

Learner-Centered Education Grants 2001-02 FINAL REPORT

1. Project Name and Project Director's Name. Include mailing address, phone and e-mail address.

Project Name: Development of an Instructional Training Model and Diagnostics in Support of e-Learning

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2. Brief Description of Project:

RapID is a pragmatic product-oriented instructional model based on the premise that educators have little time and minimal design experience for the development of instruction augmented with technology. The model, developed as browser-based training, encourages integration of instructional technology and learner centered education techniques to produce learning object oriented instruction.

3. Progress on project toward goals:

a. Primary Accomplishments: A formative evaluation of the browser-based instruction by a diverse group of instructors from elementary, secondary, community college, and university levels suggests the model provides ample training for most instructional needs.

b. Outcomes and Assessment: *The first objective was to train educators in the use of learner-centered and learning-object oriented procedures for use in traditional classroom and e-learning environments.* None of the participants challenged the RapID concept and, in general, found the browser-based format to be acceptably intuitive and workable regardless of their computer background. But, those participants with minimal computer background and exposure to browser-based instruction desired a more “personal” interface to RapID. One participant characterized this need as an orientation to RapID possibly in the form of an integrated but virtual multimedia-based instructor. This integrated instructor would introduce RapID and potentially each tier of training.

Regarding the RapID content, responses varied from “too much” to requests for additional content, but generally participants perceived the quantity as fitting their needs. The requests for additional content included copyright issues relating to browser-based learning, more templates, more “good” and “bad” instructional examples, and a more extensive development of evaluation materials with greater emphasis linking learning target

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and associated evaluation. Additionally, there was a desire for more examples and templates focusing on rubric-based testing and grading in growth/progress learning situations. Where specific hardware, software, or related resources are required to facilitate an aspect of RapID training, inclusion of a succinct list of resources should be identified in the RapID training.

The second objective, assisting educators in the delivery of instruction, addressed personal assistance and the development of support tools. Separate from the RapID was the supporting WebCT course management system. This was used by a majority of the participants but several participants had difficulty using the discussion tool and requested technical support for using the tool and posting their instructional materials.

The provided test diagnostic software was reviewed but not implemented by any of the participants. Although participant interest was high, the inclusion of this additional technology was generally considered as a future implementation to their respective learning environments. One participant intends to use the diagnostic software for analysis in an upcoming thesis.

Finally, local technology support was often found lacking and included such needs as easy access to posting and editing of Internet-delivered materials and access to local technology resources, such as scanners.

The third objective, was to study the effects of applying these instructional principles and practices, and focused on: educator success in mastering and applying the materials; the integration of the new learning into traditional teaching activities; the development of e-learning courses; and student success in courses making use of this new approach.

Participant completion of their respective instructional materials was closely associated with their immediate need to implement the resultant instructional materials. That is, those participants not expecting to immediately implement their instruction were least likely to fully complete their materials within a one-month period. Results varied from no completion for two participants to full completion within the one-month period for the remainder, where full completion was minimally defined as sufficiently developing a course so as to include at least one technology-augmented lesson. Two of the participants developed an entire one semester college-level course using the RapID process. The two participants not completing indicated a lack of time to perform the development.

The RapID development process tends to be linear and progressive with focus on a single-subject curriculum. This approach was problematic within the elementary school domain where the learning target is developed across-curricula. Thus, the elementary grade instructor typically needs to develop instruction both vertically (chronologically) and horizontally (across curricula). The calendar of events approach of tier B focuses on vertical development and thus provides some degree of usefulness to elementary grade instructors in its current form.

The most advanced participants requested more sophisticated automation including middleware software support and additional reference to optimization procedures and software, e.g. Impatica to reduce PowerPoint file size, to better facilitate browser-based and classroom resource consumption. Middleware desires included a more fully automated process to facilitate sharing of information, e.g. learning targets, between tiers to minimize copy and paste operations.

A common theme among participants was an improvement in the “quality” of their instructional materials. Quality was typically characterized as carefully establishing and developing instruction closely associated with sequenced learning targets. Participants

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indicated that “readying” or preparing the course was easier. Additionally, participants noted that establishing instruction in a technology format expedited future editing and refinement based on classroom experiences.

The measurement of student success was elusive due to the lack of voluntary implementation of diagnostic software by the participants. Participants indicated an inability to fully incorporate all of the necessary evaluation issues given the brevity of implementation and the breadth of change undertaken. This inability was particularly evident for participants requiring more sophisticated performance-based testing rubrics.

Yet, participants did note observable changes within the learning environments. The more rigorous use of learning targets were typically translated into classroom experiences where, for example, the PowerPoint materials incorporating graphics tended to motivate students and associated outlines helped students to better organize information. One participant incorporating video into presentation sequences found that the students also began incorporating similar technology to enhance problem resolution and increase the “fun factor” in assigned work.

Finally, a common theme was that of being better prepared for classroom learning. Or, as one participant succinctly stated “I was forced to think the process of learning through”. This thoroughness was translated into the learning environments where students indicated that they felt that instruction was better organized.

4. Problems or Issues:

While designed as a minimalist approach, espousing relevancy and ease, for the development of technology-augmented instruction, participants in this study desired additional content and support. Recommendations include a more personable interface, in the form of embedded talking-video, as an orientation and introduction to key content areas. Other revisions address evaluation related templates and examples with a more rigorous integration with cross-curriculum development. Consistent with the outcomes of other technology augmented instruction studies, an assurance of technical support, and readily available hardware and software resources is necessary to assure that participants can accomplish instruction development.

5. Conclusions, Recommendations and Future Directions:

Participants completing the RapID training were able to develop instruction that was fully adaptable to their particular learning environment. The exception was related to use in elementary school settings where the calendar of events approach of RapID considers vertical or chronological development and, in its current form, potentially limits curricular integration.

A quantitative measurement of student success was elusive due to participants not using the provided diagnostic software. A majority of the participants lacked background in evaluation, and the inclusion of evaluation software will likely require a more thorough review of test and measurements relative to student evaluation, a simpler interface, and

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complete integration into a course management system or a test development tool and associated database of student results. This limited evaluation background, brevity of implementation, and the breadth of change undertaken by the participants, made voluntary use of the diagnostic software simply too daunting. Yet, participants were sufficiently cognizant of changes in the learning environment. Students were more motivated and organized relative to the learning targets being addressed.

Participant comments regarding modification to RapID focused largely on the inclusion of more content and examples. Specifically, more examples addressing writing learning targets, additional templates and guidance for rubric writing particularly in the area of evaluation of growth and progress, more examples of good and bad instructional practices, and information regarding copyright issues relating to browser-based learning.

While potentially increasing the bandwidth requirements of RapID, a desire for inclusion of a human introduction through embedded video were recommended, by the least technology literate participants, for an orientation to RapID, as introductions to each tier, and to introduce complicated topics. Additionally, an extensive orientation to WebCT or any course management system was requested.

Finally, the most advanced participants requested more sophisticated automation including middleware software support and additional reference to optimization procedures and software.

Has this project led to sustainable change? Describe: Most of the participants continue to use the resources. More recently, the RapID materials are being used as the basis for a study involving faculty development in the use of synchronous technology for creating “barrier-free” learning.

6. Impact:

a. Have other faculty been affected by this project? Yes No. If so, describe: The RapID materials are being reworked and are intended to serve as primary supplements for a study involving faculty development in the use of synchronous technology for creating “barrier-free” learning.

b. Number of courses affected/involved. Approximately ten courses

c: Number of students affected. Indeterminate number due to the lack of voluntary implementation of diagnostic software by the participants.

d. Describe impact on students: The measurement of student success was elusive due to the lack of voluntary implementation of diagnostic software by the participants. Participants indicated an inability to fully incorporate all of the necessary evaluation issues given the brevity of implementation and the breadth of change undertaken. This inability was particularly evident for participants requiring more sophisticated performance-based testing rubrics.

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Yet, participants did note observable changes within the learning environments. The more rigorous use of learning targets were typically translated into classroom experiences where, for example, the PowerPoint materials incorporating graphics tended to motivate students and associated outlines helped students to better organize information. One participant incorporating video into presentation sequences found that the students also began incorporating similar technology to enhance problem resolution and increase the “fun factor” in assigned work.