FY05 Innovations in Teaching with Technology Awards:
ObjectMover Authoring Tool for Foreign Language Learning

FY05 Innovations in Teaching with Technology Awards

<table>
<thead>
<tr>
<th>Proposal Title:</th>
<th>ObjectMover Authoring Tool for Foreign Language Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigators:</td>
<td>James P. Pusack</td>
</tr>
<tr>
<td></td>
<td>Sue Otto</td>
</tr>
<tr>
<td>Org Unit:</td>
<td>College of Liberal Arts &amp; Sciences</td>
</tr>
<tr>
<td>Department(s):</td>
<td>German</td>
</tr>
<tr>
<td></td>
<td>Language Media Center</td>
</tr>
<tr>
<td>Funding Awarded:</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

Instructional technology and multimedia have recently emerged as a vital component of language teaching and learning. In particular, web-based documents from foreign cultures now offer a compelling pathway to authentic foreign-language resources at all levels of study. Yet the potential benefits of such resources often elude language learners because instructors cannot easily provide manageable assignments and accompanying comprehension aids. To put it most succinctly: the texts are too hard, so traditional tasks based on them are too difficult.

Familiar course management systems (CMS's) such as Blackboard and WebCT offer only a partial solution. Because the interaction types implemented in such systems severely limit the creativity of instructors, complex content areas and fascinating web sites frequently evanesce into a vapid series of true/false or multiple-choice questions. Although images can be displayed on the computer screen, authors of language-learning exercises find themselves frustrated by the lack of sophisticated tools that allow learners to manipulate graphical content (illustrations, charts, diagrams, tables) to build understanding of the underlying structure of a text.

We propose to create a flexible authoring tool, ObjectMover. This tool will allow instructors to create visually stimulating interactions that learners can use to capture essential components of a web-based text or a streaming video. The tool will allow a lesson author to import a background image (e.g., a diagram or a map), as well as various textual and graphical elements that must be arranged by a learner on the background in accordance with the information in an associated print or video document. ObjectMover will consist of two parts: a WYSIWYG Flash authoring program
and a Flash player that will run on both Windows and Macintosh platforms in a variety of browsers. The student player will also run within a CMS so that we have the capability of recording student performance.

By providing challenging, motivating, and interactive ways of dealing with authentic web pages and video programs, ObjectMover will encourage our students to spend more time on the task of language learning. Multimedia learning is dominated by simple typing and clicking interactions that emphasize recognition much more than comprehension or production, which are improved by and assessed better with interactions that require deeper processing of information. Those include arranging, ordering, constructing, comparing, categorizing, matching, and assembling. ObjectMover enables such interactions in a web-based environment.

In German, for example, Prof. Spencer will use ObjectMover activities to enhance and expand a series of cultural modules developed within WebCT; these modules have been designed with an eye toward creating one-credit self-study modules for which students can register independently. In French, Prof. Hope will use ObjectMover to create visually oriented activities for a fourth-semester course in which the standard textbook has been replaced with a guidebook, France, designed for native speakers of French.

During the development period for ObjectMover, courses in German, French, Spanish, and Arabic will benefit. The relevant supervisors of General Education courses in German (493 students per year); French (710 students per year); a selected course in Spanish (35:2, 124 students per year); and Arabic (100 students per year) will integrate lessons developed by teaching assistants employed for this purpose. In addition, Pusack and Otto will train graduate students in FLARE to work with the ObjectMover in their course 164:211, Multimedia and Second Language Acquisition (7 to 15 students per year). The total enrollment of these pilot courses is currently 1,437 per year. After the pilot phase, the tool will be available for all instructors; expansion just to General Education Spanish would extend the benefits by another 2,000 students per year.

Over a period of several years we have developed various prototypes of authoring tools and templates in support of foreign language reading and listening. Our prototypes have pushed the limits of available technology (with less than robust results); however, they have allowed us to work with students and colleagues to define the essential features we need:

- sophisticated interaction with graphical elements
- web-based WYSIWYG authoring;
- delivery via multiple platforms and browsers;
- fine-tuned control over streaming video and audio;
- Unicode character-handling for double-byte foreign languages;
What resources will you need?

- database solution for storage of lesson data; and
- integration with a CMS for student recordkeeping.

During the past academic year, we have met regularly with staff from Academic Technologies (AT) to test out critical features and to develop an implementation plan and cost estimate. The fact that AT has already spent .5 FTE (600 hours) developing the design and a prototype for the project gives us a high degree of confidence in the success of the project. The design also anticipates the future development of additional interaction types. Detailed documents of this effort are available online at http://www.uiowa.edu/~c164211/objectmover.

We propose to conduct the project in collaboration with AT. AT will be providing design, development, testing, and integration support, and overall project management. We plan to hire an outside party (who has previously worked with AT on Flash projects) to complete the Flash portions of the project. Otto and Pusack will provide the subject-matter expertise and manage testing and implementation. Major programming of the Flash ObjectMover components (for which detailed project phases have been specified) will take place during January-June 2005. During July-December, testing and refinement will take place, culminating in work with a group of faculty and TAs who will develop interactions in at least four foreign languages.

<table>
<thead>
<tr>
<th>Rough estimate of costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>We request a total of $26,500 in Student Computer Fees.</td>
</tr>
</tbody>
</table>

Funds for the project fall into three categories:
- Hourly programming staff for Flash interaction development (800 hours at $60 per hour = $48,000)
- AT staff for 375 hours of programming, documentation, and project management (.25 FTE = $13, 500)
- TAs for development of materials (2 HTE = $38,000)

Total Project Funds: $99,500.

Sources of Funds
Year 1:
National Resource Center: $16,000
Language Media Center: $19,000
Requested SCF Funds: $20,000 (Jointly funded by ATAC and CLAS Student Computing Fees)

Year 2:
Language Media Center Grad Assistant: $19,000
FLARE Teaching Assistant: $19,000
Requested SCF Funds: $6,500 (Jointly funded by ATAC and CLAS Student Computing Fees)
ITSupport Information