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Recruitment and Retention of African American Males in High School Mathematics: Have We Achieved Access to the Success Stairway?

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Introduction

The proposed presentation is designed to highlight the findings of one four year research project that succeeded in recruiting and retaining African American males in upper level mathematics classes. The recruitment and retention of African American students into predominantly White upper level mathematics classes remains a challenge in many school settings. Most schools desire that more minorities participate, yet finding a successful formula often proves difficult and elusive. The following research project followed the progress of one such school, and a group of mathematics teachers who tried to change the view that higher mathematics wasn't for young men of color and succeeded.

Our goal is to present the findings of the study and challenge the audience to consider the aspects of the program the researchers believe made the difference in recruitment and retention for these African American male students.

Classrooms are complex units of culture that encourage teachers and students to strive and make sense of their environment and to integrate personal knowledge and beliefs with new information. Interpretation and re-evaluation are on-going epistemological processes (von Glasersfeld, 1989). The theoretical perspective is a constructivist one, whereby the views of the participants and their interpretations are most important.

Methodology

The assumptions guiding this research are taken from an interpretative/qualitative perspective which assumes that perceptions are mediated by an individual's interpretations of experience. Erickson (1986) and Lincoln and Guba (1985) outline the techniques used in this research project which employed an ethnographic method to collect data. Most data was collected in the form of interviews with participants and field notes taken during classroom observations. Additional data was obtained in document form regarding the school's demographics, recruitment records and student enrollment figures.

Research Questions

The research questions we addressed were: (1) What were the constructs teachers found useful when teaching mathematics in a multicultural setting? (2) What components

of the program designed did teachers and students find most effective in recruiting and retaining African American male students in upper level mathematics courses? (3) What aspects of practice, beliefs and interaction patterns changed? (4) What impact did these changes have on student retention/performance?

Researchers' Role

The researcher in this study was a participant observer. She was involved in the field with teachers and students for four years. The prolonged engagement in the field allowed the researcher to access the "back-stage behaviors" and attitudes that best represent the true perspectives of the participants.

The Setting and Participants

The research involved the participation of thirty-seven African American males enrolled in upper level mathematics grades 9-12 at an urban high school. Also participating in the study were five teachers at the same high school, all committed to increasing the participation and success of African American students.

Findings/Conclusions

The following assertions represent a summary of the findings and are by reason of space constraints very brief (interview data omitted). The program enacted by the teachers to target African American males required that a number of changes be made in their approaches. The reasons the changes in practice and beliefs occurred are the major focus of the presentation. It is the change in practice, perspective, attitude and beliefs on the part of the teachers and students that made the program a success. Specifically the students and teachers made the following changes in practice/beliefs/program:

Assertion I: Participation increased when students were recruited in cohort groups.

Assertion II: Students found it beneficial to interact with role models whose careers required advanced mathematics. They were better able to connect with African American scientist, engineers and mathematicians who embodied their culture and attitudes, and thus project themselves into these new opportunities.

Assertion III: Students and teachers had to project themselves into the new future. Each group had to reconceptualize their roles and attitudes about teaching and learning mathematics.

Assertion IV: Teachers had to change their beliefs about teaching and learning; teaching had to become more student centered.

Assertion V: Changes in teaching practice were extensive and involved the addition of group based instruction and project oriented curriculum. Projects were tailored to student interests and abilities, including the integration of technology into most mathematics lessons.

Assertion VI: Major changes in the classroom culture were noted in classes most successful in retaining African American students in their classes.

Specifically, the students and teachers developed new interaction patterns.

Assertion VII: Program components most successful, as reported by students and teachers

were: (1) cohort group recruitment; (2) small group projects and student centered mathematics curriculum; (3) peer and teacher supported homework help line and center; (4) University / school partnership for student participation in research (involving science, math, or technology); and (5) the career focus program designed to acquaint students with careers and professionals in mathematics, science and technology.

Impact

Our goal in presenting this research is to assist the audience in thinking about programs that are focused on retention and recruitment of African American youth. Further, we wish to stimulate ideas about ways in which we can all make a difference in the achievement of students of color.

PRESENTERS:

Sheryl McGlamery is an assistant professor of Science Education at the University of Nebraska at Omaha. She is currently involved in research focused on teacher induction/development with the CADRE project and multicultural issues in science and mathematics education.

Carol Mitchell is an assistant professor of Science Education at the University of Nebraska at Omaha. Dr. Mitchell is also the director and co-principal investigator on the Banneker Project that focuses on the recruitment and retention of African American youth into science and mathematics.