NIME Education at the HKU
Emphasizing performance

Hans Leeuw
Researcher new interfaces for
musical expression
Research group Adaptive Music
Systems
Utrecht School of Music &
Technology
Postbus 2471
1200 CL Hilversum (NL)
hans.leeuw@kmt.hku.nl

Jorrit Tamminga
Researcher Music Technology
Research group Creative Design
Processes
Utrecht School of Music &
Technology
Postbus 2471
1200 CL Hilversum (NL)
jorrit.tamminga@kmt.hku.nl

ABSTRACT

This position paper likes to stress the role and importance of performance based education in NIME like subjects. It describes the 'klankontwerp' learning line at the 'school of the arts Utrecht' in its department Music Technology.

Our educational system also reflects the way that we could treat performance in the NIME community as a whole. The importance of performing with our instruments other then in the form of a mere demonstration should get more emphasis.

Keywords

NIME, education, position paper, live electronics, performance

1. INTRODUCTION

During the education workshop at the NIME conference in OSLO 2011 it became apparent that the educational system of the school of the arts Utrecht is quite unique when compared to other schools teaching NIME like subjects. We have seen the same when presenting our total course program at the ICMC in the past [1].

While design plays an important role at our institution it is always treated 'in context'. The learning philosophy is also 'learning by doing'. Doing in this context means making <u>and</u> performing with performing being an integral part of the design process.

Another important aspect of our education is a short design cycle (if possible). Short design cycles are used as an incentive to let our students 'hunger' for more knowledge.

The learning line we describe in this paper is not a loose set of separate subjects but is carefully designed as a series of subjects, working groups and projects that teaches the student to become a skilled professional that knows his or her way in an artistic environment connected to any form of stage art and beyond.

2. About the school

The department Music Technology is part of the faculty arts, media and science that occupies a single building in Hilversum away from the main concentration of the school of the arts Utrecht in Utrecht itself. The school is a publicly funded and an acknowledged 'HBO' institution.

Apart from music technology other departments present in Hilversum are Games and interaction (4 study directions) and Media art (two study directions).

The Department music technology consists of 10 different study directions: Audio Design, Composition Electronic Music, Composition for the Media, Composition and Music Production, Composition and Music Technology, Composition and Sound Design for Adaptive Systems, Music Production and Performance, Music Technology and Performance, Sound Design.

Each year about 90 students choose a study direction in the department of Music Technology (we have about 300 students applying each year).

92 % of our students develop a healthy career after graduation. Which means that they are either working in the field of Music Technology or in a field closely related to the specialisation in their studies. 10 - 20 % of our students end up in the arts as a performer. This is either as a musician/composer, in installation art or as member of an interdisciplinary team. The studies does not educate explicitly for academia although an occasional student or alumni does publish or gets a performance at the NIME or ICMC conference. (The Arts are not part of the university education in the Netherlands but of another type of education called HBO. HBO research is not funded by the government)

Music technology as a field of studies is in constant and rapid development and because of that the characteristics of 'the professional' in the field are changing very rapidly too. For this reason we have built in mechanisms to enforce regular updates of the program and to develop the knowledge and skills of the teaching staff.

Divided over the ten study directions we see about 10 to 20 students each year choosing the line 'klankontwerp' which consist mainly of NIME related subjects. Mostly they are from the directions of Audio Design, Composition and Music Technology and Music Technology and Performance.

2.1 About the school's philosophy

In our vision the most important topic to teach to a student is how to keep up with the constant developments of the field and how to develop as a professional after graduation. To establish this attitude and to develop the skills to do so the teaching staff developed some formats for parts of the program:

- Workshops in which a student learns from exercises accompanying the lectures.
- Learning-projects in which the focus is on some aspects of Music technology.
- Hands-on sessions and practical assistance by older students.

- Study-groups in which students work together on theoretical and research issues, discuss each other's work in progress and reflect on their own work in progress.
- Industrial placement in companies or research Institutions.
- Real world projects with (paid) assignments from outside the School; some of these are interdisciplinary projects with a strong emphasis on the production processes that are typical for the multidisciplinary setting of the specific project.

We educate the student to professional independence with self-reflection as an important tool to keep up with new developments, to gain new insights and develop new concepts.

2.2 Evaluation

Almost every subject at our school is evaluated through practical assignments. There are a few reasons for that.

- We are interested in whether they can apply their knowledge and less in whether they know it theoretically.
- We have seen that our students in general benefit the most from this approach. The students are selected on their artistic abilities and a lot of our students are not pre trained on an academic career. Most of our students come from the second level of high school education and some come from the highest level.
- Most of our students are not going to have some kind of academic career. We try to be as close as possible to their future line of work.

Although an academic discourse is not at the forefront of our education a reflective attitude towards the students own (artistic) achievements and motivation as well as a realistic view on the future work field is very important. Apart from the normal examinations per subject a portfolio presentation at the end of the second and third year is part of the evaluation. Apart from the quality of the work it is very important that the student can put his work into perspective and the student is mainly judged on his or her ability to reflect verbally and in writing.

3. Relevant subjects in our education

In this chapter we explain the various subjects that contribute to the education of our students and in particular those that are NIME related or those that are supportive to NIME related courses.

The authors thought it wise to put in all project descriptions here because these project descriptions are the core of what we teach. The project descriptions force the students in a certain direction and also mark our choices in what experiences the students should get.

This list is quite extensive but it makes clear in what way we guide our students technically but especially artistically through our educative system.

We describe some of the other subjects we teach at our school explicitly but of course there are a lot of subjects not mentioned that are also relevant in a musical way or in terms of production.

3.1 First year

3.1.1 Core NIME activities (total about 10 ECTS)

3.1.1.1 Cluster days (2) for all students music technology:

During cluster days we work as a team of teachers to instruct students on a task for a day.

During the first cluster day they get a lot of examples (musical) systems. At the end the students have to present their design (drawing, acting out) for an interactive musical instrument, installation or system that is century proof for the 21st century.

During the second cluster day they are supposed to make an intriguing system with an input and an output (preferably sound) that is in some way intriguing. They have to demonstrate or perform the final result at the end of the day.

3.1.1.2 DIEM (about halve of all music technology students):

DIEM stands for 'digital emotion' although it is more about 'digital expression'. During two periods of two weeks at the end of semester one and five weeks at the end of semester two the students work on a live electronics performance and an installation respectively.

The live electronics performance (DIEM1) has the core assignment that everything is allowed except for rhythm, melody and harmony thus emphasizing a sound comprovisation.

The installation that the students have to build at the end of year one (DIEM2) has the same kind of assignment as the second cluster day. This follows the idea of a short versus a longer design cycle.

During the DIEM assignments students work halve time on this subject. Each week they have about two hours of support on their project. The emphasis in both assignments is getting things done. We do not stress the importance of a good (artistic) concept during rehearsals yet although almost every team will use some kind of metaphor to design and describe their performance.

3.1.2 Supporting subjects

The first year is full with subjects that are obligatory for all students. These subjects vary from musical theory to studio technology to composition skills. For a small number of students we also teach performance.

3.1.2.1 System Design

During the year they have several assignments in software and hardware subjects. Software at our school means education in MAX/MSP and Java for all the students. The hardware courses are divided in two periods of about 6 weeks (practical lessons and theory). We have named them DC and AC in which the students learn basic electronic skills. They also learn to work with the Arduino.

3.1.3 Future improvements

Performance has always been a side subject in our school. The 'Klankontwerp' courses are the only courses that teach performance on a fundamental basis. A small group of students attends our school as performance students. This means that they get extra performance lessons mainly in the first year. They mostly play a traditional instrument but we have the occasional student playing controllers or turntables.

Performance is going to be thought to all students starting coming school year. Following the 'klankontwerp' setting we are investigating how to treat performance in different design settings and as a design tool in contrast to just performance for performance.

3.2 Second year

In the second year our whole education becomes more project oriented. During block periods students have halve of their time to work on a project and get relevant lessons. In the second year the 'Klankontwerp' blocks are introduced. 'Klankontwerp' is the Dutch word for 'Sound design' but has a different meaning at our school. In the 'Klankontwerp' (KO) blocks students learn to design software, hardware but above all concepts for sound and sound manipulation in a performance, an installation or another multidisciplinary artistic live setting.

3.2.1 Core NIME activities

3.2.1.1 'KO' Blok I (eight weeks, 20 - 25 students) 6 ECTS:

This block is comparable to the live electronics of DIEM1 in the first year. The main difference is that the translation of a concept into music has become much more important. Performance aspects are coached weekly. Groups of about 4 students rehears in their own studio during feedback days. The coaches do a round and give feedback pointers while the students rehears.

An important aspect of this block (and any block here after) is to perform before a public. Three concerts are scheduled at respectively the canteen of our school, STEIM and an Amsterdam venue for experimental music (Zaal 100). Mostly the students will also perform a fourth time at the proeflokaal in Utrecht. The purpose of all these performances is to let them experience how their performance works before an audience and of course also to get them used being in front of an audience. Performing in the outside world is a strong motivational tool as well also for delivering quality.

3.2.1.2 'KO' Blok II (eight weeks, 15 – 20 students): 6 ECTS

The core assignment for this block is to build a multi speaker installation. By now it is clear to the students that each assignment can be interpreted artistically. The resulting installations can vary from core octaphonic tape compositions, live performance in which the octaphonic placement is an integral part of the performance to installations with multiple sound objects in a space.

If it is practically possible (transport) the results are presented again at several venues outside the school.

3.2.1.3 'KO' Blok III (eight weeks, 15 – 20 students): 6 ECTS

The theme for this block is algorithms. Students are free to choose a form for their output. It can be a live performance with students from the conservatory but it may also be an installation, something multi disciplinary or any self invented form. Where the first two blocks are more about improvisation or a more loose form of composition this becomes more fixed in this block.

The final results are presented at two outside venues (if possible).

3.2.2 Supporting subjects

Theory part of KO block I:
In the theory classes the main subject is history of live electronics and developing your own live electronic tools. Setup as well as DSP effects are the main topics.
Theory part of KO block II:
The main topics are spatialisation techniques using loudspeakers, ranging from mono via stereo and quadro to wave field synthesis.
Theory part of KO block III:

In the third theory block several random processes and algorithms to control electronic sound are taught.
Working group of KO block I:
This is spent working in the analogue studio on very precisely described assignments. Some students spent considerable time in the analogue studio after they followed this working group. By using this analogue techniques students get a more fundamental view on (the history of) sound manipulation techniques.
Working group of KO block II:
This is mainly a follow-up of the first block, working with analogue synthesis. As an addition physical modeling synthesis is introduced.
Working group of KO block III:
It is not easy to deal with the abstractness of algorithms in a musical context. An ancient musical tradition that is very familiar with algorithms in a performance context is South Indian Karnatic music. The basic rhythmic foundation of this music is thought in a working group in which the students have to sing exercises in the rhythmic solkattu technique.

3.2.2.1 System Design

In system design halve of the student population continues their courses in MAX/MSP. Some students (about five to ten) follow lessons in C++.

There is a hardware course of about six weeks in which students learn to work with more advanced applications on the arduino and other hardware like the XBEE. They are also introduced to some digital techniques.

Some students choose to do a hardware project in Proj 4. An individual learning traject at the end of year 2 of about four weeks.

3.2.3 Future improvements

Depending on the availability of a well-equipped hardware lab we would like to expand our hardware lessons in the second year in cooperation with STEIM.

3.3 Third year

3.3.1 Core NIME activities

3.3.1.1 'KO' Blok IV (eight weeks, 15 – 20 students): 6 ECTS

Block IV is our core NIME block. Students have to build an instrument or an interactive installation and they have to either perform with it or in the case of an installation they have to set it up in a public environment.

We use the same venues as we use in 'Block 1' for the performances and the installations.

3.3.2 Supporting subjects

Theory part block IV
Students also have to write a funding proposition in the theory part of Blok IV. Some of them are actually using it to get some real funding for others it is just a good exercise. Apart from the organized venues that they have to perform at they also have to organize at least one other venue to perform their performance or present their installation.

3.3.2.1 Internship (5 – 10 students)

Although not all students choose a 'klankontwerp' related internship some students do. Some students work together with 'normal' musicians at the conservatory of Amsterdam, other students work with professional users of live electronics and gear some of whom are our own former students. There is also an internship position at STEIM.

3.4 Fourth year (Bachelor /Master)

3.4.1 Core NIME activities

The first semester: (30 ECTS)

During this semester the students work on mostly multidisciplinary group projects in which they work together with other students from different disciplines (like Interaction Design and Animation) from our school. KO may be part of this projects but it does not necessarily have to be like this.

For the last few years we worked together with the TU Eindhoven in the 'ORFF instruments for the 21st century' project. The aim of this project is to design new instruments and interactions for the lower levels of middle and high school. The students work together with an emphasis on the physical design and user focus parts for the Eindhoven students and an emphasis on the design of the sound and mapping for our students.

The second semester: (30 ECTS)

In the second semester the students propose their individual project. Four to ten students propose a project in the field of 'klankontwerp', such as designing a sound installation, making a music theatre performance with live electronics or developing new instruments with sensors.

4. Overall validation

4.1 Student validation (former students)

We interviewed several former students that are currently working in the field of KO and asked for their opinion on the education we provide. This has in no means been an academic survey. The course has changed over time and above all the students all follow an individual tract, which means that they don't necessarily follow all the KO blocks. The number of students that does follow the complete course is too small to perform reliable statistics on.

Some of the improvements they suggested were already implemented. They asked to be even more ready for the outside world. The funding course recently implemented in Block IV (third year) was on the wish list of some of our former students for example.

4.2 Staff validation

Every year we discuss and evaluate the content of the blocks and the lessons. Based upon the results and the current state of the 'work field' we upgrade, improve or change the lessons. In some cases we skip a complete subject and introduce a complete new subject like a network installation or network performance depending on developments in the field while still retaining the basic structure of our education.

5. Contacts within the field

Recently we have started to work together with other institutions in the Netherlands that have the same kind of interests towards electronic music as we have.

Our cooperation with STEIM now consists of various performances and introductions of courses at STEIM including feedback given by STEIM experts, joined workshops given at STEIM from outside experts, the occasional internship and a detachment of STEIM personnel for our hardware related courses.

We work together with the Technical University Eindhoven faculty Industrial Design in projects to design new musical instruments (see 3.4.1)

We have recently decided to do joined presentations with the ArtScience interfaculty in The Hague.

Although these contacts are by no means forced; working together is increasingly important in a cultural climate that is rapidly changing in the Netherlands and not in favor of the artistic research that our field naturally contains.

6. Future changes

Our educational model is subject to continuous evaluation. Since we educate people for a career in a rapidly changing field we try to anticipate on these changes. A traditional curriculum with certain subjects that stay the same year after year will probably create students that are good in these subjects but are not per se suited for the market and/or an artistic environment.

Instead of trying to incorporate knew hot topics in this or that particular course those subjects are now going to be clustered around a group of teachers that get responsibility for a day in the weeks curriculum. Experimentation with this kind of education has already been done for a few years to teach musical basic knowledge and has been proven successful.

7. Wish list

Although we are quite satisfied with the contents of and connection between our different courses we are still looking to improve the conditions in which we teach.

Traditionally our school has been quite quick in providing a good infra structure for education in software subjects. We have two classrooms equipped with about 30 iMacs installed with audio and programming software.

A decent workshop to work with different kind of materials and with a few proper soldering stations has just very recently been installed and we are currently in the process to obtain a proper hardware lab to work with electronics. Thus far we had to teach our students hardware in ad hoc workshops. The way higher education is funded in the Netherlands it is not easy to obtain these facilities for an art school within the normal budget.

8. Conclusions

We hope we have given you an insight in how we made a logical educational program within our school that stretches from the first year to the fourth year of our education in which students are educated in a very practical way on the subject of KO. Although it should be clear by now that KO is not exactly the same as NIME education it comes very close.

Judging on interviews of our previous students we may conclude that the education is supportive for anyone who wishes to develop him or her self to become an expert in a NIME related field.

The emphasis in our education lies in learning by doing and in our NIME related courses doing also means performing public concerts or building installations in public spaces.

Students do not only learn to master the technical skills necessary but they also learn to take on a professional attitude and professional skills. To accomplish this they are continuously confronted with a professional environment in which they have to operate dealing with professional venues and public spaces.

9. REFERENCES

[1] Timmermans et. al. *Education in Music and Technology, a Program for a Professional Education.* in *Proceedings of the International Computer Music Conference*, Singapore, 2003, pp. 119-126.