Opening the Black Box: Four Views of Transparency in Remix Culture

Sarita Yardi, Kurt Luther, Nick Diakopoulos, Amy Bruckman
School of Interactive Computing
Georgia Institute of Technology
Atlanta, GA USA
{yardi,luther,nad,asb}@cc.gatech.edu

ABSTRACT
Opportunities for reuse, remix, and mashup creation online occur most felicitously when newcomers can easily learn to participate in the community. In this paper, we analyze four online communities: Jumpcut, MySpace, Newgrounds, and Facebook. Each of these sites is quite popular, but offers different kinds of opportunities for consumption and production of content. Specifically, the extent to which remixing is facilitated depends on transparency of process in the site. Providing visible accessibility of process facilitates a cognitive apprenticeship model of learning, where newcomers can come to participate as experts within the site. We examine how newcomers can learn to remix videos and cut and paste profile pages through observation, participation, and appropriation of remixed content. We suggest that sites that facilitate transparency of code and process may broaden access to casual users and enable them to more easily participate in remix culture.

Author Keywords
Mashups, online communities, remixing.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
We are witnessing new ways of participating in centuries-old practices of craft-making. Where past cultures have learned new skills by observing their elders in real-time, face-to-face settings, today's digital craft-making is often asynchronous and web-based. Early practices of metalworking, quilting, collage-making, and even hieroglyphics were passed on to later generations through oral instruction, observation, and direct training. In contrast, today's casual digital hobbyist on the web becomes skilled at her practice by surfing the web, landing on sites of interest, and deconstructing the process by which something was made while sitting at her computer alone. Thus, when the creation process is made transparent, newcomers can more easily participate in the community.

However, when the creation process is a black box—where inner components, logic, and processes are not available for inspection—it becomes challenging for outsiders to be able to participate. This effect is particularly salient in web-based social production environments where individuals are highly networked and learning is an intensely social and collaborative process. In this paper, we look at four websites and describe the ways in which they support reuse and remixing based on the level of transparency in the site. In particular, we show how visibility of processes within Jumpcut[1] and MySpace[2] are relatively open, enabling sharing and reuse of content, whereas Newgrounds[3] and Facebook[4] are less transparent and members create informal mechanisms for collaborating and sharing content outside of the technical constraints of these sites.

PARTICIPATING IN REMIX CULTURE
Lave and Wenger [7] describe the process of legitimate peripheral participation (LPP) in which novices move from the periphery of a community to its center. Through this process, novices become more active and engaged within the community and can eventually assume the role of an expert. Lave and Wenger describe traditional craftwork apprenticeship learning processes among communities such as West African tailors, Mayan midwives, and U.S. Navy quartermasters. However, their theory long pre-dates the web. Is it possible for LPP to occur through remote, decentralized interactions on the web?

Remix culture is an interesting domain to explore this question. In traditional apprenticeship, the process of carrying out a task to be learned is usually easily observable. In cognitive apprenticeship, however, one needs to deliberately bring the thinking to the surface, to make it visible. The cognitive apprenticeship model is designed to bring tacit processes into the open and enable students to observe, enact and practice with the help of a teacher [4]. Providing newcomers visible accessibility to expert process as well as the ability to view and remix expert content may facilitate a model of web-based cognitive apprenticeship. LPP is situated within activity, context, and culture, and can often be unintentional [7].

Online communities have unique affordances to situate support for learning, connecting that support to the project

[1] http://www.jumpcut.com
[2] http://www.myspace.com
[3] http://www.newgrounds.com
[4] http://www.facebook.com

context and other users who are potential sources of support [3]. On MySpace for example, casual users learn through observation; many create their first profile with the help of their peers. By viewing profiles, experimenting with their own profiles, and accessing web resources for profile customization, they begin to participate more fully within the MySpace community. To remix content, a novice author on a given site must first participate long enough to find and select the content she wants to appropriate (and will likely spend time on the site observing others in the process of doing so). Then she can decide how she wants to appropriate content and inject originality into her work. As she participates in this community, her transition from casual consumption into remixing and producing her own content depends on the extent to which she can see inside the black box and view expert process in a real-world context.

Opening the black box

Why do newcomers need to see into the black box? First, many people first join sites as casual users—novices with little experience or training. User guides such as Facebook's "Get Started" page offer instructions for creating a simple application; however, the steps are process-oriented, rather than practice-oriented. Users may be given few incentives or mechanisms to overcome the barrier to entry of creating content from scratch. In contrast, the visual and social appeal of a completed Jumpcut video, however primitive, privileges immediacy over technique, allowing casual web users to leap into remix culture and work backwards. A site that enables users to "look under the hood" by providing open access to source code, raw media footage, and development processes may facilitate broader access and stimulate creativity [1].

The question we explore is: What are the characteristics of these socially-motivated, casual web users, and how does the design of their development environment shape their practice? We have studied three of these sites in our own work, and draw from related work in our description of the fourth (MySpace). In the next section, we describe each of these sites and the extent to which their production processes are made transparent through the social and technical affordances of the sites.

CROSS-SITE COMPARISON

Jumpcut

We conducted a qualitative study of Jumpcut, an online video sharing, editing, and remixing community which allows people to upload video footage and images, grab footage from others, create movies with that footage using an online editor, and then publish or remix those movies. Our study of Jumpcut included six interviews, document and remix video analysis, and participant observation for six months [5]. Jumpcut's site design explicitly encourages remixing of content, through the multiple "remix" links available on each video. When clicked, users are taken to a video-editing screen with film strips, a timeline, and options to duplicate or slice (see Figure 1). Jumpcut's site design also enables editors to assess effort, expertise, and resources that went into a video. In our interviews, participants reporting using the editor window to assess the amount of effort that went into a video's production. In some cases, participants assumed that a video was simply copied from the web and uploaded to Jumpcut, but their suspicious were proven wrong when they could click the remix button and see the process by which the video was actually made.

Participants in our interviews described the culture within the Jumpcut community as one in which users wanted to share their content on the site and to have others remix and appropriate it [5]. Most users fit into the categorization of video hobbyists, participating in movie-making for its intrinsic value and challenge. The interview data also suggested that when presented with a repository of raw footage, users found originality in creative rearrangements. They valued the skills required in finding, editing, and remixing existing content [5].

Jumpcut is less popular than YouTube, a video sharing site that does not offer remixing. While participants expressed a preference for transparency, this attitude may not be widespread. It may be that a particular class of users are inclined towards remixing, or that a culture of ownership and the purity of the final product lends itself to individual authorship over collaborative production [9].

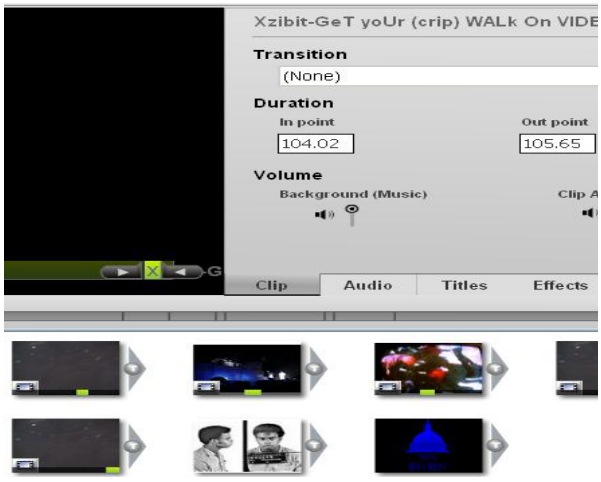

Figure 1. Jumpcut video editing interface.

MySpace

Perkel analyzed the creation of MySpace profiles to understand how users copy and paste code as a way to appropriate and reuse other people's media products [10] (see Figure 2). Copy and pasting is a socially complex practice that enables expressive power among users who may have little technical experience or training [10]. However, copying and pasting of code exists outside familiar genres of production which have long-standing norms around ownership, authorship, and credit.

Perkel looked at teenagers' profiles on MySpace, and the ways that reuse of HTML code and CSS, and embedding of

video, audio, and games offer powerful opportunities for identity expression [10]. MySpace offers an array of opportunities for modeling the remixing process. First, users can view other's pages and sections of text directly into their own page. Second, external secondary sites like Pimp-My-Profile offer templates, layouts, code, and graphics that can be easily inserted into a profile. Third, users can simply view source on any page and locate chunks of HTML or CSS to paste into their own pages.

Interestingly, the extensive copying and pasting on MySpace in profile customization is a result of a technical glitch [11]. It was an engineering mistake among MySpace's development that HTML codes were not stripped out of profile pages. Thus, the accidental ability to view other's HTML code, copy it, and paste it into one's own profile created an entire "cottage industry" [11]. Serendipitous mashing may have paved the way for a large cross-section of casual web users to begin to customize content, however primitively, in ways that they otherwise would not have.

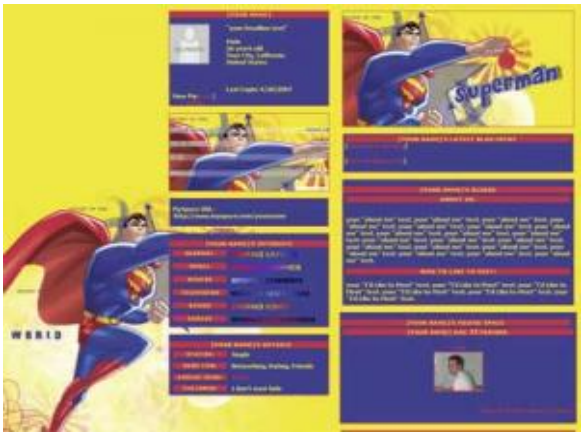

Figure 2. Remixed MySpace profile.

Newgrounds

In contrast to Jumpcut and MySpace, Newgrounds and Facebook make less of the production process visible and remixing becomes a more ad-hoc activity. We analyzed collaborative projects on Newgrounds, the largest online host of Adobe Flash animations with over 1.5 million registered members and over 130,000 animations [9]. Although most animations submitted to Newgrounds are "solo projects" (created entirely by a single animator), we focused on collaboratively authored animations called "collabs" (see Figure 3). Using a Python script that accessed discussion forums on Newgrounds, we analyzed threads to understand the nature of how collabs are made [9]. We also conducted interviews with 17 Flash animators who had participated in collaborative projects. While intra-project collaboration is supported within Newgrounds through the collab model, inter-project collaboration is limited. In other words, newcomers to Newgrounds with little experience creating Flash animations are not exposed to the same types of cognitive apprenticeship models that would exist if the content inside the animation was visible.

This is primarily because Flash animations are authored as .fla files and are compiled into .swf files prior to being uploaded for public viewing on sites like Newgrounds. The code behind the animation and the development process explaining how it is made remain under the ownership of the animation creator. Many animators maintain a strong sense of ownership and authorship in their work [9, 5, 12]. This pervasive attitude of individuality may discourage contributors from allowing others to see how their work was made. It is interesting to note that the evolution of "collabs" within Newgrounds may have occurred precisely so that members of the community who want to share content, collaborate, and remix can circumvent the technical constraints of Newgrounds and do so.

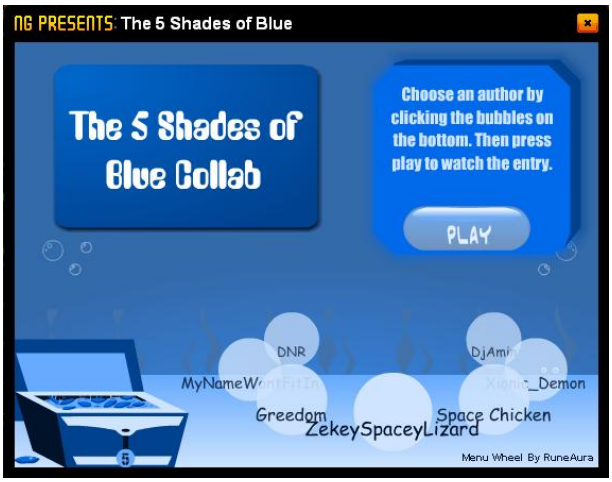

Figure 3. Completed Newgrounds collab.

Facebook

We have participated on the Facebook developer boards as active developers and observers for over a year. As of August 2008, there are over 39,000 publicly listed applications on Facebook, and many more in various incomplete or abandoned stages of development. Additionally, there are over 770,000 members in the Facebook developer community. Despite the large numbers, most applications are made by a few experienced developers, exhibiting the power law curve that characterizes much of the web.

Applications are developed locally and only added to the Facebook directory as a finished product (see Figure 4). Unlike in SourceForge or Wikipedia, source code is only available to Facebook's internal servers. Thus, unless expert developers have some externally-motivated altruistic incentive to post their code online, best-practice expert designs are difficult to come by as a newcomer.

Within the Facebook developer community, novices have little or no technical experience. Most are drawn to building applications based on their existing activity within

Facebook as casual, social users. The step-by-step guide and wiki provide starting points for a highly motivated developer to work through, but there is little opportunity to explore existing applications and learn how they were made. It is interesting to note that like Newgrounds, there is a growing community of developers looking to collaborate to building Facebook applications.

An underlying current in remix culture, it seems, is that members of the site desire the ability to work with others and share content. Thus, regardless of the technical and social affordances of the site, users will find ways to circumvent constraints and work together to share content.

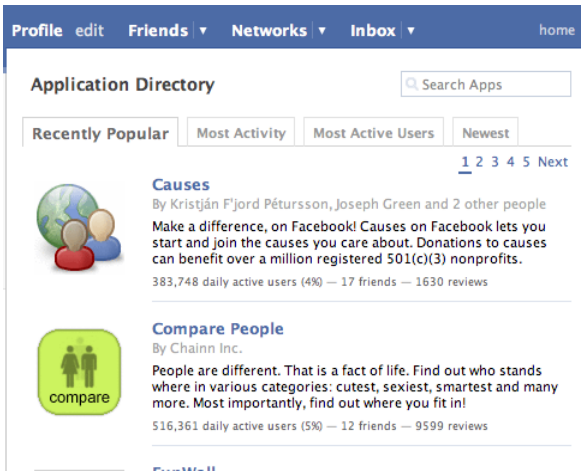

Figure 4. Facebook application directory.

DISCUSSION

Cognitive apprenticeship emphasizes the importance of learning in real-world context; learning is situated within activity, context, and culture, and can be often unintentional rather than deliberate [7]. The growing presence of non-professional hobbyists learning to remix content in niche communities like Scratch, You're The Man Now, Dog!, and deviantART suggests that they will shape the evolution of casual end-user communities in interesting and unforeseen ways. However, a fundamental challenge is that the goals of experienced (e.g., professional) developers may be individualized and economically motivated, and thus foster little incentive for collaboration. Corporate or legal policies may further limit the extent to which code can be made publicly available [8]. In these sites, access to community support becomes increasingly valuable [2].

Although many sites maintain centralized control of the services they provide to end-user developers, their mass movement towards enabling third party involvement has implications for the role of social production within these environments. As they become more open and cross-platform, social incentives among non-professionals to remix and mashup for their own purposes may grow. Copying and pasting blocks of code (or slices of film footage) is a conscious act of selection, manipulation, and appropriation of work done by others. Reuse in these cases requires little technical skill; innovation lies in the ways that new classes of consumers are able to participate more fully by learning to embed creativity and originality into reused products or content [6].

There are implications for literacy, learning, production, and empowerment. Although the kind of learning that takes place is of varying quality—one might argue that few MySpace profile pages contain "expert" content for cognitive modeling—opportunities for learning reach a broader class of casual users who otherwise would be unlikely to participate at all. Future work might look to embed professional practice within remixing environments to seed best practices. The opportunities for casual user empowerment through transparency in process, whether through video production in Jumpcut, website design in MySpace, animation creation in Newgrounds, or software development in Facebook, offer grounds for further discussion and exploration.

REFERENCES.

1. Benkler, Y. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press, 2006.
2. Bruckman, A. *Community Support for Constructionist Learning*, Computer Supported Collaborative Work: The Journal of Collaborative Computing, 7 (1998), pp. 47-86.
3. Bruckman, A. *Situated Support for Learning: Storm's Weekend with Rachael*, Journal of the Learning Sciences, *9(3)*, (1999), pp. 329-372.
4. Collins, A., Brown, J. S., and Newman, S. E., *Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics*, Knowing, learning, and instruction: Essays in honor of Robert Glaser (1989), pp. 453-494.
5. Diakopoulos, N., Luther, K., Medynskiy, Y., and Essa, I. *The evolution of authorship in a remix society, 2007 ACM Conference on Hypertext and Hypermedia*, 2007.
6. Hippel, E. V. *Democratizing Innovation*, The MIT Press, 2005.
7. Lave, J. and Wenger, E. *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press, Cambridge, 1991.
8. Lessig, L. *Code Version 2.0*, Basic Books, NY, 2006.
9. K. Luther and A. Bruckman, *Leadership in Online Creative Collaboration.*, *CSCW 2008*, San Diego, CA, 2008.
10. Perkel, D. Copy and Paste Literacy? Literacy Practices in the Production of a MySpace Profile *In Informal Learning and Digital Media: Constructions, Contexts, Consequences*, Cambridge Scholars Press, Newcastle.
11. Perkel, D. and boyd, d. *Copy, Paste, Remix: Profile Codes on MySpace. ICA 2007*, 2007.
12. Yardi, S., and Perkel, D. *Understanding Classroom Culture Through a Theory of Dialogism: What Happens When Cheating and Collaboration Collide? Proc. CSCL*, Rutgers, NJ, 2007.