Abstract Title Page
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Title: The Impact of Developmental Summer Bridge Programs on Students' Success

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Abstract Body

Limit 5 pages single spaced.

Background / Context:

Description of prior research and its intellectual context.

The community college has played a significant role in providing access to a postsecondary education. Currently, over 45% of undergraduates are enrolled in these institutions (Provasnik & Planty, 2008). Unfortunately, while enrollments have increased, overall success rates in community colleges remain disappointingly low. Among students who enroll in community colleges with the intention of earning a credential or transferring to a four-year institution, only 51% fulfill these expectations within six years (Hoachlander, Sikora, and Horn, 2003).

The low rate at which students earn postsecondary credentials can be attributed in part to the number of students who come to college without the academic and social skills necessary for success. Research has shown that inadequate and inequitable preparation for college translates into high remediation rates and low persistence rates (Bettinger & Long, 2005; Attewell, Lavin, Domina, & Levey, 2006). Persistence rates are even lower for students in need of developmental[†] education. When compared with their peers, developmental students, who comprise a significant proportion of the community college student body (Provasnik and Planty, 2008), are less likely to persist to a degree or graduate in a timely way (Horn & Nevill, 2006; Horn & Carroll, 1996). Research from the national *Achieving the Dream* initiative found that fewer than one half of all students who are referred to developmental coursework complete their sequences of remediation within three years (Bailey, Jeong, & Cho, 2008). The amount of developmental coursework required of students can influence persistence rates as well; studies indicate that lengthening the time to degree attainment through avenues such as required remedial coursework reduces the probability of degree completion (Adelman, 2006; Provasnik & Planty, 2008).

Many community colleges have implemented innovative programs to provide an alternative to traditional developmental education by helping students to build competencies and persist in college. Developmental Summer Bridge Programs (DSBP) have become increasingly popular interventions to strengthen student preparation, reduce the need for developmental education, and orient students to college. DSBPs have the potential to help students enter college without the need for remediation, especially when they are close to being college-ready (Zuniga & Stoever, 2008). They offer accelerated, focused learning opportunities that can allow students to acquire sufficient knowledge to place into college level courses. Further, they may smooth the transition into college by helping students learn how to navigate college systems and gain comfort with college faculty, staff, and students (Ackermann, 1990).

Despite the widespread implementation of summer bridge programs, there is little research examining the effectiveness of these programs (Santa Rita & Bacote, 1997; Maggio et al., 2005). The studies that do exist generally rely on student self-report or look at the effectiveness of a specific program. Because studies typically focus on single programs, their results are often hard to generalize beyond the scope of the study (Kezar, 2001). Additionally, few studies track

[†] The terms developmental and remedial will be used interchangeably.

students beyond the duration of the bridge programs to identify the effect of these programs on postsecondary student outcomes. The limited research that has tracked students as they enter college following participation in a summer bridge program has found positive results. Myers and Drevlow (1982) found that summer bridge students at the University of California, San Diego had higher retention rates when compared to students in a comparison group. Further research on summer bridge programs has suggested that "at risk" or underprepared students who participate in these programs show improvement in their academic performance. Through analysis of pre- and post-test scores, fall registration rates, and course completion rates, Bengis et al (1991) concluded that summer bridge program participation in New York City colleges was positively related to academic performance. More recently, Navarro (2007) found that the lowest performing cohort of students in the bridge program were 10% more likely that their non-participating peers to successfully pass their courses.

The previous research reviewed here demonstrates that students who arrive at college underprepared face significant hurdles to success. Summer Bridge Programs show promise in helping students but the research conducted thus far has been non-causal, thus a more rigorous evaluation of this promising intervention is needed.

Purpose / Objective / Research Question / Focus of Study:
Description of the focus of the research.

The goal of this study is to evaluate the effectiveness of summer bridge programs in helping developmental students to complete remedial courses before the fall semester and improve the success and persistence rates of developmental students in other remedial and credit bearing classes. Specifically, this study addresses the following research questions:

1. How are DSBPs designed and implemented?
2. What are the early effects of DSBPs on student outcomes? Specifically, compared to a randomized control group, what are the program effects on:
    a. College enrollment?
    b. Overall credits attempted and completed?
    c. College persistence?

Setting:
Description of the research location.

The programs were offered during the summer of 2009 to recent high school graduates at eight institutions, six community colleges and two nonselective four-year institutions, of higher education in the state of Texas. A more detailed list of participating institutions and programmatic components can be found in Appendix A.

Population / Participants / Subjects:
Description of the participants in the study: who, how many, key features or characteristics.

The participants for this study were recruited from area high schools based on eligible college placement test scores. The overall sample of participants was almost two-thirds female (62.4%), predominantly Latino (84.3%), and age 19 or younger (94.1%). Approximately 60% of the study participants received free and/or reduced lunch and 30% reported receiving some form of public

assistance, indicating that most students were, in fact, low-income. Slightly more than 40% of students reported that they were the first in their family to attend college. There were no significant differences between the program and control groups on any of these variables. See Table 1 for detailed characteristics of the sample.

Intervention / Program / Practice:
Description of the intervention, program or practice, including details of administration and duration.

Students attended the DSBP for three to six hours a day, four or five days a week, four to six weeks. The DSBP focused on two areas deemed crucial for college success. First, students received accelerated instruction in their area of academic need – math, reading or writing. In contrast to a longer, semester based traditional developmental course, the accelerated time frame of the DSBP attempted to limit, or eliminate, students' need for remediation before the fall semester. Since research has shown that the length of time in developmental education courses is negatively related to degree completion (Adelman, 1999), enrolling in credit-bearing classes as soon as possible has important implications for degree attainment. Secondly, students received instruction on soft skills, or college knowledge, required to be a successful college student. An integral part of the DSBP was its focus on the "social know-how" (Deil-Amen & Rosenbaum, 2003) or "college knowledge" (Conley, 2005) required to navigate college. This included college tours, helping students design course and degree plans, providing information on financial aid and advice on navigating bureaucracies to take advantage of available services. In addition, the DSBP incorporated support services to help students with the transition, both academically and socially, from high school to college. Academic support services included mentoring, tutoring, and writing and math labs. Students who successfully completed the DSBP were paid a stipend of $400 to help compensate for lost wages incurred by attendance. The program was offered free of charge to students at six institutions; two institutions charged students $150 dollars, which was deducted from the stipend. Although all programs contained the common elements detailed in above it should be noted that each institution tailored the DSBP to best meet the needs of their students. A more detailed list of participating institutions and programmatic components can be found in Appendix A.

Research Design:
Description of research design (e.g., qualitative case study, quasi-experimental design, secondary analysis, analytic essay, randomized field trial).

This study employed a randomized controlled design with randomization occurring at the student level. Students, based on eligible college placement test scores, were actively recruited from area high schools. Once students (and their parent/guardian if they were under 18) consented, baseline demographic information was collected. Next, students were randomly assigned by a computer algorithm to either the summer bridge (experimental) or the regular services (control) group. Students had a 60% chance to be assigned to the experimental group and a 40% chance to be assigned to the control group. The students assigned to the regular services group could not attend the DSBP at any eight of the participating colleges. However, control group students were treated as any other college student would be and were given information on all other programs and summer courses at the institution. A majority of eligible students participated in the DSBP and program attrition was minimal. See Table 2 for detailed information on program attrition.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data.

NCPR receives transcripts data files from each of the eight college sites as well as the Texas Higher Education Coordinating Board (THECB) and will continue to track students' academic outcomes through the conclusion of the fall 2010 semester. The primary analytic method to determine program effects is comparing average outcomes for program and control group members, using standard statistical tests such as t-tests and chi-square tests. This generates estimates of the impact of offering access to the DSBP, the intent-to-treat analysis (ITT). More formally, we plan to estimate ordinary least squares (OLS) regressions of the form,

$$Y_i = \alpha + \beta R_i + \lambda \varphi_i + \varepsilon_i$$

where Y_i represents the outcome in question (such as high school graduation, college enrollment, college persistence, or first year GPA) for individual *i*, R_i indicates whether the individual was randomly assigned to be invited to participate in the DSBP, φ_i represents the "pool" from which the student was randomly selected, ε_i is a random error term, and α, β, and λ are coefficients to be estimated. The coefficient of interest is β as it represents the effect of assignment to the DSBP on the outcome of interest. Because of the random assignment process, OLS estimation of β will provide an unbiased estimate of the ITT effect and it is not necessary to control for other student characteristics. Note that the ITT estimates the effect of assigning a student to the treatment group on the outcome in question. While it estimates the gains that a policymaker or practitioner can realistically expect to observe from implementing the program (since one cannot fully control for whether students actually participate), it does not necessarily represent the effect of the reforms for those who actually use them.

Findings / Results:
Description of the main findings with specific details.

Qualitative research - including classroom observations and student, faculty and administrator focus groups - conducted during the programs concluded that DSBPs were well implemented and that this was a fair test of DSBPs. Across the eight sites, findings revealed both four main challenges to implementation as well as strategies to serve students more effectively. One, recruitment was difficult as programs were attempting to scale up and serve over two times the number of students from the previous summer. The additional funding provided to sites, most notably the stipend for students, helped schools to reach their targets. Two, mixed ability classes and the accelerated format were difficult for selected faculty. The use of supplemental instructors in the classrooms helped alleviate some of the difficulties associated with these issues. Third, some sites struggles to use tutors and mentors effectively. Providing tutors and mentors direct and specific training before the beginning of the DSBPs paid dividends in supporting students' success. Fourth, college knowledge presented by an "outsider" with no connection to the program was minimally effective. The informal sharing of college knowledge by professors and the power of the site – students being on the college campus – were viewed as more effective.

Preliminary impact findings indicate that (1) there is no difference in the fall enrollment between program and control group members with 76.73% and 75.87%, respectively, enrolling in a postsecondary institution for the fall 2009 semester; (2) there is no significant difference in the

total number of credits attempted between the program and control group students, 9.0 and 8.9 credits respectively; (3) however, there is a significant difference in the types of credit attempted. Program students, on average, attempted 6.1 college level credits and control group students attempted 5.4 college level credits. Program group students attempted 2.9 remedial level credits and control group students attempted 3.5 remedial level credits. Both of these findings are significant at the .05 level.

At this time, only the preliminary impact findings reported above are available. Additional outcomes including credit accumulation over multiple semesters, completion of "gatekeeper" courses (such as college algebra), persistence and enrollment intensity in future semesters will be completed by the conference date in early March of 2011.

Conclusions:

Description of conclusions, recommendations, and limitations based on findings.

While many of the results of this study remain under investigation, preliminary results are encouraging. Although one might expect to see differences in fall enrollment between the program and control groups, one could speculate that most students were already college-bound at the time of random assignment intake. Random assignment occurred in the late spring of 2009– a time by when most high schools students would have formulated college plans. It could be that mostly college-bound students were attracted to the summer bridge program and that the program failed to attract students who were unsure of their postsecondary intentions.

However, the program does seem to have modest effects on the types of college classes that students attempted. Summer bridge participants, on average, attempted a greater number of college-level credits than the control group, suggesting that the program group had a reduced need for developmental courses because of their program participation. Of course, the promise of this intervention must be viewed cautiously, as credit accumulation and persistence have yet to be analyzed.

Appendices

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Appendix A. References

References are to be in APA version 6 format.

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Appendix B. Tables and Figures

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Table 1

Selected Sample Characteristics

	Program	Control	All
Sample size (N)	793	525	1318
GENDER			
% Female	62.5%	62.1%	62.4%
% Male	37.5%	37.9%	37.6%
AGE			
% age 19 and below	94.5%	93.6%	94.1%
% age 20 - 52	5.5%	6.4%	5.9%
RACE/ETHNICITY			
% White	8.8%	8.6%	8.7%
% African America	6.8%	6.4%	6.6%
% American Indian/ Alaskan Native	0.1%	0.6%	0.3%
% Asian/ Pacific Islander	1.7%	1.4%	1.5%
% Hispanic	84.3%	84.2%	84.3%
LANGUAGE SPOKEN AT HOME			
% English only	48.4%	48.5%	48.4%
% both English and Spanish	23.9%	20.0%	22.4%
% Spanish only	26.2%	30.5%	27.9%
PUBLIC ASSISTANCE & WORK			
% receiving some form of public assistance	29.1%	29.6%	29.4%
% not receiving public assistance	54.9%	54.3%	54.6%
% not know	16.0%	16.1%	16.0%
% who work (mean number hours of workers)	31.6% (23.0)	36.1% (24.8)	33.4% (23.8)
% free/reduced lunch	60.7%	61.2%	60.9%
% first in family to go to college	40.9%	41.3%	41.1%

Table 2

Program Numbers and Attrition

College	Eligible for program	Control	Started program	Finished program	% of starters who finished
El Paso	165	108	139	138	99%
Lone Star-CyFair	74	48	65	64	98%
Lone Star-Kingwood	51	35	51	41	80%
Palo Alto	52	35	52	35	67%
San Antonio	89	58	51	47	92%
St. Phillips	153	102	146	139	95%
South Texas	83	54	72	63	88%
TAMIU	126	85	113	111	98%
TOTALS	793	525	689	638	93%

Appendix A
Selected Programmatic Characteristics

Institution (Location)	Years offered	# of students served	# of weeks and hours of instruction	Breadth of Subject(s) offered	Depth of level(s)offered (below college level)
LSC-Kingwood* (Houston)	4	52 program (p) 35 control (c)	4 weeks; 52-64 hrs	Math or English	1
South Texas College (McAllen)	2	83 p 55 c	4 weeks; 80-100 hrs	Math	1, 2, & 3
St. Philips College (San Antonio)	6	154 p 104 c	4 weeks; approx. 65-95 hrs	Math, Reading and/or Writing	1, 2, & 3
Texas A&M International University (Laredo)	3	126 p 85 c	5 weeks; 100 hrs	Math	1, 2, & 3
Palo Alto College (San Antonio)	2	53 p 35 c	4 weeks; 60-76 hrs	Math	2 & 3
El Paso Community College (El Paso)	4	165 p 108 c	5 week; 100 hrs	Math and Reading/ Writing	1, 2, & 3
LSC-CyFair* (Houston)	4	75 p 50 c	4 weeks; 67 hrs	Math, Reading or Writing	1
San Antonio College (San Antonio)	10	91 p 61 c	5 weeks; 95 hrs	Math, Reading, Writing (chose 2 classes)	1, 2, & 3

* Program charged $150 to students, which was deducted from the stipend.