

An integral educational project: Musical Production

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Abstract

The ORT Technical School has developed and started recently an educational project that integrates scientific, artistic and technological aspects related to musical production and creation. The formation of the future "Technicians on Musical Production" aims to cover a wide space existing amongst those who develop their work in the creative field and those who work in a specifically technical area.

Introduction

The ORT Technical School has developed and started recently a project that integrates scientific, artistic and technological aspects related to musical production and creation. After completing the first three years of secondary school, students can choose among several specialities to complete their studies, such as: Electronics, Industrial Design, Mass Media, Computers, Construction, Chemistry and lately, Musical Production. The speciality Musical Production extends for three years (a total of 6 years of secondary school) and students are graduated as "Technicians on Musical Production".

Musical Production

The syllabus of this speciality is formed of different subjects aimed to an integral education: Anatomy and Physiology, Oral and Written Expression, State and Society in Argentina, Gymnastics, Swimming, English, Economics, altogether with other subjects whose contents furthers the integration of scientific knowledge with the development of the creativity and the capacity to use efficiently the available technology: Musical Technology Workshop, Electronics, Physics, Electroacoustics Workshop, Mathematics, History of Musical Culture, Ear Training, Musical Structures, Keyboard Workshop, Musical Production Seminars, Multimedia Laboratories, Applied Computers and Final Project.

The permanent coordination among the areas is the fundamental aspect that make this plan successful. Therefore, the contents of Mathematics are related to the proper problems of the sound and music areas. The same is applied to Physics, both in the generation, transmission and reception of sounds, as on recording and playback. Even in English as well as Oral and Written Expression, students undertake topics of their speciality without forgetting their general education.

Being that the integration among different subjects is the key of the speciality, the idea is more evident in the subjects directly connected with music and sound. Subjects such as Musical Structures, Ear Training, History of the Musical Culture and Keyboard Workshop are functionally coordinated and connected among themselves; and the different topics studied in the Musical Technology Workshop (main core of the speciality in the first year) is thoroughly related to Ear Training, Electronics, Musical Structures, Physics, Keyboard Workshop, English and Mathematics.

As I pointed out before, the Musical Technology Workshop is not - during the first year - one more subject. It is the "heart" of this speciality, an experimentation, investigation and creation center. Students work in pairs, sharing workstations formed of hardware and software that let them develop (during a prefixed time) different

contents such as: additive synthesis, sampling, subtractive synthesis, digital recording, musical notation, sound processing, analog recording, FM synthesis, and construction of musical structures, amongst others. The different workstations are adapted to the necessities of each one of the subjects, and students "rotate" from one to another, completing the experiences proposed. The equipment of each workstation is of the latest generation and includes a computer (Macintosh or PC) provided with the software to elaborate, process, control, record and reproduce sound (Digidesign's Sound Designer II, and Turbosynth; Opcode's Studio Vision, Galaxy Plus and Max; Passport's Master Tracks, Encore and Alchemy; Farallon Computing's SoundEdit; Twelve Tones' Cakewalk Pro for Windows; Mark of the Unicorn's Digital Performer, Mosaic and Unisyn; Coda's Finale; OSC's Deck; ...). At the same time, there are synthesizers and samplers (Korg's Wavestation A/D, 01/W and M1; E-mu's Emax, Emax II, and MPS Plus; Yamaha's DX7II, TX81Z and SY35; Kawai's K5; Oberheim's OB-1; Kurzweil's K2000; ...), analog and digital recording systems (Digidesign's Audiomedia II; Revox's A77; analog multitrack cassette decks; ...), sound processors (Roland's RSP-550; Boss' SE-50; graphic equalizers; ...), one drum machine (Roland's R8 MKII), an spectrum analyzer, and a keyboard controller (Roland's A-80; ...), among other elements.

The infrastructure of the Musical Technology Workshop is very important to form creative professionals who should know how to take profit out of the latest technology when available, and - at the same time - to be able to accomplish a good task even when the work conditions are not the best (an essential aspect to face, taking into account the present Latin American reality).

In 1993 the first year of this new course was completed. Now a small recording studio is being finished to be used by the students on their second and third year, and a multimedia lab is planned for their last year at the school. The recording studio have both analog and digital recording systems (Digidesign's Sound Tools II; 8 tracks digital tape recorder; DAT recorder; 8 tracks analog tape recorder; 2 tracks analog tape recorder; ...), a 32 channel mixing board, professional monitor speakers (Tannoy and JBL), different kind of microphones (Shure's SM 81, SM98A, SM57 and SM58, Crown's PZM 30F, Sennheiser's MD421 and Beyer's M500TG; ...), several sound processors (Lexicon, Yamaha, Ensoniq, Roland, Behringer, ...), plus a Macintosh Quadra 840AV and a PC486 with softwares for different applications (Digidesign's, Digital Intelligent Noise Reduction; Opcode's Cue; Passport's Producer; Soundtrek's The Jammer; Emagic's Logic Audio; Cool Shoes' Sound Globes; Jupiter Systems' Multiband Dynamic Processor and Infinity; Steinberg's Cubase Audio;...), a sampler and synthesizer keyboard (Kurzweil's K2000S), a drum controller, and some acoustic instruments. At the multimedia lab, students will work with multimedia and hypermedia, and also will experiment with the creation and editing of sound effects and music for video and films.

During the last year at the school, the students will receive a balanced program combining art and science: theoretical scientific principles of electroacoustics; practice with the technology of recording, electronic musical instruments and live sound amplification; computer programming; study and creation of musical structures both from the contemporary academic and experimental, as well as traditional folk (ethnic / world music) and non-academic (pop, rock, jazz, ...) point of view will be worked. An annual final (and advanced) project will be developed by the students putting in practice the knowledge acquired.

Conclusions

The formation of the future "Technicians on Musical Production" aims to cover a wide space existing between those who develop their work in the creative field and those who work in a specifically technical area. This educational project aims to form individuals in the scientific, artistic and technological realms with a careful balance, so that the Technicians on Musical Production will be ready to work in different technological-musical fields as soon as they graduate or, on the other hand, to continue their mastering at the university. In this last case, and taking into account that superior studies are usually directed towards scientific and/or technological aspects or, on the contrary, to purely artistic ones (loosing multiplicity of perspectives and interfering on the coordination of efforts between professionals highly specialized that works on multidisciplinary teams), the Technicians on Musical Production will find a firm background in his secondary school formation which would complement the aspects forgotten in the university.

Aknowledgements

This educational project is being realized thanks to the efforts of the directive staff of ORT Argentina and the ORT Technical School, the director of the speciality, and all the teachers involved on the project, convinced of working in a different proposal that supports a plan of real change for our environment.

Inteligência Artificial, Psicoacústica e Modelos Cognitivos