Where’s the Science? The State of Science Content on U.S. Secondary and Middle School Web Sites.

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The World Wide Web has diffused from a handful of K-12 schools in the United States in 1993 to near ubiquity in 2001. At present, middle and high schools use the WWW as a vehicle for advertising the school and its mission, extracurricular activities (e.g. sports, clubs, and band programs), academic programs, calendars of events, alumni information, teacher and course web pages, and web pages constructed for and about students to highlight their academic work and projects. It is our contention that the latter category, web pages constructed by students that expand the audience for student academic work and projects, begins to capture the full potential of the World Wide Web in school settings.

In this study we investigated the degree to which student generated artifacts of science learning are represented in U.S. middle and secondary school web sites. A content analysis was performed on 20 randomly sampled high school web sites from each of the 50 states and the District of Columbia (total n=1020) to determine the presence and source or absence of science content. The sample was culled from secondary and middle schools listed by state in the Education Category of Yahoo (http://www.yahoo.com). Each web site was explored in depth to identify science content. A coding scheme was developed to represent the origin and purpose of science content:

0= No reference to science or science content present
1=Science content of an administrative nature (course and faculty listings)
2=Teacher generated science content (science faculty pages and course pages)
3=Student generated science artifacts (papers, projects, and web sites)
4=Exemplary student generated content

Preliminary results indicate that 40 percent of middle and high school web sites make no reference to science, a core academic subject. Approximately 30 percent of schools feature science information of an administrative or informational nature. Twenty percent of schools contained science teacher web pages or pages in support of their courses. Student generated materials were found in only ten percent of the web sites sampled. Of the ten percent, half featured student work that we determined to be exemplary and point in directions that communicate robust science learning in middle and secondary schools. Examples of exemplary web sites will be featured in this presentation.

We conclude that as the World Wide Web approaches the second decade of its presence in K-12 schools, on the whole it remains a one-way conduit into science classrooms. The full potential of the World Wide Web for science education will not be realized until the diffusion of information includes the artifacts generated by teachers and students, and central to teaching and learning, in their classrooms.