

## EDUCATION WEEK

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## Educators Assess 'Open Content' Movement

By **Andrew Trotter**

Leaving their textbooks to gather dust, Houston middle school teacher Ardith A. Stewart and her students studied science this spring by assembling much of their curriculum on a class "wiki." The materials included students' written postings on class topics, and projects, grading rubrics, and discussion questions that Ms. Stewart prepared or obtained from teachers in other parts of Texas and the United States.

The students at the 1,200-student Burbank Middle School were able to pursue the state's learning goals at least as well as if they had read the decade-old textbook, in which "Pluto is still listed as a planet," Ms. Stewart said.

The Texas teacher is part of a small but growing movement of K-12 educators that is latching on to educational resources that are "open," or free for others to use, change, and republish on Web sites that promote sharing. The open-content movement is fueled partly by digital creation tools that make it easy to create "mash-ups," or digital medleys of content of various types.

Educators and education-oriented groups advocating open content say it saves schools money by spreading the time and expense of developing curricular resources over many contributors.

It also passes on the value that teachers add, when they adapt works originated by others, so other educators can benefit from it. Many adaptations give schools more ways of differentiating instruction, by adding language translations, shifting grade level, and adjusting for reading ability, a special geographic or cultural focus, and other tailorings from the standard curriculum.

Ms. Stewart, who is still new to using open content, told other teachers about her experiences at a poster session at the National Educational Computing Conference, held June 29 to July 2, in San Antonio.

A colleague at her school, an English teacher, had gone even further in using open content, she said, by incorporating short videos on punctuation into a class-created wiki, a Web site that allows users to add, remove, and sometimes edit the content, for student content and peer grading.

"Getting students to [assemble their own educational resources] creates a kind of buy-in," Ms. Stewart said. "It can't just be teacher-created, because the kids are going to be bored."

### The Knowledge Base

The process of content creation and sharing is also a way to build professional relationships between

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teachers, proponents of open content say. And the more that teachers get their hands into content creation, the better they can teach that material.

"We can now really build and harness the knowledge base that already exists [among teachers]," said Lisa A. Petrides, the president and founder of the Institute for the Study of Knowledge Management in Education, which is supporting and doing research on open educational resources. "In doing that, we'll see there's new knowledge about teaching that we haven't understood before."

The institute, which is based in Half Moon Bay, Calif., operates the [Open Educational Resources Commons](#), a Web site that collects and shares free-to-use educational resources globally. The OER Commons site, which allows users to search across different repositories of curriculum content, also gives teachers a means of tagging, rating, and reviewing open educational resources. Teachers can modify the resources and post their revisions for others to use.

## Releasing Open Content

Textbooks, however, remain a constant in nearly all schools, and publishers of traditional textbooks do not appear too worried about the open-content movement, at least not yet.

"There may be a trend, or a trend developing—certainly open-source proponents talk about it that way," said Jay A. Diskey, the director of the school division of the Washington-based Association of American Publishers Inc.

But Mr. Diskey noted that textbook publishers have a great store of expertise in creating curricular materials that meet state academic standards and that conform to expert pedagogical practices and the findings of research. If digital formats are what teachers want, he added, textbook publishers have, over the past six or seven years, added digital materials to supplement print textbooks.

Content becomes "open" when the author assigns to the work a license that releases it from certain rights of the traditional copyright-holder. Depending on the license chosen, it may allow the material to be used for free, adapted, or shared with others for noncommercial or commercial purposes.

The [Creative Commons](#), a nonprofit group based in San Francisco, has created the most widely used set of open licenses that have gained acceptance worldwide. The same set of licenses is used to produce open-source software, such as the Linux operating system and some content-management systems, which can be freely shared and adapted.

[Wikipedia](#), the popular online encyclopedia, is perhaps the best known open-content collection. It is created by the "wiki" process, through which anyone can add and edit material, under a set of guidelines. Wikis are one method of creating open educational content, but not the only one.

It's worth noting that not all open educational resources are the result of many hands. The [Math](#)

## Open Educational Resources

- The [BioQUEST Curriculum Consortium](#) makes available open educational resources that teachers can use to help high school and college students study biology by posing and solving problems and communicating with their peers, just as real scientists do.
- The [Creative Commons](#) is the nonprofit author of Creative Commons licenses, which allow content creators to tell others which rights to their specific works they reserve and which rights they waive for the benefit of other creators.
- [FreeReading](#) is an open instructional program to help teach early literacy through a 40-week scope and sequence of concepts and activities.
- The [Math Open Reference](#) is a free interactive math textbook, which covers high school geometry and plans to expand to other areas of math.
- The [Open Educational Resources Commons](#) is a comprehensive open-learning network where teachers from pre-K to higher education can share course materials and collaborate on educational issues.

**Open Reference**, a complete Web-based geometry curriculum, for instance, has a sole author, John D. Page, a retired software engineer.

His Web site offers text explanations and highly interactive tools and animations that students can manipulate on their computers. "It allows students to experiment with math concepts and feel them out themselves," Mr. Page said. He added that the site conforms to the curriculum guidelines of the National Council of Teachers of Mathematics, based in Reston, Va.

He contends that his site is part of "a storm brewing up," as schools bridle against having to buy costly textbooks that their teachers often don't find useful.

Even so, Mr. Page is not prepared to give others the right to alter his online materials. "It's not meant to be a wiki," he said.

### **Professional Payoff**

A more typical open-content project is the **BioQUEST Curriculum Consortium**, an effort to develop open instructional materials for all levels of science education.

Samuel S. Donovan, the head of the consortium and a biology professor at the University of Pittsburgh, works with undergraduate faculty members at the university, as well as K-12 preservice teachers and in-service teachers who are taking part in professional development. The consortium uses Creative Commons licenses and stores teacher-created and -adapted materials in a database. The project also is a clearinghouse for open-source software tools with applications in the science classroom, such as modeling tools.

"[Teachers] can use that work not just in their own classroom, but repurpose them, organize them, customize them, and share them back to the educational community," Mr. Donovan said of the open content.

He sees a payoff in teachers' professional growth. "In science and biology, the areas I work in, if they're able to share that back with the community, it creates a very different kind of professional status for teachers. They achieve ownership and professionalism," Mr. Donovan said.

Much of the consortium's online open-content collection consists of case-based teaching materials that encourage students to engage in research of the local environment. Another section hosts "a problem space," offering data sets and posing shared problems that different learning communities are working on. It also offers teachers and students free tools for analyzing data.

Using those activities and tools re-creates the scientific process in a way not obtainable from a textbook, Mr. Donovan said. "It's analogous," he said, "to a research community."

Presenting a real-world approach to science is "very difficult to do in the science classroom," Mr. Donovan said. "These methods are not equated with open educational resources, but [are] facilitated and really only possible with open educational resources."

Still, he does not go so far as to say that such methods make textbooks obsolete. "The content-authority sorts of issues are never going to go away," Mr. Donovan said. "We're always going to need strong editorial leadership from some experts who know how to organize and present in some coherent fashion the background disciplinary knowledge."

### **Early-Literacy Collaboration**

Early literacy is another active area of development for open educational resources. One initiative,

called **FreeReading**, aims to help educators teach reading by making high-quality, instructional materials for early reading widely available and free.

As in many open-content projects for educators, FreeReading emphasizes the building of a community, or a social network, to generate and improve reading resources. "We're looking to provide a reliable forum where teachers can openly and freely share their successful and effective methods for teaching reading in grades K-1, and for at-risk students in later grades," according to the Web site.

"FreeReading is an ongoing, collaborative, teacher-based curriculum-sharing project," said Karen M. Fasimpauer, an advocate of open content who helps school districts start programs to provide handheld computers to all of their students. The president of K12 Handhelds, based in Long Beach, Calif., she said she became interested in open content as a source of educational material that school districts could adapt for presentation on handheld devices.

She has also co-founded a wiki to promote elementary school literacy, the **Kids Open Dictionary Builder**, which invites people from around the world to contribute simplified definitions to an online dictionary that will have language levels and readability appropriate for children.

"We're hoping lots of people will rip it off and do what they want with it—it's one of the most basic needed resources," Ms. Fasimpauer said.

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