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Published in:
Proceedings of the 2009 Audio Mostly Conference

Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Gelineck, S., & Serafin, S. (2009). From Idea to Realization - Understanding the Compositional Processes of Electronic Musicians. In *Proceedings of the 2009 Audio Mostly Conference*

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From Idea to Realization - Understanding the Compositional Processes of Electronic Musicians

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Abstract. This paper presents a study of the compositional process of creating electronic music. 18 electronic musicians were interviewed with focus on discussing their compositional approach, how ideas were realized, and how musical tools were utilized throughout the process. Results show that the process changes significantly from the beginning of the compositional process to the end. Freedom and control are not always keywords for designing successful musical tools. Participants reported that many creative ideas arise by not being fully in control, not being able to predict the outcome, or restricting or deliberately creating challenges for ones-self.

1 Introduction

The motivation for this study was to investigate the interaction connected to the creation of electronic music in a compositional setting. In order to do so the work processes of today's electronic musicians have been examined. Traditionally there are two overall approaches to composing electronic music. In one approach the composer starts out with a clear goal or idea of how the end result will be. He or she might create a detailed plan of how to realize the idea. The composer then brings the idea to life using tools and skills at hand. In the other approach the composer is inspired in an exploratory sense by a selection of sound material or available technologies and from there experiment to finally form a resulting piece [8].

This latter approach forms a research framework used also in [2, 1] which examines the control of physical models from a user centered creative exploratory perspective. The framework regards the user as an *explorer* of musical affordances. The ecological [4] framework used in among others [7] takes a similar approach.

The research presented here focusses on understanding how exploratory interaction plays a role in the creation of electronic music in praxis. Would it for instance be possible to encourage such exploratory interaction by design? Or in other words, would it be possible to design a musical interface, which affords creative exploration?

We were interested in how musicians conceive their ideas for new musical pieces. What is the nature of a new idea? An idea for a melody, a mood, a beat or perhaps a whole piece or album? How close is the resulting

piece to the initial ideas and how do musicians interact with the tools at hand to explore these ideas? Finally we were interested in understanding in which situations (and perhaps with which tools) musicians perceive themselves as being creative or exploratory. Answering these questions necessitated asking electronic musicians about their typical work process when creating music.

The qualitative methods used in this study have been inspired by related studies within electronic music. In [6] a qualitative internet survey was conducted in order to understand the relationship between musician and musical tools. [9] suggests a method for evaluating interview data adopted from HCI studies, and finally [5] uses interviews methods proposed in [10] for evaluation of a novel interface. Their method for analyzing the interview data resembles to a large extent the methods used here.

2 Methods

2.1 The Test Subjects

Well established electronic musicians were carefully selected as test subjects by consulting two experts: An owner of a respected Danish electronic record label and an editor of the leading electronic music program on the Danish National Radio. Three main criteria were given to the experts: 1) The candidates need to compose their own music. 2) They need to have released at least one record. 3) They need to fit into the overall category of electronic music. Around 40 musicians were selected, 30 were contacted and in the end 18 participated in the study.

2.2 The Study

The study consisted of three overall parts. First the test subjects filled in a qualitative questionnaire after which a semi-structured interview was conducted. Finally they were asked to perform a series of musical tasks (these are not described in this paper - see [3] for more details).

2.2.1 The Questionnaire

The questionnaire was used to establish the musical background of the test subjects and to find out how they themselves would describe the musical tools they used for compositional processes. They were asked to classify their compositions based on genre, approach, goals, ideas, etc.. They were then asked what kind of software/hardware they used, and to critique that software/hardware.

2.2.2 The Interview

The interviews were individual semi-structured with a duration of approximately 15 minutes each. They were guided by the interviewer, who asked additional questions to keep the test subjects' focus on discussing the process of working on a piece of electronic music. The questions were based on three overall themes. These themes were:

1. "What is the most typical work process for you when composing a piece of music?"
2. "In which situations do you find yourself most creative when creating music?"
3. "In which situations do you find yourself exploring when creating music?"

Interviews were recorded using a dictaphone and transcribed for data analysis. The transcriptions then underwent a filtering process divided into several stages. First each transcription was deducted into key statements and interesting quotes for each of the three areas (corresponding to the three overall guiding questions). The nine most relevant of these statements were extracted (three from each area) to produce a final document. If a transcription contained more than nine interesting statements, they also made it into the final document.

These overall statements were then compared, contrasted and evaluated.

3 Results

18 participants were interviewed - 2 females and 16 males. Ages ranged from 20 to 45 with an average of 29.6. 70% were attending or had attended a conservatory for electronic music. The average amount

of records sold for the test subjects was 5.513 ranging from 0 to around 50.000. Unfortunately 5 of the 18 subjects reported having sold 0 records, however, they were all found experienced enough to participate.

3.1 Results of the Questionnaires

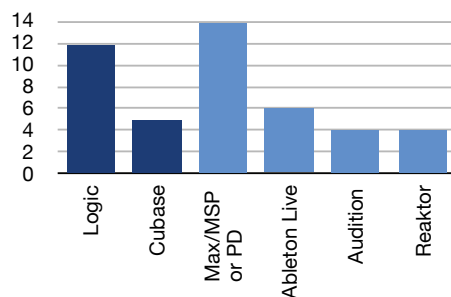


Figure 1: Out of 18 subjects, 12 used Logic as their main DAW, 5 used Cubase. Other commonalities included Max/MSP, PD, Ableton Live, Audition, and Reaktor.

17 of the 18 subjects used either Logic or Cubase as their main DAW¹. As additional software most used Max/MSP or PD - this could however be biased because the majority of 70% of the subjects that were or had attended a conservatory had received lessons in Max/MSP. Other commonalities included Ableton Live, Audition², and Reaktor - see figure 1. When it came to hardware tools there were no significant commonalities. A few had MPCs of different kinds, MIDI controllers/keyboards and vintage analogue synthesizers. Answers also included some hardware audio effects, compressors and pre-amps.

When critique was given of subjects' software/hardware tools, four common statements emerged. Four subjects expressed the desire for more physical interaction. Four wrote that the software was often too linear - both the process and the actual end result demanded more nonlinear tools. Three subjects wrote that there was a lot of especially software out there that had too many options/possibilities - this could kill creativity. Finally three subjects were concerned with the hassle connected to setting up hardware (took up too much space, too many cables etc.).

Asking subjects to classify their compositions produced some interesting answers regarding especially their approach to making music. 15 were classified as having an extremely experimental approach. The last

¹Digital Work Station

²Audition is former known as Cool Edit

three were still experimental, but had somehow found a niche or a certain way of approaching composition every time. 12 persons explicitly expressed that their approach involved letting themselves be guided by the musical tools at hand.

3.2 Results of the Interviews

3.2.1 Overall Process

Results of the interview data analysis revealed that most subjects prefer exploring with tools at hand until stumbling upon an idea or simply gathering enough sonic material to form into a piece. They rarely have a concrete idea about the finished piece until very late in the process - and as most subjects stated: "The idea can then still change dramatically." One participant described the process as how he imagined an abstract painter would work, creating a sort of collage of colors until a form arises, which is then pursued.

Many expressed the need to go from this extremely exploratory mode into a more pragmatic mode in order to be able to finish compositions. It seemed that the exploratory or experimental mode mostly deals with getting ideas and producing interesting sound material. It is a highly non-linear process of breaking away from current ideas to pursue new ideas and experiment with different approaches. Once an idea has matured enough, or enough sound material has been collected, an editing mode acts as a transition to the more pragmatic mode. Of course there is always room for new ideas throughout the editing and pragmatic mode.

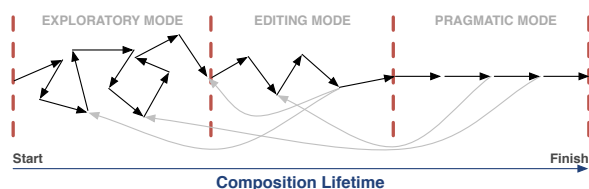


Figure 2: The compositional process can be divided into three modes. An exploratory mode, an editing mode and a pragmatic mode.

3.2.2 The Explorer and the Worker

One (representative) subject explained how he found himself working in two different modes, the explorer and the worker. How they take over from each other usually differs. Here are two examples:

1. The explorer starts and when there is enough material, the worker takes over and puts it all together creating the form.

2. The worker makes a nice synthesizer and then the explorer discovers that it fits with something else and putting it there and there makes a piece.

Hence, the worker and the explorer can both start and finish the process.

3.2.3 The Initial Idea to finished composition

When do you get an idea? What is the nature of the idea? How long does the idea last? Most said that ideas change a lot depending on how they interact with their tools. Many express the desire to be better at getting directly from idea to sound - but then the same subjects also underline the productive creative consequences of not really knowing what will happen when turning that knob or connecting these two wires.

All subjects described the early process of gathering sonic material as being very exploratory. "Playing around", "go with the flow", "deliberately try to loose control", "trial and error", "work without thinking", were statements describing the exploratory search for new sound material. This corresponds well to the results of the questionnaires. Ideas may spark the process, but the ideas are mostly of technical nature or describing moods, overall themes or philosophical phenomena. Also, these overall ideas most often change during the compositional process.

3.2.4 Unpredictable versus Intuitive

12 of the 18 subjects said that they let the machine(musical tools) have a say in the outcome of their work. One put it like this: "There are two members in my little band. One is me and my ideas, the other is me not being so fast with the knobs, which means I accidentally do something other than what I intended - and then we compromise." It seems that musicians like when a tool has "a life of its own".

16 of 18 said that finding themselves in too much control can kill the creative process. Most prefer tools that they don't understand fully, or tools that they can use in unintended ways. Especially systems that you can pass sound through were popular because each element can be very limited, and even though you get to know the tools well you can always patch things up in new ways.

Approximately half of the test subjects explained in greater technical detail about their music making process - and almost all of them said that using a tool to do things that that tool was not intended to do created the most interesting results. One said that it is often something that essentially sounds bad combined with something nice that creates the most interesting results.

Intuitive predictable tools, which provide users with full control are still needed. It seems that the closer they come to the final stages of finishing the composition, the more they need accurate control.

3.2.5 Creativity

When asked about in which situations they found themselves most creative, most subjects (14 of 18) said explicitly that they were most creative at a specific time of day, in a certain location or alone or with other musicians. These are quite external factors that they either actively try to control or in hindsight had realized nearly always produced good results.

3.2.6 The Challenge

15 out of the 18 subjects said that they feel more creative when they don't fully understand something. A deliberate work process is putting themselves in situations that are challenging.

3.2.7 Boundaries vs. Freedom

Most subjects set boundaries, rules, dogmas, limiting their options in order to guide or challenge the creative process. When the answers described concrete tools, those tools would mostly be limited in functionality. Freedom is wanted in an overall sense but even when being totally free musicians want help for making decisions. Rules are made up to guide the creative process - but the freedom is there to suddenly change rules / directions / tools etc.

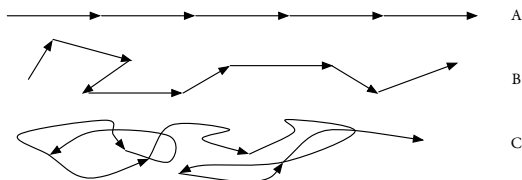


Figure 3: Workflow can be divided into three different processes. A) represents the very linear approach with minimum exploration. B) represents the exploratory approach but where each exploration is contained within some sort of linear boundary. C) represents the extremely exploratory approach where everything is possible at all times.

Figure 3 represents three different forms of workflow. A) represents a one-dimensional rigid process, which could represent the process of getting an idea, and knowing exactly how to materialize it. B) represents a two-dimensional more free process where each

step is rather limited - represents the process of exploring possibilities within fixed boundaries, but still having the freedom to change direction at any time. C) represents a totally free process where everything is possible at all times.

The majority of the test subjects express that the most creative process can be found somewhere between B and C.

Figure 4 shows a different representation of B and C. The left part represents working within boundaries but still having the overall freedom to explore something else - an approach preferred by the majority of the test subjects. The right part represents working with total freedom without boundaries.

It is important here to mention that a few test subjects however, said that they were most creative working with the "everything is possible" approach of for instance Logic, Cubase or even Max/MSP, which is closer to the right part of figure 4.

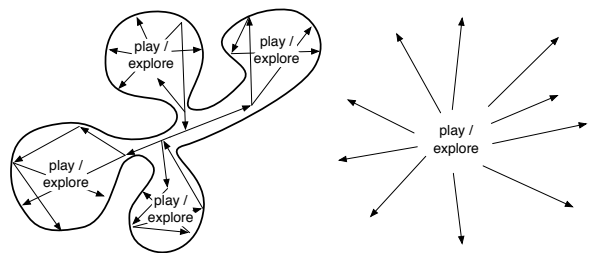


Figure 4: On the left: Illustrates freedom with boundaries. On the right: Represents total freedom.

4 Design Proposals

The following are a set of design proposals, which might encourage exploratory interaction. They are not strict principles for design of new musical tools - they might not even be achievable. They are more reflections, which might serve as inspiration for future research:

1. Design for unintended use.
2. Design for a balance between an intuitive tool and an unpredictable tool - this could also be achieved by modes, or a setting of how predictable the interface should be.
3. Restrict the possibilities of the musical tool.
4. Make the tool compatible with everything else.
5. Give the tool a possibility of passing sound through it.

5 Quotes

Lastly there were a few interesting quotes that fit in to a more overall understanding of the relationship between the electronic musician and his compositional tools:

About freedom / boundaries: "It's like when asking whether you like hardware or software. It is the interplay between the two that is interesting."

About deliberately losing control: "You're always standing on the cliff of intellectual trying to dive off into the artistic."

"Nirvana is when you think: "Wow, did I make that?""

About why to set up challenges: "... when I play acoustic piano, I always find myself playing the same kind of melodies."

"I love to squeeze a plugin beyond its capabilities - that is when surprising things happens."

"I never really become good at something. I always feel like I almost know what I'm doing. Otherwise things begin to get boring."

6 Conclusion and Discussion

18 interviews of electronic musicians were conducted in order to understand the compositional process of creating electronic music. Special focus was put on understanding how musical tools played a part in this process and how creative ideas arose, were carried out, and materialized using these tools.

Participants seem to prefer working in a free exploratory mode early on in the compositional process. They explore new ideas by trying to break boundaries, interact with musical tools differently than intended, connecting tools in new ways, setup restricting rules and create challenges for themselves. Ideas are not at all fixed/concrete in this mode.

The closer the composition is to finalization, the more rigid the process most often becomes. New ideas can always arise of course, but the participants have the need for working more pragmatically to be able to finish the composition.

This research depicts some of the challenges of designing new musical tools for creating electronic music. Designers should be aware of *when* in the compositional process the tool is needed. This determines (to some extent) the desired interaction and thus how intuitive and how predictable the tool should be. It also seems that restricting the tools to few capabilities, while still being compatible with other systems) affords creativity, and is especially desirable in the early explorational stage of the compositional process.

It is very much the interplay between the ideas of the musician and the slightly unpredictable feedback

from the musical tool that encourages new ideas to be sparked.

7 Acknowledgements

Thanks to Niels Böttcher, Ralf Christensen, Sofia Dahl, Stefano Papetti, Morten Riis and all the test subjects.

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