Scratch-Ed: An Online Community for Scratch Educators

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Abstract: Scratch is a programming environment that enables users to easily construct a wide variety of interactive projects – and share these creations with an online community. A main goal of Scratch is to enable young people to engage in construction-oriented acts of personal expression. From community narratives to role-playing games to mathematical simulations to consciousness-raising presentations, the potential for creative production with Scratch is boundless. However, for those who are primarily concerned with assisting others' Scratch learning, there is a disconnect between what individuals want to do and the resources that are presently available. In response, we have developed Scratch-Ed, an online environment for educators. Using the lens of situated learning, Scratch-Ed has been designed to enable users to organize a community of practice for Scratch around the processes of mutual engagement, joint enterprise, and shared repertoire by sharing stories, exchanging resources, facilitating discussions, and establishing relationships.

A Challenge

Scratch (http://scratch.mit.edu) is a new programming environment that enables users to easily construct a wide variety of interactive projects – including stories, games, music, and art – and share these creations with an online community (Maloney et al., 2004; Maloney et al., 2008). A main goal of Scratch is to enable young people to engage in construction-oriented acts of personal expression (Peppler & Kafai, 2005; Resnick, 2007). From community narratives to role-playing games to mathematical simulations to consciousness-raising presentations, the potential for creative production with Scratch is boundless. However, for those who are primarily concerned with assisting others' Scratch learning, there is a disconnect between what individuals want to be able to do and the tools that are presently available to them.

Since joining the Lifelong Kindergarten group (which developed Scratch), I have had the opportunity to meet some of these people. They occupy a range of roles as teachers, researchers, parents, and hobbyists. Their interests in supporting Scratch learning are similarly diverse: a teacher who wants to share stories about Scratch and cross-curricular integration; a researcher who wants feedback on materials developed for exploring Scratch as participatory literacy; a parent who wants advice on how to introduce Scratch at a local all-girls high school; a hobbyist who wants to connect with others who have started Scratch groups for adults. These examples, which represent only a subset of individuals or groups who are interested in supporting Scratch learning, are shown along a two-dimensional spectrum of participation (see Figure 1). One dimension represents the context in which the individual situates the participation, from formal learning environments (e.g. a university) to informal learning environments (e.g. someone's home). The other dimension represents the individual's mode of participation, from organizer (e.g. curriculum designer) to participant (e.g. grassroots club member).
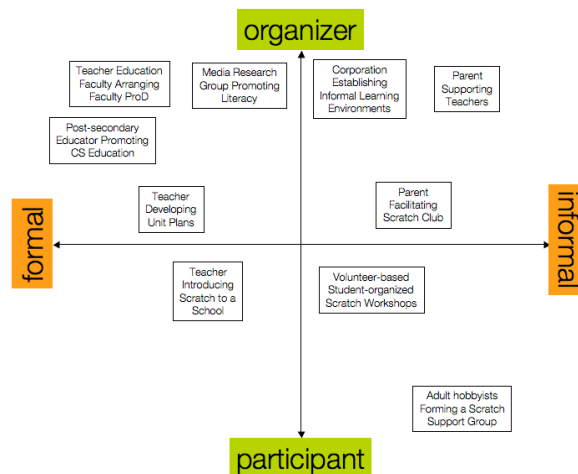

Figure 1. Spectrum of participation for individuals who want to support Scratch learning.

Currently, the Scratch website supports a subset of these interests and desires. The website offers: forums for questions, with a dedicated forum for educators; a page for educators, which has links to videos, reference materials, and writing; and links for email-based support. These resources have demonstrated value, as they have (to varying extents) supported a community of more than 175,000 registered members, but they are insufficient to fulfill the needs of all the individuals who are represented in Figure 1.

Theorizing a Response

Using the lens of situated learning, learning occurs through processes of participation that are inextricably connected to and located within a particular context (Brown, Collins, Duguid, 1996; Engeström, 1991). Theorizing learning as a situated practice (with notions of *communities of practice* and *legitimate peripheral participation*) suggests that it is not sufficient to simply add forums, materials, and pages to the Scratch website. Rather, an environment separate from the Scratch website is needed to support the range of activities involved in supporting Scratch learning.

Participation is not a uniform construct, and experiences of participation vary from person to person. This variability in participation is what Lave and Wenger (1991) described as *legitimate peripheral participation*, which is a way to think about how new participants to a practice cultivate capacities via their interactions with fuller participants. The contexts in which these interactions take place are described as *communities of practice*. Communities of practice are relations between people, actions, and tools characterized by three processes: *mutual engagement*, *joint enterprise*, and *shared repertoire* (Wenger, 1998). The processes of *mutual engagement* emphasize the community. Who are we as a group and how does that enable us to achieve our collective goals? The processes of *joint enterprise* emphasize the domain of the community. What practice are we interested in and what do we want to achieve? The processes of *shared repertoire* emphasize the resources of the community. What resources and repertoires do we cultivate to enable our practices? These community of practice processes are interconnected.

If we think about the Scratch group described above as a community of practice, we can see that it has a different domain or enterprise. The practice of the main Scratch site is producing Scratch projects. The practice of the group that supports Scratch learning is enabling the production of Scratch projects. While there is overlap between these two groups, they are not identical and members of each group may be deprived the opportunity to legitimately enter into fuller practice, as there is no obvious trajectory of participation between the groups. Barriers (either intentional or unintentional) to legitimate participation disrupt the processes of communities of practice, preventing the achievement of practice-related goals. A separate site would enable individuals who want to support Scratch learning to cultivate desired relationships, practices, and resources.

In pursuing the notion that a separate site is required, a question regarding implementation looms. Is ScratchR, the platform for sharing user-generated programmable media on which the Scratch website is built (Monroy-Hernandez, 2007), sufficient to accommodate the community of practice for enabling Scratch learning? From a community of practice perspective, I would argue that ScratchR is not sufficient for this task. For example, participants need to be able to talk and share stories about the practice, and while this is achieved somewhat through project notes and on the forums, it is clearly secondary to the central focus of project production. Although there exist numerous platforms for distributing content, there is a gap in available platforms (and design strategies for such platforms) that enable communities of practice to engage in explicit self-organization around learning (Barab, 2003; Schwen and Hara, 2003).

Designing Scratch-Ed

In response, we have designed Scratch-Ed. Scratch-Ed enables users to organize a community of practice for Scratch around the processes of mutual engagement (community), joint enterprise (domain), and shared repertoire (resources) by sharing stories, exchanging resources, facilitating discussions, and establishing connections with members.

Stories

Documenting the stories of a community serves multiple purposes. First, an individual that shares her/his stories makes it possible for other community members to know him/her, which strengthens the connections between individuals in the group. Second, a history of the practice is recorded. This history allows members to negotiate the trajectories of the practice, and respond accordingly by developing new resources and routines.

Materials

All communities of practice need tools and routines to achieve practice-related goals. By having access to infrastructure that catalogs these enabling materials, both new and fuller members can participate in the practice. Given the diversity of a community's repertoire and members' participation, this module accommodates multiple forms of materials, from text documents to multimedia productions.

Discussions

While all parts of the platform will be conducive to collaboration, the discussions module will be a place in which conversation can take place beyond what is incited by a particular story, material, or meeting. This is intended to be a space where new participants can seek guidance about the community and its practices from fuller participants, and fuller participants can articulate visions of the community's future trajectories.

Members

Part map and part profile, the members module provides a connection to the physical world. Communities of practice do not occur in isolation or, in the case of online communities, exclusively in virtual spaces. Members will be able to share and view practice-related events with other members of the community.

The implementation of Scratch-Ed is currently being internally tested by the development team and will be opened for broader testing by Spring 2009. Despite minimal promotion of the site, more than 200 educators – from both formal (K-12) and informal (museum, library, community center, homeschooling) learning environments – have already volunteered to be beta testers of the site. Through careful attention during the site's design process to community of practice theory, it is our hope that Scratch-Ed will meaningfully address the needs and desires of Scratch educators, building capacity within the educator community and enabling the effective support of Scratch learners.

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