard Deviation	Mean (%)	Standard Deviation
Singing and /or instrumental playing	40.55	14.65	34.93	18.05
Listening and music appreciation	23.03	9.26	30.59	15.53
Music theory and music literacy	19.75	9.19	17.21	11.47
Aural training	8.73	6.35	6.09	6.71
Creative music-making	5.50	6.58	9.33	12.92
Other activities	2.49	6.94	2.89	9.60

Part V of the questionnaire sought to explore the personal opinions of music teachers towards the implementation of creative music-making activities in schools. The aim was to examine the reasons why most music teachers did not apply creative activities.

In this section respondents were asked to respond to a series of statements by expressing the level of agreement in a 5-point scale, with 1 meaning "strongly disagree" and 5 meaning "strongly agree". In order not to bias the respondents, some of the statements were stated in a positive way while others were negatively worded (negative items were reverse scored for analyses). Consequently, a mean score of less than 3 implies a negative attitude towards creative music-making activities while more than 3 implies a positive attitude.

There were 7 areas of questions that were identified to investigate the perception of music teachers towards creative activities. These areas were:

- 1) Personal musical interests and experience of creative activities including composing, improvising and arranging.
- 2) Adequacy and relevance of teacher training and teaching experience of undertaking creative activities in class.
- 3) Music teachers' attitude towards school support and classroom conditions. (e.g., "More students in the class, more difficult the creative music-making activities will be".)
- 4) Perception of school support. (e.g., "My teaching workload is too heavy for me to organize and conduct creative activities".)
- 5) Perception on external support from official music curriculum.
- 6) Students' attitude towards creative activities.
- 7) Personal beliefs of music teachers towards creative activities. (e.g., "Students who learn to compose have a better understanding of music"

Table 2: Mean score of perception of music teachers according to the seven areas of questions concerning their perception toward creative activities.

Area	N	Mean Score*	SD
1 Teachers' personal interest and experience in creative activities	253	3.2872	.7857
2 Teachers' beliefs about the adequacy of their teacher training to cope with creative activities	253	2.8617	.6701
3 Teachers' attitude toward school support and classroom conditions	253	2.4427	.6545
4 Teachers' perception of school support	250	2.4680	.6431
5 Teachers' perception of external support from official music curriculum	252	2.1151	.7862
6 Students' attitude toward creative activities	247	2.9919	.5777
7 Teachers beliefs about the value of creative activities in music education	247	3.4696	.3960

**Respondents were asked to respond to each statement by selecting one of the point from a 5-point scale:*

1 = "strongly disagree" 2 = "disagree" 3 = "neither agree nor disagree" 4 = "agree"

5 = "strongly agree"

As shown in Table 2, results indicate that respondents held a rather neutral attitude in terms of their own personal musical interests and experience of creative activities. However, respondents tended to admit that they did not have adequate and relevant training and teaching experience which would allow them to apply creative activities in the class. Respondents also tended to feel that creative activities require much time, space, financial resources, small class size, and more teaching staff for planning and implementing creative music-making activities. Furthermore, respondents tended to believe that in their school context, the school supports including teaching time, space, financial resources, and teaching staff were insufficient, and the class size were generally too large to implement creative activities. This result reflects the

similar situation with the findings of Ng and Morris (1998) that most of the secondary schools did not have an ideal context to implement creative activities in general music teaching. Result in area 5 shows a stronger tendency that most of the respondents agree that there were inadequate emphasis and guidelines on creative activities in the present official music curriculum. Concerning the attitude of the students towards creative activities, the result of area 6 indicates that the students in general neither took a positive nor a negative attitude towards the creative activities. This result is not surprising because most of the students had received very little exposure to creative activities so that their teachers had no clear idea of their students whether they would like to be involved in creative activities.

Compared with other areas, results in area 7 show a slightly stronger tendency towards positive attitude of the respondents. The positive attitude includes the following: students who learn to compose have a better understanding of music, it is easy to assess musical achievement with creative activities; and it is effective to foster students' creativity in general through creative music-making. However, since the mean score of this area was 3.4696, it should be reminded that respondents had not really shown a very clear attitude towards applying creative activities in their general music teaching. Music teachers seemed to lack an affirmative attitude towards creative activities.

Discussion

Music teachers in Hong Kong seemed to be uninterested in participating in creative activities. As a result, they tend not to encourage their students to create their own music. Perhaps most of the music teachers did not start their music training by composing or arranging, but by practical performing such as singing and instrumental playing. Composing and improvising seemed to be some special activities which are only done by a talented few.

Many established music examinations such as the practical examinations of the Associated Board of the Royal Schools of Music and the Trinity College of Music do not require candidates to improvise in their practical examinations. There are no composition papers in the Music Examination of the Hong Kong Certificate of Education Examination and the only composition paper in the Music Examination of the Hong Kong Advanced Level Examination is an optional paper, not a compulsory one. This situation seemed to be another factor affecting the music teachers that they tended to believe that the process of music learning might be limited only to the study of performing skills and music theory, and creativity has often be ignored.

Conclusions and Implications

The findings of this study indicate that most of the music teachers in Hong Kong agreed that creative activities require many external facilitating factors such as teaching time and space, financial resources, small class size, and more teaching staff. In addition, they thought that the present situation in schools was not ideal enough to implement creative activities due to a lack of teaching time and space, financial resources, teaching staff, and generally large class sizes. In addition, they seemed to be equipped with insufficient teacher training. Without emphasis and clear guidelines from the official curriculum, music teachers tended to express a negative attitude towards creativity in music education.

In order to improve this situation, the followings are implied from this study. First, the current official curriculum should be revised, and the aims, suggested teaching contents, teaching methods and assessment methods should be provided in the revised music curriculum. Music teachers should also be encouraged to develop their own teaching projects and materials to suit the level and interests of their students.

Music teacher education programmes always emphasize teaching pedagogy of music in classroom, singing and instrumental skills, and music literacy such as aural skills and music history, but ignore the training of composing, arranging, and improvising through voices and instruments. All too often, these types of creative activities are perceived as learning objectives of professional composers and performers, not music teachers. However, music teachers in the

future should be equipped with these creative competencies so that they can introduce creative activities into their teaching. Every effort should therefore be made in teacher preparation programs to equip trainees with the skills, attitudes and knowledge necessary for them to undertake creative activities in their teacher so that they will consider creativity as a normal and important component of all music teaching.

In-service music teachers need to be re-trained continuously in order to refine their knowledge and skills of the most current theories and practices in music education. An understanding of the most current developments in music teaching will help in developing music teachers' attitude towards continuous learning. In addition, initial teacher education programmes should be reviewed periodically in order to revitalize music education in schools. Teacher educators need to encourage positive beliefs in the value of applying creative activities as this is probably the most important way of motivating future teachers to view creative activities as important, and of thereby improving music teaching in Hong Kong secondary schools. Creativity should be treasured by teacher educators as the first step. Through a transmission of knowledge, skills and attitude, music teachers will learn to apply creative activities in their own daily teaching. Changes in education takes time and to change the present situation toward creative activities in Hong Kong will not be easy. However, once music teachers understand that more important aspects of learning, such as problem solving, divergent thinking and creative thinking, can be nurtured by involving students in creative music-making activities, they may be in a better position to try to solve the constraints of the teaching context in which they operate to include creative activities in their teaching.

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Under Threat Again

Anne Lierse

Abstract

This paper reports on some of the major findings from a statewide study of the effectiveness of music programs in Victorian government secondary schools in 1995/6. Two major issues emerged from the study.

Introduction

I would like to begin this paper with a number of questions asked by music teachers in my recent study of the effectiveness of music programs in Victorian government secondary schools (Lierse, 1998), and questions I attempted to answer following the collection of data. These questions reveal the fragile state of music education at this time, showing it is indeed under threat of losing what ground may have been made in the 1980s and early 1990s.

Why is it that music education is an easy target for cuts in schools?

Why is more energy expended in fighting for the existence of the subject than actually teaching it?

Why must music education be justified on the basis of job numbers?

Why is music so under-resourced and music teachers so over-worked?

How can we teach the CSF in 10 lessons?

Why have 55 % of students entering Year 7 had no, or very limited experience, in music education?

Why are 19 % of country schools without a classroom music teacher?

Why have approximately 55 % of schools reduced their time allocation to music since 1994?

Why do only 29 % of students believe the study of music is important to their total education, when listening to music rates top place in their preferred leisure activities?

Why do so few schools run an effective music program?

Why has the provision of a generalist music education changed significantly during the 1990?

It is not my intention to discuss possible answers to each of these questions in this paper, but rather to address two factors I believe have contributed to the present situation. These are: 1) changing patterns in educational philosophy with a new emphasis on efficiency and accountability, and 2) a misunderstanding of the role and value of the arts in human development and education. I will firstly attempt to place the present situation in context, and will conclude the paper by offering ten suggestions of ways teachers can work to improve the status of music in their schools.

Contextual Issues – The Provision of Music Education in Victorian Government Secondary Schools

We know the enormous value of music education for the child. Music has always taken an essential place in the life of society. Even Plato and Aristotle tell of its value in the development of the person and its role in serving ethics. The Pythagoreans valued it for its service to metaphysics and science. We know it serves spiritual needs. We also know of music's relationship with the totality of life's experiences, socio-cultural, physical and aesthetic, emotional and intellectual. These have all been argued in works by eminent twentieth-century philosophers, psychologists and sociologists such as Dewey (1934), Langer (1967), Piaget (1951), Hanslick (1957), Reimer (1970), Gardner (1993) and Elliott (1995) to name a few.

Despite this evidence, and despite rhetoric contained in the Department of Education's curriculum documents in regard to the value it places in the Arts/music, (see Curriculum Corporation, 1994; Directorate of School Education, 1995; Directorate of Education, 1988) most music programs are under-resourced and largely ineffective. The literature shows that this has always been so (see *Education and the Arts*, 1977; *Action Education and the Arts*, 1984; Ray, 1989; *Arts Education* (1995) and VASSP, 1997). Indeed, with the recent attempts of the government in Victoria to overhaul educational systems as well as withdraw huge amounts of resources from schools, it is surprising that music programs in some schools have managed to survive at all.

Findings from 1995/6 study

Changing patterns in educational philosophy with a new emphasis on efficiency and accountability

The effects of the introduction of *Schools of the Future* in Victoria in 1993 on music programs is now able to be measured in relation to its effects on the provision of music education. Introduced by the newly elected Kennett government in 1993 the implementation of the new educational reforms took on a pace and scale of reform that has been described by a researcher employed by the World Bank as unprecedented worldwide (Pascoe, 1997). The impact of the major cuts to the education budget (which reduced the teaching force by approximately 20%), and the introduction of the Curriculum Standard Frameworks (CSF) have been shown to have had a damaging effect on the provision of music programs in Victorian government secondary schools.

The advantages of schools being given the flexibility to determine their mix and selection of staff as vacancies arise, as well as determine the amount of time they will give to the eight Key Learning Areas of the CSF, were found to be working against the Arts, particularly against music. In fact, only 24% of music coordinators believed the move to school-based management had, or could have, a positive effect on their music program, with most teachers already identifying problems. The following comments offered by teachers illustrate some of the problems encountered.

- Morale is a little low due to changes in the direction of schools which is at the whim of the principal. This is not a good situation.
- Music always suffers financially when the Principal controls the budget.
- The administration is too busy with its own huge workload to fully appreciate what is happening and what really needs to happen.
- Staffing is more restricted now, especially in a small country school.

- The music department (Arts in general) has been cut. Money is limited. Music teachers work too hard.
- Different learning areas are now required to push to sell each particular subject. Students steer away from the harder areas and move towards 'easier' options, e.g. woodwork, drama, art etc. Music numbers fall.

These problems were essentially the outcome of the introduction of *Schools of the Future*. In addition to substantial cuts to the education budget, curriculum reforms (the CSF) impacted on the organisation of subjects (Key Learning Areas) on the timetable. Coupled with the naming of government curriculum priorities, and the introduction of the CSF (which grouped all the Arts into one Key Learning Area), schools were forced to select areas from which to make cuts. What is disturbing is that the music program was selected for cuts in terms of time on the timetable and staffing in approximately 50% of schools, with more schools planning to implement them the following year (1997).

Although the research figures show that 88% of Victorian government secondary schools offer classroom music to some year levels, these figures may lead to the false conclusion that music education is regarded as one of the major Arts Learning Areas taught in these schools. On the evaluation of statistics in relation to the actual provision of music at year level, it becomes apparent that most of these programs are very limited and give students only a sample of music along with the other arts. Problems of knowledge and skill acquisition are magnified by the fact that a large number of students entering secondary school (55%) had very limited exposure to a music education or none at all.

Explanations offered by music coordinators are summarised in the following two comments offered by music teachers:

- We had three classroom music teachers as well as the instrumental music teachers. Now we have two classroom teachers spread across other faculties. Next year there will be one. Cuts have affected the provision.
- The reduction of music provision over the last two years was made because of the need to offer keyboarding to Year 7 students, and PE and Sport. Students used to have two classroom music lessons a week in Years 7 & 8. Now they have one semester in Year 7. They may choose one semester unit in either Year 7, 8 or 9. There is strong competition from other subjects including the other Arts. There are problems in providing for the needs of serious minded students. Year 11 & 12 students study with Distance Education.

The misunderstanding of the role and value of the arts in human development and education.

It was an interesting finding that all principals interviewed believed they valued and supported music education in their school, however, on further investigation it was revealed it was the instrumental music program rather than the classroom music program they really valued. The school's band and the other ensembles were seen as important for the schools in terms of promoting the image of the school and as a marketing tool for attracting new students to the school. In fact, instrumental music was found to be a growth area with 73% of schools contracting additional instrumental music teachers. What was evident is that music education was being moved from the general curriculum to the co-curriculum and therefore reaching a limited number of students. The introduction of fee paying in a growing number of schools relegated instrumental music into the category of an elitist subject. Few principals mentioned the value of the music in the educational development of the child. As one principal stated:

Music is a selling point for the school. The parents are a major factor. They want their children to go to a school where they have the option of studying music.

It was disappointing to note that the rhetoric of this principal was not supported with action. Over the last two years the staffing of the classroom music program had been reduced from four teachers to one teacher who was shared with another faculty.

Discussion and conclusions

Music education in schools has always been uneven and under-resourced, however, recent changes in educational policies have been shown to be particularly damaging. Although the educational philosophy underlying *Schools of the Future* aimed at producing quality outcomes for students, the term quality now appears to have a new meaning in line with a changing social environment and world economy. Core values of education are being challenged as governments seek educational relevance in the changing economic and social environment. Observable philosophical shifts in ideologies have become apparent as the economic rationalists, politicians, and business leaders view quality education as one that equips students with the required knowledge, skills and attitudes to enhance economic development and improve productivity in a market-driven economy. Thus there has been a move towards a much more competitive economy leading to decreased importance being placed on the humanities and arts subjects in favor of mathematics, technology and languages.

As expressed in the Senate Report (*Arts Education*, 1995, p. 21):

Politicians, educators, parents and students all express their belief that the arts are essential learning and yet there is a large gap between the rhetoric and the action, which would indicate that there has to be some other influence operating that continues to reinforce the undervaluing of the arts.

With this changing economic paradigm has come an emphasis on accountability with the aim of delivering the most efficient and effective services at the least cost, with as few resources as possible. Thus, cuts to the education budget from 1993 not only forced schools to introduce efficiency measures, but have placed schools in the impossible position of making choices about where they could make cuts to expenditure with the least opposition from the school community. Lack of conviction of the importance of music education for the child was thus reflected in the 'culture' of a large number of schools. This is where a misunderstanding of the role of the arts, and music education in particular, became apparent and the classroom music program became a popular choice for substantial cuts.

There are some important misconceptions regarding the place and importance of the arts in the community, which is not helping the resourcing of the arts/music in both education and the community. Battesby (Artbeat, 1998, p. 4) reported that one of the dangers in Australia has been the tendency by some to treat the arts as "an industry" where having finite dollar values has made the arts easy prey to economic rationalism. Yet recent findings of the Australia Council show that 80% of Australians attend a cultural activity each year compared to 45% who attend a sporting event. In fact they found that more than seven million Australians enjoy performances and three million attend galleries (Artbeat, 1998). More worrying is a recent debate in which Armfield (1998) argues that politically, instead of there being no votes in the arts, there are in fact votes in *no* arts.

There has never been a greater need for advocacy for the arts.

Recommendations

We cannot afford to sit back and hope that the pendulum will swing back to a return of humanism where the value of aesthetic sensibility, self-expression, and creativity are again recognised. By then there may be few music programs left. Instead, we must strongly demonstrate the value of what we are doing in our arts/music Key Learning Areas to the point that the school and school community takes notice. With *Schools of the Future*, the

power of the principal has been increased and now includes responsibility for determining the curriculum priorities in the school and allocating resources. We must work to convince the principal of the value of music in the curriculum. We know that most parents want their children to have a broad curriculum which includes music. We must therefore enlist their support.

I would like to offer the following ten points as ways in which music teachers can effectively influence the 'school culture' and raise the profile of the music department in their school. There is no question that the implementation of these points must go hand in hand with good classroom practice and hard work. However, without actively working in the political arena, much hard work and effort has been shown to achieve very little.

1. Use the Triennial Review to the full to show your subject's role and value.
2. Have your students perform as often as possible, especially at whole school functions and events such as Art shows, open days, School Council functions etc. Involve as many students outside the instrumental program as possible (e.g. mass singing).
3. Give the music department a stronger voice by applying for positions in the school where important decisions are made about funding and resources. Regularly write submissions requesting more music teachers, more resources and improved facilities. Keep a tight grip on the resources, maintain good bookkeeping, communications, and organisation.
4. Fully support a music parents and friends association and nominate an influential parent (or as many members as you can) for School Council.
5. Get to know Council members and make sure they are invited to all music functions. This also applies to all staff members and local members of Parliament. Involve the principal in school concerts in some way.
6. Regularly consult with the principle and maintain a steady stream of music news for publication in the weekly newsletter and other magazines.
7. Create as many awards for music students as there are for sport and have your music students perform at assemblies as much as possible. Match sporting reports with music reports.
8. Work closely with the information technology department and demonstrate how music education is at the forefront of technological development in your school. Also work with the art, drama, graphics and media departments for the production of a C.D, Videos, school musicals etc.
9. Work closely with the careers teacher and have Music Careers presentations. Bring professional musicians to school to perform and talk to the students.
10. Don't hide in the music department. Have morning tea, lunch etc with staff from other faculties also. Involve them in music activities and publicly thank them at staff meetings.

Music must be seen publicly as a school treasure enriching the lives of everyone taking part. It is of course the heart and soul of the school and essential learning for the twenty-first century.

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Variation and Transmission Processes in Australian Children's Playground singing games: Implications for Music Education Theory and Practice

Kathryn Marsh

Abstract

Several major contemporary approaches (Kodaly and Orff) to classroom music education are based on assumptions regarding the nature of children's playground singing games and chants. Musical materials and pedagogical processes associated with observed play behaviours and underlying paradigms of musical evolutionism and universalism continue to influence current music education practices, despite profound changes to the auditory environment in which children now play and learn. This paper reports the findings of an ethnomusicological study which involved the audiovisual recording of more than 600 performances of playground singing games and concurrent interviews with their performers in a multiethnic Sydney primary school over a six year period. Children's singing games in this playground were found to exhibit sophisticated rhythmic features of syncopation and polymetricity, a wide range of structural devices for variation, and a unique tonality at variance with the functional tonality and pentatonicism of musical repertoire used in the classroom.

Introduction

This paper discusses the results of a study of variation and transmission processes in children's playground singing games, the sung and chanted games owned, spontaneously performed and orally transmitted by children, often, though not exclusively, in a playground environment. Several major contemporary approaches to classroom music education are based on assumptions regarding the nature of children's playground singing games and chants. Features of the musical vocabulary utilised in the approaches initiated by Kodály and Orff were derived from observations of children's musical play in central and eastern Europe in the first half of the twentieth century. Musical materials and pedagogical processes associated with these observed play behaviours continue to influence current music education practices, despite profound changes to the auditory environment in which children now play and learn.

Orff and Kodály methodologies are based on an evolutionary developmental paradigm where children's learning is seen to progress through interaction with musical materials which are initially very limited rhythmically, tonally and formally, and which increase in complexity with the age of the children. These materials, particularly as introduced in the early years of schooling, are assumed to demonstrate the characteristics of children's "traditional" musical play, the perceived sequence being from simple (that is, more "childlike" or "primitive") to complex (equated with adult Western art music). This assumption regarding both cultural and developmental evolution demands critical attention.

Orff termed music at its historical and developmental origins "elemental" music:

Never music alone, but music connected with movement, dance and speech - not to be listened to, meaningful only in active participation. Elemental music is pre-intellectual, it lacks great form, it contents itself with simple sequential structures, ostinatos, and miniature rondos. It is earthy, natural, almost a physical activity. It can be learned and enjoyed by anyone. It is fitting for children. (Orff, 1963/1990, p. 142)

"Elemental" was synonymous with "primitive", the child's musical development being seen to parallel the perceived historical development of Western music. Orff's postulations in regard to musical evolutionism were symptomatic of prevailing ideologies of the time (Nettl, 1956).

Kodály also adhered to musical evolutionism (Landis and Carder, 1990, p. 56), using the "songs and singing games of village children" (Farkas, 1990, p. 103) as the basis of his pedagogy, again partly because of its apparent relative simplicity. Kodály's analysis of Hungarian children's songs and singing games revealed anhemitonic melodies comprising three to five tones (Farkas, 1990, p. 104) which were perceived as developmentally more suitable for

young children. Similarly, young children's movements were seen to be metrically simple. Duple metre was believed to be the basis of children's play movements.

Kodály pedagogical materials develop in melodic complexity in a similar sequence to Orff materials, using first a falling minor third, expanded by the addition of whole tones to a pentatonic scale succeeded by diatonic, modal and chromatic tonalities (Choksy et al., 1986). Tonic solfa and variants of French time names are used as mnemonic devices to promote auditory memory of melodic and rhythmic patterns (Bridges, 1984/1992).

Assumed play-based features in Orff and Kodaly methodologies may therefore be summarised as:

- precedence of duple metre, with simple two and four-beat rhythmic units predominating;
- melodic materials based on the "universal" falling minor third;
- anhemitonic melodies using from three to five tones, with the pentatonic scale prevailing;
- functional tonality, evidenced by tonic solfa;
- reiterative structures, in particular, ostinato, canon, rondo, echo and call-response forms.

While published Orff and Kodály-based materials devised for use with older children venture beyond these boundaries, in practice the rhythmic, tonal and formal limitations are often maintained regardless of age.

Critiques of this pedagogy (Basic, 1986; Michel, 1976) have focussed on the lack of congruence between the overly-limited musical materials of the classroom and the musical environment provided both by the music of the playground and music widely disseminated by the media. Attention has been drawn to the rhythmic complexity and melodic and tonal variety of children's singing games, partly as a result of the direct influence of media-disseminated music on stylistic characteristics of the games. It is the relationship between historically-based conceptions of children's musical play and the current realities in the playground which is the focus of this paper.

Methodology

My study aimed to collect and analyse Australian children's playground singing games in order to establish features of the music, text and movement, their interrelationship and their meaning to the performers. Material for analysis was collected through ethnographic fieldwork at "Springfield Public School"¹, a multiethnic inner city primary school in Sydney from 1990 to 1996. This setting also enabled me to observe transmission practices, that is, ways in which children teach and learn the material themselves, and modes of variation, whereby features are conserved or changed in performance.

The study involved the audiovisual recording and analysis of more than 600 examples of children's playground singing game (predominantly clapping game) performances and concurrent unstructured interviews with 139 performers, who included children aged from five to twelve years. Recordings were made in natural and elicited contexts and were supplemented by informal observation in natural contexts.

While 84 singing game genres were identified in this playground, three genres were selected for intensive variant analysis. This sample comprised 113 performances of the games *Down down baby*, *See see my playmate* and *Sar macka dora*. Each item in this sample was analysed in terms of text rhythm, text setting, movement patterns, melodic contour, and the interrelationships between these elements. This analysis was contextualised by interview and observational data.

¹Springfield Public School is a pseudonym.

Children's Playground Singing Games: Theories and Practices

The analysis of playground singing games at Springfield supports the view that there is a lack of congruence between the overly-limited musical materials of the classroom and the musical environment provided both by the music of the playground and music widely disseminated by the media. Rhythmically, playground singing games at this school are much more complex than their pedagogical counterparts. While the texts of the majority of games exhibit a duple metre for part of their rendition, there is frequently a polymetric relationship between text rhythm and movement pattern. This is particularly the case when texts are combined with the three-beat clapping pattern which was the most frequently observed clapping pattern in this playground over the collection period.

Although a developmental sequence in the learning and performance of clapping patterns was observed and articulated by the children, the three-beat pattern was generally acquired and ably demonstrated (in conjunction with duple texts) by children from the age of six years. Children of nine years of age and younger were also observed performing, with remarkable fluency, a textless game which had a seven-beat clapping pattern and additive metres as its structural core. Older children utilised this seven-beat pattern with other games. A thirteen-beat clapping pattern identified in the USA (Harwood, 1992; Riddell, 1990) was also performed by children as young as seven years.

In addition, the expansion and contraction of text rhythms resulting from the interaction with movement formulae led to partially ametric renditions of singing games. While some instances of ametricity might be viewed as accidental, at Springfield there was consistent ametricity in the performance of particular text and movement formulae, especially when these formulae involved "counting out", mimetic or other complex textual/movement relationships. When text rhythm and movement are considered in combination, then duple metre cannot be seen to dominate playground singing game performance.

In two of the three game genres analysed, rhythmic complexity was increased by a pervasive use of syncopation in the text rhythms. The African-American origin and repeated viewing of a media model might account for the continuation of this practice in one game genre (*Down down baby*). However, the syncopated rendition of the text of other genres appeared to flourish without such support, lending weight to the notion that the characteristic syncopation of popular music disseminated by the media is adopted for use in the textual formulae of playground games.

Melodically, there is a similar lack of congruence between the assumed characteristics of playground games and those observed at Springfield. Although singing games exhibit less complexity melodically than rhythmically, the melodic simplicities do not conform to those specified in classroom practice. The falling minor third was found in many performances of singing games, but was equally absent from many performances. The most frequently-occurring intervals were both major and minor seconds. The incidence of minor seconds would indicate that singing games at Springfield do not fit the anhemitonic pentatonic model espoused by Orff and Kodály methodologies.

A more important melodic feature of singing games in this playground was the functioning of the initial tone as the tonal centre of each game. This has particular implications for teaching practices which have functional tonality (where "doh" equals the tonic) as a core premise. Clearly, tonality in these children's singing games operates in a different way from pentatonic, major, minor or modal tonalities. Tonal melodies do, of course, form part of children's wider musical environment and are adopted and adapted for performance in a playground context. When held within the repertoire of a performing group for a protracted period of time, however, what may have originated as a tonal melody is frequently transformed into something quite different.

The use of tonic solfa in the teaching of play-based materials in the classroom is thus problematic. Similarly, the common practice of pairing song material derived from playground games with pentatonic accompaniments in which the tonic and fifth are reiterated as drones

demonstrates a complete mismatch between the tonality of playground games and the tonality into which it is subsumed in the classroom.

Variability can also be seen to operate in relation to musical form. Text, rhythm and melody of analysed game genres were reiterative and sometimes aggregative and cyclical. However, there were exceptions to most generalisations. The process of formulaic construction results in augmentation or diminution of text lines and phrases and the juxtaposition of newly-acquired or invented textual, rhythmic or melodic phrases into a known form. Game genres therefore exhibit a certain “plasticity” of form.

The ostinato, which has prevailed as a pedagogical tool in Orff-Schulwerk, can certainly be identified in the frequently cyclical movement patterns of playground singing games. Once again, however, there are exceptions to any generalisation. In performances of *Down down baby*, for example, mimetic movements intervened to interrupt and vary any cyclical pattern which was established. There was no evidence of Orff’s canon or rondo forms in any of the analysed game repertoire at Springfield. Echo and call-response forms might be implicit in the reiteration of paired lines, for example, in the *Down down baby* genre. However, with the exception of one hocketed rendition, all performances of playground singing games at Springfield were performed monophonically and non-antiphonally. Echo and call-response therefore do not constitute part of performance practice of the games in this school as they are seen to do in pedagogical lore².

It is clear, then, that there is a dichotomy between the stylistic characteristics of children’s playground singing games as observed at Springfield and the assumptions about children’s musical play which have guided pedagogical provision of repertoire and practices which are, in Orff’s words, “fitting for children” (Orff, 1963/1990, p. 142). Although developmentalism is incorporated into children’s playground teaching and learning, it does not conform to adult notions of increasing musical difficulty. For example, six year olds have frequently mastered polymetric performance practice in their playground performances, a practice which is far beyond what is expected of them in the classroom. Similarly, at any given time, children are often engaged in the simultaneous development of several skills associated with different game genres and are creating constant challenges for themselves through the devising of variants.

Teachers, therefore, need to look beyond a prescribed adult conception of increasing difficulty, to the skills level which children demonstrate in their playground performances. If children are allowed to generate their own variants of classroom activities they can, with teacher assistance, increase the level of difficulty at their own pace and introduce and follow different musical directions. Teachers can take on a scaffolding rather than directive role, providing new materials for performance, listening, and composition which acknowledge children’s observed current musical skills and take them further. Kodály’s perceived advantages of linking classroom content with play so that children could practise classroom materials in the playground might be more productive if the process were reversed so that the “musical richness and dynamism of open forms” (Basic, 1986, p. 131) of playground materials were incorporated into classroom programs.

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²The call-response forms identified by Addo (1995) in Ghanaian children’s playground games are clearly contextualised within the general characteristics of Ghanaian music.

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Education and The Development of Structural Hearing: A Study with Children

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Abstract

The purpose of this study has been to explore evidence about the acquisition of *structural hearing* (Salzer [1962]-1990) from a developmental perspective. Results of an experiment with children between six and fourteen years old are presented. In this exploratory study we have hypothesised that some of the variables involved in structural hearing are: the quality of the surface to convey direction and its relationship with the conveyed direction of the underlying structure, the actual length of the prolongation. In this way there would be certain melodic movements that would benefit the prolongation of the underlying structure. In addition, it has been hypothesised that, as long as tonality is acquired by cultural exposure (Sloboda, 1985) the ability to implicitly recognise the components of structure and prolongation would be dependent on age.

Introduction

Tonal Music is the focus in most of the current approaches in Music Education. Tonality has been studied both from an experimental and a theoretical perspective. Representational models have been created to explain both musical coherence (Schenker, [1934] - 1979; Lerdhal & Jackendoff, 1983; Meyer, 1973) and musical cognition (Krumhansl, 1990; Bharucha, 1984; Butler & Brown, 1994; Dowling, 1994). It is assumed that the former models show an isomorphism with the mechanisms of music cognition which would fit the assumptions of music theory (Swain, 1986).

Psychology of Music is analysing this problem. There are not enough studies on this issue in the field of research on Musical Development, in spite of its importance in Music Education. The present study aims to empirically contrast certain properties of Schenker's model ([1934]-1979) as an initial endeavour to investigate the acquisition and the development of *structural hearing* (Salzer, [1962]-1990).

The abstraction of the hierarchic structure as a cognitive process was analysed at the foreground and the concept of *melodic diminutions* (Schenker [1934] - 1979; Forte & Gilbert, 1982) was used as a methodological tool in order to accomplish the analysis. Serafine, Glassman & Overbeeke (1989) studied some aspects of this model and found some evidence of the way in which listeners unconsciously use hierarchic structure in a similarity judgement task between melodies. However, the research of hierarchic structure entails methodological difficulties to isolate experimentally such variable. Research concerning the understanding of melody has focused on features of *musical surface*. It is assumed that surface attributes might compete in salience with those features of structure during tonal information processing. According to Dowling (1994) the contour is a melodic attribute that is perceived by the listener from the first listening. It does not depend on tonal context and is acquired in the early infancy (Trehub, Bull & Thorpe, 1984). Its development follows the pattern of enculturation during the childhood (Dowling, 1988). Studies about contour offer methodological tools to describe the musical surface in order to control musical structure as an experimental variable.

Concerning the development of tonal cognition, it has been observed that both in singing (Davidson, 1985) and in perception (Lamont, 1998) pre-scholar children acquire the tonal framework through a process of an increasing stability until it is completely acquired at the age of 5 and 6 years. In spite of the evidence that 8 year old children perceive hierarchic levels in simple melodies while matching them with their reduced structures (Serafine, 1988) developmental trends seem to show a period of rapid growth in the understanding of music between the ages of 8 and 11. Structural hearing as a non temporal process of musical thought would be set at this age in human cognition. In order to obtain further information about this process, we investigated the way in which 6-14 years old children use hierarchic structure during a similarity judgement task between pairs of melodies.

Method

Subjects

N=774 children belonging to 8 public and state schools. The curricula included music as a regular subject in all of them.

3 Age Groups: 1: 22, 9% from 6 to 8 years old; 2: 47,2% from 9-11 and 3: 30% from 12 -14. 39. Children reported taking music lessons out of school. There were randomly distributed in each of the groups that were set for the test.

Stimuli

20 melodic fragments (plus 2 examples as warmup) (M) (see appendix I) from 9 to 29 pitches.

In each example:

- 1- a representation of a structural reduction (R_1) was obtained from the analyses of melodic diminutions
- 2- R_1 was modified and a second reduction (R_2) was obtained.
- 3- The surface of M was modified in order to obtain a comparison melody (CM_2) that could be reduced to R_2
- 4- The surface of M was modified in order to obtain a comparison melody (CM_1) that could be reduced to R_1 . Surface changes in CM_1 and MC_2 were homologated in accordance to each other (Table 1).

Table 1

	CM_1	CM_2
M	SAME Structure SIMILAR Surface	DIFFERENT Structure SIMILAR Surface
CM_1		DIFFERENT Structure SIMILAR Surface

The similarity at the surface level is crucial to isolate the structure and the surface as experimental variables. Thus, the composition of the CMs was limited by a series of constraints in order to control the similarity in the surface level of both MCs (Shifres & Martínez, *submitted*). In this paper controls on the *melodic shape* are reported:

The literature about melodic cognition analyses separately i) the contour information in terms of up and down movements of the melodic line and ii) the interval information in terms of the amplitude of the intervals (Edworthy, 1985). Some authors refer to i) as a feature of the surface and to ii) as an attribute of the structure as long as it compromises some tonal invariants (Dowling, 1988). However, from the Schenkerian point of view both of them are surface attributes. As a consequence, both attributes were treated as a unique variable and were measured in a way that revealed the *melodic shape* as a feature of melodic surface.

The variable was controlled as follows:

i) the amplitude of each interval was analysed in number of semitones and a + or - according to the interval direction. The *shapes* were compared by calculating a coefficient of correlation between them: CM_1 and CM_2 (r_0); CM_1 and M (r_1), and CM_2 and M (r_2).

According to these results, the examples may be grouped in three categories indicating the highest similarity level between the *shapes* of M, CM_1 and CM_2 :

- *InterCM Shapes Group*: r_0 was the highest value indicating the major similarity between the *shapes* of CM_1 and CM_2 (7 examples)
- *CM_1 Shapes Group*: r_1 was the highest value indicating the major similarity between the melodic shapes of M and CM_1 (it does not help to isolate the components of structure and surface) (1 example)

- *CM₂ Shapes Group*: r_2 was the highest value indicating the major similarity between the melodic shapes of M and CM₂ (the major surface similarity belongs to the melody that does not share the structure; thus, structure would be isolated) (12 examples)

Musical stimuli were played on a Yamaha SY 55 keyboard with piano sound belonging to a Kurzweil 2000 (sound target Pinnacle) and recorded by a Cakewalk Pro Audio 7.0 sequencer on CD. All the parameters of CM₁ and CM₂ except pitch were the same as the parameters of M. Expressive deviations were applied to the performance according to general stylistic criteria. The duration of the fragments was distributed in a range from 5 to 22 seconds. All the repetitions were recorded electronically.

Procedure

The test was administered in group or individual sessions. The environment for the task was comfortable and the acoustical listening conditions were arranged according to reliable criteria. Children were told that another child was learning to play the piano and for this he proceeded in the following way: he listened to a melody twice and then he tried to imitate it. The children's task consisted in judging the degree of accuracy of the child's imitation of the melody by representing the level of the teacher's approval of the performance. Children had to answer marking the corresponding "teacher's face" in the form given to them.

For each item of the test subjects listened to the following sequence: M- M- CM (1 or 2) . The time between one and other was up to 2 seconds and the time available to answer at the end of the sequence was up to 12 seconds. Each presentation of the melody (M or CM) was announced by a voice in off. Children were told that the judgement was based on their personal opinion and that there was not *an incorrect* answer. There were also told not to leave any blank items.

Design

The test was organised in two 13 minute sessions. Each session had 12 items: 1 warmup item, 10 test items, and 1 repeated item to measure the test's reliability. Different sets containing the 24 items in random orders were recorded in CD and they were equally distributed among the test groups. The children were randomly set in two groups. In each group they listened only one sequence M - M and CM randomly assigned to each example. Two examples that shared MC served as pre-test to compare the initial condition of the groups. The results didn't show significant differences ($F_{[1,773]}=3.29$; $p>.05$). At the end of the test they answered a questionnaire about their musical background.

Results

An CM x Age Group ANOVA simple factorial was done. It showed a result for the combined main effect of ($F_{[3,15432]}=62.838$; $p<.000$) A significant main effect both of Age Group ($F_{[2,15433]}=91.968$; $p < .000$) and a moderately significant main effect of CM were found ($F_{[1,15434]}=4.576$; $p<.032$) The means showed a moderate preference for CM₁ (Graph 1a) which increased with age. In the 6 - 8 year - old group children preferences followed a chance pattern. Later, the preferences for CM₁ slowly show an increasing pattern.

An CM x Age ANOVA simple factorial was done. It showed the following result (Main Effect combined $F_{[9,15427]}=23.389$; $p<.000$. Main effect CM $F_{[1,15435]}=4.757$; $p=.032$. Main effect Age $F_{[8,15428]}=25.741$; $p < .000$) – Graph 1b-. It was observed that a change in the answer pattern appears between 6-7 years old. The developmental trend follows an increasing pattern that reaches its maximum peak between 12 - 13. At 14 the pattern is inverted.

However, the analyses of the results for each melody revealed different tendencies in the subject's answers (Table 2). Beyond the level of significance of the results for each melody, subjects show a moderate preference for CM₁.

Table 2: Results for each example

Example	Main Effect CM	Main Effect Age Group	Main Effect Combined
	Sig.	Sig.	Sig.
1	.758**	.027	.063
2	.000**	.005	.000
3	.071*	.002	.001
4	.000*	.506	.000
5	.000**	.000	.000
6	.223*	.246	.232
7	.005**	.000	.000
8	.000**	.000	.000
9	.208**	.000	.001
10	.196*	.001	.002
11	.318*	.096	.129
12	.145**	.005	.005
13	.000**	.002	.000
14	.081*	.013	.008
15	.000*	.174	.000
16	.787*	.046	.136
17	.000*	.009	.000
18	.023*	.000	.000
19	.000**	.049	.000
20	.000*	.001	.000

* The highest rating was to CM_1 - ** The highest rating was to CM_2

Examples were divided according to the subjects preferences in *Rating CM_1 Group* (CM_1 obtained the highest rating) and *Rating CM_2 Group* (MC_2 obtained the highest rating). It was calculated the Exact probability of Fisher for the distribution of the examples both in the *Rating Groups* and the *Shape Groups* (CM_1 Shape Group was not taken into account): $p=.00238$ – Table 3 -.

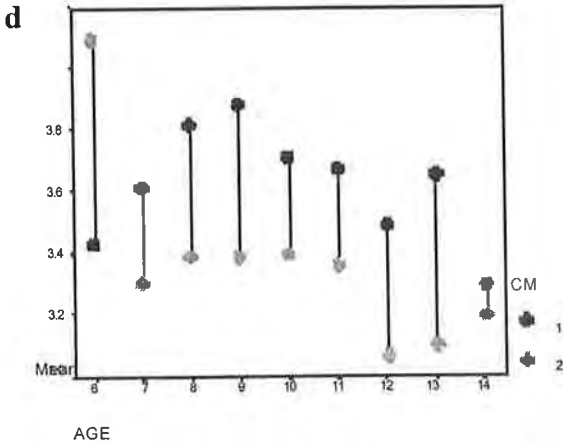
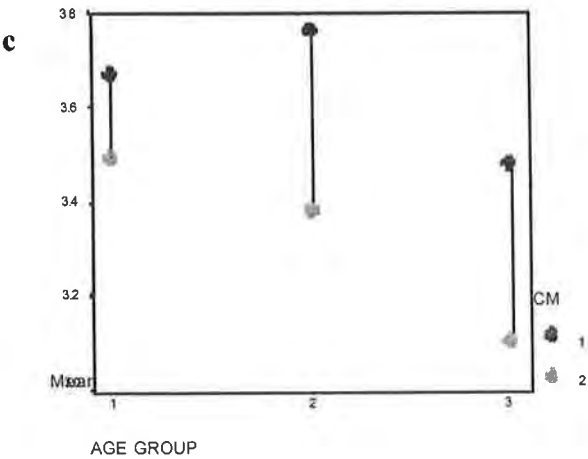
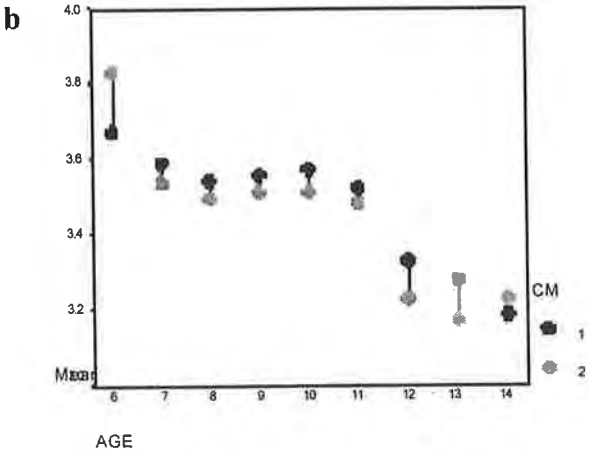
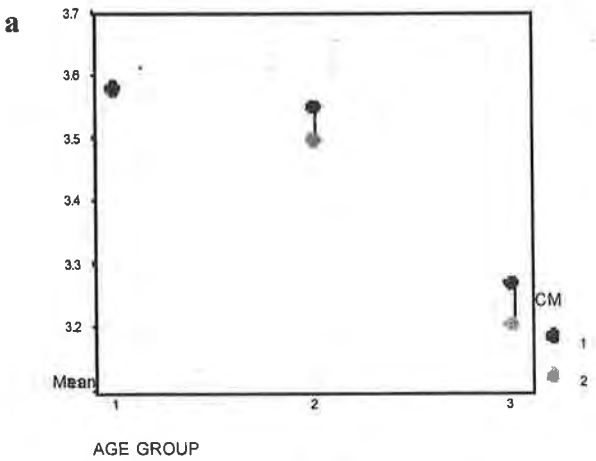
Therefore, only the melodies of the *Inter CM Shapes Group* were analysed (7 examples). The results of the CM x Age Group ANOVA simple factorial showed a significant combined effect of $F_{[3,5405]}=49.181$; $p<.000$. The Main effect of CM was $F_{[1,5407]}=93.128$ $p<.000$. And the Main effect of Age Group was $F_{[2,5406]}=27.222$; $p<.000$ (Graph 1c). For the MC x Age ANOVA simple factorial the values were: Main combined effect $F_{[9,5399]}=17.878$; $p<.000$. Main effect MC $F_{[1,5407]}=93.917$; $p<.000$ and Main effect Age $F_{[8,5400]}=8.373$; $p<.000$ (Graph 1d).

Table 3

RATING * SHAPE Crosstabulation

		SHAPE		Total
		1	2	
RATING 1	Count	7	3	10
	% within RATING	70.0%	30.0%	100.0%
	% within SHAPE	100.0%	25.0%	52.6%
2	Count		9	9
	% within RATING		100.0%	100.0%
	% within SHAPE		75.0%	47.4%
Total	Count	7	12	19
	% within RATING	36.8%	63.2%	100.0%
	% within SHAPE	100.0%	100.0%	100.0%

Graph 1



Discussion

The results show that subjects make unconscious use of hierarchic structure in their judgements of similarity between pairs of melodies. These results confirm Serafine (1988) findings related to the acquisition of hierarchic levels as a generic non temporal cognitive process that is developed during childhood and that is used under specific conditions. But these results are expanded in two ways:

- 1- the comparison is established between two melodies representing the same structural level, not between a melody and its rendered structure
- 2- the proposed comparison task represents a simple task in common listening activities, because it is set between pairs of stimuli (answering to the question: in which degree are they similar?) and not between trios (answering to the question: which is the most similar?).

All the melodies in which children chose CM_2 were more similar in surface to the corresponding M. It is thus demonstrated that in this election it is the surface the variable that seems to play the main role. These findings confirm previous results (Dowling, 1994) relative to the nature of melodic contour as a perceptive attribute of immediate access. Melodies that have a major surface similarity between CM_1 and CM_2 have a neutral salience of contour. In all these cases children's preferences tend to MC_1 , that is , to the melody that keeps M structure. Thus, when surface shape is not different enough to make them different, structure would be chosen. Although the number of melodies that fit this condition was limited, these results would prove the procedure to be valid to control the musical surface. Nevertheless, it is necessary to accomplish further investigations in which comparison melodies will be composed following this criteria.

It is also necessary to analyse the cases in which even though CM_2 shape is more similar to M, subjects chose MC_1 . Results confirm developmental trends derived from previous studies related to the understanding of melody (Serafine, 1988; Lamont, 1994). The development of structural hearing shows few differences between surface and structure at the age of 6. Later on, the competence is acquired and it increases with age. However, these results require more investigation.

The identified developmental curve is similar to others already reported (Serafine, 1988) and confirms assumptions relative to the role of enculturation in the acquisition of tonality (Sloboda, 1985). This is particularly interesting due to the fact that previous investigations refer to children of developed countries, not existing any reports related to this acquisition in South America.

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The Effects of Head Voice Training on Register Classifications, Pitch Accuracy, Singing Habits, and Singing Skills of Young Children

Gwendolyn McGraw

Abstract

This paper reports a study in which the effects of group training upon the vocal register classification, register transition skill, register-related pitch accuracy, and singing habits of second grade students (n = 66) were assessed.

Introduction

This study assessed the effects of group training upon the vocal register classification, register transition skill, register-related pitch accuracy, and singing habits of second grade students (n = 66). Subjects were tested individually on pretests, midtests, and post-tests (audio-recorded). An overview of the analytical approach follows.

1. The predominant mode of production on songs/scales formed the basis for a register classification (Register Classification Test, Rupp, 1992).
2. Skill in making register transitions was determined by performance on songs/scales (Register Transition Test, Wurgler, 1990).
3. Accuracy/inaccuracy on test songs was assessed in two ways:
 - A. Quantitative: production on test songs was scored for pitch accuracy in four ranges (lower, middle, upper, and transition), with each correct pitch equal to one point (Register-Related Tests of Pitch Accuracy). The sum of scores in all ranges was equal to accuracy on all test songs in the range E2 to C1 (termed 'composite pitch accuracy').
 - B. Qualitative data was compiled to describe each subject's register-related pitch inaccuracy. Incorrect, *compensatory* responses were coded as *Directional-Below* (singing below correct pitches); *Octave-Below* (attempts to sing an octave below correct pitches); *Directional-Below/Octave-Below* (a combination of the two preceding responses); and *Directional-Above* (singing higher than correct pitches).
4. Skill in using head voice was charted by *subject* over the course of the study by comparing correct responses on a continuum of test items (Head Voice Tests of Singing Skills).
5. Relationships-- two analyses were done by subject (by test/across tests):
 - (A) Spearman's *rho* correlation determined the extent of the relationship between a subject's *register transition category* and his *composite pitch accuracy score* by test; and
 - (B) composite pitch accuracy scores were compared by subject across tests (pre/post) using a Pearson product moment calculation.

Results: Pretests

Seventy-three percent (73%) of subjects used chest voice for singing. Chest voice (CV) singers characteristically used less than 40% of their potential range in singing test songs/scales, with a 31% pitch accuracy rate on test songs. CV singers who were unable to sing mid-range or upper range pitches used *compensatory* singing responses resulting in 'phrase-level' rather than 'song-level' accuracy on songs. Whatever their habitual range, 80% of CV singers had a potential range of C1 to F2 (or higher), as documented by their singing of upper range melodic patterns (following a period of coaching on the pretest).

A minority of subjects (27%) used head voice for singing. Subjects using head voice were able to sing throughout the range E2 to C1 with an 82% rate of pitch accuracy on test songs/scales. These subjects characteristically used few 'compensatory' singing responses, resulting in 'song-level' rather than 'phrase-level' accuracy on test songs.

Treatments and Training

Following pretests, intact classes were assigned to one of three instructional approaches using identical songs in different ranges. The vocal training group was instructed in the use of head voice for singing through practice with vocalizes and songs, primarily in the range E2 down to G1. The other two groups received no vocal training: (a) the repertoire group sang the songs in the range used in the vocal training group (E2 down to G1); (b) the control group sang the songs in a low, limited range (A1/G1 down to C1).

Based upon pretest documentation of existing singing skills, vocalizes and song were selected for use. Initial training with vocalizes (simple melodic patterns sung on neutral syllables/solfa) began in upper range (D2), with descending melodic patterns moving into midrange. Ascending patterns were subsequently practiced in this range. Lower range was practiced only in the final weeks of the study through the singing of eight-tone descending scales and tonic chords (8-5-3-1). Songs selected for use were similar in melodic construction to the vocalizes.

Results: Midtests

Qualitative

Fifty percent (50%) of subjects in the training class used a *Directional-Above* response on test songs which began in upper range and descended into lower range. This unexpected response was viewed as a 'marker' for singers who had found head voice; who were developing skill in the range E2 to G1; and who needed further work on carrying head voice production below the *passaggio* (G1) into lower range. This response was not prevalent at any other point in the study (with any group).

Quantitative

While subjects in Repertoire and Control groups showed little improvement on singing skills, subjects in the Training group improved significantly on the singing of several test items.

Results: Post-tests

Vocal training in the use of head voice was effective in improving the singing skills of students in the training group. Students learned to use head voice in singing; to make transitions between vocal registers; to sing descending and ascending major scales; and to sing more accurately throughout the range E2 down to C1 on test songs (See tables).

PRESENTATION OF TEST RESULTS

TEST	RESULTS
<u>Register Classification</u> (adapted Rupp, 1992)	<u>Training significantly increased frequency of Ss using HV for singing.</u> Significant difference between groups: Σ^2 , (2, N = 66) = 10.86, $p < .01$
<u>Register Transition</u> (Wurgler, 1990)	<u>Training significantly increased the number of Ss able to make transitions between vocal registers.</u> McNemar Test for 2 x 2 Tables: Significant change in register transition skills, $p = .002$ No significant change (i.e. improvement) in register transition skills for Control/Repertoire, $\phi = .05$
<u>Register-Related Tests of Pitch Accuracy</u>	<u>Vocal training significantly increased register-related pitch accuracy in the range E2 to G1, and in a transition range (high to low). In association with significant increases in these pitch ranges, there was also a significant increase in composite pitch accuracy (range E2 to C1) for Ss in the training group.</u> Analysis using ANOVA showed differences in group means for composite accuracy were not significant at the .05 level, on pretests or midtests: <u>Pretest</u> : $F(2, 63) = 0.59$, $p = 0.5588$; <u>Midtest</u> : $F(2, 63) = 1.13$, $p = .3282$. However there were significant differences in group means on the <u>Post-test</u> : $F(2, 63) = 5.47^*$, $*p = .0064$. (SAS software pkg., SAS Institute, Inc.) Tukey's Studentized Range (HSD) used to test for differences in post-test means between groups. Significant differences at the .05 level between (a) training group and control group and, (b) between training group and repertoire group. Differences in post-test means between control group and repertoire group were not significant.

TEST

RESULTS

Head Voice Tests of Singing Skills

Composite test (combination all skills): No significant differences between groups on pretests.

ANOVA: $F(2,63) = 1.74$, $p = .1864$. No evidence that assumption of equal slopes violated
 $F(2, 60) = 1.84$, $p = 0.1677$.

ANCOVA used to analyze post-test data by groups with pretest scores used as covariate.

Results indicated significant training effect for vocal training group, $F(2,62) = 20.83$, $p = .0001$.

Adjusted post-test means: control = 5.34; repertoire = 6.04; vocal training = 9.86.

Scores for individual skills on continuum: Ss scores paired across tests using McNemar Test for 2 x 2 Tables (pre and post).

There was a significant training effect for all non-echoed singing skills:

S-5	($p = .0039$)	Sang upper range phrase
S-6	($p = .0391$)	Sang upper range song
S-7	($p = .0078$)	Sang descending scale
S-8	($p = .0020$)	Sang ascending scale
S-9	($p = .0002$)	Sang extended range song
S-11	($p = .0010$)	HV: increasing ease/acc.

There were no significant differences across tests for skills on which researcher modeled or coached, providing aural cues for the subjects:

S-1	Found head voice (coaching on pretest)
S-2	Echoed UR patterns
S-3	Echoed UR phrase
S-4	Echoed UR song

Relationships:

RT Category/Composite Pitch Accuracy:

(Scores paired by Ss/Test)

Spearman's ρ : Pretest = .93; Midtest = .94; Post-test = .96

Composite Pitch Accuracy Scores:

(Pre/Post-test scores paired by Ss)

Pearson's Product Moment Correlation

Control: Pearson $r = .96$
 Repertoire: Pearson $r = .91$
 Training: Pearson $r = .70$

Other results included the following: (a) pitch accuracy in lower range was *not* a pre-requisite for learning to sing using head voice; (b) range extension was contingent upon development of the voice from upper range (D2/E2) downward; (c) pitch accuracy in the range E2 down to C1 was related to skill in making transitions between vocal registers; and (d) students in the vocal training group with the poorest pitch accuracy scores on pretests (due to restricted vocal range) showed the greatest improvement in pitch accuracy scores on post-tests.

Singing Habits and Treatment Conditions

Students *without* training were highly consistent in their singing responses across tests, suggesting that *singing habits had been formed by the age of eight*. In analyzing paired pitch accuracy scores (by subject) across tests, it was found that correlation coefficients were higher for students *without* training (Pearson $r = .96$ Control; and, Pearson $r = .91$ Repertoire). In contrast, students *with* training were found to be less consistent in their responses across tests, indicating that training was effective: (a) in breaking poor singing habits, and (b) in encouraging the development of a new head voice production for singing (Pearson $r = .70$). The following is a summary of qualitative results related to singing habits by treatment group:

A. **Repertoire Group:** Singing repertoire pitched in 'head voice keys' was not sufficient to break poor singing habits. Chest voice singers who were restricted to lower range *increased* the frequency of *compensatory* responses in singing of test songs. In the absence of vocal training, the keys of G and F major were used to practice Directional-Below/Octave-Below responses as extent of lower physiological range allowed.

B. **Control Group:** Pitch accuracy *decreased* in all ranges--an unanticipated finding. Also surprising was the finding that following two+ months of singing exclusively in lower range, *all* control group subjects ($n = 7$) who had used head voice on the pretest sang one or more test songs using chest voice, with an associated loss of pitch accuracy. These results imply that exclusive use of lower range for singing *fosters* the formation of poor, register-related singing habits.

C. **Training Group:** As skill in using HV *increased*, there was a corresponding *decrease* in the frequency of *compensatory* responses associated with a lack of skill in pitch matching in mid- and upper- ranges (i.e., with lack of skill in making register transitions). Those CV singers who had been *most inaccurate* on the pretest were the subjects who contributed most to significant gains in pitch accuracy found in the training group on the post-test. Thus, results of *all* treatment conditions indicated that intervention in the form of training is required to break firmly established habits--especially those habits associated with exclusive, restricted use of chest voice for singing.

Concluding Remarks

Vocal training in the use of head voice was effective in improving the singing skills of subjects in this study. In contrast, singing repertoire in the absence of training--either in 'head voice keys' or in lower range keys (C1-G1/A1)--was not effective in improving singing skills. Lack of improvement in the Repertoire and Control groups was further associated with the existence of firmly established singing habits as documented in this study.

Exclusive and restricted use of chest voice for singing was found to be associated with speech-like production, restricted vocal range, difficulty in matching starting pitches above D1, register breaks, high levels of pitch inaccuracy, and difficulty in singing test songs. For the majority (73%) of subjects, in this study, head voice was the 'unused' register, corroborating findings of previous researchers (Brown, 1988; Wurgler, 1990). Results also supported observations concerning the many poor singers in America's classrooms.

Vocal training, while effective, was difficult because of the need to break students' poor singing habits. Results imply that an emphasis on the lower range for singing at the early childhood level may be counter-productive. Conversely, pedagogy emphasizing the development of head voice from early childhood may encourage healthy vocal technique through adolescence. Therefore, results of this study support the premise that long-term vocal development should be a fundamental consideration when working with young singers.

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The Contribution of Motivational Factors to Instrumental Performance in a Music Examination

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Abstract

This paper reports on a study with 349 instrumentalists between the ages of 9 and 18 who completed a self-report questionnaire immediately before undertaking an externally assessed music performance examination. The first purpose was to clarify the degree to which internal (e.g. effort, ability, nervousness) and external (e.g. task difficulty, luck) attributions were cited by students to explain their results on the performance examination. The second purpose was to investigate a range of self-regulatory and motivational influences which predict student results in the performance examination. Results show that an ability to perform proficiently relies not only on technical and expressive skill, but also on the employment of a range of motivational resources. It is suggested that how students think about themselves, the task and their performance is just as important as the time they devote to practising their instrument

Introduction

Every year, many thousands of Australian children begin learning a musical instrument and embark on an aspect of skill acquisition that is not only complex and time-consuming, but which also requires years of dedicated practice and commitment in order to achieve success. A major challenge for research therefore, is to find better and more efficient ways of dealing with the range of skills required to learn to perform proficiently.

One of the most important determinants of how quickly a student will progress on an instrument is the quantity and quality of home practice, yet this area has received very little attention from researchers interested in skill development as it applies to learning a musical instrument. Results from a recently completed investigation (McPherson & McCormick, 1998) indicate that the level of a student's cognitive engagement while he or she practises music provides an important, but previously overlooked key to improving practice and refining overall musical skills. In the McPherson and McCormick (1998) study, students who reported higher levels of practice across three distinct aspects defined as informal/creative activities (i.e. playing by ear for own enjoyment, improvising own music), repertoire (i.e. learning new pieces, learning older familiar pieces), and technical work (i.e. using a warm-up routine, practising scales/arpeggios, plus studies and études, and sightreading music) tended to be more inclined to rehearse music in their minds plus make critical ongoing judgements concerning the success or otherwise of their efforts. These students were also more capable of organising their practice in ways that provided for efficient learning, such as practising the pieces that need most work and isolating difficult sections of a piece that need further refinement. These results provide tentative evidence that students who are more cognitively engaged as they practise, not only tend to do more practice but are also more efficient with their learning. As a result, they are also more inclined to express higher levels of intrinsic motivation for learning their instruments.

Another important dimension of research on musical performance concerns the range of factors which impact on how well a musician will be able to perform on an instrument. In Australia, as with many similar countries, indications of musical ability are often gauged from results obtained in externally assessed music examinations, which require the performance of pieces with piano accompaniment and other technical requirements (e.g. scales, arpeggios, sightreading) from a set syllabus according to successively more difficult grade levels. In Australia, over 150,000 children undertake these types of music examinations each year for organisations such as the *Australian Music Examinations Board* and *Trinity College, London*.

Having previously studied factors which impact on the quantity of musical practice undertaken by students aged 9-18, our attention now turns to issues concerned with actual performance skill. The aim of the project reported here was to study two dimensions which were considered to impact on how successfully a student would be able to perform at a formal music examination. First, our interest was sparked by the dearth of studies concerned with the personal attributions made by

performing musicians to explain their success or failure, compared to the vast amount of data available for classroom music and general education (Austin & Vispoel, 1998). Specifically, we sought to clarify the degree to which internal (e.g. effort, ability, nervousness) and external (e.g. task difficulty, luck) attributions (Austin & Vispoel, 1998; Weiner, 1979) were made by students to explain their results on a performance examination.

The second purpose was to investigate a range of self-regulatory and motivational influences which, it was theorised, would predict student results in a performance examination, and to use this information to draw implications for future research and teaching practice.

Method

Subjects

The sample consisted of 349 instrumentalists between the ages of 9 and 18 (Mean 12.81; SD = 2.32) who were completing *Trinity College, London* graded, externally assessed performance examinations at 15 different regional and metropolitan centres across three Australian states. Students who participated were learning to play either piano, or a string, brass or woodwind instrument.

In order to investigate differences according to age and performance proficiency, the sample was divided into Beginner (Preliminary to Grade 2; N=176; Mean age = 11.62), Intermediate (Grades 3 and 4; N=91; Mean age = 13.04) and Advanced (Grades 5 to 8; N=82; Mean age = 15.11) levels of performance proficiency, as determined on the *Trinity College* examination.

Measures

In the months preceding the study, teachers who were preparing students for these examinations were sent copies of a letter and asked to distribute them to all students (and their parents) who were undertaking all levels of the *Trinity College* examinations. The letters invited candidates to participate in the study by arriving at the examination centre 30 minutes earlier than required in order to complete a questionnaire immediately before they entered the examination.

Approximately 65% of subjects who received the invitation completed a self-report questionnaire that included 16 items on self-regulatory learning components (cognitive strategy use, self-regulation) and motivational components (intrinsic value, anxiety/confidence, self-efficacy) of instrumental learning. Subjects were instructed to respond to all items except the self-efficacy measures using a 7-point Likert scale (1 = *Not at all true of me* to 7 = *Very true of me*). Items were adapted from previous research on academic learning (Pintrich & De Groot, 1990) and modelled on a previous study (McPherson & McCormick, 1998).

The **Cognitive Strategy Use** scale consisted of items focusing on rehearsing strategies (e.g. "If I can't play a piece I always stop to think about how it should go"), elaboration strategies (e.g. "I'm always thinking about pieces I'm learning by singing them through in my mind" and "When I'm practising I often stop playing and think about how the music should go") and organisational strategies (e.g. "The first thing I do when I practise is ask myself 'What do I need to practise most today?'" and "When I learn a new piece, I spend most of my time practising the most difficult sections").

The **Self-Regulation** scale was constructed from effort management items (e.g. "I often can't decide what things I should practise first", "If I can't play a piece, I leave it until the next lesson", "I sometimes forget to do my practice", and "I don't like to learn hard pieces") while the **Intrinsic Value** scale consisted of items concerned with the students' interest in learning their instrument (e.g. "Doing well on my instrument is important to me" and "Playing my instrument is my favourite activity"). The **Anxiety/Confidence** scale was comprised of items associated with performance anxiety on the test each candidate was about to undertake (e.g. "I have an uneasy, upset feeling when I perform in front of people", "I don't feel very confident about my ability to play well today", and "I'm scared I might freeze up when the examiner asks my scales").

The 14 items concerned with self-regulatory and motivation were submitted to factor analysis which rendered a solution consistent with the theoretical constructs and results obtained in an earlier study (McPherson & McCormick, 1998, see Table 1).

Table 1: Factor Analysis of Questionnaire Items

	Factor 1	Factor 2	Factor 3	Factor 4
Cognitive Strategy Use				
When I learn a piece, I spend most of my time practising the most difficult sections	.63	-.09	-.24	.10
The first thing I do when I practice is ask myself "What do I need to practice most today?"	.63	.01	-.20	-.05
If I can't play a piece I always stop to think about how it should go	.57	.02	-.28	.16
I'm always thinking about pieces I'm learning by singing them through in my mind	.56	.02	-.30	-.01
When I'm practising I often stop playing and think about how the music should go	.53	-.07	-.24	.22
Anxiety/Confidence				
*I'm scared I might freeze up when the examiner asks my scales	-.04	.75	-.03	.12
*I don't feel very confident about my ability to play well today	-.02	.71	-.09	.21
*I always have an uneasy, upset feeling when I perform in front of people	.05	.66	-.13	.21
Intrinsic Value				
Doing well on my instrument is important to me	.34	.08	-.89	.15
Playing my instrument is my favourite activity	.42	.11	-.48	.36
Self-Regulation				
I don't like to learn hard pieces	.23	.15	-.21	.61
I sometimes forget to do my practice	.03	.09	-.12	.47
If I can't play a piece, I leave it until the next lesson	.22	.14	-.13	.40
I often can't decide what things I should practice first	-.09	.12	.08	.36

Notes: Bold type indicates the factor loadings for each variable. An asterisk (*) indicates items that were reverse scored for analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .78.

Two further questions concerned with general and performance self-efficacy were included as a means of extending the previous investigation of motivational influences. **General Self-Efficacy** was assessed on a five point scale by asking the question "How good a musician do you think you are, in comparison with other students of your own age? Would you say that you are Poor, Below Average, Average, Above Average, or Outstanding in comparison with other students of your same age?" **Performance Self-Efficacy** was determined on a seven point scale by asking the students "What result do you think you will get for your exam today?" (Unsatisfactory below 65, Low pass 65-69, High pass 70-74, Low merit 75-79, High merit 80-84, Low distinction 86-90, High distinction 91-100).

Another extension of the previous study was to include two questions concerned with identifying the reasons cited by students to explain their success or failure on the performance examination. The first question, which appeared at the beginning of the questionnaire, asked students "How much of the RESULT for your performance examination today do you think will be caused by the following?" Students responded using 7-point Likert scales (1 = *Not at all the cause* to 7 = *Very much the cause*) to the following attributions: Having a LUCKY DAY, How HARD YOU TRY during the exam, Your OVERALL ABILITY - how gifted you are as a musician, How NERVOUS you get during the exam, How HARD YOU PRACTISED for the exam, How HARD THE EXAM turns out to be. The final item on the questionnaire asked students to tick one category for the question "What one factor will have the MOST INFLUENCE on your exam result today?" Students chose one of the same six items used in question 1 (i.e. GOOD LUCK, How HARD I TRY during the exam, How GOOD I am as a musician, How NERVOUS I get during the exam, How HARD I PRACTISED for the exam, How HARD THE EXAM turns out to be).

The questionnaire included a further 11 items which sought to obtain information on how much practice had been undertaken during the month leading up to the examination, and the frequency with which subjects practised various activities on their instrument. Subjects were asked how many times a week they practised and for how long. An estimate of their **Average Weekly Practice** was computed by multiplying the number of practice sessions per week by the number of minutes averaged for each session. Subjects also used a 5-point scale (*Never, Rarely, Sometimes, Often, Everyday*) to indicate the frequency with which they practised different types of activities during their home practice. Factor analysis (Table 2) grouped these items logically according to two scales relating to **Informal Aspects of Practice** (i.e. playing by ear for own enjoyment, improvising own music), and **Formal Aspects of Practice** (i.e. using a warm-up routine, practising scales/arpeggios, plus studies and études, and sightreading music) (See Table 2).

Table 2: Factor Analysis of Content of Practice

	Factor 1	Factor 2
Formal Aspects of Practice		
Scales and arpeggios	.62	-.10
Sightreading exercises	.55	.19
Studies and Etudes	.53	.15
Warm-up routine	.52	.15
Informal Aspects of Practice		
Improvising your own music	.15	.77
Playing by ear for own enjoyment	.07	.48

Notes: Bold type indicates the factor loadings for each variable. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .70.

At the end of each day of performance examinations, the secretary overseeing the *Trinity College* examinations collated each of the completed questionnaires and then wrote on the top right hand corner each student's performance examination result. Beginner level students scores ranged between 61-91 (Mean=77.93; SD=6.44); Intermediate level students between 60-90 (Mean=74.95; SD=7.00); and Advanced level musicians between 60-90 (Mean=74.96; SD=7.43). Scores for each of these groups range from Unsatisfactory to Distinction.

Results

The first purpose of the study was to examine the attributions made by performing musicians to explain their possible success or failure on the *Trinity College* music examination. Tables 3 and 4 summarise the results according to the two questions dealing with this issue.

Table 3: Attributions Concerned With Identifying “How much of the result for your performance exam today do you think will be caused by:”

Attributions	Beginners MEANS & (SD)	Intermediate MEANS & (SD)	Advanced MEANS & (SD)
Having a LUCKY DAY	2.81 (1.53)	3.04 (1.70)	3.04 (1.48)
How HARD THE EXAM turns out to be	4.05 (1.55)	4.07 (1.46)	4.21 (1.44)
Your OVERALL ABILITY - how gifted you are as a musician	4.71 (1.37)	4.65 (1.63)	4.70 (1.34)
How NERVOUS you get during the exam	4.13 (1.80)	5.13 (1.63)	5.10 (1.63)
How HARD YOU TRY during the exam	5.88 (1.38)	5.87 (1.45)	5.49 (1.50)
How HARD YOU PRACTISED for the exam	5.92 (1.11)	6.00 (1.03)	5.83 (1.29)

Note: Subjects responded using a 7-point Likert scale (i.e. *Not at all the cause* to *Very much the cause*).

Table 4: Attributions Concerned With Identifying “Which one factor will have the MOST INFLUENCE on your performance result today?”

Attributions	Beginners	Intermediate	Advanced
Having a LUCKY DAY	3.4%	2.2%	4.9%
How HARD THE EXAM turns out to be	2.2%	2.2%	2.4%
Your OVERALL ABILITY - how gifted you are as a musician	6.8%	5.5%	12.2%
How NERVOUS you get during the exam	11.9%	28.5%	29.3%
How HARD YOU TRY during the exam	31.3%	23.1%	13.4%
How HARD YOU PRACTISED for the exam	44.4%	38.5%	37.8%

Tables 3 and 4 show that a majority of students cited internal reasons as the main cause of their result on the performance examination. For each of the three groups, “how hard you practised for the exam” was cited by 37.8% to 44.4% of the students as the main cause of their result on the examination they were about to undertake. The next most often cited variables were “how hard you try during the exam” (13.4% to 31.3%) and “how nervous you get during the exam” (11.9% to 29.3%). Of lesser importance, in terms of the overall ranking by students of the most influential factor affecting their performance result, was “your overall ability - how gifted you are as a musician” (6.8% to 12.2%), and two external factors, i.e. “how hard the exam turns out to be” (2.2% to 2.4%), and “having a lucky day” (2.2% to 4.9%).

A series of regression analyses were computed in order to answer the second research issue, dealing with the factors which might best predict the students’ results in the *Trinity College* performance examination. For each of the beginner, intermediate and advanced level groups stepwise multiple regression was employed with the *Trinity College* result serving as the criterion variable and self-regulatory (Cognitive Strategy Use, Self-Regulation) and motivational (Anxiety/Confidence, Intrinsic Value, General Music Self-Efficacy, Performance Self-Efficacy) components of learning, plus Average Weekly Practice and the content of student practice (Informal Aspects of Practice, Formal Aspects of Practice) as the predictor variables.

Table 5: Summary of Stepwise Regression Analyses for Prediction of Performance Results

Beginners (Preliminary to Grade 2; N=176)			
Variables	R²	F	BetaIn
Performance Self-Efficacy	.18	37.22***	.42
Intrinsic Value	.23	26.28***	.24
General Self-Efficacy	.26	20.07***	.18

Intermediate (Grades 3 & 4; N=91)			
Variables	R²	F	BetaIn
Performance Self-Efficacy	.28	33.60***	.53
Self-Regulation	.32	20.05***	-.20
Intrinsic Value	.36	15.89***	.24

Advanced (Grades 5 to 8; N=82)			
Variables	R²	F	BetaIn
Performance Self-Efficacy	.23	23.72***	.48
General Self-Efficacy	.28	15.02***	.23

* p <.05 ** p <.01 *** p <.001

Table 5 shows a consistent pattern of results across the beginner, intermediate and advanced levels of the *Trinity College* syllabus with the best predictor for each group being Performance Self-Efficacy. This variable explained between 18% and 28% of the variance, in contrast to three other variables, Intrinsic Value, General Self-Efficacy and Self-Regulation which accounted for between 3% and 5% of the variance in each model.

Discussion

According to Austin and Vispoel (1998) beliefs about the causes of success and failure can influence a variety of future achievement behaviours, expectancies, self-perceptions and additional affective responses. Expectancy constructs are central to continuing motivation, so understanding how students attribute the causes of their success or failure, particularly in a stressful environment such as a music performance examination, is an important part of understanding individual differences and helping students to prepare for these types of examinations.

In this study over 50% of the three groups reported internal, unstable attributions, perceiving their performance examination result to be a consequence of how much effort they had given to preparing for the examination, or how hard they try during the examination. Consequently, a majority of students went into their examination reporting relatively healthy attributions. If they did well, then their success could be attributed to having prepared thoroughly. If they did poorly, then they could blame their result on not having done enough preparation, or not trying hard enough during the examination. Research (Austin & Vispoel, 1996) indicates that students who report these types of effort attributions tend to display greater persistence and stronger affective reactions, such as a feeling of pride for a high result, or shame following failure.

The next most often reported factor was how nervous the student felt they would get during the examination. This factor accounted for between 11.9% to 29.3% of student responses across the three groups; a finding which demonstrates how stressful graded performance examinations can be for some students and therefore how important it is for teachers to help students displaying these types of attributions to cope with their performance anxiety.

The findings also reveal that 12.4% of the beginners, 9.9% of the intermediate level players, and 19.5% of the advanced musicians attributed their result to either luck, how hard the exam might turn out to be (i.e. task difficulty) or their overall ability as a musician. Research in other areas of learning (Arnold, 1997; Pintrich & Schunk, 1996) suggests that students who believe that their success or failure is a result of ability tend to approach a task differently from students who associate success and failure with effort, and that low achievers often make maladaptive or unhelpful attributions in comparison with high achievers (Pintrich & Schunk, 1996). The latter students are more likely to attribute success to luck and their inability to complete a task successfully to such factors as ability. They are also less likely to feel that an increase in effort will have any positive benefits to their development or capacity to achieve at a higher level.

These results reinforce the need for teachers to develop strong teaching motivational skills so that they can motivate their students for both short term musical development and long term musical involvement. At the very least, these results suggest that teachers should monitor their students' attributions by spending time talking with them about what they have achieved and where they can improve, and helping them to map out strategies which ensure that practice time is well organised and efficient. Of vital importance is the need to encourage students to attribute any failure to controllable causes such as a lack of effort (Austin & Vispoel, 1998; Pintrich & Schunk, 1996).

The second research area examined in this study found that student perceptions of how well they believe they will do immediately before entering their performance examination, is an important predictor of future success. According to Pajares (1996), "self-efficacy beliefs act as determinants of behaviour by influencing the choices that individuals make, the effort they expend, the perseverance they exert in the face of difficulties, and the thought patterns and emotional reactions they experience" (p. 325). For this reason students who display high self-efficacy expectations will be more likely to achieve in a difficult performance area, such as a formal music examination, than their peers who display the same level of skill, but lower personal expectations. Bandura (1986) argues that overestimating capability increases effort and persistence while Pajares (1996) provides evidence that even with accurate self-perceptions there is a danger of "lower optimism and lower levels of self-efficacy's primary functions - effort, persistence, and perseverance" (p. 340). Students with high self-efficacy tend to display higher levels of confidence, and to be more inclined to persist when faced with difficulties (Pajares, 1996). Perceptions of personal competence influence a student's motivation and future decisions to continue developing skill in the area (Hackett & Betz, 1989). In this study performance self-efficacy accounted for the greatest part of the variance of the examination result, a finding which highlights the importance for students to enter a music examination with a positive belief in their own capacity to succeed.

Finally, Arnold (1997) argues that "Simply spending more time practising will not, of itself, guarantee better musicianship. Telling students how and what to practice is an important component of musical learning" (p. 22). The findings reported here suggest that this view should be expanded to include a number of cognitive mediational processes which are of equal importance to learning. Attributions concerning personal success or failure in music, awareness and knowledge of one's own processes of learning and ability to control these processes during learning, and personal judgements about one's capability to apply new knowledge and skills effectively and to thereby learn new skills, exerts an enormous influence on the development and acquisition of musical skills. It may well be that how students think about themselves, the task and their performance is just as important as the time they devote to practising their instrument (McPherson, 1989, McPherson & McCormick, 1998).

Conclusions

It would be naïve to suggest that there are merely linear relationships between the variables examined here and competence as determined in a music examination. Consequently, the major task for future research is to explain how self-efficacy, performance outcome attributions and actual ability interact to maintain positive motivation and an intrinsic desire for students to continue improving on their instrument. Importantly, this study provides preliminary evidence that an ability to perform proficiently relies not only on technical and expressive skill, but also on the employment of a range of motivational resources.

In many ways this study has only scratched the surface in attempting to understand the types of cognitive mediational processes involved in learning to play a musical instrument. However, the results provide enough evidence to highlight the importance of self-regulatory and motivational forces in learning music plus the promise of a rich untapped vein of data for researchers interested in expanding knowledge in the area.

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The "Tsumari" Phenomenon in Performance of Beat Division: Differences in Beginner's Deviation and Musician's Deviation

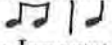
Hiromichi Mito

Abstract

Tsumari is the phenomenon when the first note in a sequence of two eighth-notes is performed shorter than the second. In previous studies, the tsumari has mainly been examined among beginning musicians. The present study examined the occurrence of tsumari among musicians and music beginners to investigate the cause of tsumari in reference to performer's uncontrollability and expressive expression. In the experiment, three groups of different musical experience played the same melodies which include several patterns of the beat division. In the first trial, subjects were requested to perform the melody as mechanically as possible. In the second trial, the subjects were requested to perform the melody with full expression. The result revealed that not only music beginners but also musicians showed tsumari in the performance of two eighth-notes even when they were instructed to perform mechanically. From these findings, it was suggested that there exists some perceptual or motor inclination which is beyond the performers' control in the performance of two eighth-notes.

Introduction

Studies on music performance revealed that the musical performances deviate from temporal regularity (Gabrielsson, 1974, 1982, 1985; Gabrielsson et al. 1983; Mito, 1989). These deviation often occur as a result of musicians intention to express musical meanings such as phrasing or articulation etc. Many studies have attempted to investigated the relationship between temporal deviation and the music structure and clarified that musicians often use temporal feature to express artistic expression.

On the other hand, there exists the deviation from mechanical regularity which occurred against performer's intention. For example, at the beginning of learning music, some of the learners show difficulty in performing the specific rhythm at precise timing. These deviations are mainly caused by the performers uncontrollability. One of the most common tendencies in the deviation from mechanical performance observed among the music beginners is that the first eighth-note was played much shorter than that of the second when they perform a specific rhythm pattern like  (Murao, 1979). This phenomenon is called "Tsumari" by many Japanese music teachers, and they have suspected why such phenomenon occurs. If the division of a beat in equal portions is difficult for beginners, it seems that they ought to perform either the first or the second eighth-note shorter. However, when the sequence of two eighth-notes is performed uneven, the first eighth-note is performed shorter than that of the second in most of these cases.

Previous studies have shown the cause of tsumari phenomenon from the point of music structure and motor control (Murao, 1979; Mito, 1997). Through the experiments, the degree of tsumari was severe when a sequence of two eighth-notes were located just before a quarter-note on the first beat. On the other hand, tsumari was observed to be slight in the pattern where a sequence of two eighth-notes was not located just before the first beat. Furthermore, tsumari was slightest in the case of two eighth-notes included in a sequence of six eighth-notes. From these findings, the cause of tsumari was considered to be a problem of the motor control necessary to perform the accent note after the eighth-notes. Mito(1998) examined tsumari phenomenon by the keyboard playing and found that severe tsumari occurred due to the lack of a steady beat perception. In the experiment, a remarkable improvement in curing tsumari was noted after giving the procedural instruction requesting the subjects to be conscious of the subdivided beat during the performance.

The study investigated the beginners' tsumari showed that tsumari occurred by either the performers' insufficient motor skill or cognitive skill. However, it was reported that musicians also showed the tsumari in their performance of keyboard (Mito,1997). Although the degree of tsumari was slighter than the music beginner, musicians played the first eighth-note shorter than the second note in the sequence of two eighth-notes. What is the causes of the tsumari among musicians? As stated earlier, temporal deviation occurred by performer's expressive intention or uncontrollability. Two possible causes of tsumari can be considered. First, even a trained musician doesn't possess a precise controllability to perform the sequence of two eighth-notes even. Second, tsumari occurred as the result of musicians expressive intention.

The present study aims to investigate the cause of tsumari occurred among musicians. In the experiment, experienced musicians and the music learners were asked to played the same melodies which include several patterns of the division of beat. In order to clarify whether the tsumari phenomenon occurred among the musicians is caused by the limitation of performers controllability or by the performers artistic expression, two types of performances were collected. Subjects were requested to perform the same melody mechanically or expressively.

If tsumari is caused by the musicians uncontrollability, it is anticipated that the tsumari will occur even in the mechanical performance. If tsumari is the deviation resulted from the musicians' expressive intention, tsumari might appear only in the expressive performance. On the other hand, music beginners showed large deviation in the performance of two eighth-notes even when they were instructed to perform mechanically.

In the previous experiment new melodies of only right hand performance were used to clarify the relationship between music structure and tsumari(Mito,1997; Mito, 1998). In the present study real musical pieces accompanied by left hand were used to obtain the ordinal piano performances.

Experiment 1

Subjects

Five professional pianists (Pianist group) and five undergraduate students (Beginner group) participated in the experiment. All of the subjects in Pianist group had graduated in the top rank of a music academy and had given many public recitals. Subjects in the Beginner group had finished only one year of a fundamental music learning course at the faculty of education.

Materials

The first eight bars of Bayly's "Long, long ago" was adopted in the experiment. In the melody, quarter note and sequence of two eighth-notes is repeated through all the piece. Totally ten sequence of two eighth-notes were performed and all of them were analyzed. The melody is accompanied by a broken chord of quarter notes.

Procedure

The score was given to the subjects one week before the experiment. Any information about the experiment was not given to the subjects. They were just instructed to practice the piece until they could master the piece. In the first trial, the subjects were requested to perform the melody as mechanically as possible. In the second trial, the subjects were requested to perform the melody with full expression. The tempo was not given to the subjects and they were told to perform in their comfortable tempo. Performances were played on electronic piano (YAMAHA Clavinova CLP.100) with piano like tone and recorded in MIDI format with a Macintosh computer.

Results

Since the experiment was designed to compare the length of two eighth-notes, the ratio of the duration between the two eighth-notes was calculated. The calculated numbers shown in Table 1 represent the multiple value of the duration of the second eighth-note divided by that of the first. Accordingly, if the first eighth-note was played more briefly than the second eighth-note, then there was an increase in the calculated number. A higher value represents a more severe degree of tsumari. Totally ten sequence of two eighth-notes were obtained from mechanical and expressive performance respectively.

First, the ratio of duration between Beginner group and Pianist group were compared. The Data were analyzed by analysis of variance with Group as a between-subject factor. The effect of Group was significant in both mechanical and expressive performance [$F(1, 98) = 10.89, p < .01$] [$F(1, 98) = 9.99, p < .01$]. The result indicated that the ratio of Beginner group was much higher than the Pianist group which means tsumari for the beginner group was severer than for the Pianist group. The ratio of Beginner group was 1:1.58, while the ratio of Pianist group was lower than 1:1.2 in mechanical performance.

Although Beginner group showed severer tsumari, degree of tsumari was not constant among the subjects. The mean ratio of subject B5 was 1:2.46, while the mean ratio of the subject B1 was 1:1.27 in mechanical performance. Furthermore, tsumari was not constantly occurred within each subject's performance. Among ten sequence of two eighth-notes, not all of them were played with severe tsumari. On the other hand, degree of tsumari was consistent among Pianist group. All the subjects constantly show slight tsumari. And slight tsumari was occurred through out the performance of ten sequence of two eighth-notes.

It was interesting that the tsumari was also seen among Pianist group. Although the degree of tsumari was much slighter than the Beginner group, all the subjects in Pianist group showed tsumari even when they were requested to perform the two eighth-notes as mechanically as possible. Totally 100 performances of the sequence of two eighth-notes was obtained from 5 subjects. Surprisingly, there were only three performances where the first eighth-note was performed longer than the second one.

Next, the ratio of duration between mechanical performance and expressive performance were compared. The Data were analyzed by analysis of variance with Performance as a within-subject factor. In both Group the effect of Performance was not significant [$F(1, 49) = .72, p < .4$] [$F(1, 49) = 1.75, p < .19$]. There was little difference in the degree of tsumari between mechanical performance and the expressive performance.

In Beginner group the degree of tsumari was high in both the mechanical performance and the expressive performance. In the Pianist group, the degree of tsumari did not change from the mechanical performance to the expressive performance.

Experiment 2

Difference between expressive deviation and the mechanical deviation was not observed in experiment 1. Since the musical material used in experiment 1 consisted of the repetition of same rhythmic pattern, there might be needed little temporal aspect to express musical intention. Therefore the piano piece which was often performed with temporal deviation was selected for the experiment 2. In experiment 2, the beat division of the triplet as well as that of two eighth-notes was analyzed.

Subjects.

The five professional pianists who participated in experiment 1 were adopted in the experiment (Pianist group). Five undergraduate students who had received more than 10 years of piano training were adopted as the Music Learner group.

Materials

The first 16 bars of Chopin's 'Waltz' Op. 69-1 in A major (A Major was adopted in the experiment. Sequence of two eighth-notes and successive triplet appear in the beginning of the piece (Pattern A) and bar 3 (Pattern B) were analyzed.

Procedure

The experiment was conducted with the same procedure adopted in experiment 1.

Results

On the whole, the pattern of deviation was consistent among the subjects in the mechanical performance. On the other hand, the pattern of deviation become different in the expressive performance.

In the mechanical performance, all the subjects in Pianist group performed the first eighth-note of the sequence of two eighth-notes shorter than that of the second eighth-note in both pattern A and B. On the other hand, the Music Learner group didn't show a consistent tendency of deviation in the performance of two eighth-notes. In the expressive performance, the pattern of deviation was different among the subjects. There were several subjects in the Pianist group who played the first eighth-note of the sequence of two eighth-notes longer than the second one.

In the performance of triplet, almost all subjects showed same deviation pattern in both the mechanical performance and the expressive performance where the first note was performed longer than the second note.

Discussion

As anticipated, tsumari occurred severely among the Beginner group in experiment 1. An interesting finding was that even well trained professional pianist couldn't play two eighth-notes equally notwithstanding they were requested to play them equally. All the subjects in Pianist group showed almost the same degree of tsumari between mechanical and the expressive performance. Since the musical material used in experiment 1 consisted of the repetition of two eighth-notes, it might be considered that the influence of expressive factor affected not so large. In experiment 2, Pianist group showed tsumari in the performance of two eighth-notes again. Although degree of tsumari was small, tsumari occurred among all the subjects in the mechanical performance.

From these findings, it was suggested that even the professional pianist tends to show tsumari in the mechanical performance, and there is a possibility that tsumari was caused by a lack of the performer's precise controllability. Since the degree of tsumari was slight, the performance of the pianist was not perceived as uneven. However, consider from the fact that the first note in the sequence of two eighth-notes was performed shorter than the second note in almost every two eighth-notes, it can be said that there exists some perceptual or motor inclination which is beyond the performers' control.

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Table 1 Ration of duration of second eighth-note to that of the first for Pianist group and Beginner group

Group			
Beginner		Pianist	
Mechanical performance	Expressive performance	Mechanical performance	Expressive performance
B1	1.27	P1	1.12
B2	1.29	P2	1.11
B3	1.35	P3	1.17
B4	1.48	P4	1.32
B5	2.46	P5	1.14
mean	1.57	mean	1.19

Note: The tabled values represent each subject's mean for ten performances of sequence of two eighth-notes.
 B=Beginner P=Pianist

Effect of Melodic Context on the Tuning Accuracy of Beginning and Intermediate Wind Players: A Preliminary Analysis

Steven J. Morrison

Abstract

The purpose of this study was to investigate the effect of melodic context on the tuning accuracy of beginning and intermediate instrumentalists. Subjects ($N = 137$) were elementary, middle and junior high school band students with one, two, three or four years of formal instrumental performance experience. Subjects first tuned to a single prerecorded tuning pitch and subsequently played along with a prerecorded rendition of a 4-measure melody. Direction and magnitude of pitch deviation was analyzed for the single tuning pitch and 4 selected target pitches within the melody. Findings indicated subjects' responses to the tuning pitch were more accurate than to the melodic pitches; no differences were found among the melodic pitches. There was a high positive correlation among the four melodic pitches, but a low positive correlation between the melodic pitches and the tuning pitch. Each subject's error across all five pitches tended to be in a uniform direction. Overall, subjects erred most often in the sharp direction; a stronger tendency toward sharp errors was noted among more experienced students. There was no significant difference in accuracy according to subjects' experience.

Introduction

One of the most consequential considerations in the assessment of a musical performance is intonation. Good intonation is usually defined as the ability to adjust performed pitches to minimize or eliminate perceived discrepancies. However, little evidence has emerged to support a relationship between accurately hearing tuning discrepancies and matching a target pitch (Ely, 1992; Geringer, 1983). Similarly, accuracy in tuning a pitch one is actually producing has been found to differ from adjusting an artificially produced tone (Platt & Racine, 1985). This suggests that the ability we call "good intonation" may be an amalgam of several discrete abilities developed over time. Some evidence indicates that a relationship between perception and performance may develop with experience (Geringer & Witt, 1985).

While not establishing a relationship between the two, accuracy in both pitch discrimination and performance has been greater among older or more musically experienced students (Duke, 1985; Elliott, 1974; Geringer, 1983; Madsen, Edmondson, & Madsen, 1969; Yarbrough, Green, Benson, & Bowers, 1991). Recent research among elementary, junior and senior high school instrumentalists has found that an individual's ability to perceive pitch differences and match pitch improves with experience though, again, no significant correlation was found (Yarbrough, Karrick, & Morrison, 1995; Yarbrough, Morrison, & Karrick, 1997).

The context in which pitches are performed has been identified as a significant factor in the accuracy and direction of subjects' responses. Compared to an equi-tempered standard, string instrumentalists performed descending four-note scalar passages significantly more sharp than ascending figures (Kantorski, 1989; Sogin, 1989). Conversely, Yarbrough and Ballard (1990) found string players to be more sharp when performing an ascending figure. Overall, the tendency of instrumentalists to perform sharp has been well documented in the research literature (e. g., Geringer, 1978; Salzberg, 1980; Yarbrough et al., 1997, Karrick, 1998), though this tendency was not apparent among beginning students (Yarbrough et al., 1995).

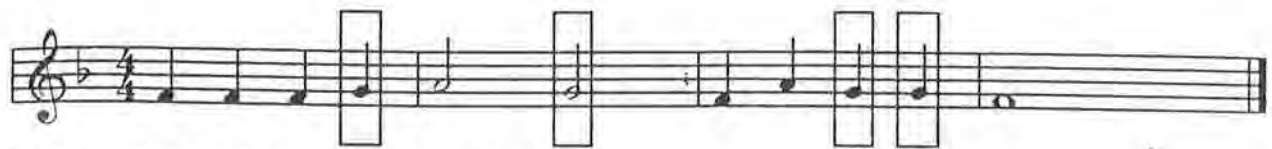
It was the purpose of this study to investigate the ability of beginning and intermediate instrumental students to match an isolated pitch as well as selected target pitches within a melodic context. Specifically, this study sought to determine: (a) whether young performers were equally accurate at matching a single isolated pitch and selected target pitches within a simple melody; (b) whether a consistent relationship was observed between accuracy of the tuning and melodic pitches; (c) whether melodic pitch accuracy was affected by its location or duration; (d) whether more experienced subjects demonstrated greater accuracy on either of the tasks; (e) whether the direction of tuning error was consistent within subjects; and (f) whether,

across subjects, errors in the direction of sharpness were more prevalent than those in the direction of flatness.

Method

Subjects ($N = 137$) were elementary, middle school and junior high school band students in their first ($n = 20$), second ($n = 51$), third ($n = 35$) or fourth ($n = 31$) year of instrumental instruction. Subjects were asked to individually complete two performance tasks: (a) they manipulated their instrument and/or embouchure until they perceived that they satisfactorily matched a single recorded stimulus pitch; and (b) they performed the 4-measure melody, "French Folk Song," along with a recording. Pitch accuracy was assessed by comparing subjects' responses to the recorded single pitch and 4 target melodic pitches. To test for differences in accuracy due to contextual features, the 4 target pitches were identical in pitch class but different in melodic character--one approached from below, one sustained, one approached from above and one repeated.

Figure 1: Target pitches in "French Folk Song."



Stimulus consisted of a single tuning pitch and the 4-measure melody, "French Folk Song." Both the single pitch and the song were presented in the same octave as subjects' requested responses. The tuning pitch for flute, oboe and alto saxophone was B-flat (466.16 Hz); for clarinet, bass clarinet, tenor and baritone saxophones, bassoon, trumpet, horn, trombone and baritone, B-flat (233.08 Hz); for tuba, B-flat (116.54 Hz). The song was presented in the key of F for all instruments except flute, clarinet and horn for which it was presented in B-flat. Keys were chosen to avoid extreme ranges, unfamiliar keys, open fingerings for the four target pitches, and crossing of the clarinet break. To set the tempo, 4 clicks at 86 beats/minute were recorded at the beginning of the song.

The stimulus was produced with a Yamaha SY77 synthesizer using "clarinet" timbre. The stimulus was recorded with a Tascam DA-P1 DAT recorder using Maxell R124-DA digital audio tape. To eliminate possible pitch variability between test sessions, the recording was transferred to compact disc using DigiDesign Sound Designer 2 and Adaptec Toast software.

Subjects individually entered the testing room (a practice room or office adjacent to the band room), sat down, and put on a set of headphones. We explained they would hear a recording of a single pitch through the headphones, displayed a notated version of the pitch, and instructed the subject to play the pitch, adjusting their instrument until they felt their own pitch exactly matched the recorded pitch. We used simplified terminology when instructing less experienced subjects. Subjects indicated a match by a slight nod of their head, at which point we recorded approximately 3 seconds of their response.

Following this we showed the subjects a notated version of "French Folk Song" and asked them to listen to a recording of the song. After one listening, we played the song a second time and asked the subjects to perform along with the recording. We played the song a third time and asked the subjects again to perform along, this time recording their response.

Stimuli and responses for each subject were recorded onto separate channels of a Maxell R124-DA digital audio tape using a Mackie 1202v1z mixer and a Tascam DA-P1 DAT recorder. (Subjects, however, heard both the stimulus and their own playing through both headphone channels.) All recorded material was converted to digital sound files using SoundEdit v.16 v.2.0.7 software and separated by channel using SoundHack v.0.873PPC software. The single tuning pitch and four melodic target pitches were isolated and analyzed for frequency readings in Hz using AudioSculpt 1.2b1PPC software. The frequency readings were converted to cent deviation scores using a conversion table (Young 1952).

Results

Data consisted of absolute and signed cent deviation scores as well as occurrences of sharp, flat and in tune responses for each of five target pitches--the tuning pitch and four melodic pitches. An analysis of variance compared absolute cent deviation scores of students with one, two, three or four years of instrumental experience using the five pitch contexts (tuning, ascending melodic, sustained melodic, descending melodic, repeated melodic) as a repeated measure. A significant difference was found among the pitch contexts, $F(4, 532) = 8.11, p < .05$. Further investigation revealed a lower mean deviation score for the single tuning pitch ($M = 11.06, SD = 8.92$) than the ascending ($M = 16.42, SD = 18.02$), sustained ($M = 14.46, SD = 16.34$), descending ($M = 14.20, SD = 16.05$) or repeated ($M = 16.60, SD = 19.41$) melodic pitches. Neither years of experience nor the interaction of experience and pitch context were found to have a significant effect on subjects' responses ($p > .05$).

Direction of subjects' errors was analyzed after categorizing responses as either sharp, flat or in tune. In tune responses were defined as those with a cent deviation score of 0. Out of 685 total responses--5 per subject--19 were identified as in tune. Considering only the four melodic pitches, each subject was categorized as having all errors in the same direction ($n = 107$), all errors but one in the same direction ($n = 23$), or an even split between sharp and flat errors ($n = 7$). Differences among instances of these three patterns were significant [$\chi^2(2, n = 137) = 126.36, p < .05$]. Next, the predominant error direction of subjects with all or all but one errors in the same direction was compared with direction of error for the tuning pitch. Significantly more subjects' errors were in the same ($n = 95$) rather than a different ($n = 35$) direction [$\chi^2(1, n = 125) = 24.20, p < .05$].

Overall, a significant difference was observed between the number of sharp ($n = 373$) and flat ($n = 293$) responses [$\chi^2(1, n = 666) = 9.61, p < .05$]. While no significant differences were observed in occurrences of sharp and flat responses among first or second year subjects, a significant difference was found among third [$\chi^2(1, n = 168) = 6.10, p < .05$] and fourth [$\chi^2(1, n = 149) = 9.19, p < .05$] year performers. A tendency toward sharp responses was noted among more experienced subjects (see Table 1).

Table 1: Occurrences of Sharp and Flat Responses by Years Experience

	1 year	2 years	3 years	4 years
Sharp	55	125	100 *	93 *
Flat	45	124	68 *	56 *

* $p < .05$

To investigate the relationship between tuning and melodic accuracy, signed cent deviation scores were analyzed. Pearson product-moment correlations were calculated for each pitch pairing (see Table 2). A low, positive correlation was found between the tuning pitch and each of the melodic pitches. A high, positive correlation was found among each pair of melodic pitches. All relationships were found to be statistically significant ($p < .05$), though this may be attributed to the large sample size.

Table 2: Correlation Matriz for Tuning and Melodic Pitches

	Ascending	Sustained	Descending	Repeated
Tuning	.25 **	.21 *	.22 *	.18 *
Ascending		.89 **	.88 **	.87 **
Sustained			.92 **	.89 **
Descending				.93 **

* $p < .05$ ** $p < .01$

Discussion

The first question addressed by this study was whether young instrumentalists would be as accurate matching selected target pitches within a simple melody as they were matching an isolated tuning pitch. Subjects in this study demonstrated significantly greater accuracy at matching an isolated tuning pitch. It may be hypothesized that the greater complexity of the melodic task may have distracted students' attention from the single parameter of pitch-matching. More proficient performers may be better able to attend to the multiple demands of musical performance. Alternatively, this difference may have been due to differences in fingering. For all brass instruments except horn the tuning pitch required an open fingering while the melodic pitches required some valve or slide manipulation, possibly affecting accuracy of pitch production. However, it is unlikely that these pitches and fingerings were substantially less familiar to the subjects. It should be noted that the difference between the mean tuning pitch deviation and the melodic deviations ranged from 3.14 to 5.54 cents. While it may be questioned whether this difference was significant in real, musical terms, the statistical difference does appear to highlight some quantifiable difference between the two tasks.

This difference is further underscored by the high correlations among the melodic pitches and the much lower correlations between these pitches and the tuning pitch. It seems that the ability of a young performer to tune to an isolated pitch bears only a modest relationship to pitch accuracy demonstrated within a musical context. On the other hand, the degree of accuracy at one point within a melody was highly correlated with accuracy at other points within the same performance. It would be of interest to examine this relationship across more extensive melodic selections or among more experienced performers.

Much previous research has reported a tendency for performers to err in the sharp direction. Yarbrough et al. (1995) observed that this tendency was not evident among beginning instrumentalists though it appeared to emerge among students at the intermediate level. Similarly, in this study third- and fourth-year players demonstrated a notable tendency toward error in the sharp direction. Regardless of direction, individual subjects' errors were most often in a uniform direction. This was observed not just among the four melodic pitches but between these pitches and the tuning pitch as well. While the correlation between the single isolated pitch and the melodic pitches was relatively low, the consistency of error direction was high.

In light of earlier findings, it was surprising not to observe improvement in pitch accuracy among more experienced players. This may suggest that greater accuracy among more experienced school instrumentalists is not be the result of experience so much as attrition. Students who struggle with instrumental performance would very likely be among the less accurate players. In turn, they may be more likely to drop music instruction if given the opportunity. A longitudinal examination of instrumental performance development would provide important information on the role that both experience and attrition may play in the development of a musically advanced ensemble.

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An Expanded Music Education Orientation: A Developmental Perspective for the New Millennium

Theresa Nazareth

Abstract

Ideas presented in this contribution are derived from the literature on lifelong learning, adult education and music education as well as from recent doctoral research undertaken on *Lifelong Learning: Music Education for Adult Beginners*. Participation in conferences and personal experience working with children also support the ideas put forward. This paper argues that while music education for children is important, children's music learning can be enhanced by an expanded orientation to music – one that can benefit from the interrelatedness and complementary nature of learning throughout other stages of life. The framework proposed articulates a vision for a lifelong approach to music education to meet changing demands. It suggests that it is in the context of learning communities that children's musical development can best be addressed. While the provision of music programs at various stages of life is a necessary precondition for lifelong music learning, this alone will not necessarily achieve a lifespan orientation to music. To attain success requires a coherent and coordinated approach to music education reform. This paper examines the need for a lifespan orientation to music learning and also explores the factors that impact on the continued pursuit of learning.

Introduction

The genesis of this paper lies in the rapidly changing economic, social and cultural environment in Australia and internationally. In the current context of fast changing circumstances the importance of the development of human capacities, of interdependence and of continual growth is emphasised. It is timely in this changing social reality that we review policy and practice in relation to children's musical development. This paper argues that children's music learning can be enhanced by an expanded music education orientation – one that views learning within a lifelong perspective and acknowledges the important role of adults within this framework.

The Need for a Lifespan Orientation to Music Learning

Lifelong learning is critical to children's musical development and is recognised as a key strategy in achieving the development of children's full potential (European Parliament, 1995; The Nordic Council of Ministers, 1995; OECD, 1996; Delors, 1996; Bowles & Myers, 1996; ISME, 1998). In lifelong music learning adults can play a significant role as they can affect children's learning. After all, many adults are their children's first teachers. Research also shows that the greatest learning takes place between ages 2 and 10 and that the earliest form of learning relates to the emotions (Goodfellow, 1998). As emotional development is influenced greatly by the responsiveness of adults within the framework of caring relationships, developing positive attitudes of adults towards music making can lead to young children developing a lifelong disposition towards music learning. The WELL or *Workforce Education and Lifelong Learning* (CWELL, 1993) strategy supports the view that adults involved in music education are more likely to provide a home music environment and music experiences for their children. With parental interest, it is thought that children will develop a keenness to want to be involved in school music. While this is the case, it is also true that the experiences of initial education have a bearing on adult lives (Longworth, 1995).

Working within the traditional framework with children alone cannot achieve the desired goal. One of the basic tenets of lifelong learning is participation by all. In promoting an expanded orientation, I am not downplaying the importance of music education at any particular stage of life. Instead I am making a case for a *coherent* plan for education through music that acknowledges the interrelatedness and complementary nature of early childhood, school, tertiary, post-school and 'third age' music education. This view is consistent with the WELL strategy, which draws on the *America 2000* (United States

Department of Education, 1991) strategy metaphor of four trains moving simultaneously down four parallel train tracks (Figure 1). It illustrates the point that debating on the issue of where to start or which group to focus on is pointless. The desired effect will not be achieved unless there is coherence, that is, unless all 'the tracks' move together:

Figure 1: AMERICA 2000: An Education Strategy

TRACK 1:	Better Schools
TRACK 2:	New Generation of Schools
TRACK 3:	A Nation of Students
TRACK 4:	Learning Communities

We, in music education, therefore, need to tap all 'The Treasure Within' (Delors 1996) our community because it is in the context of learning communities that children's musical development can most successfully be addressed. Music education needs to move towards the ideal put forward by Colin Power (Assistant Director-General, Education, UNESCO Headquarters, Paris) when he spoke of education generally, that it should be "an education that bridges gaps" (Haw & Hughes, 1998, p. 24). Historically, however, music education has had a narrow focus, being mostly "geared to children" (AB32). While there are sporadic efforts to provide for other members of society, there is no concerted effort. Where such provision exists, "there is no program of development" (EP15) in the sense of being ongoing.

The principles of lifelong learning constitute a powerful and dynamic framework on which to build music education programs for children. To encourage children to engage in a lifetime of learning, however, we need to examine what it is that encourages learning to continue.

Factors That Impact on the Continued Pursuit of Learning

Positive Early Experiences

Sir Christopher Ball (Longworth, 1995) suggests that having the 'right start' helps. Recalling their early musical experiences research participants in my study spoke of being rapped over the knuckles with a ruler by their teachers. Male participants were put off by the commonly held perception that music was 'sissyish'. Female participants were also disenchanted because their progress was affected by disruptive boys in the classroom. Music lessons under these circumstances were not much fun. Participants also complained of music education having an examination, certificate or career orientation. The notion of music education for personal development was under-valued. Enjoyment of the educational experiences was identified by research participants as a prerequisite to the continued pursuit of learning. This view is also supported by Longworth's (1995) *An Action Agenda for Lifelong Learning for the 21st Century* and by The Nordic Council of Ministers (1995) who in their report, *The Golden Riches in the Grass* recommend a focus that is "less on utility, more on pleasure" (p. 34).

Opportunities to Continue

When learning is regarded as a continuing endeavour music learning can be enhanced (OECD, 1996). Multi-age or inter-generational music making can help learners see that

there is no mandatory age for music learning to cease and that music is part of life. Such an orientation to learning predisposes the presence of accessible opportunities, choice and flexible structures (Longworth & De Geest 1995).

Quality Programs

Programs which encourage meaningful participation and learning within a supportive framework also influence ongoing learning (Temmerman, 1993). Having the right skills also helps. It has been argued that the front-end *convergent* view of education tends to produce people who find it difficult to cope with changing views of experience (Chapman & Aspin, 1997). Being able to adapt to changing circumstances and to 'learn how to learn' are important skills that can be a springboard to further learning (The Nordic Council of Ministers, 1995). Education for these changing times needs to relate as much to the broader cultural and personal aspects of life as to the utilitarian imperatives that drive it. Such an education would include the preparation of learners for the productive use of their extended periods of discretionary time (Chapman & Aspin, 1997). Hence, both new skills and the development of other life skills are required. A shift from teaching to learning is central to education for the new millennium.

Quality Teaching

The quality of teaching is another contributory factor towards the continued pursuit of learning. Teacher preparation needs to acknowledge the changing role of teachers in the learning process across the years. With the accelerated pace of knowledge, teachers can no longer be oases of information. Rather, they need to be viewed as facilitators of learning. In order to steer learning they have to be lifelong learners themselves (Candy, 1991). Teachers who keep in mind the long-term development of the learner, help learners reflect on their experiences, and guide learners in making decisions affecting their learning, have a greater likelihood of achieving success (Grow, 1991, cited in Simpson, 1995). Also, teachers who encourage creativity and provide a rich array of opportunities to learn, including the opportunity to make mistakes, foster the development of lifelong learners. The delivery of music experiences should be served by skilled musician-teachers who are motivated and secure in their knowledge of the special learning characteristics associated with learners in the various developmental stages and the factors that motivate them.

Linkage and Connectivity

When children can see connections in their learning, for example, between school music and out of school music or between music and other areas of education and life, there is a better chance that they will engage in further learning. The arts transcend particularities such as the various disciplines and cultures, yet traditionally, music educators have taught their subject in isolation. A multi-disciplinary and more holistic approach can facilitate connections being made. Also, through a seamless education brought about by vertical linkage between the different stages of life – pre-school, school, young adulthood, 'mature' adulthood, and in the senior years, the enduring effects of education can be realised (Longworth & De Geest, 1995). Where assessment practices reflect meaningful learning and learning that is not end-dated, learning is also likely to continue. The notion of achieving to a particular standard unfortunately is still with us. When excellence and quality reflect not only the end products of music making but also the processes of learning, the goal of lifelong music learning can be achieved (ISME, 1998).

Out of school agencies (families, institutions of learning, the media as well as government agencies through local councils and funding organisations) can also add strength to these linkages through co-operative relationships. Sharing good practice through technology can help (The Nordic Council of Ministers, 1995). Currently however, various music agencies, educational groups and organisations often work independently of each other. Such moves towards connectedness according to Professor Nzou Nan Zhau imply "respecting others on the basis of equality" (Haw & Hughes, 1998, p. 65).

Motivation

Another prerequisite to continuing learning is "the right advance motivation" (The Nordic Council of Ministers 1995, p. 98). Understanding the factors that motivate learners of various ages is critical to the design, provision and delivery of music programs. This is an area needing further research. Deterrents to children's learning should also be considered. Research participants recalled what for them were deterrents to learning. Because adults remembered the elitist tradition of music during their schooling years many held the misconception that music was for the talented or for the 'sophisticates' (Myers, 1992; Achilles, 1992). They also remembered not being allowed the freedom to explore. They were told what to do and were not provided with alternatives. Access to the resources of choice therefore, is an important consideration in music learning. The view of music education as a *private good* led to selection for instrumental study, for choir participation and for inclusion in music classes. Such an 'exclusive' perspective gave the message that music was for particular groups and led to diminished musical opportunities for others to participate as they progressed through the years. Sadly, much of current music education still reinforces social and educational advantage. Music education needs to shift away from being self-replicating. Reimers (1994) suggests that as "music education stimulates and realises potential life qualities for all" (p. 170), to set the learning of music into the framework of lifelong education policy is a public service that should not be denied anyone. As learners develop at different rates, it is apt that opportunities be provided for learners of any age to re-visit music education. Flexible pathways including multiple entries and exits to educational opportunities (Delors, 1996) and access to all, regardless of age, affordability, skill, gender or ethnicity (ISME, 1998) can help.

Policy

Policy plays a pivotal role in terms of how learning is perceived. Policy needs to re-position itself for longer-term outcomes. Policy that adopts a more consultative approach involving stakeholders can result in a deeper understanding of the sentiments it espouses as well as in policy being more appropriately framed and receiving greater acceptance.

Conclusion

While many worthwhile contributions on the development of children's music education have emerged from my study, the music education of children was not the prime focus of my research and so ideas may benefit from further research. Lifelong learning can be a potent solution to today's dilemmas in music education particularly in reversing attitudes and encouraging participation. Preparation for the new millenium requires an ideological shift, coherent organisation and administrative frameworks to bring about individual and collective benefits as espoused by Delors (1996) through his 'four pillars': learning to know, learning to do, learning to live together and learning to be. I am optimistic that the developmental perspective presented is the beacon that will light the path for all toward the new millenium. This is the challenge for music educators in the Asia Pacific region at the threshold of the 21st century.

Note

Research participants are marked as AB for Adult Beginner participants and EP for Education Provider participants.

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Introducing Chaozhou Xianshi Musical Elements into the Theory and Aural Classes for Initial Teacher Training Courses in Hong Kong

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Abstract

Hong Kong is a metropolitan city where Chinese culture meets the West. Festivals from both the Chinese and the Western traditions are celebrated throughout the year. The Chinese and the English languages are studied side by side throughout the entire years of schooling. However, the music curriculum does not reflect a perfect blending of music cultures from both China and the West. In the official general music curriculums set forth by the Curriculum Development Committee, Western music dominates what is currently taught in Hong Kong schools. Chinese music is given far less prominence than Western music in all years of schooling. This paper discusses this issue, plus other factors in the training of the teachers that will help build a more fuller understanding and healthier attitude toward the teaching of Chinese music and Chinese culture.

Introduction

Around the world there is an increasing general awareness and concern in music education for multicultural music education. In the 1970s, the MENC promoted the use of traditional music of many cultures in the curriculum, and this was followed during the next two decades by an even greater interest among music educators who eagerly sought workshops, conferences and publications to introduce music of non-western cultures into their teaching (Anderson & Campbell, 1996).

Shand (1997) views multicultural music education in terms of broadening student's concept of music and experiencing it as a diverse multicultural human practice plus appreciation of one's own cultural heritage balanced with a respect for cultural diversity. To achieve this goal in the Western world, world music education attempts to incorporate and introduce other music traditions to the mainstream Western classical music. But in non-Western countries, the idea of world music in music education carries with it quite different implications.

In China and in other Asian countries, many school systems are modelled on Western practices. The Western cultures and civilizations have had such a strong impact on the Asian education system during the 20th century, and content and practices in subjects such as mathematics, sciences, art and music have all become the basic content of many countries in this region's curriculum.

If we look specifically at music education on the goal of appreciating one's own cultural heritage balanced with a respect for cultural diversity, then a range of possibilities come to mind. In the context of Hong Kong, foreign fashions and trends especially in pop culture pervade the society. Young people in the 60s and 70s enjoyed a great deal of Western pop songs and bowling, in the early 80's the British snooker game and in the late 80s the Japanese Karaoke and recently the Japanese TV films. As a result, in their daily lives Hong Kong citizens have experienced culturally diversity.

In terms of an appreciation of our own cultural heritage in Hong Kong however, the picture is not the same. The music curriculum in Hong Kong gives almost no significant emphasis to traditional Chinese music and many teachers are reluctant to include Chinese music in their teaching. Hong Kong during British rule from 1841 up to 1997, maintained a high profile for western music and its cultures and a low profile for Chinese music.

However, the general environment in Hong Kong is changing rapidly now that Hong Kong is part of China. But there are still many problems and issues that need to be resolved, the most important being an unhealthy disrespect for traditional forms of Chinese music. For example, in 1933 Ching in China's earliest music education journal advocated that Western Music was

advanced while Chinese music was considered as too simple and lacking in any complex structure. Music was categorized and understood as a branch like technology, and, like a race, had to evolve and be improved. This naïve view was not sensible but yet had a continuing influence over generations of people (Ho, 1993). On the other hand, scholars such as Yang (1996) advocated the need for promoting the education of traditional Chinese music in teacher education in China.

In Hong Kong starting from the late 90s, the education profession and scholars alike have made a joint effort to promote the teaching and learning of traditional Chinese music in general music classes. Notable examples are the Cantonese Opera Pilot scheme in which 10 schools are invited to participate. As part of the project a CD Rom was published and distributed to every secondary schools in Hong Kong. In another instance, in 1998 three organizations including Radio 4 (a broadcasting channel) together with the Music Inspectorate of the Education Department, and the Fine Arts Department of the Hong Kong Institute of Education jointly published a handbook on Chinese traditional and Chinese music in general, supplemented with broadcasting programmes.

In another development, the Curriculum Development Institute under the Education Department undertook an extensive survey (1998) which revealed that Chinese Music is one of the main topic areas most teachers feel reluctant to teach. They found that music teachers generally do not have sufficient confidence in terms of knowledge, practical skills and experience, teaching strategies and an access to teaching materials. A major factor which makes teachers uneasy about teaching Chinese music is a general lack of understanding about Chinese music and a generally low esteem given to this genre of music.

In the initial teacher training programmes in the Hong Kong Institute of Education, there is one module which is completely dedicated to Chinese Music with 30 lecturing hours for the secondary teacher training program, while in the primary teacher training program only 15 contact hours is available.

This researcher believes that elements of Chinese music need not be limited to the module of Chinese music. In other music modules where appropriate, aspects of Chinese music can be brought into the courses to stimulate students' critical and analytical thinking and in the end results in a better understanding between music of the East and the West. It is hoped that in a wider context and comparative study that the prospective teachers will be able to build up a fuller understanding and attitude towards music of their own culture and also that of Western music.

Method

A Class of 16 first year students (1997-98) from the three-year secondary teacher training program was selected for a pilot study. During the study, the Chinese Chaozhou *xianshi* musical elements were introduced and incorporated into the two courses dealing with 1) Elementary Theory and Compositional Techniques, and 2) Basic Aural Skills and Aural Analysis. The study aimed to examine the extent the students' knowledge, preferences and their perspective of the place and significance of Chinese music in the music curriculum.

Before the formal lecture a questionnaire consisting of 8 open ended questions was used to investigate their background knowledge and preferences and their perspective of the place and significance of Chinese music in the music curriculum. During the lessons a videotape was used to record a debate and free discussion of the students' views about teaching Chinese music. At the end of the course a questionnaire was given to evaluate the two courses, and there was also a videotape to find out about their willingness and preparedness concerning the future teaching of Chinese music.

Bi-musicality approach

With a framework of educational goal of appreciation of one's own cultural heritage balanced with a respect for cultural diversity, I use a subheading called the challenge of bi-musicality as a guiding principle for working out the study.

In the study, two traditions are emphasized, one is the Western art music tradition and the other is the Chaozhou *xianshi* music tradition. (Video excerpts will be played to demonstrate the context and style of the *xianshi* music.)

The Challenge of Bi-musicality

Topics which incorporate two musical traditions are:

I. Notation

Western music: notating rhythm and pitch in the staff notation

xianshi Music: notating time and pitch in the *gongche* notation

II. Mnemonic Singing

the Western Solfege

The *gongche* mnemonic

III. Temperament and scale

Western music temperament major and minor keys and their scales

Chaozhou *xianshi* temperament and scale

IV. Rhythm and meter

Simple time and compound time in Western music

Metres in Chinese music, the case of *xianshi* music

V. Music Creativity

Western Music-melodic writing

xianshi music- melodic elaboration, the *jiahua*

Results

Table 1: Topic and activities students reported enjoy doing and least enjoy doing during the course

Topics/Activities	Enjoyed most	Enjoyed least
Chaozhou <i>xianshi</i> Music	2	
<i>gongche</i> notation	2	
<i>gongche</i> mnemonic singing	5	
Chinese Music in general	4	
Melodic elaborations: <i>Jiahua</i>		1
Chinese music rhythm		1
Mnemonic Singing in general	2	
Staff notation and rudiments		5
Melody Writing	3	1
Others	3	4

Table 2: The most and the least beneficial aspects of the course in terms of your training to become a music teacher

Topics/Activities	Most beneficial	Least beneficial
Comparative study between Western and Chinese music	4	
Chaozhou <i>xianshi</i> Music		1
Chinese Music in general	2	
<i>gongche</i> mnemonic singing	1	3
Melodic elaborations: <i>Jiahua</i>		1
Chinese music rhythm		1
Chinese temperament and scale		2
Mnemonic singing in general	3	
Staff notation and rudiments	3	1
Melody Writing	1	2
Others:	3	1

Discussion

It is my belief that the foremost benefit that the study of Chinese music or *xianshi* music offers to the music student teachers is for its own sake. The Satisfaction provided from studying an important genre from our own cultural heritage during the process of listening, understanding, playing and creating music should be considered a central driving force, so that experience or interest built on can enhance educational goals such as developing students' abilities to discriminate and appreciate differences and similarities among musical cultures.

In this study, most of the students were unfamiliar with Chinese music except for one student who plays a Chinese instrument. Ten out of the 16 students indicated topics that use *xianshi* musical elements as enjoyable. Among the topics, *gongche* mnemonic singing is the most preferred, the reasons being the novelty of the topic content.

Yu (1998) has indicated that an understanding and appreciation of the *gongche* notation is essential to the creative process of Chinese music. In *xianshi* style, this is important because within the limitations of classroom settings, *gongche* mnemonic singing the *xianshi* repertoire is closer in terms of authenticity to the tradition of the style. This is because traditionally learners have to master the tunes by singing mnemonics before playing the instruments.

There are also some aspects of *xianshi* music that do not motivate students because of their complexity and difficulty for students to understand. These are the melodic elaboration process, and the theory of tempo and rhythm. It must be admitted that an improvement in the teaching strategies will certainly help the students' to better understand the subject matter. Central to the melodic elaboration process and the concept of tempo and rhythm is an out grown practice of instrumental improvisation and variation technique. A full understanding of the two topics benefits from abundant listening and analysis. In terms of lecturing hours, there are certain limitations of implementing the two courses. Basically the two courses belong to the first elementary music courses students take during their three years of training. It is therefore important to consider carefully the level of difficulty, time allocation and assignments loading and to maintain a balance between both Western and Chinese music

Comparing Table 1 and Table 2, the topics of *xianshi* music which students reported liking during the course were often considered as least beneficial to their future teaching. Why do they express these views? First year students in the three years course, have music education and methods courses in their second year. So at this stage of their study, their idea of the music curriculum was based on their previous experience as primary and secondary school students. It seems that they do not know that topics of Chinese music and *xianshi* music are included in the current secondary school official syllabuses and text books. On the other hand, they tend to consider Western music and rudiments as most beneficial aspects of their course to their future teaching. Here the results bring out or reflect the reality of emphasis and high esteem given to Western art music and its theory and a general low esteem and priority given to Chinese music among the people and within the society. In Hong Kong, as evident in some TV advertisements, Chinese traditional opera is often used as a joke in advertising gags. People who love and appreciate this form of culture often feel bitter when the form of music that they appreciate is depicted in this manner.

Conclusion

The prime objective of the study was to provide opportunities for students at the Hong Kong Institute of Education to be exposed to Chinese music through the introduction of *xianshi* musical elements into courses at the Institute. To this vast subject matter of Chinese music, a glimpse of the picture can only be touched upon. Details and advanced theory and practice of the genres relating to Chinese music must still be carried on throughout the students' year of study. It is also valuable in future advanced courses to introduce other Chinese regional forms of music so that students can benefit by discriminating and connecting the similarities and differences among the styles. These will help students to understand the whole picture of Chinese music, just like the study of Chinese music to complement the study of Western music in order to understand a wider concept of music.

At the core of the traditional Chinese musical arts is the oral transmission background in which musicians learn their arts by ear and by playing from memory. For *xianshi* music, the ability to improvise rhythmic and melodic variations is essential. McPherson, Bailey and Sinclair (1997) have indicated that the ability to play by ear is a prerequisite to the ability to improvisation and at the same time enriching activities such as singing and composing are important to enhance these abilities. To my mind, enriching activities of learning *xianshi* music would include the actual instrumental playing in a *xianshi* ensemble. Research suggests that teachers are more likely to teach ethnic music if they have first hand experience in the form of music to be taught to their students. Consequently, a study of *xianshi* music which emphasizes an ability to play by ear, play by memory and improvise can complement students' other experiences and skills such as sight-reading skills and performing rehearsed music. To this ends, the researcher has formed an *xianshi* music ensemble as an extra-curricular interested group starting from the Fall term in 1998 at the Hong Kong Institute of Education.

In the next stage of research, I will further investigate and evaluate the introduction of Chaozhou *xianshi* musical elements into the curriculum at different levels from various approaches and perspectives and attempt to refine my teaching strategies in order to develop a more sophisticated model that can be used to underpin future teaching.

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Preferential Listening Responses to Matched and Mismatched Harmony in Infants

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Abstract

In this paper a study of infant's listening preferences for consonant and dissonant harmonic examples is described. Infants listening preferences were tested in two experiments. The hypothesis that infant's discrimination between consonance and dissonance is based on the level of discordance in the harmonic progression was proved.

Introduction

The issue of infants' listening responses to consonance and dissonance has been discussed in recent studies on musical perception. According to Zentner et al. (1998), 4-month old infants prefer consonance to dissonance. In their study thirty-two infants were individually presented with two types of auditory stimuli, that is, a consonant version and a dissonant version. The former was a melody accompanied with parallel third intervals, and the latter was the same melody accompanied with parallel minor second intervals. Analyzing the infants' eye fixation towards a loudspeaker and their body movement, they concluded that their 4-month olds preferred the consonant version to the dissonant version. Trainor et al. (1998) also declared that their 6-month old infants preferred the original version of a Mozart minuet to altered versions that contain many dissonant intervals.

The purpose of this study is to investigate the recognizable level of "being discordant" in young infants. The dissonant version used by M. Zentner et al. (1998) was completely discordant. If it had been a mixture of consonance and dissonance, that is to say, if the difficulties in recognizing the dissonant version had been much more, could the infants have been aware of the difference between consonance and dissonance? With the purpose of approaching to this question, we designed two experiments whose dissonant versions differ in respect of the degree of being discordant in harmonic progression.

Method

Experiment 1 Subjects

Twenty-four infants (16 males and 8 females), between 4 months 18 days and 8 months 21 days ($M = 6$ months 6 days) participated in this experiment. They were born within two weeks of pregnancy term, weighed at least 2500 g at birth, and were healthy at the time of testing. The data of 2 infants were excluded. One was due to an equipment failure and the other was due to fussing. According to a t-test, there was no difference in responding between males and females.

Stimuli

Consonant and dissonant versions of melody were prepared (see Figure 1). The melody parts were common. As a consonant version, the melody was consistently accompanied with matched harmonies. In contrast, the dissonant version, the same melody was accompanied with partially mismatched ones. The dissonant version included minor/major seconds and minor/major sevenths. Half the measures were matched, that is, the 3rd to the 6th measures were dissonant and the 1st, 2nd, 7th and 8th measures were consonant. The reason why the beginning and the end were not mismatched harmonies, whereas the middle part was mismatched, is due to increasing the difficulty of discrimination between the consonant and the dissonant version. These stimuli were digitally generated with piano timbre and repeated three times. The tempo (120 quarter notes per mm.) was identical across the two stimuli. During the testing trials each version was repeated 6 times in random order.

Figure 1. Stimuli Used in Experiment 1, (Consonant Version (upper) and Dissonant Version (lower)).

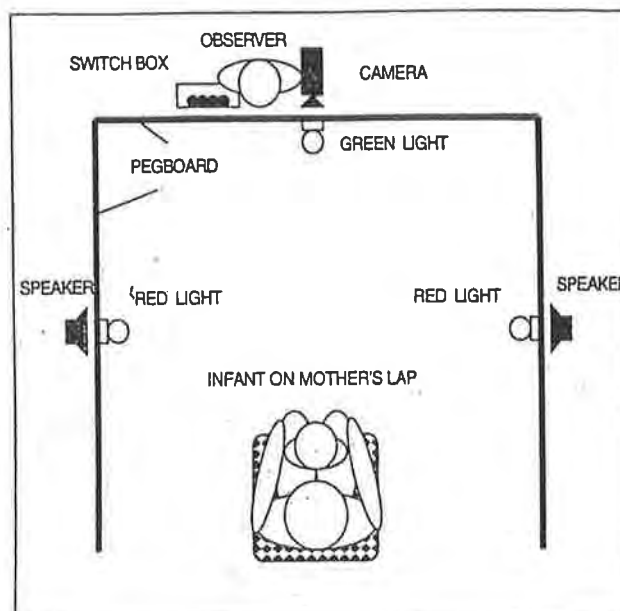


Procedures

The listening time for each stimulus was measured by the headturn preference procedure. This experimental procedure has been made up in order to measure infants' interest in auditory stimuli. Fernald (1985) used it for the first time to find out whether 4-month olds prefer motherese to adult directed speech. In the present study we used its new version which was improved by Kemler Nelson et al. (1995). The following is the procedures of a trial unit.

Each infant is tested in the testing booth, which is depicted in Figure 2. A trial begins by drawing his/her attention to the center by the green flashlight. Once he/she pays attention to the center, then the green light turns off and either one of the red lights on both sides begins to turn on and off. Once he/she looks at that red light, then a stimulus whose loudness level is at about 65 dB SPL begins to sound. The stimulus stops sounding if he/she turns his/her eyes away from the red light for at least 2 seconds or if the stimulus itself is completed. This is the end of one trial unit. Then the next trial unit begins with flashing of the center light again. Each infant is tested 12 trials after four training trials. An observer sits behind the central pegboard and looks at infant's eye-fixation to the red lights and inputs the infant's looking time via switch box to the computer. During the trials both the observer and the infant's mother listen to music from the headphone in order to mask stimuli. The mean looking time per trial is measured as the mean listening time for each type of stimuli.

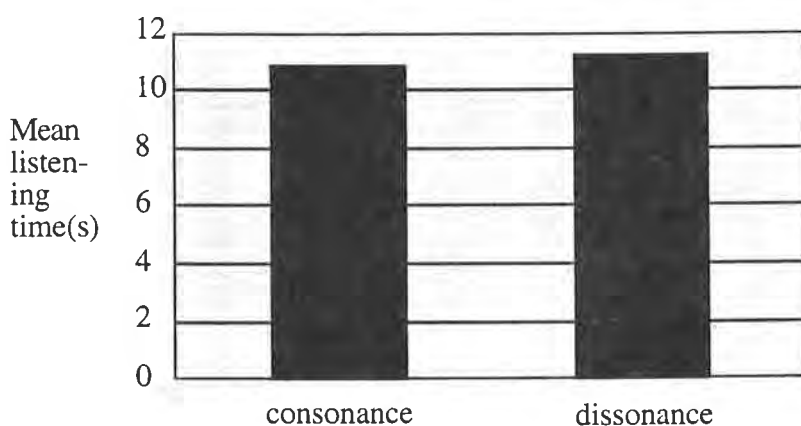
Figure 2. The Testing Booth



Results

The mean listening time for the consonant version was 10.88 seconds, and for the dissonant one 11.08 seconds. According to a two-tailed t-test, there was no significant difference between them ($t(23) = .36$, $p = .72$). See Figure 3.

Figure 3. Result of Experiment 1



Discussions

Our subjects chose neither the dissonant version nor the Consonant version. The results seem to be inconsistent with the findings of the previous studies mentioned above. However, it can be hypothetically assumed that our infants probably could not show their choice between consonance and dissonance because the differences between the consonant version and the dissonant version in this experiment were less than in the previous ones. If so, it is possible to say that the present results exposes infants' limitation of the auditory discriminative ability of consonance and dissonance. Accordingly the following can be hypothesized, that is, whether or not infants respond to the differences between consonance and dissonance is due to the degree of being discordant in a dissonance version. To make sure of this hypothesis, further experiment was performed.

Experiment 2 Subjects

Forty-two infants (24 males and 18 females) between 4 months 20 days and 8 months 26 days ($M = 6$ months 17 days) participated in this experiment. They were born within two weeks of pregnancy term, weighed at least 2500 g at birth and were healthy at the time of testing. Four infants' data were excluded because of fussing. As in Experiment 1, no

difference in performance between males and females was found.

Stimuli

In order to examine the hypothesis that was derived from Experiment 1, some new stimuli were devised. First, 6 pairs of a consonant version and a dissonant version were prepared because six repetitions of a single auditory stimulus, which is the process used in Experiment 1, would produce some dispensable effects on infants' responding behaviours. One pair is shown in Figure 4. Secondly, each pair had the common melody, and every dissonant version was accompanied with the mismatched harmonies throughout for the reason of reducing the difficulties of discrimination between the consonant version and the dissonant version in each pair. The dissonant versions included minor/major seconds and minor/major sevenths as the ones in Experiment 1. These stimuli were digitally generated with piano timbre and repeated three times respectively as in Experiment 1. The tempo (120 quarter notes per mm.) was also identical across the stimuli.

Figure 4. A Pair of the Stimuli used in Experiment 2 (Consonant Version (upper) and Dissonant version (lower)).



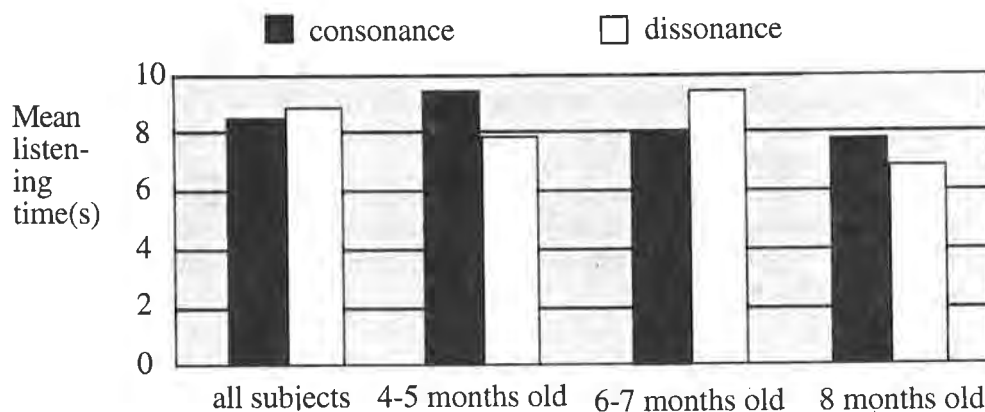
Procedures

The same experimental procedures and the method of analyzing as Experiment 1 were used.

Results

The mean listening time for the consonant versions was 8.41 s, and for the dissonant versions was 8.54 s. According to a two-tailed t-test, there was no significant difference between them ($t(41) = .29$, $p = .77$). On the other hand, among age groups a significant difference was found. Dividing the subjects into three age groups, that is, thirteen 4 - to 5 - month olds, twenty-two 6 - to 7 - month olds and seven 8 - month olds, each group's mean listening time was analyzed respectively. As the results of t-tests, the 4 - to 5 - month olds listened to the consonant versions longer than to the dissonant versions (9.41 s vs. 7.91 s, $t(12) = 2.29$, $p < .05$). The 6 - to 7 - month olds listened to the dissonant versions longer than to the consonant versions (9.46 s vs. 8.08 s, $t(21) = 2.54$, $p < .05$). On the other hand, in the 8 - month olds, there was no significant difference between the two versions (7.6 s for the consonance versions, 6.85 s for the dissonance versions, $t(6) = .61$). See Figure 5.

Figure 5. Result of Experiment 2



General Discussions

To be important, our hypothesis, that is, whether or not infants discriminate between consonance and dissonance is due to the level of being discordant in the harmonic progression, was proved. As mentioned above, the degree of mismatch of melody and harmonies in this experiment was 100% (in all the measures), whereas it was 50% (in half the measures) in Experiment 1. The preference towards consonance in the 4 - to 5 - month olds in Experiment 2, which was not seen in Experiment 1, demonstrates that the difficulties in discriminating between the consonant and the dissonant versions in Experiment 2 was less than in Experiment 1. Additionally, not only the qualitative difference, that is, 100%-mismatched or 50%-mismatched, but also the quantitative one, that is, which position is mismatched, would be related to the difficulties of the discrimination. For further discussion on this point, we need to design the third experiment whose every dissonant version is 50%-mismatched and consists of, for example, the mismatched beginning, the mismatched end and the matched middle part.

Another important finding in this study, especially in Experiment 2 reveals the developmental changes among age groups in responding to consonance and dissonance. Our 4 - to 5 - month olds preferred consonance to dissonance. This result confirms very young infants' preference towards consonance, which has been declared by Zentner et al. However, the transfer of the preference from consonance to dissonance happened on the

border of 6 months old dramatically. Honestly speaking, there was no expectation of their preference towards dissonance before, and it is inconsistent with Trainor et al.'s conclusion (1998). Why did our 6 - to 7 - month olds listen longer to the dissonant versions than to the consonant ones? It is understandable why the 4 - to 5 -month olds preferred consonance. Their choice between the two was based on a feeling of comfort. However, that was not the case with regard to the 6 - to 7 - month olds. Their responses seem to be caused not by biological reasons but by human intelligence. Referring to this point, Rose et al.'s suggestion that infants tend to pay attention to unnatural stimuli when they are exposed to many easily discriminated stimuli, is suggestive. Our 6 - to 7 - month olds might not have any difficulties in discriminating the matched and the mismatched, so that they might show a curiosity for the mismatched and consequently listened to them longer. In short, the following can be said; while 4 - to 5 - month olds prefer consonance simply because consonance sounds usual and comfortable, 6 - to 7 - month olds prefer dissonance because dissonance sounds unusual and curious. On the other hand, the listening time of the 8 - month olds did not differ between the consonant and the dissonant versions. Nevertheless, it is unreasonable to say that 8 - month olds cannot discriminate between the two because even younger infants have the discriminative abilities between them. Although it is difficult to identify what related to the preference in the 8-month olds, their choice supposedly might depend on their own personal liking. The discussions on the preferential tendency of over 8 months old should be developed in further research.

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