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The Role of Multimedia Technology in a Hong Kong Higher Education Music Program

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Abstract

New developments in e-learning and increasingly sophisticated learning technologies have made a major impact on Hong Kong universities, which welcomed the implementation of Information Communication Technology (ICT) as being core to their educational missions, and to this end encouraged all graduates to be computer or ICT literate. At the same time, academics are increasingly concerned with the processes of curriculum change with respect to ICT in higher education, as well as with their delivery of multimedia lectures. This paper aims to look at students' comfort with multimedia technology as a means of receiving and presenting knowledge in their music programs. Findings were based on a simple questionnaire survey and semi-structured interviews with 31 music students attending undergraduate and postgraduate courses at Hong Kong Baptist University. The present findings suggest that it is necessary to be aware of the potential disadvantages of multimedia technology for music learning, and to recognize that the quality of music instructors is at least as important. Questions are raised concerning how best to incorporate better teachers and effective multimedia technology into the learning environment of higher music education learning.

Introduction

Since the end of the twentieth century, higher education in most countries has undergone substantial change in terms of the way universities are organized and function (e.g., Clark, 2004; Marginson, 2002; Ian, 2006; Posch & Steiner, 2006; Yokoyama, 2006). Higher education institutions have invested significantly in communication and information technology for teaching, learning, course development and assessment. This change, which is being driven by the combined forces of technology information and

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communication, globalization, and economic restructuring, may cause concern about educational developments. There has been much recent research on on-line learning in universities for promoting a knowledge-based, global society and economy (e.g., Avis & Fisher, 2006; Briguglio, 2007; Cheung & Huang, 2005; Dahlgren, Larsson & Walters, 2006; Fischer, Troendle, & Mandl, 2003). Much has been discussed about quality, quality control, quality assurance and quality management for developing a policy to improve the educational practices of developed and developing countries (e.g., Clarke, 2005; Green, 1994; Hami Oz, 2005; Hannan, 2005; Idrus, 2003; Strydom, Zulu, & Murray, 2004; Yu, 2005).

Technological developments have brought with them practical changes in music education by incorporating new hardware and software into teaching and learning practices. The challenge of educational technologies has proved effective for encouraging participation and motivation among students (e.g., Chang, 2005; Herrington, Reeves, & Oliver, 2006; Kirkwood, 2006; Lim, 2004; Moschini, 2006). This is apparent in Schnotz and Grzondziel's (1996) study of knowledge acquisition in response to static and animated pictures in an interactive learning environment (e.g., Ainsworth, Bibby & Wood, 1998; Debevec, Shih & Kashyap, 2006; Dekeyser, 2001). With the infusion of technology into education, traditional educational materials can be translated into interactive electronic form through the use of multimedia authoring tools (Neo & Neo, 2004; Schar & Kaiser, 2006). Multimedia is defined as the combination of various digital media types such as text, images, sound and video, which combine to form an integrated multi-sensory interactive application or public presentation (Ige & Lukas, 1995; Rouet, Levonen, & Biardeau, 2001; Tolhurst, 1995). It is undeniable that multimedia technology could help improve teaching and learning practices, for example, by replacing chalkboard with electronic display, and by enabling the visualization of digital audio effects (see Baltzer, 1996; Cain, 2004; Frenton, 1998). Interactive multimedia software for typographical cueing, color, graphic images, animation, and sound can motivate the user and increase satisfaction (Lee & Boling, 1996). Its ability to create and edit music and to play it back at any tempo has meant that students are now able to compose music that they cannot physically play (Odam & Paterson, 2000). New technologies such as Cubase (a computer program for music production/recording) give students the possibility of composing music for the moving image in "real time" (Cain, 2004). Other readymade musical materials such as: *DJ remix software*, which, through the use of mp3 sound files, enables greater musical control of materials; *Mixman Studio*, which allows the user to control and alter music in a number of different ways; and *Musical accompaniment generators* for digital sound processes, including "auto-accompaniment"

sections of electronic keyboards and software like “Band in a Box”, can all help students to become involved in more broadly and culturally relevant music making (Crow, 2006). With the combination of multimedia technology and educational content materials, interactive contents can be delivered to students in new ways through teacher-centered, student-centered and mixed modes of teaching and learning (e.g., Busen-Smith, 1999; Cain, 2002; Ho, 2007; Lahav, 2005; Neo & Neo, 2000). For instance, writing music using sequencing software packages assists student composition (Airy & Parr, 2001; Nilsson & Folkestad, 2005). Music lessons designed to develop auditory, visual and motor skills have benefited reading skills (Douglas & Willatts, 1994). The Internet is used to explore new methods of music making, composition, and performance, along with the analysis and discussion of compositional and cultural matters related to digital music and culture (Duckworth, 2003; Hugill, 2005; Thompson, 1999). Other studies also maintain that global communication technology has offered a major contribution to music education by developing knowledge of music, and encouraging creative thinking within and beyond performance-based education (Angelides & Tong, 1995; Bauer, Reese & McAllister, 2003; Mansfield, 2005; McCarthy, Bligh, Jennings & Tangney, 2005; Webster, 2000).

However, doubts remain concerning whether all multimedia technology has been used effectively to facilitate music teaching and to stimulate pupils’ interests in learning. The move to student-centered learning is not straightforward, and neither is the current trend to present teaching resources on-line. Several research results confirm this concern, especially about the dichotomy between verbal and visual representational systems (Kirby, 1993). The simulating effect of multiple representations does not take place automatically. Kirby (1993) found that presenting information by means of multiple representations can have either collaborative or competitive effects on learning, depending on certain conditions. Cadiz (2006) noted that audiovisual media used to assist composition does not work in real time because it does not generate non-interactive mappings. Research by Mick and Fournier, cited in Rudestam and Schoenholtz-Read (2002) indicates that the successful operation of new technology can lead to greater efficacy, but that failure can evoke feelings of stupidity and ineptitude in both staff and students. Rudestam and Schoenholtz-Read (2002) are concerned that the Internet and related technologies have demolished traditional institutional boundaries to expertise and knowledge. There is disagreement in the literature about the validity of on-line instruction. Some professors preferred to have the on-line mode, some to have mixed on-line and traditional modes equally, and others to be less satisfied with on-line instruments (Hurt, 2008). College.com's on-line study (2000, cited in Hurt, 2008, p. 6) found that 62% of

faculty members said their on-line students learned equally effectively in on-line and traditional environments, whilst 23% noted that their students learned better on-line. The Florida Community College Systems published an extensive report about on-line learning and teleclasses in Florida's community colleges in 2000. The data for this study were gathered from faculty, administrators and students at 18 community colleges. Most faculty perceived distance learning courses to provide an equivalent learning experience to the traditional classroom, 35% perceived it to be worse or ineffective, and 58% felt positively about them (Florida State Board of Community Colleges, 2000, p.ii). Russell (2001) examined 350 studies to research the effects of on-line instruction on student learning, and found that technology made no difference to the quality of learning.

Regarding individual distance learning graduate music education courses, Keast (2004) found that constructive on-line assignments were successfully completed but showed no significant relationship between students' use of on-line resources and project grades. Moore (1989) asserts that high levels of interaction among learners and instructors could enhance course effectiveness and student satisfaction. Personal interaction and professor personality are critical for learning, even though mediated by distance, time and technology (Moore, 1989; Reese, Repp, Meltzer, & Burrack, 2002). Despite the wider use of the Web in teaching and learning, Walls's (2008) interviews of graduates, along with surveys of enrolled and graduate students, also showed that the programs' technological pedagogies, professor-student and student-student interactions, academic demands, and real-world applicability to professional development, are the core factors that affect student learning.

The use of media technology or music technology has some limitations for music learning and teaching. Cheung (2004) asserted that information technology could stimulate student's interest in musical instruments, but it could not substitute for the instruments themselves. Students could "find more satisfaction and enjoyment in the music-making experience and development their sensitivity" through instrumental playing (Cheung, 2004, p. 349). In instrumental tuition the one to one relationship between music teachers and students allows the former to diagnose and respond to every individual's learning needs and progress, and provides an opportunity to match the learning experience to the learner. Beyond the development of a range of musical skills in music learning, music has also been shown to enhance a range of extra-musical personal and social skills (Burland & Pitts, 2007; Kokotsaki & Hallam, 2007), such as learning to work together.

There are numerous studies covering the assessment of technological literacy and students' attitudes towards technology (e.g., Ho, 2004; Koo, 2001; Kekkonen–Moneta &

Moneta, 2002; Law, Yuen, Ki, Li, Lee & Chow, 2000; Lee, 1999; Su, Kong & Jiang, 2001; Zhang & He, 2003), but changes to the quality of music learning with the use of multimedia technology, particularly in Hong Kong higher education music programs, have not been much evaluated. Ho (2007) finds that music graduates were very positive about using multi-media technology in their music learning but that its use is limited to the type of course pursued. This study continues to explore the extent to which both undergraduate and postgraduate music students' feel comfortable with multimedia technology as a means of receiving and presenting knowledge in their music learning.

The Study

The introduction of information technology in teaching and learning is one of the major concerns of education reforms of the 21st century. A variety of technology-mediated learning environments have emerged, including stand-alone computer-assisted instruction applications; networked information resources; experimentation via new modes of communication such as computer conferencing; and distance learning, offered primarily, though not exclusively, via television (University Grants Committee, 1996). Internet-based applications such as email, gopher and WWW servers, have also become widely available in higher education institutions. A major mission of Hong Kong education is to initiate a paradigm shift in teaching methodology from a largely textbook-based, teacher-centered approach to a more interactive and learner-centered one (Education & Manpower Branch, 1998; Fung & Pun, 2001; Law, 2003; McNaught & Lam, 2005). Higher education libraries take an active role in teaching and learning as well as promoting information literacy as an essential life-long learning skill in all disciplines, so as to achieve the aims of whole person and wide-life education. With the support of funds from the University Grants Committee (an advisory body for Hong Kong higher education), three Hong Kong universities conducted a joint project to implement and promote web-assisted teaching and learning in the university context between 2002 and 2005 (Hodgson, Lam & Wong, 2007).

Institutional Context

The Information Technology Services Centre of the Teaching Support Unit of the Hong Kong Baptist University (HKBU) have focused on providing the best possible information technology resources for students and staff, such as audio/visual equipment and resources and professional advice. Classrooms and lecture theaters use a full range of

AV equipment. At the heart of these ideas is a shift away from thinking about education as being solely in the mind of the instructor, towards thinking of it as a partnership between teachers and students, with teachers as the major architects of learning.
The HKBU has focused on music technology in its course structure, and has strengthened appropriate resources for music teaching and learning (Ho, 2001). The B.A. (Honors) in Music Program at Hong Kong Baptist University offers the three-year full-time music course that is available in all Hong Kong's universities. It is designed to cater for students' areas of special interest and musical capabilities, and leads to a third year Honors project in performance, composition, music education and general education. Since the early 1990s, the undergraduate program has placed an emphasis on the role of technology and computers in various areas of music, so as to enhance traditional music learning and to encourage its use in creation, scholarship, performance and teaching. All year-two students of the undergraduate music program are required to configure and demonstrate the use of the basic components of music technology, including the use of microphones, mixers, sequencing and audio editing software in the Recording Technique course. Students have opportunities to learn how a studio works, including the connections of different hardware in music production and recording, and the use of Digital Performer to make MIDI music. The M.A. in music is a two-year part-time taught Master's Degree with concentrations on Classroom Music, Choral Conducting, Composition, Information Technology in Music, Piano Pedagogy, Music Culture in Hong Kong, and Music for Young Children. All students taking any concentration are required to register for the core subject "Technology in Music". This is an introduction to recent software and hardware, designed to help students recognize the features and potentials of technological applications to music education and music production. The teaching contents include MIDI basics and sequencing, music notation, the World Wide Web and computer assisted accompaniment.

There are two major music laboratories in the music facility for music technology and related media technology courses. The Electro-Acoustic Music Centre (EMC) was built in 1990 as an important means of support for the Bachelor Degree in music program, and is used for a unique stream in music composition and production. This facility arose from a decision made by the music faculty and university together. The EMC consists of three rooms, including two control rooms and a recording room. Each control room includes many types of equipment for making professional recording. For audio recording and MIDI music, there are a mixer, audio interface, microphone, MIDI interface, sound modules, and MIDI keyboard. Digital Performer, a program for recording audio and MIDI, is the main program used in the center (Ho, 2007). Currently,

the Center continues to support both the B.A. and M.A. courses as well as M.Phil. and occasional staff research and production work. The Laboratory for Multi-media Exploration and Research (LaMer), established in 2002, is designed as a multi-purpose research laboratory and project space for real-time computer music, music education and performance. It is equipped with special cameras and recording equipment. The Laboratory is acoustically treated with sound-proof material and a DC3 Yamaha Disklavier that allows MIDI playback of the pianists' exact movements. In order to explore the interaction of performance with computers and other audio equipment, the LaMer is equipped with an 8-channel sound system, Mac, PC and SGI (Unix) computers, an abundance of real-time digital signal processing hardware and software and several MIDI instruments. Besides these two music centers, other teaching rooms are well-equipped with a computer, a white board, an overhead project, a visualizer, a CD player, a DVD player, a laser disc player and a video player. All these support tools are linked to an LCD project. A few teaching rooms also have internet services (Ho, 2007). Besides music production and composition, instructors are encouraged to adopt audio and visual aids to assist their teaching in other music disciplines, such as music history, music theory and analysis, conducting and music education courses. The extent to which multimedia technology is adopted in classroom teaching rests upon on the decision and teaching method of each individual professor.

Objectives and Research Questions

Using a particular example drawn from the university music education program, this study aims to explore undergraduate and postgraduate students' thoughts about the introduction and emphasis on multimedia technology. Questions of whether multimedia teaching and learning as a way of helping students to improve their quality of learning need further investigation. Three major questions are addressed here concerning: (1) what are students' attitude towards being motivated towards learning by the use of multimedia technologies such as Powerpoint presentations and video images in music lectures; (2) does electronic communication enable better communications between instructors and students; and (3) to what extent is there a relationship between the provision of multimedia technology and the quality of higher music education learning.

Research Methodology

A simple questionnaire and a semi-structured interview survey were conducted amongst music students who were willing to be involved in the study after the end of term between June and July 2006. Invitations to participate were done by phone, e-mail and face-to-face contacts between April and May 2006. A pilot test was conducted in early June 2006, after which the questionnaire and questions for interview survey were revised

and further developed. Sixteen undergraduate and fifteen postgraduate music students were invited for the survey between June and July 2006. The interview data, which was anonymous, was entered in a computer manually using Excel software. Then they were coded to allow for quantitative analysis of interview data. Codes were based on the interview questions, depicting the participants' interpretations.

At the beginning of the interviews, participants were asked to fill out a questionnaire. The types of question combined closed items, and structured ratings of four point and five point Likert Scales consisting of responses of likeness, agreement, perceptions and attitudes toward the use of multimedia technology in music learning. The questionnaire survey collected the following:

their personal information (gender, year of attendance at the university, field of their major at BA/MA level, and the musical instruments taken as majors (see Appendix, questions 1-4);

their main source of musical learning (question 5);

whether they had their own computer, their perceptions of rating their skills using a web browser and their use of on-line library resources, places of their on-line search, and how often they spent time accessing music materials on the Internet for their studies (questions 6-11);

self-assessment of their confidence in using media technology in music learning, and whether they found multimedia technology helpful for their music participation and learning (questions 12-14);

the type(s) of multimedia technology that they used for their oral presentation in the course, and their assessment of the overall use of music technology in the music program (questions 15-16); and

whether their selection of classes was at least partly based on an instructor's use of multimedia technology, their expectations of a classroom's employment of multimedia technology, and whether they felt it to be helpful for their learning motivation (questions 17-19).

The interviews were recorded on MP3 in Cantonese (the major dialect of Hong Kong) and transcribed afterwards. They were conducted on a one-to-one basis, and most of them ranged from 45 to 80 minutes. In depth ethnographic interviews of 31 participants were guided by the following series of open-ended questions:

To what extent do you feel more motivated about learning music when multimedia technology is used in your lessons?

Do you find video presentations helpful in understanding music and issues about music? If yes, to what extent?

Do you find PowerPoint presentations helpful in understanding music/issues? If yes, to what extent?
Do you think music technology can motivate you towards more creative music making and improve the quality of your music practice? If yes, in what ways? To what extent?
What AV media/technologies such as overhead projector/transparency, Powerpoint (computer slide), instructional film and video tape do you often use to assist your learning?
Do you have any problems in downloading the lecturer's teaching materials? Are these teaching materials helpful to you before and after the lessons?
Are students who access PowerPoint slides on a course Web site less likely to attend class?
How often do you use email communication with your music instructors, and to what extent have you found it useful with your home assignments or other learning?
Are you satisfied with the present multimedia technology provided by the university? Should there be any improvements?
What are your ideals for the quality of higher music education learning?

Results

The Participants

Interview venues were chosen by the interviewees at places convenient for them. The MA interviews were conducted at their schools, the university campus, music studios, a coffee shop, a restaurant, a concourse of a residential building and even a participant's home; whilst BA interviews were mainly conducted on the university campus. In total, thirty-one music students (10 male, 21 female) participated in the survey. Sixteen undergraduate students (two males from BA year 1, one female from BA year 1, three males from BA year 2, three females from BA year 2, three males from BA year 3 and four females from BA year 3). Fifteen of them came from the postgraduate school (one male from MA year 1, eight females from MA year 1, one male from MA year 2 and five females from MA year 2) (see Figure 1). Twelve MA students were full-time school music teachers, and two were private piano and viola instrumental tutors.
Among the BA students, two specialized in music education, five in composition, three in performance, and six in general education. Among the MA students, their specializations were: seven in conducting, three in music education, two in composition, one in music education for early childhood, and two in piano pedagogy (see Figure 2).

Some students noted that they had studied more than one instrument at the same time. The three most popular instruments learned by the participants were piano (19 students), voice (six) and violin (three). Flute, percussion, and trombone had two students each, whilst euphonium, viola, guitar, clarinet and French horn had one.
When asked about the main source of their acquisition of musical knowledge, twelve students (six MA and six BA) regarded university teachers as most important, five MA students regarded them as the second most important source, and four (1MA and 3 BA) regarded them as the third most important. Four students (one MA and three BA) regarded the university's instrumental coaches as the most important sources (for details, see Figure 3). Two students (one MA and one BA) regarded "Music materials (including music scores) borrowed from the library" as the most important sources. Multi-media tools, such as DVDs, VCDs, and CDs were regarded as the most important sources by two BA students.

Students' Assessment of Their Habits of and Competence with Multimedia Technology

Twenty-seven students (13 MA and 14 BA) had a computer/notebook computer at home while four (two MA and two BA) had to share with family members. One BA student spent less than an hour looking at music materials related to the course on the internet each week, ten students (seven MA and three BA) spent one to two hours a week; four (two MA and two BA) spent two to three hours a week; two (one MA and one BA) three to four hours; five (one MA and four BA) four to five hours; four (two MA and two BA) five to six hours; two BA students spent six to seven hours; one MA student spent seven to eight hours, and two (one MA and one BA) spent more than ten hours (see Figure 4). Only one BA student had no confidence in using multimedia technology for music learning; seven students (two MA and five BA) believed they had little confidence; twenty-one (eleven MA and ten BA) believed they had confidence; whilst only two MA students believed they had much confidence. Ten students (six MA and four BA) believed that they had basic skills using a web browser such as Netscape to access the learning music materials; nineteen (eight MA and eleven BA) believed they had good knowledge, while two (one MA and one BA) said they had advanced skills. One MA student thought that she had no skills for using the University's on-line library resources for music study; fifteen (six MA and nine BA) thought they had basic skills; thirteen (seven MA and six BA) thought they had good skills; two (one MA and one BA) thought they had advanced skills. Six students (two MA and four BA) thought they had no skill with on-line library resources (except the BU) for music study; thirteen (six MA and seven BA) thought they

had basic skills; twelve (seven MA and five BA) thought they had good skills. Twenty-eight students (all the MA students and 13 BA) searched on-line for music learning at home; six BA students did it at “the university campus”; three BA students and one MA student considered her home and her school to be the main priorities.

Students’ Attitude toward Their Learning Motivation with the Use of Music Technology in Lectures

Seven BA students held positive attitudes toward learning with the use of music technology in lectures, with nine insisting on the importance of their interest in the subject of study. Of the seven BA students who expressed positive attitudes toward the employment of multimedia technology, four thought it could motivate learning, two said that it could only arouse their interest, whilst one said that motivation depends on the lecturer and what s/he chose to present. The other nine BA students thought that the learning process was their first priority. If they were interested in the subject, they would be motivated. For example:
“Motivation is about whether I like the subject or not, not related to technology. I would concern whether the content or lesson needs technology for explanation or not. If the lecturer has good presentation skills, then it is fine to teach without technology. But if the lecturer has poor presentation skills, technology may be helpful in teaching.”

“If I say I am motivated by using multimedia technology that means I am interested in studying multimedia technology, not music itself.”

“Even though the lecturer of ‘Chinese music history’ had used lots of multimedia technologies, it could not motivate me as I do not have any interest in this topic.”

Seven MA students showed positive attitudes towards how music technology in lectures motivated their learning. The other seven insisted on the importance of their interest in the subject as the most decisive cause for their motivation. Another two MA students said that it could only arouse their interest, rather than motivate them. Only three MA students, who were all working as private instrumental tutors, did not show great interest in multimedia technology, for they could see no use for it in their teaching. According to them, multimedia technology was not as convenient as most of the other interviewees had thought. One MA student (a private instrumental tutor), who emphasized the role of the lecturer, thought that technology was only one of the factors that motivate their learning.

She said: “Motivation comes from the lecturer. The lecturer’s teaching and presentation skills are the most decisive sources of motivation. If the technology is used for unrelated materials, it cannot arouse my interest or even motivate me.”

Perceptions of the Use of Video Presentations and Powerpoint Presentations in Classroom Learning

All 16 BA students agreed that video presentations were helpful for understanding music issues. Their reasons were: “Video presentation is better and is more impressive than talking by teachers only”; “Video presentation can condense and present the materials in a short period of time”; “An impression given by the visual and pictorial stimulation and a long lasting memory”; “Clear, detailed and interesting” and “Interested aroused to a particular topic”. However, five of the 16 emphasized that the role of the lecturers should be to offer them greater interaction in lectures, as well to provide guidance.

All 15 MA students agreed that video presentations were helpful for the understanding of music issues. Their reasons included “giving a closer picture of music”, “an increase of persuasive power”, “an understanding of the musical scene”, “presenting a visual stimulation to lengthen the musical memory”, “providing a good illustration to the music”, “widening the scope of vision” and “an appeal to concentration in lessons”. Five students thought that lectures should comprise first watching the video, then receiving some musical guidelines, followed by a discussion of the video presentation that involved questioning students about it. Without the lectures’ explanation, students believed that they might get lost and were not sure of the objective of watching the video. However, one MA student claimed that if the lecture was well-prepared and the lecturer could present the topic in a lively way, they could still have the lecture without a video presentation.

Five BA and nine MA students believed that PowerPoint presentations could be helpful for understanding music issues. The reasons they gave were that they were “easy to get the main idea”, “clear structured”, “clearly stated”, “very systematic”, “more attractive in presentation”, “maintaining the main points for memory in an easier way”, “very concise and easy to read”, “drawing students’ attention to the lecture”, and “obtaining more information about music, particularly with hyperlink”. However, other BA and MA students held different views of the use of PowerPoint. Some pointed out the importance of lecturers for the learning process and believed that good lessons could not be assisted by PowerPoint presentations.

The Use of Multi-media Technology for Creative Music Making and Other Musical Practices

This study found out that all students who majored in composition agreed on the relation between multimedia technology and creative music making. None of the nine BA students who disagreed with the use of music technology were majoring in composition. Some said:
"I am not interested in composing, no matter how advanced the technology is."

"I use technology for notating music and try out the sound effect. I have not tried to use technology for composing. I don't think technology can motivate me in music making."

"My interest in composition depends on if I have interest in the instrument I compose for."

"It is not a problem for me to use the music technology in composition. It is my character that limits my creative making. I don't like composition. I like to interpret others musical work."

However, seven BA students found music technology very convenient in several ways, saying that it enabled "convenient notation", "saved time on writing the score and presented better performance"; that it was useful "to explore different sound effects", and "to shorten the length of composition".
Six MA students agreed that the use of technology could motivate more creative music making and nine disagreed. Their agreement rested upon reasons for finding it "fun and interesting", "hearing the end result instantly and sharing their own compositions with others through the composing technologies", "saving time on writing and copying music with papers and pens" and "helping in harmonization or in trials and errors, especially when students have no idea about pitch or melody". Three MA students pointed out the limitations of using music technology for composition, including "not having the real effects of actual performance, problems in buying equipment and space for the technologies", "spending plenty of time on manipulating the technology", and "no time for practice with the technologies". Nine MA students disagreed that music technology could motivate more creative music making for various reasons. Some of them claimed:

“I don’t like the sound projected by technology and I don’t like using electronics in composition. I prefer the traditional compositional method.”

“I prefer using real instruments.”

“I don’t like music making, no matter how advanced the technology is, it cannot motivate me.”

“I don’t see any relation between motivation and interest. I believe that music ideas appear suddenly which cannot be motivated by any other things.”

“There are technical problems when using technology for composition…It depends on time. I may compose if I have time.”

“I find difficulties in handling the technology. I do think that a music student cannot rely too much on technology. A successful composer should have specific talent.”

“People in the past could do that without technology and we can do the same as well.”

In asking about the relationship between multimedia technology and music practice, 15 BA and 12 MA students respectively, maintained that they might improve with assistance from multimedia technology. Nonetheless, 15 BA and six MA students emphasized the role of the teacher in the learning process. One BA student, who did not agree, thought that the use of multimedia technology could help in understanding music but it could not improve the quality of music practice. One MA student was not sure because she believed that improvement was not something that happened suddenly, but rather was a long process requiring habitual listening: “Improvement is not sudden. It takes time”.

The Use of Educational and Other AV Media/Technologies for Student Learning

Most of the BA and MA students believed that educational technologies, such as multi-media instruction packages, computer-assisted instruction and the internet, could enhance music learning significantly. MA students might use multi-media instruction packages or computer-assisted instruction for their teaching in primary and secondary schools. However, some of the BA students thought that these kinds of technologies might be good for the young but were too simple for undergraduates. However, they

agreed on the effectiveness of using educational technologies, and all used the internet for academic purposes or for their own interests.

AV media/technologies were widely accepted as learning aids among both BA and MA students. According to the interview data, students from both sides only used AV media/technologies for their presentations for course assignments. Apart from one MA student, all the MA and BA students used PowerPoint in their presentations because it was easy to manipulate, and could be used at various levels of complexity. Besides PowerPoint, 14 BA students also incorporated different technologies like an overhead projector, visualizer, and video, CD, VCD or DVD. Fourteen MA students had used PowerPoint, one MA student did not use any technology for his own presentation but had used some for a group presentation. Of the 14 MA students, eleven had tried to incorporate different technologies into their presentations according to the topics or to the availability of classroom facilities. The MA student who did not want to use technology in his presentation, argued that he would prefer talking in front of the class, and that he hoped people would listen to him rather than look at the PowerPoint projection. If this was the case he would be satisfied. He also noted that a successful presentation required a good speaker and rich and intelligible contents.

The Access of Powerpoint Slides on a Course Web Site and Students' Attendance

Most students in this study did not come across any problems in downloading the lecturer's teaching materials. Basically, both BA and MA students liked to print out and prepare lecture notes before the lecture. MA students even kept the materials for future use or for teaching purposes. However, most of the BA students only used them for examinations or course assignments.

MA students expressed various ideas concerning how the use of multimedia technology could improve attendance, but the BA students tended to focus on the PowerPoint slides. However, some students from both sides pointed out that marking attendance during the lecture did affect their decision as to whether to attend the class or not. The use of PowerPoint slides did not affect attendance much. Eleven BA and 13 MA students believed that there were no causal relations between accessing PowerPoint slides on a Web site and student attendance rates. They thought that, whether or not they had the materials at hand, there was something that was very important in the lectures that should not be missed. For example:

"Lectures are inspiring. PowerPoint serves as supplementary materials only."

“PowerPoint is in point form. Students have to attend the lectures so as to understand what it is about.”

“There are some extra things that may not be listed on the PowerPoint.”

“Even if we do not download the materials, we can still ask somebody to make a copy of the materials.”

“…students download PowerPoint slides for preparation of classes. The MA course is expensive, people study the MA for interest, and we want to learn as much as we can in classes…”.

“PowerPoint includes main points or terms. Students have to come to classes for detailed explanation by the lecturers.”

“I don't think so. Students who are absent from school, have to download the files. They still need to take time reading and understanding the materials without any guidance from the lecturer. It seems that the time spent in studying notes is almost the same as that spent attending the lecture. I think that students who do not come to the class for several reasons: 1. if he/she has already learnt this before; 2. if he/she does not have interest on the topics; 3. the teaching methodology of the lecturer, i.e. if the lecturer just read out what was projected in the Powerpoint show, students might not attend the class because there were no differences between reading the notes and attending the lectures”.

“If lecturers don’t take attendance, I think students will be absent from school because of laziness.”

“… Students are always absent from the class. No matter if you have notes or not. For MA students, they don't come to the class mostly because they have to work. Having the notes or not is not the main concern”.

Five BA and two MA students thought there were linkages between the access of PowerPoint slides on a course Web site and student attendance. One of them noted that the character of the student determines whether they attend lectures. She said: “Accessing PowerPoint slides on the web is one of the factors that make students skip lectures. However, I think the character of the student rather than the technology is the decisive

factor for whether they attend the lecture."

Email Communication with Their Music Instructors

The attitudes of BA and MA students towards email communication with their instructors are divisible into three types: 1) they were very positive towards the use of it; 2) they seldom used email communications, and then only once or twice a month; 3) they had not used email communication with their instructors. Whichever type they belonged to, they all emphasized face-to-face interactions. MA students preferred to ask the lecturers questions during or after lectures. BA students tended to use email for making appointments rather than for asking questions. Almost all of them used email communications for their assignments only, and not for any other music learning.

Only three BA students had positive attitudes towards email communication, which they found very convenient. The twelve students who seldom used email communication would use it for making appointments, because they preferred face-to-face discussions with the lecturer. The only student who had not used email said: "I don't pay much attention during the lecture. I don't know what to ask."

Four MA students used email to communicate with lecturers, five seldom used it, and six had never sent emails to their lecturers asking about music issues. The four students who had positive attitudes towards email communication usually used it to ask about assignments and presentations. The five students who seldom used email communication preferred asking lecturers in person, and three of them believed that email would only be their last resort to reach a lecturer. The six students who had never used email communication had different views:

"I don't have the habit of using emails to communicate with the lecturers. If I have questions, I would only ask them in the recess or after school".

"A question itself may induce numerous questions. Email may block conversations and the lecturer may not reply to the email instantly."

"I don't have the habit of using email to communicate with the lecturers."

"I prefer face-to-face interaction."

"I prefer asking teacher directly after the lecture."

“No. I am weak at using computer. I have just learnt how to use emails this year. By the way, I prefer face-to-face interaction. If I need an in-depth answer, I may ask my classmates or ask the lecturer after school”.

The Quality of Higher Music Education Learning and Its Relationship with Multimedia Technology

Most students were satisfied with the multimedia technology provided by the university. Some criticized the lack of computers for their use, whilst others found the music department’s Apple Mac computers inadequate and lacking a fast internet connection. A few students also complained that they could not borrow VHS tapes from the university library for their presentations.

Only four BA and one MA student believed that the quality of higher music education learning depended on multimedia technology, because they thought that numerous information resources could broaden students’ thinking. Three MA students said that it depended on the nature of the course, and that the use of multimedia technology for certain modules could be helpful for some. Ten BA and twelve MA students thought that multimedia technology was not the decisive factor in higher music education learning. They also pointed out that the quality of lecturers was important while multimedia technology was only a teaching aid. For example:

“I think the experiences and qualities of teachers are more important than the multimedia technology. The interaction between students and teachers cannot be done by technology… good teachers can make good use of the resources/technology”.

“I think the quality of teachers, including knowledge, teaching attitude and manner, are the most important elements for achieving the quality of higher music education learning…”.

“… music is an expression of humankind. I think the quality of music education relies on the quality of teachers, though technology may be helpful to a certain extent. Good teachers have a clear mind, their own ideas/knowledge of some topics and presentation skills. The most important thing is whether teachers can inspire students”.

“I think multimedia technology is a kind of resource and it is helpful to teachers, but the quality of higher music learning should rely on the quality of teachers. The quality of teachers includes the skills of using technology, knowledge and the teaching methods”.

“I think the most important thing in education is the relationship between the lecturers and the students. The relationship cannot be established via video or another technology. Even though we have videos during the lectures, we need to discuss with the lecturers. And I enjoy very much the interaction with the lecturers. Technology can just help us in understanding the issues. And we cannot do that without the guidance of the teachers… And the relationship with the teacher affects my interest in learning”.

Some students mentioned that music teachers and multimedia technologies should be complimentary to one another, and that there should be a balance between them. Three students emphasized the relationship between lecturers and students, which they felt could never be replaced by technology.

Summary and Discussion

There are significant issues concerning to what extent university students consider multimedia technology facilitates learning and teaching. This study intended to look at the extent that students’ comfort with technology as a means of receiving and presenting knowledge in their music programs. Though most BA and MA students in this study believed that video images could facilitate their music learning, only about half of them expected a classroom with multimedia equipment. Nearly all of them had their own computer, but their on-line learning was infrequent, and their use of AV media/technology and email communications with their instructors was limited to assignments and presentations. Nonetheless, most BA and MA students thought that university instructors were their main source of learning, and that they preferred to have face-to-face interactions with them.

All the presentation skills, classroom activities, teacher-student and student-teacher interactions and multimedia technology communications have to be considered as a whole. Concerns about how multimedia technology, university education and music learning intersect result in three dilemmas: (i) between the employment of multimedia technology and BA and MA music students’ perceptions of music learning’s changing role; (ii) between the interaction of students and university teachers within and without classroom learning; and (iii) between the perception of the integration of multimedia technology into music learning and the quality of music education.

Most students in this study enjoyed having multimedia technology in class, especially for understanding music issues and improving music practices. They thought that the use of multimedia can arouse their interest and enrich their knowledge. The style of the BA and

MA students' answers was different. BA students answered the questions strictly from students' point of view. Most of the MA students (12 informants) were school teachers during the day. Even though they were told to answer with respect to their post-graduate studies, they said many things about the use of multimedia technology at their work place, how multimedia technology applied to their lessons, and what the general effects of multimedia technology were. This implied that the MA students were already used to multimedia technology because it was used extensively in Hong Kong's primary and secondary schools.

As the BA and MA students were at different educational levels, their views of multimedia technology differed accordingly. Firstly, BA students' use of multimedia technology was mainly for school examinations or assignments, otherwise they used it only for entertainment, with MSN and ICQ for example, or for downloading music files for their own interest. MA students tended to use the technology not only for academic purposes or for teaching, but also for enriching their knowledge, even though they had limited time compared with the BA students. The data only implies that the exposure of MA students was larger than that of BA students. They had more working experience, they were more objective and were thinking from different points of view.
However, both BA and MA students emphasized the role of lecturers in the learning process. Even though multimedia technologies were used for their music learning, some emphasized the importance of guidance. They said that human beings rather than technology play the most important part in learning, and that multimedia technology was only a tool for achieving certain objectives. Though email communication and on-line learning is encouraged within and without the university campus, most BA and MA students did not use it to communicate with their teachers, with whom they prefer face-to-face interactions. Though both MA and BA students regarded video presentations as a useful learning tool, some emphasized the significance of lecturers. This emphasis was most apparent with respect to PowerPoint presentations, which received the least support. The major limitation of using technology in education is for those skills that might not be easily transferred and applied by learners in meaningful ways (e.g., Cadiz, 2006; Rudestam and Schoenholtz-Read, 2002). At the heart of these ideas is a shift away from thinking about higher music education learning as being solely concerned with the employment of multi-media technologies, towards understanding it more as a tool to assist in the all-important partnership between teacher and student.

Today's electronic supports are often accompanied by music. Websites have become a home for not just textual information but also images and sound. The incorporation of multimedia into instructional methodology and delivery systems in higher music

education programs has enhanced the teaching and learning process, and empowered educational institutions to meet the rising expectations of the twenty-first century. It is also clear that electronic equipment allows students to engage in individual music learning and creation according to their own needs and abilities and at their own pace; and that it can extend their access to information beyond that allowed by traditional classroom resources, thereby broadening the scope of their knowledge. Though multimedia technology has proved effective for teaching and learning (e.g., Ainsworth et al., 1998; Debevec, Shih, & Kashyap, 2006; Dekeyser, 2001; Neo & Neo, 2004; Schnotz & Grzondziel, 1996), most music students in this study maintained that music practice and training is more effective when taught by instructors. The employment of multi-media technology could enhance their motivation to learn but could not improve the quality of their music education. They pointed out that, whilst the quality of education depends upon the ability and commitment of instructors and students, it also depends on the setting of appropriate teaching contents, resources and evaluation processes to ensure that these standards are met, and mechanisms to monitor the achievement of students' standards and interests. Although the students said that they had at least basic skills for using web browsers and on-line library resources for their music learning, many of them had doubts about the use of multi-media technology for developing a wide variety of higher order thinking skills, as well as group, interpersonal and intellectual skills. It was also pointed out that it is questionable whether multimedia lectures expand the way in which subject material is presented. In response to an overview of the lack of recent and emerging work in music technology in Southeast Asia, Ang (2001) noted that computer-based original music-making activities is mainly limited to a few small-scaled centers for various reasons including the high relative costs involved, lack of availability of music technology tools, and lack of knowledge and information about music technology. These are the reasons why the general population in the region is mainly interested in playing back MP3 files, as evidenced by on-line downloads and the ubiquitous availability of pirated MP3 CDs throughout the region (Ang, 2001). Although the technological methods by which musicians, composers and other music professionals create, develop, document and present their work have grown significantly over the past two decades, technology education in undergraduate and postgraduate music curricula in Hong Kong and other Asian countries remains peripheral. The developmental design problems confronting higher education music programs may include how to balance teaching content and creative applications, as well as practical and musical technological aspects, and how to build on students' own technology capital and interests.

To conclude, this study begins from an understanding that "quality" is a highly contested concept, which has multiple meanings including student motivation, teachers' lecture preparation and presentation, and face-to-face interactions with teachers (Moore, 1989; Reese, Repp, Meltzer, & Burrac, 2002; Walls, 2008). Curriculum change is necessary if the world of the classroom is to keep pace with the world outside (Burland & Pitts, 2007; Pitts, 2003; Schmidt, Zdzinski, & Ballad, 2006; Walker, 2001; Walls, 2008). The challenge for music education in higher education and a topic for further research is how to maintain quality faculty-student interaction. The revolution of multimedia technology and music technology in education is actually less about machines than it is about students. Used wisely, it can promote creativity, initiative and communication. On the basis of the evidence of changing classroom practices, one may doubt that more changes in philosophies have occurred than stated (Robinson & Latchem, 2003; Willis, 2008). Further studies might suggest how professional development could incorporate advice about using multimedia technology to enable university music educators and musicians to be more successful in the classroom.

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Appendix

Unless stated otherwise, please use a tick "√" to indicate your choice in the boxes provided.

Gender:

☐ Female ☐ Male

You are currently in:

☐ MA1 ☐ MA2

Field of your major at the BA/MA level:

☐ Composition ☐ Choral Conducting ☐ Music Education

☐ Others (please specify):_____

Please specify the musical instrument that you are learning or have learnt as a major.

_____

Which of the following people and/or media are the main source for your acquisition of musical knowledge？Please choose the **three** most important（1 as the most important, 2 as the second most important and so on）

☐ University teachers ☐ Instrumental coach from university

☐ Private instrumental coach ☐ Parents

☐ Siblings ☐ Information technology including the Internet

☐ Friends ☐ Mass media（e.g. music magazines, radio, music-related television shows）

Music materials (including music scores) borrowed from the library

Handouts and other reading distributed by the university teachers

Audio and visual materials such as DVDs, VCDs, and CDs, etc.

Others (please specify)：

_____

Do you have a computer/notebook computer at home?

☐ No **☐ Yes, I have my own computer.**

☐ I have to share with my family members.

How do you rate your skills using a web browser e.g. Netscape to access your learning music materials?

☐ None ☐ Basic ☐ Good ☐ Advanced

How do you rate your skills using HKBU's on-line library resources for your music study?

☐ None ☐ Basic ☐ Good ☐ Advanced

How do you rate your skills using other on-line library resources (except the HKBU) for your music study?

☐ None ☐ Basic ☐ Good ☐ Advanced

At which place do you usually do your on-line search for your music learning?

☐ The university campus ☐ At home

☐ Other places (please specify): _____

How many hours do you spend accessing music materials related to your course on the internet each week (including inside and outside the university campus)?

☐ Less than one hour ☐ One - two hours ☐ Two - three hours

☐ Three - four hours ☐ Four - five hours ☐ Five - six hours

☐ Six - seven hours ☐ Seven - eight hours ☐ Eight - nine hours

☐ Nine – ten hours ☐ More than ten hours

☐ None

How would you rate your general confidence in using multimedia technology for your music learning?

☐ No confidence ☐ Little confidence ☐ Confidence ☐ Much confidence

Which of the following music activities do you think most suitable for the introduction of multi-media technology to benefit your music learning? Tick all that apply:

☐ Music appreciation ☐ Composing ☐ Music analysis

Music history (including Chinese and Western history)
Music reading
☐ Conducting
☐ Piano pedagogy or other instrumental pedagogy
☐ Aural training
☐ Other activities (please state): _____
Not necessary at all

Do you find that multimedia technology, such as video presentations of music performance, could assist in your instrumental learning?
☐ Yes, very much. ☐ Sometimes ☐ A little ☐ Not at all

What have you usually used for your oral presentation in your course? Tick all that apply:
☐ Scanner ☐ Digital camera ☐ CD drive in a computer
VCR hooked up to a computer to capture images
Others, please specify: _____
I rarely use multimedia presentation because I only read out my presentation content.

Do you think there should be more use of music technology for the overall music program at your music faculty?
☐ Yes, definitely ☐ Now it's enough ☐ Could reduce the present use
If you want to express more concerning this part, please give your opinions below:
_____
_____

Is your choice of classes partially based upon the instructor's use of multimedia technology?
☐ Yes, certainly ☐ Depends on the music module ☐ Not at all

If you want to express more concerning this part, please give your opinions below:
_____
_____

Do you expect a classroom environment to employ multimedia technology?

☐ Yes, sure ☐ Depends on the music module ☐ Not at all

On the whole, do you feel technology/music technology has helped you and motivated your learning?

☐ Yes, very much ☐ Some ☐ A little ☐ No

THE END

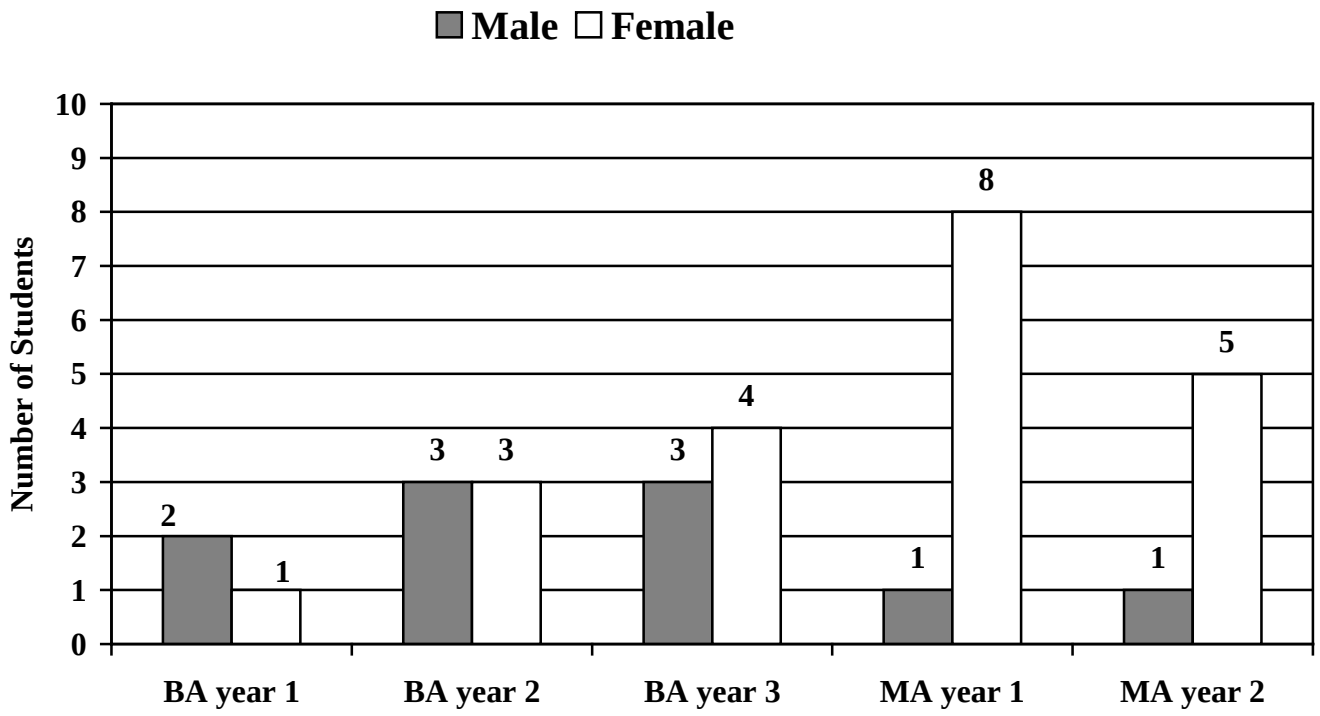

Figure 1. Distribution of Number, Gender and Year Attendance in the Study

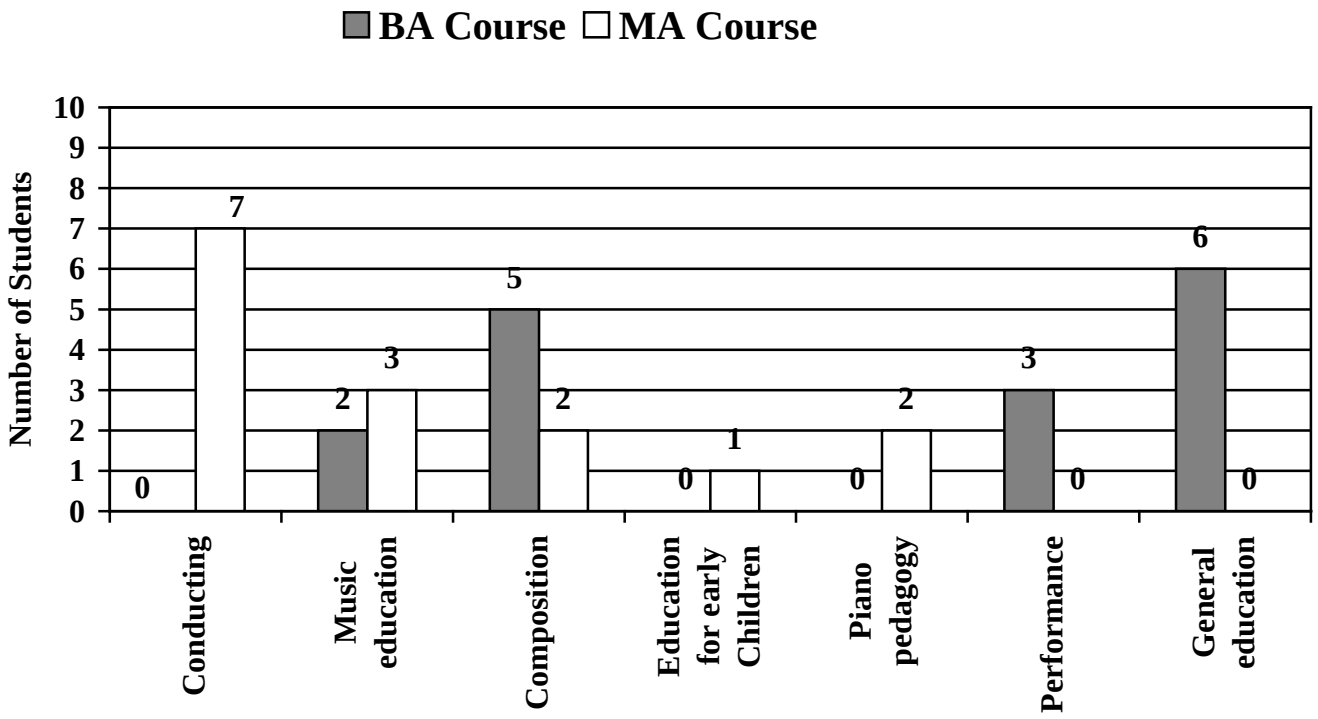

Figure 2. BA and MA Students' Concentration in Their Music Course

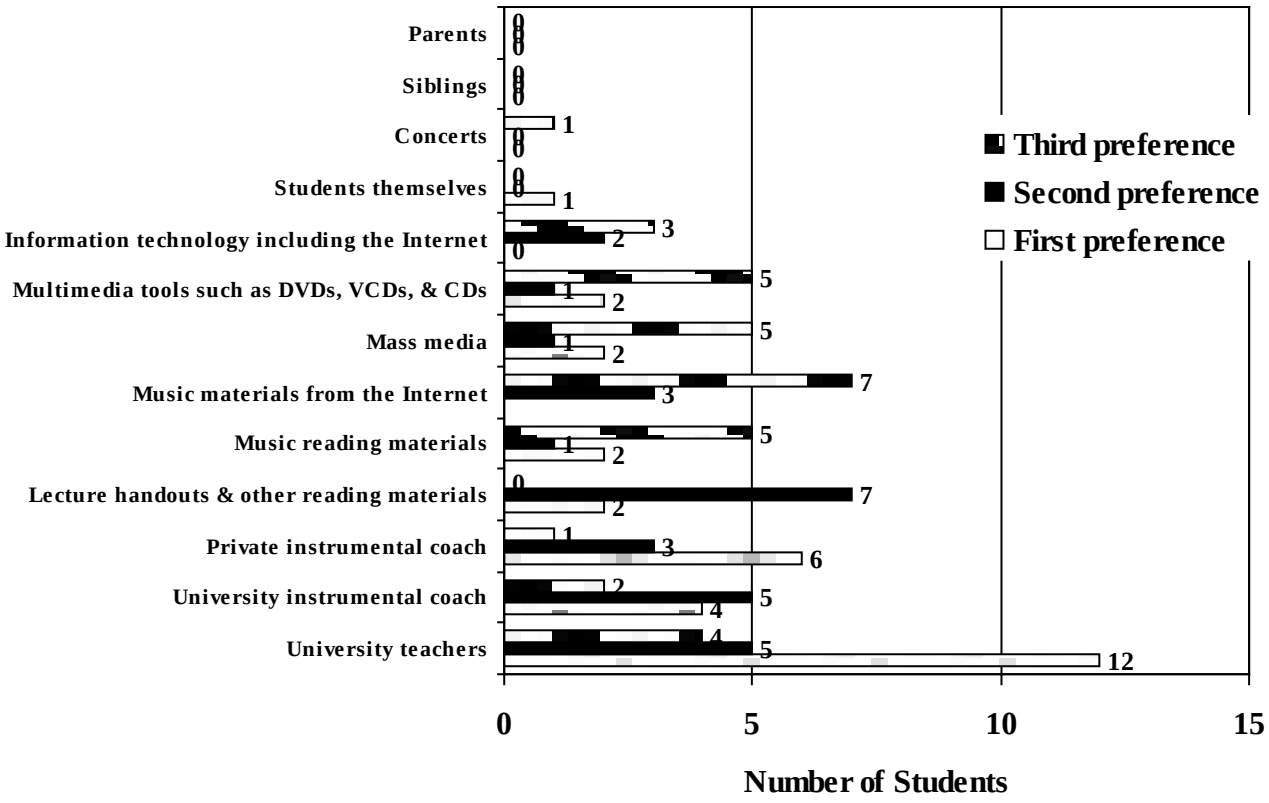

Figure 3. The Most Preferred Source of MA Students' Acquisition of Musical Knowledge

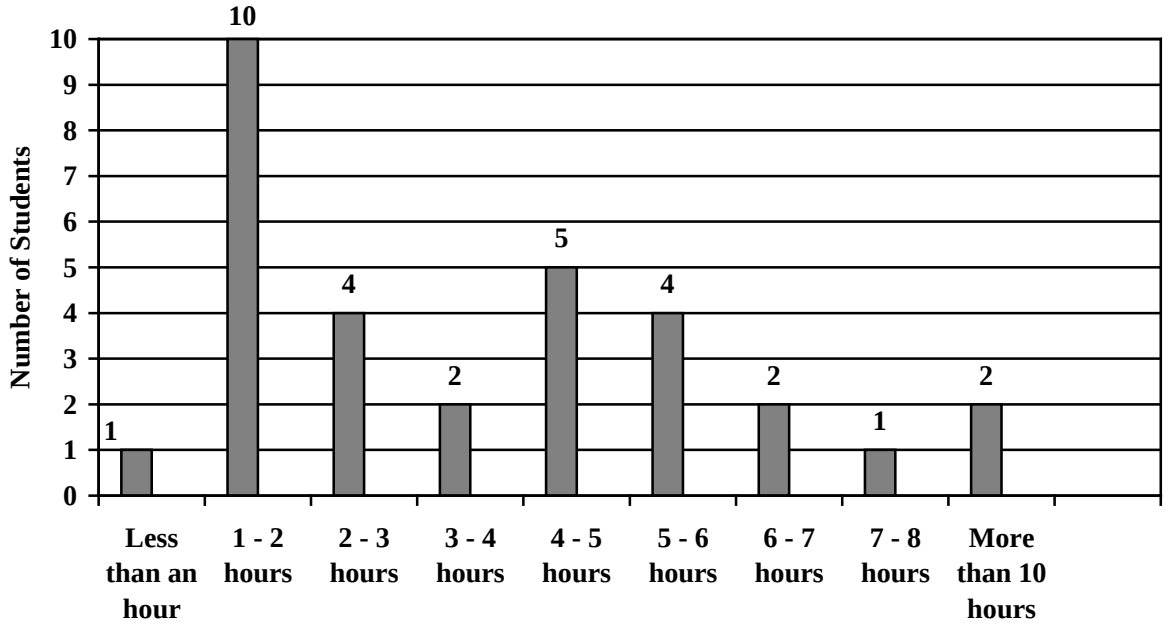

Figure 4. Hours Students Spent Each Week Assessing Music Materials Related to the Music Course on the Internet