Chapter 15
Crowdsourcing Education on the Web: A Role–based Analysis of Online Learning Communities

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ABSTRACT
Learning online has significantly evolved over the past decade due to the emergence of Web 2.0 and 3.0 technologies that facilitate social learning in adaptive online environments. The open content movement and the associated techniques of crowdsourcing (i.e. assimilating several small contributions into resources of high quality) have further influenced education on the Web. This chapter investigates the concept of crowdsourcing in education through an analysis of case studies dealing with two open online learning communities, Peer 2 Peer University, and PlanetMath.org. The case studies proceed via an analysis of the various roles played by the individuals involved in each organization. The outcomes of this analysis are used to extract general recommendations for building online communities and applying crowdsourcing techniques in educational contexts.

INTRODUCTION
Web 2.0 and 3.0 technologies are transforming the landscape of learning. These technologies enable learners and pedagogues to co-produce learning environments that adapt to the competencies and motivations of each participant. Building these systems online, in the open, system developers and curriculum authors can make use of both high-intensity, high-cost contributions, and a long tail of smaller and less intensive contributions. This process of assimilating many small contributions into resources of high quality – colloquially known as crowdsourcing – is becoming a key aspect of
the development of open online learning platforms. The challenge inherent to such efforts is to capture the surplus value of distributed processes of social engagement in a way that permits reuse and further development.

This chapter rethinks Nonaka and Takeuchi’s well-known SECI model of knowledge creation (Nonaka & Takeuchi, 1995), and applies it to two case studies in crowdsourced education. The revisions to the SECI model are two-fold. First, what initially appears to be a simple and intuitive shorthand, obtained by mapping Nonaka and Takeuchi’s Socialization/Externalization/Combination/Internalization onto Ken Wilber’s I/We/Its/It (Wilber, 1997), upon further reflection leads us to a very different way of thinking about things. And, second, Nishida’s philosophy of basho (summarized in English by Masao Abe (1988)), which was a noted inspiration for the SECI model, plays an even more central role in our version of the theory.

To put it somewhat colorfully, the “Golden Age” SECI is here updated to make it suitable to the analytical challenges present in our “Modern Age”. These challenges include organizations that make significant use of commons-based peer production (CBPP) (Benkler, 2005), organizations without a traditional management structure, and collaborations that cut across organizational boundaries. The focus in our analysis is on the various social roles taken on by the persons involved in such settings.

A point of departure for our new understanding of SECI is the critique found in Engeström’s “Innovative learning in work teams: Analyzing cycles of knowledge creation in practice” (Engeström, 1999). Engeström makes a convincing case that “SECI” really doesn’t adequately represent a cycle, despite the claims of its initial creators. The I/We/Its/It framework doesn’t represent a cycle, either. Rather, we use Wilber’s terms to describe a given social role in terms of its constituent actions. So for example, the role of “being a student” might be described as follows:

“I go to class, we do a class project, the objects of concern (‘Its’) are things I can add to my portfolio or work-record; and fundamentally it is all about gaining a skill.”

This simple background story gives us a notion of role, persona, or identity: a role that is defined by its constituent actions, relative a given social context. And here, context is conceived of, after Nishida, as a “shared context in motion” (this is the meaning of the term “basho”).

Our little story describing the role of a student doesn’t have much to do with “knowledge creation” or “epistemic action”. Still, now that we have a convenient way to talk about roles, we can move on to talk about how roles can change over time, how new roles come into existence, how different roles can conflict, and so on. It is in this respect that we recover the organizational learning dimensions of the SECI model – not as a byproduct of individual learning cycles, but as a complex of ongoing adjustments to the shared context and the social roles that are enacted therein (Engeström, 2007).

Thus, our concern is with the way a given context creates and is in turn created by its constituent social roles. Using this approach, we will develop a theory of organizational learning that is applicable to contemporary educational communities, possessing all of the complexities of our “Modern Age”.

The next section will set the stage by looking broadly at contemporary education and its many stakeholders. We then present a case study centering on an informal course that the first author ran at Peer 2 Peer University in Autumn of 2010, followed by a second case study, which applies our model to look at possibilities for organizational change in the community-created online mathematics community, PlanetMath.org. We conclude the chapter with some general recommendations gleaned from reflections on these two case studies.
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