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Computer-assisted Music Teaching in Music Teacher Education Departments: Marmara University Sample

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Abstract

The fundamental objective of Music teacher education departments in universities is to have qualified and successful while educating their students. For this purpose, it is very important to apply the programs which will result in having well-educated graduates with pedagogical formation lessons. The aimed graduates are mastered by their instruments, able to use their voices individually and collectively, competent in the field of harmony, solfege and music theories and strengthened with music literature based on cultural lessons. In today's computer-assisted music world, current softwares have been used by both the musicians and music educators inside and outside the classroom. Today, there are many softwares not only to make music and but also to provide and improve music education and teaching. Softwares aiming teaching harmony, solfege, ear training and music theories together with the programs supporting music creation such as composition, editing and note writing programs provide great benefits to music educators. For future teachers to be able to successfully use the evolving music technologies in their fields, it is important to emphasize that the courses for computer-assisted music education are effective and should be coordinated with other courses. In this article, studies on computer-assisted music education in Marmara University, Atatürk Faculty of Education, Department of Fine Arts Education, Department of Music Teacher Education were examined.

Keywords: *Computer-assisted music education, music technologies, music teacher training.*

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Introduction

In computer-assisted instruction (CAI), the computer can find an application area with and without the teacher, as the support of other approaches-techniques. CAI is an educational setting. During teaching-learning process in CAI; teachers guide and help students recognize their abilities and personalize them, as well as practicing activities like exercising and reviewing; according to the subject's structure and specified education purposes, teachers are required to use computers in different place, time, and manner. (cited by Öğüt, Altun, Sulak & Koçer, 2004); (transfered by: Güven & Sülün, 2012)

As a consequence of unbelievably numerous creations of electronic devices, it directly and certainly has affected the music education and instruction in schools. Now, in many countries around the world, music education is being conducted with the support of technology in every level as in the other areas of teaching. Recents developments in music technologies have offered new possibilities both to teachers and to trainees of music in the fields of fundamental music theories, music history, music literature, music education and performance. Instructors of music, both for themselves and for their trainees, are carrying internet, television, video, video camera, DVD,CD, CD-ROM, electronic pianos, MIDI, computer, computer software programs etc. technologies to music classes. (Tecimer, 2006)

The introduction of music through computer technology dates back to 1960s. Especially, voice digitation has been done for many years. Now that the sound contains quite little information, if it is programmed, various sounds can be extracted even from the most primitive computers. After the sound is digitized, the computer perceives it as a data. These computers which were used as an auditing tool at first, has successfully replaced an orchestra in which the music was made personally. The computer which was used to audit an orchestra at first, then made a breakthrough in music and sound technology. The factor that facilitates music to be easily transferred to a computer setting is the fact that sound consists of frequencies. An analog signal can be digitized by a quite simple system conveniently. Accordingly, because the quality of voice depends on the number of bits that are used, the more number of bits used during digitization, the closer the sound information is to the truth (Natural Sound). Once a sound or frequency enters the computer environment, it can be easily defined with its specific number value. Furthermore, we can make use of these sounds in the way as we wish. Electronic Organs and Synthesizers have already been digitized for a long time. With these studies, the idea of producing music with technology started to improved (Kul, 1995: 18).

In recent years, these rapid improvements in technology and correspondingly education technologies, have been encapsulating and drifting music education into a radical change as well as in the other education fields. The diversity and the richness of the technologies used in spreading and teaching musical knowledge, and also in the creation of music, are the main reasons for the acceleration this change. Technological system that enables radical changes and the most sensible effect is computers, which are described as "the most

effective communication and individualized teaching tool". The burden of computers and computer software that can undertake the function of a music teacher in many areas have been on the rise and these technologies are becoming an integral part of contemporary music education in the 21st century (Levendoğlu, 2004).

Today, thanks to various music softwares, the computer has become an efficient tool not only for musicians but also for music teachers who work under an intense curriculum including choral work and giving intensive lessons on musical notes, sounds, and instrument training. When we look at computer-assisted music software, harmony training, music theory, instrument training, orchestration etc. and many other programs based on implementation and theory can be seen (Babacan, 2011).

It is considered as an exceptional creative ability for conductors to both play and analyze vertical and horizontal music cues and simplify it. These qualifications make it possible for a conductor to build a strong and trustworthy relationship with choral society.

The chorus conductor will not only be able to write his/her own arrangements in computer-assisted music applications, but also will be able to improve himself/herself more in terms of the works s/he will conduct by writing all partitions with computer-assisted application.

In Fine Arts High School, informatics aided music course has been given to 11th grade students for one hour a week. As stated in The Basic Law of Turkish Natural Education No. 1739, article 2, in reliance with The General Purposes of Turkish National Educational System and The Fundamental Principles of National Turkish Educational System, a student in a computer-assisted music teaching program are;

- Implementing acquired information to the field music by benefiting from the amenities of technology,
- Using musical applications programmed for tablet computers,
- Using computer applications for the purpose of music education,
- Recording voice and instrument with recording applications,
- Creating notation by using music notation software,
- Being aware of other technological materials (Umuzdaz ve Baş, 2017).

Training music teachers who can implement these lessons successfully is the purpose of the department of music. It is feasible to implement education in accordance with music technologies that is given in two semesters as Computer I and Computer II in the institutions that educate music teachers in Turkey. In Higher Education Council and in the Department of Music Education, the definition of Computer

II course is as follows: “Basic concepts of computer-assisted education, items, organizational foundations, benefits and limitations of computer-assisted education, application methods, common formats used in computer-assisted education, evaluation and selection of course software, distance education applications, database applications, negative effects of computer and prevention for children and youth (YÖK, 1998).

In the studies of Nacakçı and Dalkıran in 2011, it was stated that only at 8 institutions out of 23 institutions in the Department of Music Teacher Education, Computer I and Computer II courses’ instructors are giving lectures of computer education field.

The music teacher candidates who participated in the study conducted in 2011 by Yalçınkaya and Eldemir, received an education from another instructor other than the Department of Music Teacher Education Department, they expressed their level of music programs as follows; I do not use 29.3% at all, I use 16% less, 36% partially, I use 10.7% often, and I use 8% completely. It can be said that only 18.7% of teacher candidates are qualified in these statements. The music teacher candidates who stated that they have taken computer lessons from an instructor at the Department of Music Teacher Training Department stated that they could use music programs at all by 42.9%, 40% partially and 5.7% completely after the mentioned training. Besides, it is seen that the ratio of those who declare usage levels as low and not at all is 11.5% in total. The instruction of computer lessons that is given by an instructor in the Department of Music Teacher Education is giving rise to a positive attitude towards the lesson in the teacher candidates as well as to increase the quality of the lesson (Yalçınkaya ve Eldemir, 2013,s2193).

Marmara University Computer-assisted Music Education in Department of Music Teaching

Physical Infrastructure

20 computer classrooms serving as computer labs until 2008-2009 academic year have been converted into computer-aided music labs with the addition of 20 m-audio MIDI keyboards, 20 m-audio sound cards and headphones as of 2009-2010 academic year. As of fall semester 2017-2018 all computers have been renewed with powerful processors and memory computers. All computers are equipped with note-writing programs (Finale-Sibelius) and editing and recording software (Cubase).

In 2013, an audio recording studio was established where students can perform their recording projects professionally.

Education Program

Degree Program

Third cycle in undergraduate program (required) Computer Assisted Instruction I (Figure 1) is being taught. The main content of the course consists of the following headings:

- Examination of history and structure of computer and peripherals
- Introducing system software
- MS Office programs (Microsoft Word-Microsoft Power Point)
- Notation writing programs (Finale-Sibelius)

3RD SEMESTER (2ND GRADE – FALL TERM)		Theoretic	Application	Credit
BSP2003	Computer-assisted Music Education I-Compulsory	2	2	3

Figure 1.*The hours of Computer-Assisted Music Education course in the third semester*

In the fourth semester (Compulsory) Computer-assisted Education II course (Figure 2) is being done. The main content of the course consists of the following headings:

- Introducing important editing and recording programs
- Creating projects in Cubase program
- Editing with midi files
- To record audio and work with audio files.

4TH SEMESTER (2ND GRADE – SPRING TERM)	Theoretic	Application	Credit
Computer-assisted music education II-Compulsory	2	2	3

Figure 2. *The hours of Computer-Assisted Music Education course taken in the fourth semester*

In the fifth and sixth semesters, students who are interested in music technologies are offered elective courses aiming to learn and use the existing programs in a more advanced level, Introduction to Music Technology I and Introduction to Music Technology II (Figure 3).

5TH SEMESTER (3RD GRADE – FALL TERM)	Theoretic	Application	Credit
Introduction to Music Technology I - Elective	2	0	3
6TH SEMESTER (3RD GRADE – SPRING TERM)	Theoretic	Application	Credit
Introduction to Music Technology II - Elective	2	0	3

Figure 3. *Hours of Introduction to Music Technology in the fifth and sixth semesters*

Master's Program

Marmara University School of Educational Sciences, Fine Arts Education, Music Teacher's Master's program has added elective courses in the fall semester as Music Teaching I (Figure 4) and Music Technology II (Figure 5) in the spring semester. These lessons are done in the studio of the department. The main contents of the course content of Music Technology I are as follows:

FALL TERM	Theoretic	Application	Credit
Music Technology I - Elective	3	0	3

Figure 4. *The hours of Music Technology course taken in the fall semester*

Course Subjects

- The physical structure of the studio
- Speakers
- Microphones
- Microphone techniques
- Signal processors
- Working with midi audio samples, recording-edit
- Working with Wave files, recording-edit

Student Studies

- One recording project
- One article
- Applied lecturing

Spring Term	Theoretic	Application	Credit
Music Technology II - Elective	3	0	3

Figure 5. *The hours of the Music Technology course taken in the spring semester*

Course Subjects

- Vocal recordings
- Guitar records
- Piano recordings
- Stringed recordings
- Brass instrument recordings
- Bass recordings
- Percussion instruments recordings

Student Studies

- One recording project
- One article
- Applied lecturing

As of the implementation of all these course programs, undergraduate program for teacher candidates as of 2nd grade, they were first trained in basic computer skills, followed by training of office programs at which they could prepare and present professional documents, then to field training, and to students interested in computer-assisted music studies, they were offered the opportunity to further develop themselves in this field with elective courses.

Conclusion and recommendations

Department of music teaching education, while training their students, aim to help the future educators become well equipped and successful. In order to achieve the stated goal, it is inevitable to apply the programs which will train students good enough to become well-educated graduates fully equipped with pedagogical formation. Those future educators who are masters of their instruments, will be able to use their voices individually and collectively, competent in the field of harmony, solfege and music theories and strengthened with music literature based on cultural lessons.

In order for future teachers to be able to successfully use the evolving music technologies in their field, it is important to emphasize that the courses for computer-assisted music education are effective and coordinated with other courses.

Okay in his research titled "Trends of Music Teacher Candidates Towards Usage of Notation Writing Programs" in 2016, during their undergraduate education, music teacher candidates regarding the use of the notes writing programs in various courses (hearing education, harmony, instrument education etc.) participated in cases where they are requested by their trainees, teacher candidates showed a cumulation of 41% with "mostly", 26% with "partly", 21% with "little", 14% with "completely" and 3% with “none”. When the "completely" and "mostly" options, representing the positive tendency, as evidenced by the accumulation rates, are taken together (%55) half of the teacher candidates, If it is considered that the educators want them to use the notation programs and that the distribution of 26% in the "partially" option is positive, it has been found that all of the music teacher candidates need to be more diverted about using notes writing programs.

The use of technology in vocational education and in the life of a teacher provides various benefits in terms of both teachers and students. According to the research conducted by the Yamaha Company Research Group, the use of technology in music lessons has revealed the following results:

- An increase in students’ interest for music courses,
- A noticeable increase in student achievements,
- Easy grasp of musical structures,
- New workspace for teachers,
- Significant increase in student concentration,
- Increase in students interest,

- Receiving effortless feedback in student activities,
- Giving opportunity to active student participation (cited by Arapgirlioğlu, 2003); (transferred by: Pınarbaşı ve Umuzdaş, 2013)

Students are required to be able to write and use their own instruments and accompaniments accompanied by computer. In harmony studies, they should be able to reproduce and edit multi-voice partitions, and they should hear and edit with the sound samples of different instruments. Educational music composing courses should contribute to new productions and students should be able to write and compose existing performances and new performances that they produce.

References

Babacan, D., Babacan, E. (2011). The study practice of Using Midi Keyboard and Computer for Songs in Music Education. *5th International Computer & Instructional Technologies Symposium, 22-24 September 2011, Fırat University, ELAZIĞ – TURKEY*

Güven, G. ve Sülün, Y. (2012). The Effect of Academic Achievement in the 8th Grade Science and Technology Course of Computer Assisted Instruction and Students' Attitudes Towards the Course. Journal of Turkish Science Education. Volume *9, Issue 1, Mart 2012.*

Halvaşi, B. (2016). Choir conductor's qualities and basic approach to choir management. *International Journal of Innovative Research in Education. Volume 03, Issue 4, 158-166.*

Kul, İ. (1995). Bilgisayarla Ses ve Müzik teknolojisi. (Sound and Music Technologies with computer) *Sistem publishing,, İstanbul*

Levendoğlu, O. (2004). Contemporary Music With Technology Support. *1924-2004 From Musiki Muallim Mektebi (*[1]*) to Today Symposium on Music Teacher Training, 7-10 April 2004, Isparta*

Nacakcı Z., ve Dalkıran E. (2011). Functionality of "computer" lesson which is contained in music eacher training program. *E-Journal Of New World Sciences Academy, Fine Arts, D0052, 6, (2), 187-198.*

Okay, H. (2016). Music Teacher Candidates' Tendencies About Music Notation Softwares (Balıkesir University Sample).*Sakarya Üniversitesi Eğitim Fakültesi Dergisi; 2016; (31): 74-87.*

Pınarbaşı, E. ve Umuzdaş, M.S. (2013). Suggestions about content of computer lesson on music education undergraduate curriculum. *Journal of Research in Education and Teaching Volume:2 Issue:3 Article No:11 ISSN: 2146-9199*

Tecimer, B. (2006). Internet and lifelong music education. *Journal of music educators association, Issue 15, pp 8-9.*

Umuzdaş, M. S. ve Baş, A. H. (2017 The views of the computer assisted music course teachers of the fine arts high school about the course oriented content and technical infrastructure, *International Journal Of Education Technology and Scientific Researches, Issue: 3, pp*

[1] *Musiki Muallim Mektebi was used as an old name having the same meaning with Music Teacher Training*

Yalçınkaya, B ve Eldemir, A. Can (2013). Determination of computer literacy level of music teacher candidates related with their fields, *Turkish Studies - International Periodical For The Languages, Literature and History of Turkish or Turkic Volume 8/8 Summer* 2013, p. 2185-2195, ANKARA-TURKEY

YÖK (1998). *Higher Education Council, Music Teacher Program*, Ankara