

TECHNOLOGY RICH ACTIVITIES FOR INSTRUCTION AND LEARNING WITH SUPPORT (TRAILS)

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OVERVIEW

This paper reports the development, implementation and findings of a grant funded study conducted using more than 530 5th and 6th grade students to determine if the integration of technology into the core curriculum with added training and additional school based support made a difference in student performance. The study addressed the validity and reliability of the technology assessment keyed to state technology competencies. Students were pre and post tested on the technology competencies to determine student gains. The teachers were involved in a series of inservice training events and had the advantage of an in school technical support and curriculum integration specialist. The inservice teachers completed surveys and were interviewed to determine their increases in confidence implementing technology into the core curriculum as well as the level of teacher technology knowledge and skill. The paper also reports teacher and student qualitative data regarding their reactions to the project. For more detailed information on this project please visit <http://education.uncc.edu/icte>.

PROJECT GOALS

This grant focused on three overall project goals. The **first goal**, “To improve the percentage of students passing the North Carolina Test of Computer Proficiency in their eighth grade year” is a long-range goal that can only be measured when the current 5th and 6th grade students take the North Carolina Test of Computer Proficiency. The current trend in student performance would indicate statistically significant gains using the locally-developed computer skills test. Detailed information regarding student pre and post performance on the locally-developed computer skills test is presented later in this document. The **second goal**, “To have Richmond County Schools Grades 5 and 6 teachers integrate technology into their day-to-day instructional program with instructional support and technology assistance”. Has been met based on an examination of the school system training schedule and interviews with the teachers involved in the project. Detailed interview results are presented later in this document. The **third goal**, “To develop instructional materials that integrate computer/technology curriculum skills into the core curriculum areas for grades 5 and 6.” has been met.

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TECHNOLOGY ASSESSMENT INSTRUMENT

Reliability was determined using an analysis of internal consistency of the assessment. The split-half method yielded a reliability of .83. In other words, about 83 % of the time, students did about the same on the even numbered items as they did on the odd numbered items.

The issue of validity was examined using an analysis of the instrument development process. The instrument was developed using the North Carolina Technology Competencies. Items were written to address these competencies and the process used provides evidence of Face and Content validity. Face validity asks the question, "what do the items measure?" and the answer seems to be the assessment measures computer technology. Content validity asks the question, "what about computer technology does the assessment measure?" and the answer to this question seems to be that the assessment measures the State competencies. In addition, the locally developed test was patterned after the State Release version of the Computer Technology Assessment and the same test specifications were utilized. The item to competency match shows the relationship between the items and competencies to be in the 90% range.

To determine some additional level of content validity, faculty and graduate students conducted an analysis of the items. In an independent analysis the graduate students were 97.4% accurate in matching items to objectives.

RESULTS

For project goal #1 a comparison was conducted. The pre and post test was completed by 536 students. On the pre test the mean score was 54.05 while the mean post score was 59.26 with a mean difference of 5.20 points. A t-test of non-independent samples was conducted yielding a t value of 9.03 where $p < .001$. The gain scores ranged from -0.19 to 9.91 points with the average gain being 5.20 points.

For project goal #2 school records were examined and the teachers were interviewed using a survey. The pre surveys were given to the teachers and the results used by the system to identify areas of need and support. The post versions were not given during this cycle of the grant. It was thought that the post interviews would provide insight into the increases in confidence regarding implementation of the technology into the core curriculum.

The pre interviews compared with the post interview responses indicated the teachers were much more willing to identify specific technology skills and software knowledge. Their responses to questions 6, "What have you taken back to your classroom to use for instruction from the workshops and/or training sessions?" and question 7, "Which of your technology skills have improved as a result of the grant workshops and/or training?" were much more detailed and specific.

For project goal #3 an analysis of the quality and quantity of integrated instructional lesson plans, instructional units, and teacher resources was documented using project records. The project produced almost twice as many lesson plans as planned. The interviews surveys also documented the utility of the several lesson plans listed. These plans were made available to all of the teachers involved in the grant project. The materials included the following integrated units: (1) Weather, (2) Multiplying Integers, (3) Geometry, (4) Story Analysis, (5) Character Analysis, (6) Descriptive Writing (A public place where people gather), (7) Central & South America Poster, (8) What State Am I?, (9) Country Brochure, (10) Animal Classification Research, (11) Solar System Database Mysteries, (12) Living Things Spreadsheet, (13) Drugs, (14) State Report Brainstorming, (15) Comparing European Countries, (16) Paint A Picture, (17) Vocabulary Memory Game, (18) Multimedia Book.

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