Socio-technical Factors of Practice Transmission in an Online Creative Tool Community

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Abstract: Digital artists using modular visual production environments can now create highly customized creative tools such as virtual musical instruments, as well as readily sharing and reusing such tools. Aspects of this process both impede and support practice learning. This poster describes an ongoing case study analyzing the socio-technical factors influencing development and transmission of practice and informal learning within one example community, the users of Native Instrument's Reaktor™ software.

Background

Over the last decade, the domain of digital art and music has seen a growing popularity of highly customizable visual production environments such as MAX/MSP, Reaktor, Synthedit and PD. Drawing on visual and functional metaphors taken from circuit diagrams, programming flowcharts and physical modular analog audio synthesis, users in these environments can create virtual musical instruments, performance interfaces and audio/video composition tools by drawing connections between small functional units (such as oscillators, filters, audio samplers, etc). These systems allow a high degree of tool customization, expandability and flexibility. They also support tool-sharing and reuse, as completed "instruments" (sometimes called "ensembles" or "patches," depending on the choice of host environment), which may be distributed to other artists using the same program.

The communities of practice (CoP) literature (Wenger, 1998; Lave & Wenger, 1991) is useful in framing the informal learning and practice development within the user communities surrounding these production environments. The application of the CoP perspective is further extended by social theories of creativity (Moran & John-Steiner, 2003; Mitchell et al, 2003; Csikszentmihalyi, 1996) as well as by descriptions of the social dynamics of practice in both folk and professional "art worlds" (Becker, 1984). Even though the numbers of users is in the tens of thousands, much of the interaction between users of these modular production systems is instantiated online. Therefore, the primary context for practice development and transmission in these communities is virtual and technologically mediated.

There are several questions motivating the research presented here. How is creative practice transmitted and learned by members of these online communities? How is practice developed in this setting, both collectively and individually? The highly customizable nature of these production environments should increase the tension between individual and collective practice. At the same time, the affordance of easy dissemination and reuse of others' work online allows shared instruments to act as learning objects, a form of reified practice for the rest of the community to examine. This work seeks to investigate the socio-technical factors influencing this complex dynamic in this informal learning context.

Site and Participants

This poster describes an ongoing case study analyzing the development and transmission of practice within one such online community of practice, the Native Instruments Reaktor™ user community. Reaktor, a commercial visual programming language environment, allows users to take software representations of similar low-level components or "modules," and connect them together into larger functional units called "ensembles." These ensembles can be thought of as complete programs for sound generation, and can be used like musical instruments for recording or performing. Any user who creates his/her own ensembles may share these with any other user. One of the primary modes of sharing ensembles is via the "User Library," an online collection of over 2050 ensembles (as of November 2005)

accessed via the "Community" section of the Native Instruments website. This archive is accessible to all registered users of Reaktor, and is comprised entirely of user-made ensembles that were contributed freely over the past five years. Norms of practice and community behavior are learned and transmitted in two primary locations on the Native Instruments website: in the User Library (via attributed comments, anonymous voting, and contributed ensembles) and in the User Forum (via a threaded discussion board), located at: http://www.nativeinstruments.com/forum_us/ and http://www.native-instruments.com/index.php?id=userlibrary_us, respectively.)

Research Methods and Data

This research is designed as an observational study utilizing a mixed-methods approach. Specifically, qualitative assessment of behavior and textual communications will be combined with statistical analysis of activity and contribution within both the Reaktor User Library and User Forum. For the initial phase of data collection, 232 megabytes of html pages were retrieved from the User Library in July 1st 2005. These pages represent the 1994 ensembles visible from the entry pages of the Library at the time and an additional 991 "hidden" ensembles, which encompass earlier versions of some ensembles (these are publicly accessible but non-linked pages). Aggregate activity visible on these pages includes 1,457,193 total items downloaded from the library, 50,656 anonymous scoring votes, and 8436 distinct comments. Examining individual user activity reveals 503 ensemble contributors, 263 of which were repeat contributors and 1441 comment contributors, 616 of which were repeat comment contributors. The next phase of data collection will focus on the User Forum, which contained 7,233 threads comprised of 50,937 individual posts as of October 31, 2005.

Discussion

This poster will present and discuss the current findings of this study, highlighting differing notions of legitimate participation and authentic practice within subgroups of the community. In addition, comparison of these data to data generated by studies of learning in other virtual communities will be addressed, paying particular attention to unique characteristics of practice transmission by new media artists.

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