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Proceedings Submission

Title of Submission: Cultural Relevance in Intelligent Computer-Assisted Instruction

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Abstract of Paper:

This paper responds to the achievement gap in mathematics and science (Irvine & Armento, 2001) and the digital divide in technology (Wenglinskey, 1998) that continue to exist between mainstream and African American students. The purpose of this project is to develop and field-test computer software that uses intelligent computer-assisted instruction (ICAI) to help third and fourth-grade African American children solve culturally relevant mathematics and science problems. The rationale for selecting third and fourth graders is that differences in minority students' motivation and achievement in mathematics begin to occur around fourth grade (Ladson-Billings, 1997); the rationale for selecting African Americans is that these students have low performance on standardized tests in mathematics and science (Tate, 1997). However, computers have enhanced the learning of students in all socioeconomic groups, especially in mathematics and science (Roschelle, Pea, Hoadley, Gardin, & Means, 2000).

Our research team at Temple University received a small grant for exploratory research (SGER) in July 2002 from the National Science Foundation to carry out a one-year pilot study on intelligent computer-assisted instruction with African American students. During this project an original CD-ROM was developed by Renaissance Micro, Inc. on the theme of the Underground Railroad. Books that were used in the pilot study to help teach the content included: *Sweet Clara's Freedom Quilt, The Invisible Princess, Freedom River, Barefoot, Minty: The Story of Young Harriet Tubman, The Black Snowman,* and *The Drinking Gourd.* The study was conducted in two charter schools: West Oak Lane Charter School in Philadelphia, Pennsylvania, and Harriet Tubman Charter School in Bronx, New York. The unit of analysis is the teachers and students at these two schools. Two fourth-grade teachers at West Oak Lane (WOL) participated in the project in the fall of 2002. One third-grade and one fourth-grade teacher will participate in the project at the Harriet Tubman Charter School (HTCS) in New York during the winter of 2003. This paper is a work in progress and presents the preliminary results of our fall work at WOL with two classes of fourth-grade students.