

What About an Open-Access Science Journal for High School?

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Some years ago, my eccentric if inspired grade-10 mathematics teacher, Mr Hoskew, gave David Rose and me enough money to buy the copper wire, angle brackets, and 6-inch bolts that we needed to build a base-2 calculator for the local science fair. We came in second in our division, with an oversized demonstration of what 84 hand-built logic gates could add up to, which was not very much unless you count its sealing our involvement with computers ever since.

That 1967 science fair held in small-town Ontario bears a remarkable similarity to today's Intel International Science and Engineering Fair, which rightly claims, with 1500 students from 40 countries, to be the "world's largest precollege celebration of science". That is, within a large exhibition hall, students stand before a sea of booths lined with posters surrounding an experimental device or demonstration.

Certainly, the graphics have greatly improved on the posters, and the science seems more sophisticated, to judge, for example, by such 2006 winning entries as "Engineering of a Novel Inhibitor of Biofilm-Encapsulated Pathogens". But the idea of feverishly preparing for the fair, nervously exhibiting before a panel of judges, and perhaps picking up a prize before packing it all away remains the pattern.

And therein lies a great opportunity for science editors to further encourage and celebrate precollege enthusiasm for scientific inquiry by bringing what they know best to the idea of the science fair. What if a group of professional science editors approached the National Science Teachers Association in search of a few high-school teachers who would be willing to join them in starting an online, peer-reviewed science journal for high-school students?

Students could learn about another vital side of science as they participate in reviews, revisions, and responses in the greater flow and record-keeping of scientific ideas. The science editors could work with science teachers and student editors in setting up the journal's policies, formats, and editorial practices. The journal could begin by inviting submissions from science-fair participants.

The journal could be run entirely online by using Open Journal Systems (OJS), which is the open-source (free) software that we have developed through the Public Knowledge Project for managing the editorial process and publishing of peer-reviewed scholarly journals. OJS would enable the creation of a virtual editorial office that can operate with editors, copyeditors, and proofreaders distributed around the country and, for that matter, the world.

The journal could approach corporate sponsors and the National Science Foundation for support in getting the word out and hiring professionals to help students learn how to produce high-quality electronic files in PDF for scientific articles and how to copyedit and proofread scientific writing. The student editors could invite researchers to join with students and teachers in conducting and sharing peer reviews of the submissions.

Certainly, the involvement of science editors would provide what has been so clearly missing from earlier attempts at such journals: an adequate level of editorial professionalism that draws on scholarly publishing traditions.

What an open-access journal of this nature could do on a global scale is introduce science students to the most vital aspects of scientific communication, helping them to appreciate what peer review and editorial oversight offer, both in sharpening their own critical skills and in promoting "excellence in the communication of scientific information", to cite the mission of the Council of Science Editors. The journal would provide not only high-school students and teachers but the world at large with an exciting and promising sense of what the very best science students are accomplishing in precollege settings.

If you are interested in helping to get such a journal under way, contact John Willinsky at john.willinsky@ubc.ca.

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