PROJECT BEST: A COLLABORATIVE PROGRAM TO RECRUIT TEACHERS AND ENHANCE SCIENCE PERFORMANCE OF MIDDLE SCHOOL STUDENTS

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Introduction

Project BEST (Basic Educational Skills and Training) is a collaborative mentor.tutorial program between Virginia Commonwealth University's (VCU) School of Education and Department of Mathematical Sciences, and Richmond Public Schools. Project BEST is one of the teacher recruitment initiatives of VCU's Teacher Preparation Collaborative. The Collaborative, a consortium of seven four-year colleges and three community colleges, seeks to strengthen the mathematics and science preparation of pre-service and in-service elementary and middle school teachers.

The overall goal of Project BEST is twofold. First, it provides a comprehensive program to enhance the academic performance of at-risk middle school students in mathematics and sciences in preparation for success in an academic high school track that in turn facilitates college admission.

Academic success at the middle school level frequently determines readiness for a college preparatory track in high school. Middle school students who have a solid foundation in mathematics and sciences are more likely to be successful in college preparatory courses than those without a foundation in math or science [1]. Mathematics, in particular, has long been considered the "gatekeeper" to college admission [2]. At the middle school level, Project BEST endeavors to increase the numbers of students who are eligible for college admission and who are prepared to persist to graduation from college.

Second, the project serves to recruit college students who are competent in mathematics and sciences for teaching in elementary and middle school classrooms. In academic year 1999-2000, 76 college mentors worked with 112 at-risk students in nine of the ten middle schools in the Richmond Public Schools.

In Virginia, two-thirds of middle school mathematics teachers do not have the equivalent of a major in mathematics and large numbers are teaching out of their field. Teachers who are not specifically prepared to teach in a field are unlikely to have the requisite content knowledge and

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pedagogical knowledge to provide quality instruction [3]. At the college level, Project Best seeks to increase the number of prospective teachers in the pipeline, particularly minorities, who are competent in mathematics and sciences.

When Project BEST began in 1989, its goal was to increase the retention rates of the minority college student and at-risk middle school student populations, and through the partnership, to also increase academic performance of middle school students. Since that time, retention rates at the University and in Richmond City's middle schools have improved. In 1997, as the needs changed, the emphasis of Project BEST shifted to address the need for recruitment of undergraduate students for careers in teaching and to improve academic performance of middle school students in mathematics and sciences.

Program Components

The four basic components of Project BEST may be easily replicated:

First, a three-tiered mentorship program in which college faculty and middle school teachers serve as mentors to college students, and college students serve as mentors to middle school students. Faculty mentors are available to assist the college students with issues related to professional growth, career planning, and personal development. Their role is not to serve as a faculty advisor, but as a confidante and friend to the students. The college students serve as role models to the middle school students. They help them gain a vision of who they can become if they remain focused on academics and prepare to attend college.

Second, a mentor/tutorial program with paid VCU students mentoring and tutoring middle school students in mathematics and sciences two days each week. The middle school teachers closely monitor the after-school tutorial program, maintain portfolios with class materials to direct the students in the tutorials, and are present to provide assistance and direction to the mentors during the tutorial sessions.

Third, workshops for college students and a special series of math/science workshops for middle school students that enhance academic skills. At the beginning of each school year, an orientation session is held for the college students giving them the opportunity to understand the organization of the program and their responsibilities as mentors/tutors. The content of the workshop also includes information on adolescent growth and development, the content of middle school curriculum, skills assessed by the Virginia Standards of Learning sub-tests in mathematics and sciences, strategies for tutoring in mathematics and science, and strategies

for building durable self-esteem in at-risk children. The public school teachers, administrators, and VCU faculty serve as facilitators and consultants during this session. Each participant receives a *Project BEST Handbook* that outlines program procedures and individual responsibilities in Project BEST. Information on curriculum and tutorials is also included.

The workshops held for the middle school students serve to reinforce class content as outlined in the school's curriculum. For the past two years, a series of Saturday math and science enrichment seminars were implemented to review the concepts included on Virginia's Standards of Learning sub-tests in mathematics and science. Over the years, workshops have been held on note-taking, critical thinking, and test-sophistication skills. To get the parents and siblings involved in the Saturday workshops this year, an "Algebra Family Fun Day" was held with prizes and a pizza party for the participants.

Fourth, a series of cultural events on campus and in the community are run to enhance self-esteem of middle school students and community acculturation of the college students. These events also allow the mentors and the middle school students an opportunity to get to know each other in informal settings. Over the years, the students have participated in trips to amusement parks, plays, basketball games, and picnics. Last fall, the students and their mentors visited the "Splendors of Egypt" exhibition at the Virginia Museum.

Criteria for Selection

Middle school students selected for the program must have demonstrated potential for academic success either through grade-point averages or test scores. Students who are academically capable but who have been determined to be at-risk because of discipline problems and frequent absences may be invited to participate in the program. Further, math and/or science teachers recommend students who they feel will benefit from having a college role model and tutor. Teachers and administrators at each school select the students who will participate in Project BEST.

College students selected as mentors for the program must have at least a 2.0 cumulative grade-point average and prior experience working with children. Students must have an academic major in math, science, or a related field, or in teacher education. Students who have not declared a

major are invited to apply for Project BEST. Those selected are assigned a faculty mentor in the School of Education and are actively recruited for the teacher preparation program. Each student writes a statement explaining why he or she is interested in the program and participates in a formal interview.

Evaluation

The project continues to meet its goal of teacher recruitment. Approximately twenty percent of the current Project BEST mentors are teacher education majors. The Project Best director will monitor the number of students who are retained in the teacher preparation program, graduate, and obtain licensure for teaching.

The mentor/tutorial program is evaluated as successful based on academic progress of the middle school students, as evidenced by improvement in grades in mathematics and science or maintaining good grades in mathematics or science each marking period, passing scores on the Standards of Learning sub-tests in mathematics and science, and a reduction in absences and discipline referrals. In an earlier study of Project BEST [4], the students in the experimental group as compared with a control group consisting of students not participating in the project, had higher grades, greater self-esteem, fewer absences and discipline referrals, and were more likely to accept responsibility for the academic successes and failures. This higher level of performance of the Project BEST students has been consistent since the inception of the program.

The director constantly monitors the program throughout the school year through informal contacts. At year-end, the Project BEST director conducts formal interviews with the principals and lead teachers to determine program strengths and weaknesses, modifications needed, and overall performance of mentors. The project director also administers formative evaluations of activities/workshops to the middle school and college participants throughout the year. A summative evaluation is administered at the end of the school year following a meeting of mentors and selected Project BEST lead teachers and school administrators.

Stories of Success

Project BEST received national recognition with awards from the American Association for Higher Education and the American Association of State Colleges and Universities for excellence in the area of strengthening relationships with local school districts.

The project is making a difference in the lives of students by positively influencing their academic performance and attitude, and thus, affecting their personal lives. Personal comments of

college mentor/tutors and middle school students in the program best communicate the impact of the program on the lives of its participants.

A seventh grade student noted, "Before I got into Project BEST, I guess I wanted to go to college, but I really didn't think about it. Now, I know I'll be interested in going to college and getting a degree." A 1993 VCU graduate who served as a mentor for three years and is now employed as a manager in a local business stated, "We have good relationships with our faculty mentors and with faculty at the middle school. All of us, tutors and students, have become good friends. It's like a little circle—like a little family." A 1996 VCU graduate who was a first-generation college student began working with the Project in 1993 as a student mentor. She is the mother of three children, one of whom was a participant in Project BEST, and went on to become a mentor when he enrolled at VCU. She stated, "I saw the positive things this program did for my child. I wanted to do what I could to help."

Recommendations

A program like Project BEST should be coordinated at the school level and closely monitored by its administrators and teachers. Mentors should work directly with the teachers to determine the middle school students' current academic status and needs, as well as strategies, activities, and resources available to address those needs.

Teachers should explore several variations of the mentor/tutor configuration. In some cases, a one-to-one configuration may be optimal while in others one-to-two or two-to-two configurations would achieve maximum results. Male students in the program expressed a preference for working in small groups while female students reported that they prefer their "own" individual college mentor/tutor.

Parents should be informed of the goals of the project and should be committed to involving their children in all of the program's activities. Saturday seminars and after-school tutorials represent a tremendous sacrifice to a child who would rather be playing baseball. Parents may need to know of the importance of enrollment in an academic high school track and may be interested in learning about financial aid and summer preparation programs, as well as other initiatives, to help in planning for their child's eventual admission to college. Parental involvement is crucial.

Finally, it is vital that all of the participants in the program are committed to its success. Commitment is evidenced by each individual's full participation in all project activities. In the event individuals are not able to fulfill their responsibilities to the program because of competing priorities, adjustments may be possible--if not, new participants should be recruited.

Budget and Funding

The Virginia State Council of Higher Education for Virginia funded the project. In subsequent years, support for the program came from the Jessie Ball DuPont Fund and VCU. Currently, funding is provided by the National Science Foundation with additional support from VCU and the Richmond Public School System.

Summary

Project BEST is a unique program that helps to improve mathematics and science achievement of students while simultaneously recruiting college students for teaching careers, and providing opportunities for them to serve as mentors and tutors for middle school students. The program consists of four main components: mentoring, tutoring, workshops, and cultural activities for the college students and middle school participants. Teachers and administrators in the middle schools and middle school students' parents are also involved in the program. In the eleven years of its existence, Project BEST has had more than 300 college participants, some of whom remained in the program for the entire period of their undergraduate study and are pursuing careers in teaching, and more than 500 middle school children, whose performance and attitudes have shown improvement attributed to the project.

The design of Project BEST is simple enough that it can be replicated at a modest cost in most communities. It is truly a program of which it can be said, "There are no losers. Everyone is a winner!" ■

References

[1] *Academic Preparation for College*, The College Board, New York, 1983.

[2] *Planning for college: Some issues for students and parents to consider*, The College Board, 2000, Internet: http://www.collegeboard.org

[3] *Preparing Middle School Mathematics and Science Teachers: A Challenge for Virginia*, Mathematics and Science Coalition, White Paper, 1999.

[4] D.J. Simon, D.F. Reed, and M. Clark, "The effect of cross-age mentoring on the achievement and self-esteem of at-risk students in middle school," *Research In Middle Level Education: Selected Studies 1990*, **14**(1) 11-22.

INTERVIEW WITH DIANE J. SIMON

Q: What career path did you follow to reach your present position? Is this what you originally aimed for, or were there twists that brought you here?

A: In 1988, during my first year as Assistant Dean in the School of Education at Virginia Commonwealth University, Dr. John S. Oehler, Dean of the School of Education, and then Associate Provost, Dr. Alvin Schexnider, asked that I develop a program to improve the retention of minority students at the University. Project BEST began as a retention initiative and was, and continues to be, only one of my responsibilities in my role as Associate Dean. Project BEST is more of a labor of love because of the close personal contact with our students, the public school children, and relationships with public school teachers and administrators.

Q: Have you been involved in similar programs before? Was there a particular moment or stimulus that caused you to begin this project?

A: During my tenure as Director of the Division of Education and Psychology at Virginia Union University, I was asked to write a partnership proposal related to tutoring and mentoring public school children who were at risk of academic failure and in need of guidance and support. That proposal, then entitled The Kenan Project, was funded for a five-year period. Although I took another position during the first year of the project's implementation, writing the proposal gave me an opportunity to study the literature on tutorial program design, configuration, and implementation; and, to think about the types of support, academic and personal, that at-risk children may appreciate, be challenged by, and enjoy.

Q: Have there been any unique or unexpected consequences for you resulting from your project?

A: Perhaps one of the most gratifying consequences that resulted from Project Best, is the expansion of the program from one to three middle schools in Richmond during Academic Year 1998-99 and to nine of the ten middle schools the following year. The personal relationships forged between the college students and the middle school children have been gratifying to see. As Project BEST began in 1989, I hear from Best mentors who have graduated from the University and have kept in contact with their former mentees through the years. Only last month, I had a Project BEST mentee

come by the office to visit me. This student is graduating from a four-year college in December 2000 and is planning to teach. Another example is a VCU student whose son was a middle school mentee in Project BEST. She served as a mentor and tutor because she wanted to make a contribution to the program that she felt had helped her son. Her son eventually enrolled at the University and also served as a mentor and tutor in the program. Through the years, we have learned of former mentees who have graduated with honors from high school and have gone on to college. As one of the major goals of BEST is to be prepared to take and succeed in an academic high school track to facilitate college admission, it is always gratifying to hear of our former middle school mentees who have reached this goal. A number of VCU students in Project BEST undecided on a major when they enrolled, selected teaching as a major. One stellar example is a graduate who now teaches at the Governor's School in Richmond.

Q: Are you able to identify the greatest lesson you have learned and the rewards you have gained through working on Project BEST? What is the greatest benefit you see coming to students—and teachers—through their engagement with this project?

A: Perhaps the greatest reward in working with Project Best is to see the improvement in middle school students' grades in mathematics and science from one marking period to the next which indicates positive results from participation in the program. The mutual benefit of the program is the reciprocal relationship that exists between the college students and their mentees. The middle school students are getting assistance to help them succeed in an academic high school track in preparation for college admission. The college students are getting an opportunity to gain a first-hand perspective of what teaching is all about while providing an important service to children.

In our meetings with the college mentors or in informal conversation, I take a delight in hearing about the mentors' successes with mentees who grasped a difficult concept or whose grades improved after having had a difficult time. Hearing from parents who believe that the Project is helping their children, and from the public school teachers who also believe that the program is making a difference in the lives of students is also very gratifying. VCU students who are undecided on a major when they matriculate and then decide to major in our teacher preparation program is another indicator that the program is meeting its goals. Working with Project BEST also keeps me in touch with the "real" world of public schools. The program affords me another opportunity to stay involved with the local schools.