

USING GRANTS TO INFUSE TECHNOLOGY INTO TEACHER EDUCATION

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Abstract: This paper describes the use of a BOCES mini grant to fund a Summer Institute in Educational Technology at Iona College. The purpose of the grant was to encourage teacher education institutions to enhance the development and adoption of higher standards in K-12 education. The Institute used the WebQuest as a vehicle to identify and integrate New York State standards and assessments into the curriculum. Student evaluations of the Institute show a positive impact.

NATIONAL EDUCATIONAL REFORM

During the past two decades there has been a nationwide effort to reform education at the elementary and secondary levels. As early as 1983, Americans were made aware of the existing problems and the need for more stringent standards in education by the publication of the report "A Nation At Risk" by the National Commission on Excellence (National Commission on Excellence in Education, 1983). Educational and political leaders saw the report as a call for action and responded with the development of new goals, higher standards, and new assessments at the state level. Their efforts were supported by legislation signed by President Clinton in 1994 called the Goals 2000: Educate America Act (Stedman, 1993). The act set national education goals and provided support for the states' efforts to improve performance. Part of the funding provided by the act was directed to a grants program. Each state had to allocate funds from the grants to programs that would enhance the development and adoption of higher standards in K-12 education.

NEW YORK STATE STANDARDS AND ASSESSMENTS

In New York, as in most other states, the efforts to reform education have led to sweeping changes in goals, standards, and assessments. An innovative set of standards has been developed for the content areas, and a new emphasis on technology permeates the curriculum (Learning Standards for Mathematics, Science, and Technology, 1998). To accompany the new standards, there is a new set of assessments, which have been introduced gradually over the past three years. The poor performance of students on the assessments, and consequent retention or summer school, have made the newspaper headlines (Barbanel, 1999), as has the reassignment or firing of school administrators in districts with substandard results (Holloway, 1999).

The state has provided funds to various agencies to help teachers prepare to teach the standards-based curriculum. Southern Westchester and Putnam/Northern Westchester BOCES were among the agencies that received a Goals 2000-funded grant in 1998. The purpose of their project was to support institutions of higher education in revising their teacher preparation programs to align with the new state standards for students, teachers, and teacher preparation. The grant was coordinated by BOCES for the benefit of members of an educational consortium that included most of the colleges and universities in the Westchester region. One of the purposes of this grant was to promote technology through professional development. The agency worked in collaboration with schools, colleges, universities, community organizations, and businesses to implement the state learning standards and to develop high local standards.

As part of the grant activities, BOCES developed a toolkit consisting of the materials teachers needed to learn the goals and to develop curriculum materials that would prepare students for the new assessments. Representatives of colleges and universities with teacher-preparation programs were invited to a three-day workshop to use the toolkits to learn about the new standards and assessments so that they could incorporate them in their programs. The workshop was held at SUNY Purchase in October and November of 1998. Speakers described the content area standards and provided examples of standards-based instructional practices. Workshop leaders distributed sample assessments for examination and discussion. A program of mini-grants was made available to participants for proposals for activities that would incorporate the standards-based instructional practices. Our proposal, which was for a Summer Institute in Educational Technology, was funded through one of the mini-grants.

IONA COLLEGE SUMMER INSTITUTE

Our Summer Institute was held during eight days in July, 1999. Participants included both pre-service and in-service teachers in a variety of grade levels and subject areas. We used the grant funds to bring in keynote speakers to discuss the standards, assessments, and other topics in educational theory and practice. For example, speakers lectured on the Goals 2000 Grant Program, the New York State

Standards and Assessments, and Robert Marzano's Dimensions of Learning (Marzano, 1992).

The Institute focused on using a tool called a WebQuest to incorporate the use of the Internet in standards-based instruction. The WebQuest concept was developed by Bernie Dodge at San Diego State University in 1995 (Dodge, 1995). It is an inquiry-based activity in which the learner uses Internet resources to complete a project. The WebQuest page, which is written by the teacher, describes a task for students to complete. The task is often an extended group project, requiring students to follow links on the page to obtain information needed for the project. The project may be to create a product such as a multimedia presentation or to give a performance based on their research. It usually involves the use of higher-order thinking skills like problem solving, role playing, critical thinking, analysis or synthesis.

In our institute we required that the teachers state which learning standards their WebQuest was addressing. They were also asked to include a grading rubric describing characteristics of different levels of achievement, since New York State has determined that the grading rubric is the mechanism for assessing student performance. Participants received instruction in the standards and had the toolkits with brochures containing the New York State standards in various subject areas available to them in the lab. They visited sites with sample WebQuests and evaluated them using a standard evaluation rubric (Dodge, 1998). They learned how to create a webpage using Netscape Composer as an authoring tool.

All of the WebQuests can be seen at the course website www.iona.edu/cs/SummerInstitute/WebQuests.htm. Topics included "Celebrating Hispanic Heritage", "Teenage Drunk Driving", "Issues of Intolerance and Racism", "Tomorrow's Investors" and many others, spanning grade levels from second to twelfth, and various subject areas such as mathematics, science and technology, language arts, social studies, and art (Bailie & Ricardo, 2000). Participants presented their WebQuests to the group at the end of the institute, published their work on the College website, and were encouraged to share the content of the institute with their colleagues when they returned to their districts.

ASSESSMENT OF THE INSTITUTE

Assessment of the effectiveness of the Summer Institute took the form of two evaluative instruments: one administered immediately after the course and another six months later. The eighteen students in the class represented a wide spectrum of experience. Participants were administrators, technology coordinators, computer teachers, and classroom teachers at the elementary, middle and secondary levels.

The first evaluation revealed a positive reaction to the course. Students' primary motivation for taking the course was to learn how to create and implement WebQuests and to enhance their ability to integrate technology (particularly the Internet) into the classroom. On a scale of 1-25 (where 25 represents completely

satisfied), the mean score on meeting expectations was 21. The main reason for their satisfaction was that they had a functional WebQuest to bring back to their schools in September. In addition, they found the morning lectures to be highly relevant and informative; some even expressed a desire to have the lecturers available in the afternoon labs. However, some students did encounter problems—namely, lack of familiarity with Netscape Composer and a need to investigate more model WebQuests before beginning their own. Their satisfaction was augmented by the fact that students found the course's content to be highly relevant to their teaching. They rated WebQuests an excellent tool for technology integration, especially because the format can be adapted to all grade levels, is suitable for interdisciplinary work, and appeals to a variety of learning styles. Among suggestions for improvement were to extend the course to three or four weeks so they could complete more extensive assignments. However, the overall reaction at the conclusion of the Summer Institute was extremely positive. Students not only enjoyed creating WebQuests, but they were very satisfied with the format of the Institute, the balance of lecture and lab, and the comfortable atmosphere of teaching and learning from peers.

Six months after the Summer Institute, students received in the mail a follow-up evaluation form to determine the extent of their use of WebQuests once they returned to their schools in the Fall. Approximately 60% of the students responded. Unfortunately, many students were not able to assign WebQuests to their classes because they lacked computers or Internet access or, in one case, administrative support. Those who were able to incorporate the WebQuest concept reported great success. K-12 students were able to share ideas on how to conduct research, were highly motivated to explore educational sites, and found that in some cases the information found on the Web was better than the techniques that had been taught in class. Another positive result of the Institute was that all students reported that they had shared the work they did with fellow teachers. Even in schools that lacked computer and/or Internet access, students enthusiastically discussed the WebQuest concept with their peers. When possible, they demonstrated the WebQuests that their fellow students had created during the Summer Institute. One student who is an administrator gave the WebQuest that she created to her faculty to complete. This experience generated so much interest that this particular group of faculty have been asked to identify topics for future WebQuests and now regularly discuss ways to integrate technology into the curriculum.

CONCLUSION

It seems apparent that the excitement that the Summer Institute generated had not subsided six months later. All students who had the resources had used the WebQuest that they had created. Some had developed new WebQuests and others regularly searched the Web for other WebQuest sites. Those who responded to the follow-up evaluation agreed that the Summer Institute had been a worthwhile experience and had infused their classes with a motivating, creative, and valuable tool for integrating technology in a highly effective and exciting fashion. Students' intentions to continue to implement the WebQuest concept are perhaps the most

significant testament to the success of the Summer Institute. The concept and impetus to conduct this Summer Institute was greatly enhanced by the Goals 2000 grant.

References

Bailie, Frances K. and Ricardo, Catherine M. (2000) *Incorporating Standards in Web-based Classroom Instruction*. Proceedings of SITE 2000. Association for the Advancement of Computing in Education, 2218-2222.

Barbanel, Jon. On New State Standards Tests, City Students Struggle. *The New York Times*. November 7, 1999.

Dodge, Bernie (1995). Some Thoughts about WebQuests. *The Distance Educator*, 1(3), 12-15.

Dodge, Bernie (1998). A Draft Rubric for Evaluating WebQuests. www.edweb.sdsu.edu/webquest/webquestrubric.html.

Goals 2000: Reforming Education to Improve Student Achievement: Report to Congress (1998). Washington, D.C.: Office of Elementary and Secondary Education (ED). (ERIC Document Reproduction Services No. ED 420 918)

Holloway, Lynette. Citing Low Scores, Crew Will Remove 5 Superintendents. *The New York Times*. June 19, 1999.

Learning Standards for The Arts. (1996). Albany, NY: New York State Education Department.

Learning Standards for English Language Arts. (1996). Albany, NY: New York State Education Department.

Learning Standards for Mathematics, Science and Technology. (1996). Albany, NY: New York State Education Department.

Learning Standards for Social Studies. (1996). Albany, NY: New York State Education Department.

Marzano, Robert J. (1992) *A Different Kind of Classroom: Teaching with Dimensions of Learning*. Association for Supervision and Curriculum Development.

National Commission on Excellence in Education (1983). *A Nation at Risk: The Imperative for Educational Reform*. Washington, D.C.: US Government Printing Office.

Stedman, James B.(1993). *Goals 2000: Educate America Act Overview and Analysis*.
District of Columbia: (ERIC Document Reproduction Services No. ED 359 637)