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Constance Steinkuehler: Identity, Science Literacy, & the New Pop Cosmopolite

Are games needed to round out science education?



It's difficult to grasp what folks learn from participating in virtual worlds like [World of Warcraft](#) or [RuneScape](#) or [Second Life](#) if you don't look at **identity**.

Don't get me wrong, it's not that gamers aren't learning something important about content and practice. I've spent the last few years looking at just which bodies of content and which forms of practice they're learning (more about that below) in commercial off-the-shelf and "in the wild" online games and such. But when I think about the truly consequential ways in which participants in virtual worlds learn, I keep coming back to Clarice's great one liner in the horror movie *Hannibal*: "It changed me. And that changed everything."

Real learning, learning that is deep and transformative, changes everything because it changes the person. We live in an increasingly "flat" and globalized world in which the need for a scientifically literate population has only grown more urgent, yet, by most measures, we have done a poor job at fostering science literacy in schools. Only one in five Americans are scientifically literate despite mandatory science instruction. Recent studies of science classrooms and labs show that standard "inquiry" activities not only fail to teach science but in fact end up fostering dispositions toward how knowledge gets made that are directly antithetical to science. Things like finding the single "right" answer (i.e. the teacher's) and just "rerunning" the experiment until you get it. What's worse, the American public seems to be increasingly hostile to the scientific enterprise itself.

Gaming and social knowledge construction

There is a growing body of research now demonstrating that game technologies (and the kind of communities that seem to come with them) may be one viable alternative - not to teachers and classrooms but to textbooks and science labs. In some of my own work, for example, we found that an overwhelming majority of talk (86% to be exact) on game related forums (in this case, *World of Warcraft*) consisted of *social knowledge construction*. Not social banter. Not idle chat. Not just mom jokes and trolling comments about various character classes. More than half were puzzling through complex systems. One in ten evidenced model-based reasoning. And (here's the kicker) a whopping 65% displayed an evaluative epistemology in which knowledge is treated as an open-ended process of evaluation & argument.





What, you ask, does this have to do with identity? Well, these forms of scientific reasoning, informal science literacy, and scientific habits of mind (what [John Seely Brown](#) and others [have called "dispositions"](#)) represent nothing short of the cultural norms that emerge in WoW fandom. And, importantly, these cultural norms appear to preference the sorts of "knowledge worrying" dispositions that align well with science. That align well with the academic enterprise as a whole, truth be told. And that's where identity comes back in. Membership in these communities means taking on the dispositions that characterize them. In the case of the virtual worlds I study, that means taking up an identity as someone who that worry claims and create models of systems they want to understand and debate the merits (sometimes rather contentiously) of contrasting views and thoroughly treat their worlds, no matter how virtual they may be, as a space for understanding and play instead of rote memorization and toil. It means taking on the identity of a producer, not just consumer. It is to be a pop cosmopolite. All that in the least likely of spaces. In the context of online games and pop culture. Both of which are veritably fire-wired out of classrooms.

Editor's Note: See Jim Gee's [thematic overview & index](#) for more posts in this seven-part series on digital learning and identity.

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