Learning Information Literacy in the Age of Wikipedia
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Where does reliable information come from? Young people have difficulty assessing the quality of information sources they find on the Web (Kafai, 1997; Wallace et. al. 2000; Kuiper, 2005). Helping students learn to critically assess sources has sometimes been portrayed as a typical learning problem: expert practices need to be made accessible to a generation of learners. Research has sought to identify differences between expert and novice strategies for assessing information sources (Wineburg, 1991); however, the recent proliferation of user-generated content has complicated matters. Sometimes experts disagree altogether about what constitutes a reliable source. In the absence of agreed-upon expert practices, what should students learn?

Wikipedia sits at the center of this confusion. Students, teachers, parents, and researchers alike often do not understand how to critically assess Wikipedia articles because there is no widely shared understanding of how information production is regulated in a wiki environment. The nomenclature of "Web 2.0" represents,among other things, broad recognition of new, distributed models of information production. Strategies like metacognitive prompts can help novices become more reflective about the sources they use (Stadtler & Bromme, 2007), but without a clear understanding of how publication works, it is unclear that novices can construct useful documents models on which to reflect. Before young people can learn to assess sources like Wikipedia, they need to first understand how such resources are created and maintained.

Our research investigates how new publication models associated with user-generated content create a new context for assessing information online and make new kinds of epistemological demands on students and teachers in the classroom. In the 2006/2007 school year, we conducted the second iteration of a design-based study that examines citation and information use in the context of secondary school student publication on a wiki. We found that although students frequently use Wikipedia to find information, they have little understanding of how Wikipedia works. They frequently rely on heuristics derived from traditional forms of publication activity to assess information they find online. There is a need to educate teachers and students in new forms of information literacy.

How Wikipedia Works

Before we set out to understand how students think Wikipedia works, we conducted research to understand how Wikipedia actually works. We conducted three rounds of interview studies to examine both how people become proficient encyclopedia editors on Wikipedia and how the site is structured socially and technically. Our findings counter the "million monkeys" misconception: Wikipedia is not a receptacle for the random musings of anyone on the Internet, it is a community of cooperative authorship in which policy and tradition govern editors' behavior and protect the integrity of the resource (Kriplean et al, 2007; Forte & Bruckman, 2008). Policies and editorial guidelines help make acceptable practices visible to newcomers, who become fluent in these practices through legitimate peripheral participation (Lave & Wenger, 1991) as they move from simple copy-editing activities to more complex forms of community involvement and authorship (Bryant et al, 2005). This community and its mechanisms are usually invisible to the casual encyclopedia reader; as a result, misconceptions about the resource and its production abound.

If readers know how Wikipedia works, they can develop strategies for assessing the information in it. One example of Wikipedia literacy involves the awareness of discussion and history pages. Each article on Wikipedia is paired with a discussion page where controversy involving its content can be discussed and consensus can be built (Viegas et. al., 2007a) and a history of edits; consulting the discussion and history pages can be a useful way of ascertaining how much attention and editing has happened on a page and whether there are any outstanding controversies. Another basic Wikipedia literacy involves understanding Wikipedia policy regarding citation. Although topic-specific citation practices vary, Wikipedia is intended to be a secondary source and facts presented in the encyclopedia should be attributed to other information sources. Every article should have a bibliography.

Note that these strategies for assessing information in Wikipedia are local, not site-wide. Note also that the decentralization of information production in the wiki environment places more responsibility on the reader to assess the extent to which each article has been reviewed and edited than traditional peer-review. These are important features of wiki literacy, because they represent failure modes for student reasoning about the reliability of information they find on the site. Students tend to assess Wikipedia as a whole, not on an article-by-article basis; and they tend to assume that the level of editing and review is constant across articles.

Classroom Study: Students' Strategies for Finding and Assessing Information

In the 2006/2007 school year, we spent 8 months studying the search and citation practices of 19 students in two Advanced Placement Environmental Science (APES) classes who researched and wrote articles about science topics online. We interviewed students about how they find information on science topics and asked them to demonstrate how they search for information about a science topic while explaining each step aloud. Interviews were transcribed and iterative open coding was used to discover patterns in students' information seeking practices and source assessment strategies.

The full analysis of interviews, homework, and pre/post test data revealed that students used several categories of strategies for deciding what information sources to use and cite. Here we constrain the discussion to a few examples of students' reasoning about Wikipedia and how to use it. Ten out the 14 interviewees reported using Wikipedia as an information source. Students' understandings of how to assess Wikipedia as a source tended to reflect traditional publication models and were bound up with credential, expert review, and broad publication processes. Many students voiced a concern that Wikipedia is editable by anyone. One student remarked, she wants to find a source "that seems like it's a knowledgeable person publishing. Not just like, a normal mind." Three students mentioned the number of Wikipedia editors as an asset, but still tended to focus on review as a site-wide phenomenon (Wikipedia has many people checking it, therefore it must be ok) as opposed to a local one (this article has seldom been edited, therefore its content is suspect). Only one interviewee alluded to a more sophisticated understanding of how Wikipedia content can be assessed. She remarked that, when reading Wikipedia, if "it's solidly backed up by a reference, you know, then I trust it for the most part." She seemed to understand that Wikipedia represents a collection of facts that should have already been established elsewhere in other resources.

Conclusion: New Literacies are a Critical Need

The results of this study indicate that students do not understand how Wikipedia works and are at a disadvantage when it comes to using Wikipedia critically. This study focused on students; however, it is clear that teachers in particular, but also researchers and other Internet users, need to become conversant in new forms of information production so they can critically assess the media that informs their lives. Prohibition is not the answer. The decision of some educators to outlaw resources like Wikipedia in school does not prevent students from using it and, in fact, fails to recognize a critical educational need. Finally, we believe there is a great deal of potential for students to learn how to reason about information sources like Wikipedia by participating in their production or in similar publishing activities.