WebINQUIRER: TRANSITION OF AN EDUCATIONAL DATABASE TO A PLATFORM-INDEPENDENT ENVIRONMENT

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BACKGROUND

The microbiology version of the MacINQUIRER was developed to instruct first-year medical school students at the University of North Carolina, Chapel Hill (UNC) in clinical microbiology. It is one part of an overall educational suite of microbiology, pharmacology, toxicology, and virology computer-assisted learning tools.

MacINQUIRER is also used extensively as an informatics research tool at UNC to examine computer-assisted learning in a medical environment, including patterns of query selection and preferences for hypertext or Boolean search methodologies. MacINQUIRER is a Hypercard application consisting of descriptions of 65 medically significant bacterial organisms. The entire application is searchable by an exhaustive but controlled vocabulary interface permitting queries on every field found in the Hypercard stack. As the School of Medicine gradually transitions away from the Macintosh and into Wintel platforms, a new means of accessing MacINQUIRER is needed. The suggested strategy was to make the INQUIRER model accessible through the World Wide Web. The result of this effort is WebINQUIRER.

METHODS AND MATERIALS

Results from studies on searching strategies employed by experts and students using the MacINQUIRER were examined to determine possible approaches for transition of the application to a web-based environment. The studies suggested students used satisficing, rather than optimization, to narrow the list of candidate organisms. The studies also indicated only a few, primarily circumscribed data fields were selected when conducting searches. The final design employed a small Microsoft SQL Server database searchable through an HTML form using Active Server Pages that would return the URLs of candidate microorganisms; these URLs were linked to reproductions of the MacINQUIRER Hypercard stack content for an organism in a web page format. The stacks were reviewed and their contents reproduced verbatim on web pages using Microsoft Word as a development tool. Organism pages included a set of hyperlinks to complete disease descriptions compiled on a separate page. The final WebINQUIRER version was tested in a side-by-side comparison with MacINQUIRER on a set of organism search criteria previously used in MacINQUIRER research.

RESULTS

The WebINQUIRER demonstrated the same essential functionality of MacINQUIRER while meeting the goals of efficient platform- and browser-independent access. WebINQUIRER produced identical or subset results of MacINQUIRER searches in 75% of the cases. In some instances where results did not match, deficiencies between the MacINQUIRER database and data screens used to construct the WebINQUIRER HTML pages were noted; other differences were attributed to deletion of the seldom-used 'OR' Boolean operator found in MacINQUIRER. Subsequent testing using a data set developed independent of either application yielded similar results. At the same time, certain heretofore-unavailable functions, such as a conveniently searchable disease index, have emerged as a result of inherent web browser capabilities. One of the most significant benefits not available in the MacINQUIRER version was ease of development of the existing organism descriptions; WebINQUIRER will permit faculty with even limited Web experience to modify organism end-descriptions and add hyperlinks to other images and information resources.