Economics of Education Review 29 (2010) 255–270

Contents lists available at ScienceDirect

Economics of Education Review

journal homepage: www.elsevier.com/locate/econedurev

Referral, enrollment, and completion in developmental education sequences in community colleges☆

Thomas Bailey*, Dong Wook Jeong, Sung-Woo Cho

Community College Research Center, Teachers College, Columbia University, United States

ARTICLE INFO

Article history:
Received 2 September 2009
Accepted 9 September 2009

JEL classification:
I20
I23

Keywords:
Developmental education
Community college

ABSTRACT

After being assessed, many students entering community colleges are referred to one or more levels of developmental education. While the need to assist students with weak academic skills is well known, little research has examined student progression through multiple levels of developmental education and into entry-level college courses. The purpose of this paper is to analyze the patterns and determinants of student progression through sequences of developmental education starting from initial referral. Our results indicate that fewer than one half of the students who are referred to remediation actually complete the entire sequence to which they are referred. About 30 percent of students referred to developmental education do not enroll in any remedial course, and only about 60 percent of referred students actually enroll in the remedial course to which they were referred. The results also show that more students exit their developmental sequences because they *did not enroll in* the first or a subsequent course than because they *failed or withdrew from* a course in which they were enrolled. We also show that men, older students, African American students, part-time students, and students in vocational programs are less likely to progress through their full remedial sequences.

1. Introduction

Developmental education is designed to provide students who enter college with weak academic skills the opportunity to strengthen those skills enough to prepare them for college-level coursework.[1] The concept is simple enough—students who arrive unprepared for college are provided instruction to bring them up to an adequate level. But in practice, developmental education is complex and confusing. To begin with, experts do not agree on the meaning of being "college ready." Policies and regulations governing assessment, placement, pedagogy, staffing, completion, and eligibility for enrollment in college-level credit-bearing courses vary from state to state, college to college, and program to program. The developmental education process is confusing enough simply to describe, yet from the point of view of the student, especially the student with particularly weak academic skills who has not had much previous success in school, it must appear as a bewildering set of unanticipated obstacles involving sev-

☆ Funding for this study was provided by Lumina Foundation for Education as part of the Achieving the Dream: Community Colleges Count initiative.

* Corresponding author at: Community College Research Center, Teachers College, Columbia University, Box 174, 525 W. 120th Street, New York, NY 10027, United States. Tel.: +1 212 678 3091.
E-mail address: tbailey@tc.edu (T. Bailey).

[1] Most practitioners use the term "developmental" rather than "remedial" education. In general, developmental education is taken to refer to the broad array services provided to students with weak skills, while remediation is taken to refer specifically to courses given to such students. Moreover, the term "remedial" is often considered to carry a negative connotation. This paper discusses primarily developmental classes. To simplify the exposition and to avoid the overuse of either of these two words, we use "developmental" and "remedial" interchangeably. No positive or negative connotation is intended.

0272-7757/$ – see front matter © 2009 Elsevier Ltd. All rights reserved.
doi:10.1016/j.econedurev.2009.09.002

eral assessments, classes in more than one subject area, and sequences of courses that may require two, three, or more semesters of study before a student (often a high school graduate) is judged prepared for college-level work.

The policy deliberation and especially the research about developmental education give scant attention to this confusion and complexity. Discussions typically assume that the state of being "college ready" is well-defined, and they elide the distinction between students who need remediation and those who actually enroll in developmental courses. What is more, developmental education is often discussed without acknowledgement of the extensive diversity of services that bear that label. Any comprehensive understanding of developmental education and any successful strategy to improve its effectiveness cannot be built on such a simplistic view.

In this article, we broaden the discussion of developmental education by moving beyond consideration of the developmental *course* and focusing attention instead on the developmental *sequence*. In most colleges, students are, upon initial enrollment, assigned to different levels of developmental education on the basis of performance on placement tests.[2] Students with greater academic deficiencies are often referred to a sequence of two or more courses designed to prepare students in a step-by-step fashion for the first college-level course. For example, those with the greatest need for developmental math may be expected to enroll in and pass pre-collegiate math or arithmetic, basic algebra, and intermediate algebra, in order to prepare them for college-level algebra. We define the "sequence" as a process that begins with initial assessment and referral to remediation and ends with completion of the highest level developmental course—the course that in principle completes the student's preparation for college-level studies. Although a majority of students do proceed (or fail to proceed) through their sequences in order, some students skip steps and others enroll in lower level courses than the ones to which they were referred, so the actual pattern of student participation is even more complicated than the structure of courses suggests. (We will discuss this in more detail later.) At times we extend the notion of "sequence" into the first-level college course in the relevant subject area, since in the end the short-term purpose of remediation is to prepare the student to be successful in that first college-level course.

We examine the relationship between referral to developmental education and actual enrollment, and we track students as they progress or fail to progress through their referred sequences of remedial courses, analyzing the points at which they exit those sequences. We also analyze the demographic and institutional characteristics that are related to the completion of sequences and exits at different points along them.

We carry out this analysis using data collected as part of the Achieving the Dream: Community Colleges Count initiative, a multi-state, multi-institution initiative designed to improve outcomes for community college students. The sample includes over 250,000 students from 57 colleges in seven states. The sample is not representative of all community college students, so we check our results against an analysis using the National Education Longitudinal Study of 1988 (henceforth, NELS:88).[3] Results of that analysis are consistent with results derived from the Achieving the Dream database.

An exploration of the distinction between *the course* and *the sequence* reveals some startling conclusions. While the majority of individual course enrollments do result in a course completion, between 33 and 46 percent of students, depending on the subject area, referred to developmental education actually complete their entire developmental sequence. And between 60 and 70 percent of students who fail to complete the sequence to which they were referred do so even while having passed all of the developmental courses in which they enrolled.

This collection of articles is dedicated to Henry Levin and our article relates particularly to his influential Accelerated Schools Project (ASP). Remediation in college is necessary because students arrive at the end of high school without adequate academic skills. The ASP was of course designed to avoid just this type of problem. Many of the students who arrive at community college with weak academic skills fell behind their classmates early in elementary school. ASP is a strategy to strengthen the academic skills of elementary and secondary students more effectively than traditional approaches to "remediation." Thus widespread use of ASP would reduce the need for developmental education in college. Moreover, we will argue that the ASP approach makes sense for remediation at the postsecondary level as well.

The remainder of this paper is organized in the following manner: in Section 2 we provide some general background on the characteristics and outcomes of remediation; in Section 3 we describe the Achieving the Dream and the NELS:88 databases; Section 4 presents the results of the analyses on student placement and progression in developmental education; Section 5 shows the results of multivariate analyses of the student and college characteristics that are related to an individual's likelihood of progressing through developmental education; Section 6 summarizes the results and presents conclusions and recommendations.

2. Developmental education basics

More than one half of community college students enroll in at least one developmental education course during their tenure in college. In the National Postsecondary

[2] In fall 2000, 92 percent of public two-year colleges utilized placement tests in the selection process for remediation (Parsad, Lewis, & Greene, 2003).

[3] A nationally representative sample of eighth-graders was first surveyed in the spring of 1988. A sample of these respondents was then resurveyed in four follow-ups in 1990, 1992, 1994, and 2000. On the questionnaire, students self-reported on a range of topics including: school, work, and home experiences; educational resources and support; the role in education of their parents and peers; neighborhood characteristics; educational and occupational aspirations; and other student perceptions. For the three in-school waves of data collection (when most were eighth-graders, sophomores, or seniors), achievement tests in reading, social studies, mathematics, and science were administered in addition to the student questionnaire (National Center for Education Statistics, 2003).