Promoting technology integration through increased use of performance support tools

Performance support technologies have the potential to play important roles in encouraging and facilitating the use of information technologies in education. However, there often is a major gap between those who would benefit most from the use of the technologies and those who possess the skills to create the technologies. This roundtable discusses the use of the Create-Adapt-Generalize (CAG) model to design and develop several tools to bridge this gap.

The tools include a Generalized Navigable Survey Creator and a Database Form Tool. The Survey Creator permits novice users to create sophisticated web-based surveys involving multiple pages and conditional branching but without requiring any knowledge of programming languages or databases. The Database Form Tool is a step beyond the Survey Creator and allows users at all levels to take HTML forms created using readily available web editing software and convert them for use with a database.

In the past web and database programmers played a significant part in the entire process of making web-based surveys and database-driven forms accessible to the end users. By getting novice and intermediate technology users involved in the creation process, these tools employ a significantly different approach. In the case of the Survey Creator, a novice user can complete the entire process. The Database Form Tool procedure combines the services of either a novice or intermediate web designer with those of a knowledgeable database operator.

Novice and intermediate technology users can use the Survey Creator to rapidly create customized, multipage surveys with conditional branching. Conditional branching means that the survey can take one of several paths depending on how the respondent answers specific questions. The same users can use the Database Form Tool to create even more sophisticated web forms that can populate themselves based on the content of a database and can update that content or add new content to the database based on the nature of the form and end user action.

The principle behind both tools is the conversion of “non-working” HTML forms into “working forms.” Non-working forms can be created by most novice technology users using readily available web editing programs such as Macromedia Dreamweaver or Microsoft FrontPage. Working forms capable of interfacing with a database require some form of programming code written in a web programming language such as PHP, ASP, Cold Fusion, or Perl. The Survey Creator and Database Form Tool write this code based on a series of options and questions.

Novice and intermediate technology users as well as advanced users (programmers) at all levels in education and industry will benefit from this roundtable. Novice and intermediate technology users who have a high-level conceptual understanding of a web-based tool they wish to create but lack the programming or database skills to do so will be shown the benefits of this approach. Even more advanced users (programmers) who
would be capable of creating such tools themselves should see how these tools can save them significant time. In creating web forms from scratch, there is much programming that is consistent and repetitive. Having a tool that can quickly write a portion of the code can be of benefit even to an advanced programmer.

The roundtable will cover the evolution of the tools and their capabilities beginning with a single page survey creator and how this tool was created, adapted and generalized into the multipage Generalized Navigable Survey Creator. Actual surveys created by the Survey Creator will be showcased. Basic principles of the Survey Creator will be discussed and we will show how the Survey Creator can be seen as a precursor to the more general Web Form Tool. The Evolution of the Web Form Tool will also be covered beginning with a single isolated web form, again creating, adapting and generalizing to a more advance set of web forms where prior information from previous forms is important. The roundtable will conclude with an overview of current limitations of the web form tool and future directions and research.