Peabody
K-12 Information Literacy

- **Background**

The Internet provides access to a wealth of educational material. Museums, universities, government labs, and companies now routinely use it to publish a range of materials that have educational uses. The Internet extends the school library with resources no single school district could afford.

However, unlike a good school library, the Internet is disorganized, and contains information of varying quality, veracity, utility, and propriety. Finding information useful for educational purposes is often like finding a needle in a haystack.

The Internet does not have librarians to guide students towards useful and age-appropriate material. Web search engines provide raw horsepower, but don't offer assistance in guiding and harnessing that power. Web searches often suffer from high recall (many useful things found) and low precision (even more useless things found).

We believe a digital library paradigm is a solution to this problem. Students need an interface to the Internet that acts like a personal librarian, helping them to find, analyze, evaluate, and organize information. The underlying goal is to produce a more *information literate* student.

- **Applications**

Project NIKI (Networked Intelligent K-12 Information) is developing a Web-search user interface that makes it easy for young students to locate relevant and age-appropriate material on the Internet, and that will help them organize what they find.

Elizabeth Palmer Peabody
Opened first kindergarten in U.S. in 1860 (Boston)

Mr. Peabody
Famous educator and inventor of WayBack machine

Potential extensions of NIKI include improved data analysis tools, for example to extract key concepts and relationships from a set of documents, to investigate an author's credentials, or to find material supporting an assertion in a retrieved document.

Peabody projects focus on K-12 education, but the solutions developed can be applied in other areas, such as undergraduate and graduate education (including virtual classrooms), industrial training, and workforce re-training systems. Potential related applications may involve intelligent tutors, web-based help sites, and corporate customer service centers.

- **The Vision**

Our research plans for the next 1-3 years are oriented towards producing educational software that helps students to find, analyze, evaluate, and organize information, while at the same time teaching them *information literacy* skills. Like a good teacher or librarian, the software should help the student to accomplish the tasks at hand *and* teach long-term skills.

Accomplishing this goal requires basic research advances in several areas.

- Effective search: Develop methods of teaching students of different ages how to craft effective queries.
- Resource description: Discover and describe what is in a database or other information system.
- Investigate an author: Is the author a credible source?
- Supporting information: Search for other documents that support or refute a piece of information.
- Organize information: Create information hierarchies, and have new information automatically inserted into the appropriate spot.

- User models: Learn over time how a particular student finds and organizes information.
- User-group models: Information learned from past searches by 9th grade students can help guide future 9th grade searches.
- Filter for grade level: Deliver to 6th graders only information written for grades 4-8.

The goal of the Peabody project is to make it easier for students to learn and use information literacy skills in networked environments.

The longer range vision includes tools for creating very sophisticated task-specific organizations of information, and is likely to extend beyond 12th grade education. For example, college and graduate students work with larger amounts of information, and organize it into more sophisticated networks.

The Internet gives people low-cost access to incredible information. Success in the future will require a population that can wade into this haystack, pluck out a handful of needles, and use them to quickly accomplish some task. The Peabody projects are oriented towards teaching these skills to today's students.

- **Partners**

The nature of this research requires close cooperation between software developers and software users. Partners in the NIKI project include the UMass Library, local schools, Documensions, and Merriam-Webster.

We encourage the collaboration of organizations such as Internet providers and Web search sites, educational software companies, and textbook publishers.

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