On experience as a moment of body movement – A work in progress report

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Since more than one decade we observe a focus shift of research in human-computer interaction from debates on how to apply usability standards, to measure performances of systems and products, and to develop guidelines to current debates on how to design experience and to create holistically meaningful interactions for people. In our poster we report on a single case study on experience as a moment of body movement. Employing the specific quality of sound and music as a sensory modality to evoke immediate emotional and physical response we aim for deeper understanding experience in bodily interaction. Thus, we introduce an iPhone-application, iBeat, which uses the accelerometer to create rhythmic drumbeats, a prototype developed by the first author, and we observe the first encounter of a musician with it. As we examine the theme of experience in bodily interaction and not a novel interface, a novel digital instrument, or a concept of musical experience we focus on the behavioral development of the musician in the moment of interaction, cf. also [Gr06]. We try to understand and to make empirically discernable the quality of experience and its transformation during interaction.

The interaction design of iBeat follows and explores assumptions regarding the potential of body movement, cf. also Wii, Nintendo, all of them revolving around issues of a more natural and richer interaction, enabling direct expression in real-time and allowing to pacing yourself. iBeat uses the accelerometer of the mobile device to create drumbeats. The accelerometer included in the iPhone, enables one to respond to rotation around three axes X, Y and Z. The iBeat prototype provides a configuration interface, which allows the user to choose four out of six different instruments and assign them to four different movement directions. In the first iBeat prototype a minimum and a maximum threshold value are determined for the axes X and Y. Each time a threshold value is exceeded by moving the device the corresponding sound is played.

We organized a play-test to observe the first encounter with the application. As our main focus is on the moment of experience, when it happens, we concentrate on the process of interaction and not on the verbal report of the participant afterwards. We thereby avoid the shortcomings caused by explicitly describing an experience in form of thinking-aloud or answers in an interview.

Our test person Arne is a male musician aged 26, who is experienced in creating music on the computer in all different formats but uses the iPhone for the first time. After a short introduction to iBeat Arne was asked to create some drum beats using the application. We recorded this for about ten minutes. The behavioral process was analyzed taking two different perspectives the first one focuses on the non-verbal behavior and the behavioral changes; the second one examines the method Arne applies to create a beat.

Summarizing, we observed an increasing employment of body movement. The musician puts more and more effort in his interaction than actually needed, engaging the whole body instead of limiting the effects of his movement to the device only. We identified three phases in Arne's process of playing. The phases seem to differ with regard to the perspectives mentioned. In the beginning Arne explores the application focusing on the result of his actions. He looks for and anticipates sounds and combines an anticipated, imagined sequence of sounds by moving the device into different directions in a similar mode he applies when creating beats at the computer. This first phase lasted roundabout four minutes. Arne than changed this mode. Instead of focusing on the result, he is focusing on his own movements. In the second phase Arne uses arm and head movements as mode of expression roundabout three minutes and finally engaging the whole body in the third phase three minutes again.

The increased body movement suggests an enhanced engagement of the musician. Moreover, stimulating the musician to perform dance movements, we assume that the interaction supports emotional experience. However, most important for our further studies we found the *behavioral transformation* happening throughout the process of interaction and related to that *the transformation of the device*. Arne starts with exploring the sound in the first phase, and then turns to playing, first on a trial basis still exploring in the second phase and eventually playing in the third phase. The role of the device changes accordingly. Arne first uses the device as a tool to analyze and to command sound, he then uses the device as a medium of expression, auditory displaying his body movements. The meaning of the device has changed from being a device for executing goals, which affords correct control, to a medium, which transforms his movements into a sound space, which resonates again with his movements.

References

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