# Research in Practice

**Series II: Academic Support**

**Paper *No. 2***

## Bridging the Research to Practice Gap: An Academic Mentoring Example

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In this *Research in Practice* paper we share an example of how GEAR UP researchers and school professionals collaborated to evaluate an academic mentoring program developed at a predominately Hispanic high school in an urban setting. Besides providing a description of an innovative way to implement a mentoring program, this paper demonstrates how these types of collaborations can add to the evidence base for innovative school practices that advance the GEAR UP mission of college and career readiness.

### Why are These Types of Research Collaborations Important?

Even when researchers and practitioners alike are motivated to connect research to practice, these efforts can fall short. In a thoughtful analysis of the reasons for this research-to-practice gap in education, Kennedy (1997, p. 4) identified four general hypotheses for why this gap exists: (a) the research is not sufficiently persuasive or authoritative; (b) the research is not relevant to practice; (c) ideas from the research have not been accessible; and (d) the inherent stability (and instability) of the education system. Echoing and extending on some of Kennedy's observations, Alber and Nelson (2002, p. 24) noted that "researchers often target problems and plan interventions that may be of little relevance, accessibility, and usability to teachers." In response to this concern, a number

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of research approaches have been identified that support the goal of making research findings more usable and accessible to practitioners.

### What do These Research Methods Look Like?

A number of research models have been identified that potentially can make research more accessible and relevant to educational professionals, including action research, mixed methods research, collaborative partnerships, and design research (Alber & Nelson, 2002; Anderson & Shattuck, 2012; Klingner & Boardman, 2011; Ormel, Pareja Roblin, McKenney, Saul & Launius, 2010). Although there are important differences among these approaches, they generally support the importance of contextualized approaches to research. There is an understanding that "educational programs are implemented in real world contexts, in authentic schools, with characteristics that are both unique to a particular context and shared across contexts" (Klingner & Boardman, 2011, p. 209). There is also a sense of collaboration and shared responsibility among practitioners and researchers in terms of identifying research questions and implementing both the intervention and the research design to evaluate that intervention. The goal is not only to assess if a program works in a particular school context, but also to provide information about how and why a particular program works. This type of information facilitates program improvement and thoughtful dissemination of potentially effective programs.

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> *-- Klingner & Boardman (2011, p. 209)*

### An Arizona GEAR UP II Example

The research example selected for this paper examined the impact of an academic mentoring program on the math performance of a cohort of GEAR UP high school students in a largely Hispanic and urban high school in the Southwest. The study involved a collaboration between classroom teachers, GEAR UP professional staff, and university faculty.

#### *Description of the Mentoring Program*

Technically, this academic mentoring program began when the Arizona GEAR UP II student participants were 8$^{th}$ graders (2007-2008). Originally the academic mentors were hired to be tutors. As the year progressed, however, the tutors found themselves in roles usually associated with being a mentor. As a result, the term *tutor* was replaced by the term *academic mentor* and these academic mentors continued to function in both roles. As tutors, they worked to help students understand math. As mentors, they attempted to

foster positive academic values, attitudes, and beliefs by serving as college-going models and sources of information about postsecondary education issues such as acquiring financial aid.

One important component of this academic mentoring program was that the academic mentors were embedded in sections of math courses specifically designated for Arizona GEAR UP II students. In year one, the mentors were available to GEAR UP students in first-year algebra classes, geometry in the second year, and second-year algebra in the third year. Although academic mentoring occurred primarily in these math classes, these same mentors were available after and before school, during lunch, and at Saturday School, which is a voluntary tutoring opportunity offered to all students. GEAR UP students could access the mentors by requesting their help, or by being identified by teachers as needing additional help or re-teaching. The tutoring provided by the mentors occurred through individual and small group interactions, and usually focused on misunderstandings students had about lesson content.

The number of academic mentors varied across the three year duration of the project, but ranged from four to six. They were all undergraduate students, who typically were majoring in psychology or education. Additionally, the mentors were Hispanic males and females who were partially-to-completely bilingual, and who had all grown up in the local neighborhoods or a similar neighborhood. Although the mentors worked part time, they coordinated their schedules so that academic mentoring was available consistently. Luckily for the continuity of the program, the majority of these academic mentors participated for the full duration of the program. When interviewed, the mentors believed that their life experiences and their college majors were all important factors in their success. Although the mentors self-described as "good math students," they reported that being in the classroom helped them refresh the math content they needed for tutoring.

***The Research***

Although the school had anecdotal evidence about the effectiveness of the program and outcome measures in the form of test scores and class grades that looked promising, they did not initiate the program with a research design in mind. In order to provide a more rigorous evaluation of this innovative program, it was decided collaboratively to pursue a grant from the *Research Triangle Institute* to fund an evaluation of this program. With this funding support, a quasi-

experimental study of the mentoring program was initiated during the 2010-2011 school year.

Evaluating educational programs that are already in existence poses certain challenges. First, random assignment of students to a treatment and control group were not options for a number of reasons. The students had already been assigned to the treatment before the study began on the basis of being a member of the GEAR UP cohort. Also, there was no identified comparison or control group when the treatment was initiated. A comparison group needed to be identified later in order to determine if the observed levels of post-treatment math performance would have occurred without the benefit of the treatment. Steps also had to be taken to ensure that the students in the comparison group were comparable to the group of students who received the academic mentoring.

***The Findings***

Working with school personnel, researchers compared the math achievement and motivation of GEAR UP students who received academic mentoring to non-GEAR UP control students from the same school who did not receive academic mentoring in terms of their course grades in Algebra I, geometry, and Algebra II, their performance on the state-mandated Arizona Instrument to Measure Standards (AIMS) – Math Section, and students' motivational beliefs about math. Because the potential existed that differences between the treatment and control group other than participation in the treatment could have impacted the results, statistical procedures (ANCOVA and propensity score matching) were employed to try to account for these possibilities. Overall, the findings suggested that the academic mentoring program had positive effects on both math achievement and students' motivational beliefs. More specifically, for *students who experienced academic mentoring*,

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- grades in Algebra I and Algebra II were higher on average than non-GEAR UP (non-mentored) students' grades;
- performance on the 10th grade AIMS Math test and the fall 2010 (junior year) AIMS Math re-take was higher than non-GEAR UP students, though there was no difference for the spring 2011 AIMS MATH re-take;
- expectancies for future math performance were more likely to be positive than expectancies among non-GEAR UP students;
- the value of doing well in high school math for succeeding in college and getting employment in

technical fields was seen as greater than for non-GEAR UP students; and

- the academic mentoring experience was reported to have had a positive effect on their achievement and their motivation.

***The Collaboration***

The successful completion of this research involved collaboration and cooperation at a number of levels. District research and evaluation personnel helped the research team access control group data. GEAR UP professionals worked with the schools to schedule GEAR UP dedicated math sections. Math teachers helped the university researchers understand their vision for the program so that the evaluation could reflect that vision. However, probably one of the more interesting forms of collaboration occurred as GEAR UP staff, researchers, academic mentors, and educators worked together to identify components that might enhance the effectiveness of the intervention during the last year of its implementation. Together they were able to identify training opportunities for the mentors and other ways of supporting them as mentors and tutors. Although not everything that was planned was accomplished, it was clearly a group effort.

## What Can Be Learned

From a research perspective, it is important to be aware of the special issues that an evaluation of an existing educational program can pose. Generally, it would be helpful if researchers and practitioners began to collaborate early in the design of these programs. However, this is likely to be helpful but may not address all the issues. For example, for ethical reasons, it may not be advisable to assign students or clients randomly to treatment and control groups. Also, there are likely to be unanticipated issues in these types of school-based research projects. For those interested in a more substantive discussion of these types of issues and how they may be addressed, see *Arizona GEAR UP Research in Practice Series IV: Research and Evaluation for GEAR UP Professionals* (to be published in summer, 2013).

From an educational perspective, it is interesting to note the research-supported components of this academic mentoring program *(See Arizona GEAR UP Research in Practice Series II # 1: Research on Mentoring Programs).* With this example of academic mentoring we see an alignment between the placement of the

mentors in the math classes and the academic goals of this mentoring program. This placement also allowed mentors sufficient exposure to the mentees so that developmental relationships could be formed with the mentees. Supervision and communication were also less of an issue because of the potential for frequent contact between supervisors and mentors. Finally, matching mentors and mentees was addressed in a couple of ways. First, there was an attempt to find mentors who shared similar life experiences with the mentees. Second, it was possible for students to seek out mentors who were a better match personal match for them because mentors were not assigned to particular students, but were readily available to all students.

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