

# Fletch: Web-based Journalism as a Bridge to Technological Literacy

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February 2003—MADISON, WI—In just 10 hours, high school students who had never before built a website published an online newspaper at The Neighborhood House Community Center in Madison, WI. Their site featured investigative reports on how technology affects their local community. Sources say: “It was really cool.”

## 1. Introduction

Studies show that students see science and technology—as it is traditionally taught in school classes—as “white and male” and as accessible mostly to academically advanced students. This stigmatizing of scientific and technological literacy is particularly problematic in light of findings that prior experience in science and technology is a critical predictor of interest and confidence in using technological tools and pursuing scientific and technological education and careers. The low percentages of students who pursue science and technology fields (National Science Board, 2002) suggest that this disconnect is a significant and persistent problem.

This paper describes a tool designed to help students otherwise disinterested and disaffected from science and technology develop formative experience with and interest in scientific and technological issues. The tool was developed as part of the ByLine project. ByLine explores the hypothesis that a learning environment in which students explore the social impacts of technology through Web-based journalism can help develop a foundation for basic technological literacy for students who were not previously interested in technology. The tool supports development of technological literacy by framing student-computer interactions as part of a larger goal: publishing an online newspaper. For the students, this provides a compelling justification for developing technological skills while simultaneously providing the experience with technology so critical to future scientific and technological pursuits.

## 2. Background

A prototype Web application designed to support collaborative online journalism among middle and high

school students, Fletch extends work from professional Internet news reporting and publishing tools, including Knight-Ridder’s Cofax system (n.d.). It incorporates interface features from the Cofax environment, including editable form fields that represent individual story elements, story version and status controls, and an editable collection of stock story photographs.

Fletch extends the Cofax model for professional online journalism by embedding it in a platform based on Guzdial’s work on collaborative Web (CoWeb) authoring (Rick, Guzdial, Carroll, Hollaway-Attaway, & Walker, 2002), and it extends both the Cofax and CoWeb models by incorporating controls that also let users design multiple-column newspaper “section” layouts (Figure 1).

Figure 1 - First Edition Online Newspaper



## 3. Capabilities

Fletch, as part of the ByLine workshops and in conjunction with expert presentations, helps students do journalism. As they interview sources and research, students use Fletch to write stories, to edit their own and others’ stories, and to design multi-column “section” layouts while also learning about technology.

### 3.1. Low Threshold

In the context of publishing their own stories, students were motivated to learn how to control the story's display. Fletch provides a low access threshold for these students, many of whom had never previously built web pages, by providing simple ways for students to produce professional-looking results. Separate prompts for story parts (e.g., byline and lead) are presented on web forms, reinforcing journalistic vocabulary with built-in style conventions (e.g., bylines are italicized). These built-in styles are immediately visible to the student in the "published" story display. Thus, without any additional coding, students saw their writing in an authentic form.

Based on prior work from CoWeb and WiKi Webs, Fletch also employs a simplified markup language--CoWeb Augmented Markup Language (CAML)--to enable quick access to display-controlling language. For instance, typing `**title**` displays title in bold while entering `##image##` displays an image graphic. Fletch also provides transparency for html and inline stylesheet interpretation, enabling more advanced design codes to be embedded in stories as students learn them. Fletch thus provides simple, intermediate, and full-fidelity functional coding stages.

### 3.2. Wide Accessibility

Like most web applications, Fletch benefits from being accessible through browsers anywhere. Unlike many web applications though, Fletch is able to deliver sophisticated capabilities without employing client-side Java applets or requiring specific plug-ins. Instead, the tool employs a combination of server-side Perl and XML along with client-side DHTML, Cascading Style Sheets and JavaScript to enable performance across a wide range of connection types, platforms, and Internet browsers. This access flexibility is important as previously uninterested students seek to work on their stories from home and outside the scheduled workshop hours.

### 3.3. Collaboration

Extended access also supports distributed collaboration. Fletch supports collaborative work by allowing editors to suggest changes and reporters to share story notes online. This in turn enables students to collaborate with practicing journalists regardless of physical location and without tool-specific client software. Fletch also makes it possible to capture all versions of stories and layout compositions, providing users with a virtually unlimited undo/redo flexibility (which preliminary data suggest was a critical feature for collaborative story composition and editing).

## 4. Results

Preliminary results suggest Fletch works: participants in a pilot workshop successfully published their online newspaper after only 10 workshop hours. Results from individual interviews, concept maps, problem scenarios and journalism assessment measures indicated significant changes in students' thinking about technology and its impact in their communities subsequent to using the tool in the pilot. While previous benchmarking work also shows that journalism experts (professors, graduate students, and practicing journalists) exhibit more complex schema than novices, over the course of the pilot, students' answers showed significant shifts towards expert thinking on these assessments.

## 5. Significance

These initial results further document how the ByLine project develops the cognitive science theory of pedagogical praxis (Shaffer, 2003), which suggests that new technologies can help students participate more directly in the world of adult activities and thus learn about the world by engaging in meaningful work—and that professional practices such as journalism provide powerful models for organizing such environments.

Ongoing work with Fletch suggests several key considerations for the design of technological and scientific learning tools intended to extend participation to educationally challenged people. Student-computer interactions should be embedded in an authentic overall goal. The tools should be easily accessible, require little or no training to use, and produce authentic products for students from their first use. And they should provide opportunities for students to collaborate with each other and with experts.

## 6. References

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