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The Data Game:
Colorado State University's Animated Library Research Tutorial

Polly Thistlethwaite

The Data Game (http://lib.colostate.edu/datagame), produced by Colorado State University (CSU) Libraries, is a Web-based multimedia tutorial designed to teach basic research skills. *The Data Game* uses interactive contests and animated presentations to introduce and reinforce ideas. This paper discusses the tutorial's design, construction, and implementation.

Motivation

Why did we fund and tackle this project, costing about $25,000?

With the fall 2000 term, CSU implemented a revised Core Curriculum of instruction (http://www.core.colostate.edu). All freshmen enroll in a First Year Seminar sponsored by their academic college. These seminars are designed to achieve shared instructional goals, including several goals relevant to information literacy.

With active library participation, it became evident during the 1999 planning process that faculty and administration valued students' introduction to library facilities, resources, and research as key to academic success. The library faced the daunting prospect of over 200 additional requests for classroom instruction with the implementation of the Core Curriculum. It was a good time to automate the library's one-shot instruction session, to add another teaching tool to the battery of library instruction options available.

Precedent

TILT (http://tilt.lib.utsystem.edu) the *Texas Information Literacy Tutorial*, raised the standard for library tutorials. The quality of *TILT*'s sound and graphics, as well as its design and content, boosted automated library instruction to a level necessary to impress and engage students. CSU librarians began to recommend *TILT* to students and faculty soon after its appearance in 1999.

CSU's targeted constituency, however, required instruction beyond what other tutorials offered. First, we wanted CSU-specific instruction about how to locate materials in the library and online catalogs. Freshmen, particularly, need this local orientation. Second, we wanted to make the tutorial highly interactive, even more so than *TILT*, to engage reluctant learners. Third, we wanted to make the tutorial entertaining, again to maintain

students' attention. Fourth, we wanted to construct a quiz for students that could be automatically graded with results e-mailed directly to CSU instructors. Finally, we wanted to minimize original programming. We sought to build our own tutorial, using one of several available authoring programs new to the market in 1999.

The library administration eagerly supported this project because it offered library instruction tailored for the First Year Seminar sections without exploding demand for classroom appearances by library faculty. The administration also supported the professional development and creative efforts of its staff. The project fit the University's goal to promote instructional technology and distance learning.

Literature Review

Professional library instruction and tutorial standards shaped construction of *The Data Game*. Dewald's analysis of online tutorials[1] emphasizes that successful library instruction is assignment-related, involves active learning, can be collaborative, is offered in various formats, offers clear objectives, and teaches concepts not merely mechanics. Dewald et al.[2] also stress that no single mode of instruction satisfies every learner's need. The ACRL Instruction Section Teaching Methods Committee incorporates these guidelines into the following advice for tutorial construction:

- Outline the objectives and outcomes
- Provide a clearly defined structure
- Include interactive exercises
- Give attention to concepts behind mechanics
- Incorporate contemporary language and topics, be succinct as possible, and don't be afraid to entertain
- When the tutorial is used, try to make it course-related[3]

The Data Game embraces some of these guidelines more firmly than others, but all of these considerations informed the content and design of the tutorial. With the target audience for this tutorial being the freshman class of 2000, we stressed the interactivity, entertainment, and course-relatedness of the tutorial.

Four librarians reviewed existing Web-based library tutorials for design, content, and technical considerations. We reviewed software capable of handling animation and quizzing. We agreed to maximize our tutorial's interactivity, while minimizing original programming. We decided our tutorial would employ sound and animation, and as little text as possible. With large graphics and sound files, running our tutorial would require high speed Internet connectivity and current, speedy hardware.

We decided to use Macromedia Authorware as a framework for *The Data Game*. Authorware creations require users to download a free Web Player plug-in to make them run. This plug-in is a distinct drawback for remote *Data Game* players, but Authorware's interactive capacities made it the best choice anyway. Authorware organizes all *The Data Game*'s media, including Flash animation, sound files, and graphics. Authorware programs can also be delivered via the Web, a feature unique to the software when CSU began development in 1999.[4]

Design

<Figure 1>*The Data Game* is styled after popular television game shows past and present. Four animated cartoon characters host distinct modules students can explore in any order. Each module features interactive contests, which reinforce or even introduce concepts relevant to the module.

The Data Game begins with over-the-top organ music, a brief introduction of the game show host, Dewey Knowitall, a crashing marquis, and a moaning crowd. Then the game ushers contestants to the Main Menu screen where they select a module. Upon completing each module contestants are congratulated, then returned to the Main Menu to select their next step. <Figure 2>

The Introduction module introduces contestants to the research process by focusing on the differences among information domains. First contestants consider *Who Cares?* about a research topic by playing a game which challenges contestants to identify opinion holders relevant to a handful of contemporary problems or topics. *Who Cares?* is followed by another game, *Where's It At?,* which asks contestants to determine where particular pieces of evidence, opinion, or research are likely to be found – in books, in periodical articles, or on the Free Web. Both games provide informative feedback. Contestants learn by playing the game. *The Data Game* displays running scores during all seven games in its four modules, encouraging contestants to answer thoughtfully. Contestants with failing scores are forced to play games a second time. In the final segment of the Introduction, Dewey introduces the difference between the "Free Web," and the "Premium Web," drawing an explanatory analogy between different kinds of Web matter and different kinds of television channels, e.g. those that are broadcast vs. those that are fee-based.

A game called *Say WAT?* (for Word, Author, Title) introduces the *Books* module. In *Say WAT*, contestants learn to search for books given particular profiles of information. Then Coach Chuck Locknut gives a locker-room chat about how to use CSU's Sage online

catalog and how to find books at Morgan Library, employing his laser beam pointer to present nuances of Boolean AND searching and location information. <Figure 3>

Gloria Gownwell's flashy entrance opens the Articles module, followed by a scintillating lecture-demo of *Stupendex*, an imaginary article database. Miss Gownwell works the board beautifully as she lectures, pointing to, stepping on, and lifting various elements for emphasis. She introduces the concept of article indexing by illustrating key words and phrases *Stupendex* uses to describe an article. <Figure 4>

ALI (Artificial Library Intelligence) the robot offers up several tips for searching the Web. Her final tip, that sometimes you can just "Guess the Web Address," leads to a game in which contestants do just that. <Figure 5> ALI who shrinks and explodes when contestants beat her with correct answers. She revels obnoxiously when contestants are wrong. Next, ALI explains how to evaluate Web sites, following a Who-What-When-Where-Why formula. Contestants answer questions about mock Web sites throughout ALI's presentation.

The Data Game prepares students for the 20-question *Big Mac Daddy Quiz.* The *Quiz* features a drop-down menu of instructor e-mail addresses to allow contestants to e-mail scores. Contestants can take the final quiz as many times as they want. Questions in the Quiz might prompt students to re-visit other parts of the tutorial.

The Team

I am Coordinator of the Instruction program, with plenty of teaching and reference experience but no remarkable technical expertise whatsoever. I was fortunate enough to assemble a group of talented and creative colleagues with backgrounds in computer technology, instruction, and the performing arts. Kevin Cullen, the digital projects librarian, has extensive background in support of PC hardware, applications, operating systems, and computer graphics. Michelle Mach, the Web librarian, is expert in Web design. Lori Oling has significant instruction experience, and she designed the Auraria Library's instruction tutorial in 1995 using an early version of Macromedia Authorware.

Tim Holt, a student hired to implement the project, studied both computer science and drama. He is a fine actor who transferred this talent for physical comedy into design of *The Data Game*'s Flash-animated characters. *The Data Game* features Holt's voice as Dewey Knowitall and Coach Locknut, as well as his programming and animation skill. CSU librarian Teresa Neely offered her voice to round out Gloria Gownwell as an entertaining and enchanting character. Liz Snyder, a professional musician and actress, composed and performed *The Data Game*'s original music. Snyder also voices the Web

module's robot hostess, ALI. Her music and voicing talent lend *The Data Game* a high quality, professional finish.

Assessment

The Data Game covers more intellectual content than can the most efficient classroom-based library instructor. *The Data Game* delivers more uniform coverage of basic research concepts, considering the variation in librarian teaching styles, content, and classroom time. Informal but substantial feedback from users over the course of the fall 2000 and spring 2001 suggests that *The Data Game* is a hit with CSU students and instructors. Just prior to the opening of the fall term, Oling presented the tutorial in several repeated sessions to instructors in order to familiarize them with the project. WebTrends software recorded about 3430 visits to *The Data Game* site September – December 2000. A comparable number, about 3417, visited the site during the spring term January – May 2001. During the two terms, 1151 contestants e-mailed quiz scores to an instructor.

Early student and faculty feedback suggests that some contestants took issue with the amount of time it took to play the game. In response to that concern, we shortened several animation sequences. The tutorial ran too slowly on the library's new thin clients, so we directed *Data Game* players away from the thins towards PCs and laptops that run the tutorial more quickly.

The most annoying initial problem for in-house *Data Game* players, one that dampened both promotion and use of tutorial, occurred in the combination of Authorware's Web Player software and Windows NT operating software. The library and many campus labs set NT security restrictions preventing necessary write functions on a local disk. This meant students could not e-mail *Big Mac Daddy Quiz* scores, frustrating students and instructors. We fixed the glitch in spring 2001 by re-scripting the *Quiz* to run in an html framework, outside of Authorware.

Because students will learn library skills more readily while playing interactive games rather than scrolling through long pages of text, we expect *Data Game* contestants to retain information and enjoy learning. Only future testing will prove that. Over the coming months, we will formally evaluate the tutorial's success and review student perceptions by putting the tutorial through a battery of usability and learning outcomes testing.

In the meantime, these user comments testify to the nature of the game:
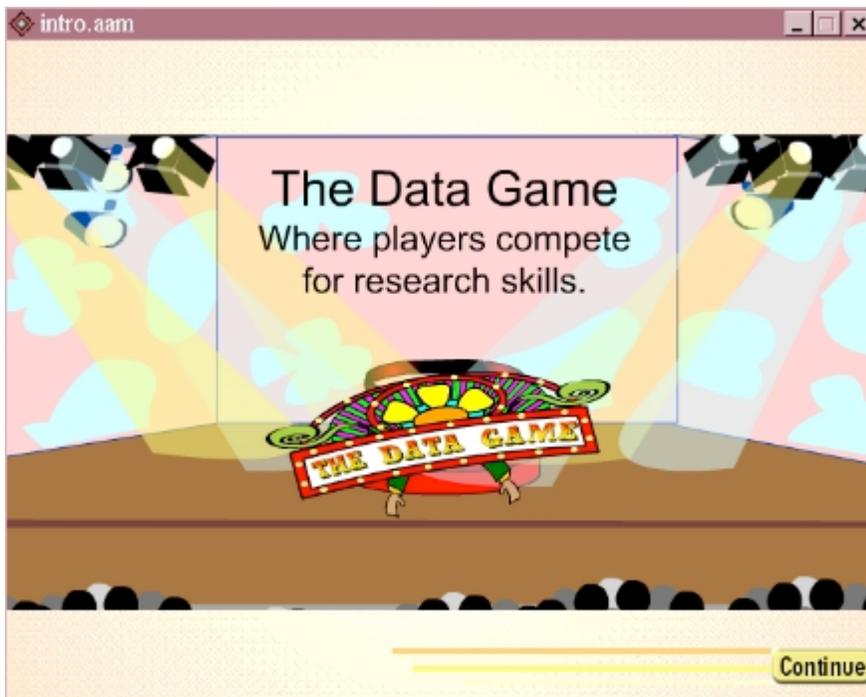
Liked Most: ANIMATION WAS FUN
Disliked Most: PLUG-ins

Liked Most: Cheesie-ness, sound, action, color, questions not too long, tested the important stuff…
Disliked Most: I could not complete the book part because my screen froze.
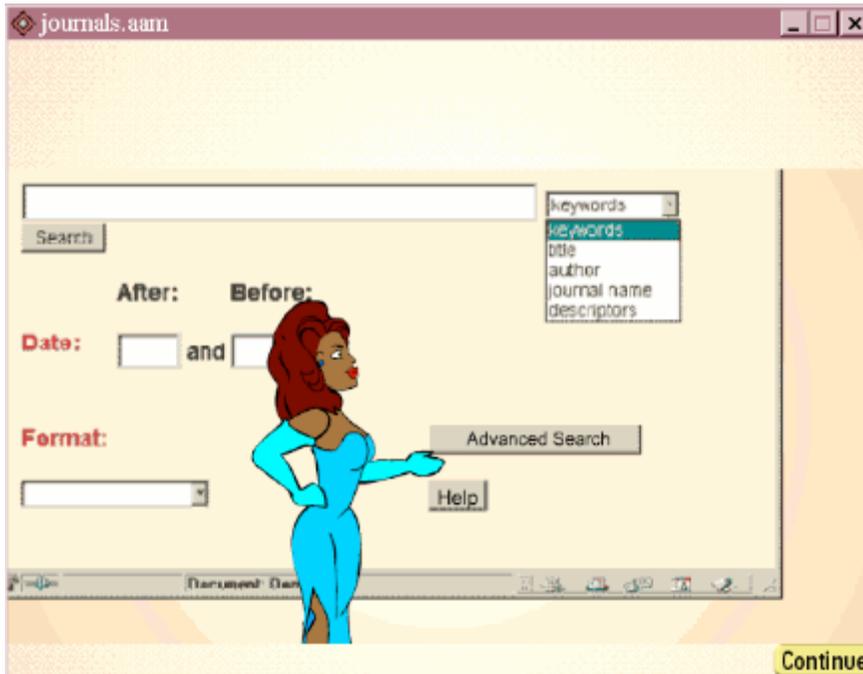
Liked Most: … that is FUN!! whoooeeeee!!!!!!!

Figure 1

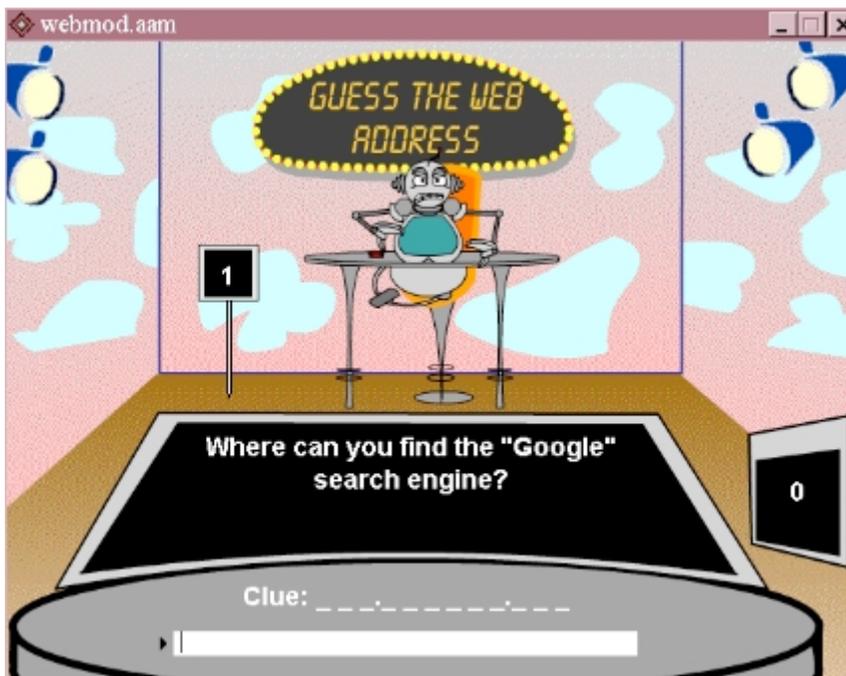The final screen of *The Data Game*'s introductory sequence.

Figure 2

The Main Menu, where contestants select a portion to play.

Figure 3

Coach Locknut running a play on the Sage catalog.

Figure 4

Gloria Gownwell showing off *Stupendex*.

Figure 5

ALI squaring off to play *Guess the Web Address*.

Sources

1. Dewald, Nancy H. "Transporting Good Library Instruction Practices into the Web Environment: An Analysis of Online Tutorials." *Journal of Academic Librarianship* 25:1 (1999): 26-31.

2. Dewald, Nancy H., Ann Sholz-Crane, Austin Booth. "Information Literacy at a Distance: Instructional Design Issues." *Journal of Academic Librarianship* 26:1 (2000): 33-44.

3. Association of College and Research Libraries Instruction Section Teaching Methods Committee. *Tips For Developing Effective Web-Based Library Instruction*. <www.lib.vt.edu/istm/WebTutorialsTips.html>. October 22, 2000.

4. For more about Authorware, see Cullen, Kevin. *Using Macromedia for Web-Based Instruction*. Unpublished.