

RESEARCH IN DEVELOPMENTAL EDUCATION



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National Study of Developmental Education II: Baseline Data for Community Colleges

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Open access to higher education has been a priority for community colleges in the United States since the 1960s (Cohen & Brawer, 2003). According to the National Center for Education Statistics (NCES), nearly all community colleges and many universities offer developmental education courses for the purpose of preparing students who would likely otherwise be unable to complete a higher education program of study (NCES, 2003). Developmental education is of particular concern to community colleges, where the majority of developmental students are enrolled (McCabe, 2002). Until the 1990s, however, there was little information available to describe the demographics of developmental education and evaluate the efficacy of its efforts.

Between 1990 and 1996, the National Center for Developmental Education (NCDE) conducted the National Study of Developmental Education under a grant from the Exxon Education Foundation. The purposes of the study were to describe the demographics of developmental education, establish performance baselines for developmental students, and determine what program components and instructional techniques contributed to student success.

To accomplish this, data were gathered on the performance of 5,000 developmental students enrolled at 116 different colleges and universities. Using a variety of statistical techniques, the research (Boylan, Bliss, & Bonham, 1997) identified program components, services, and instructional techniques to which these students had been exposed.

The information resulting from this study is now over 10 years old. To gather more current information, the NCDE initiated a new study in 2004. The purpose of this study was to identify current data on some of the more salient aspects of developmental education and compare this with results from the original study and comparable data from other national studies. Given financial and time constraints, the NCDE staff decided that this study should focus on community colleges.

Methodology

As in the previous study, institutions were selected for participation by systematic circular sampling, allowing for the results to be generalized to all developmental programs at 2-year institutions. Through this procedure, 45 institutions were selected to participate in the study. Of those, 16 were unable to produce sufficient data required for the study, thus the results represent 64.4% of the population. All 29 institutions reporting data for this study are 2-year community and/or technical schools. See Table 1 for regional representation results of the study.

Table 1
Participation of Institutions by Region,
National Study of Developmental Education II

Region Represented	Percent of Institutions
New England/ North Atlantic	17.2
South Atlantic	31.1
Great Lakes/ Plains	27.6
South Central	20.7
Mountain/Pacific	3.4

The data were collected between Spring 2004 and Winter 2005. An individual from each program was selected to collect data on enrollment from Fall 2001 through Summer 2003, and to answer questions in order to clarify the information given. All participants were encouraged to respond to a questionnaire. The NCDE staff telephoned liaisons at participating institutions to answer questions and clarify data when necessary.

Limitations

As noted earlier, the data reported from institutions in this study represented 64.4% of the population. This limited response rate might preclude generalization of the findings. Unlike the initial study, students were not randomly selected to participate in this study. Because of advances in computer technology and institutional record keeping in the years since the original study, it was possible for most institutions to report data on the performance of all students participating in developmental education at their institutions. This data was available from program records, registrar's office records, or reports from institutional research offices. This allowed data to be reported from the entire population of developmental students at participating institutions. On the other hand, the fact that different programs may have used different sources to collect data might present a limitation as well.

As in the collection of any survey data, limitations also arise due to a usually small yet unavoidable amount of subjectivity. Because the data was self-reported, it lends itself to bias based on interpretation, perception, and misunderstanding. Furthermore, the meaning of some questions may have been interpreted differently by survey participants. The NCDE staff attempted to control for this as much as possible through regular telephone and email contact with respondents. They offered to clarify the meaning of questions and to assist in the collection and interpretation of data in order to make data reporting as consistent as possible.

Another limitation to the study was the submission of incomplete data by participants. Some institutions did not have, or were unable to find, data to respond to all questions. Some questionnaires were also filled out incorrectly. When this happened, data from the institution was deleted from calculations for that particular question. As a result, the data reported for each question is based on different numbers of responding institutions.

It should also be noted that data from some aspects of this study were compared to data from NCES studies (NCES, 1996, 2003). Although the questions asked in both studies were similar, there were some differences in sampling and reporting procedures between this and the NCES studies. This presents a limitation to any comparisons of data from the two studies. In an effort to control for these limitations, results for each question were compared to other available data to insure that they did not differ substantially from what is already known. Most of the findings in this study remain consistent with trends cited in previous studies.

Findings

Completion, Pass Rates, and Grades in First College Credit Courses

On the average, the percentage of students remaining on the enrollment roster in developmental classes throughout the term was high. Eighty-three percent of writing students remained until the end of the semester. Reading students also stayed 83% of the time. Math

students left only slightly more frequently, being retained at 80%.

Grades of students completing developmental courses were calculated based on those students whose names remained on the class roster at the end of the semester. Students who withdrew from a given class voluntarily or administratively were not counted in the calculations. Of the students who remained in class for the duration of the term, an average of 72% earned a grade of C or better. Reading students had the highest success rate at 76%, and writing students followed with 73% of students obtaining a C or better. Sixty-eight percent of math students were successful. This is consistent with the NCES (1996) study that showed close to 70% of students passed developmental courses: 72% in reading, 71% in writing, and 66% in math.

The current study also measured student success in courses taken following participation in developmental education. Pass rates with a C or better for reading and writing were highest at 69% and 64% respectively. Fifty-eight percent of developmental math students passed their first college-level math course. These figures were calculated on the basis of those who completed the highest level developmental course with a C or better, enrolled in the first college-level course in that subject or a related subject, and passed the college-level course with a C or better (see Table 2). Because the first National Study of Developmental Education did not differentiate between retention and pass rates at 2-year and 4-year institutions a comparison of these data from the two studies could not be made.

Table 2

Retention and Pass Rates of Developmental Students

Subject Area	Developmental Course		Pass Rate First College Credit Course
	Retention Rate	Pass Rate	
Reading	83%	76%	69%
Writing	83%	73%	64%
Math	80%	68%	58%

Program Evaluation

The purpose of program evaluation is to investigate which parts of an institutional program, or overall programs, are working well and which are not. Most of the institutions that participated in the study used student pass rates in developmental courses as one component of their evaluation: 90% of writing, 82.8% of reading, and 89.7% of math courses were evaluated in this way. Of these, 27.6% were evaluated annually, 24.1% biannually, 24% each semester, 7% randomly, and 3% every 5 years.

Retention rates were also frequently used in evaluation efforts with 86.7% of writing, 79.3% of reading, and 93.1% of math courses being measured by this criterion. The time periods in which retention rates were evaluated were the same as for pass rates.

Success rates in subsequent college-level courses were not followed quite as frequently, but this measurement still remained a significant part of most 2-year colleges' evaluation process. Next-level writing courses were evaluated 76% of the time, reading was examined the least at 65.5%, and math was given the most attention with 79.3% of subsequent courses evaluated (see Table 3).

Table 3

Institutions Using Retention and Pass Rates in Content Areas for Evaluation Purposes

Subject Area	Developmental Course		Next Level Course
	Pass Rate	Retention Rate	Pass Rate
Reading	82.8%	79.3%	65.5%
Writing	90.0%	86.7%	76.0%
Math	89.7%	93.1%	79.3%

These findings reflect a dramatic increase in program evaluation since the original national study, with 62% of all developmental programs at 2-year institutions currently conducting evaluation on a regular basis. In the original study, just 14% of 2-year institutions were evaluating their programs (Boylan, Bonham, Claxton, & Bliss, 1992).

Administration and Organization

Forty-four percent of institutions had developmental education programs that were centralized. This represents a 4% increase from data reported 10 years earlier by the National Center for Education Statistics (NCES, 1996). More than half of the 2-year colleges surveyed (56%) still offered developmental courses through individual departments. Of those programs that did have a special division exclusively for

developmental education courses, half offered direct support to students. Of the decentralized programs, one-third of the individual departments offered academic support services. It is interesting to note that although the research consistently supports centralization of developmental education (Boylan, Bliss, & Bonham, 1997; McCabe, 2000; Roueche & Snow, 1977), the majority of community college programs still reported a decentralized organizational structure.

Participants were also asked to respond to open-ended questions regarding their beliefs as to which organizational structure was most effective. These responses tended to fall into two categories. Some respondents expressed the belief that by housing all developmental programs together, students could be better served by professional developmental educators and be provided better access to resources that facilitate the learning process. Others expressed the belief that by housing developmental classes in their individual specialized departments, developmental students and teachers would have the chance to communicate and plan the transition to regular college courses with future teachers.

When support services were not offered by a centralized developmental program or individual departments, all participating institutions provided students the option of seeking help from a separate center. Nearly all developmental courses (over 90%) were organizationally housed under the academic affairs division of the institution. These two trends closely follow findings from the first National Study of Developmental Education (Boylan, Bonham, Claxton, & Bliss, 1992).

Assessment and Placement

Past studies suggest that even though assessment is often mandatory, placement into developmental programs is largely voluntary. However, according to the literature in the field, mandatory placement is an integral step in providing successful developmental programs (Boylan, Bonham, & Bliss, 1994; Cross, 1976; Morante, 1989; Roueche & Snow, 1977). Of the institutions in the survey, 92.4% state that assessment is mandatory. This represents a dramatic increase from the 1992 study, when only 68% used mandatory assessment to place students into appropriate courses (Boylan, Bonham, Claxton, & Bliss, 1992).

The surveyed institutions utilized a variety of assessment instruments for reading, writing, and mathematics, and 69% used more than one instrument. A computer-adaptive assessment instrument—either the American College Testing's (ACT) COMPASS™ or the Educational Testing Service's ACCUPLACER®—was used by 97% of the institutions, with the majority of these using the COMPASS™. The ACT's paper and pencil ASSET® instrument was used by 41.4% of the survey institutions. Twenty-one percent of the institutions developed their own assessment instruments. The Scholastic Assessment Test (SAT) or the American College Test (ACT) scores were used as prescreening assessment measures by the majority of respondents.

Only 7% of institutions used noncognitive assessments as part of the placement process. Noncognitive factors, such as time management, motivation, and personality impact student ability to concentrate on and absorb information (Boylan, Saxon, Bonham, & Parks, 1993). It appears, however, that few community college developmental programs considered these factors during initial placement of students.

Other Services

The importance of services outside of classroom instruction to the success of developmental education students has been well documented (Boylan, 2002; Casazza & Silverman, 1996; Maxwell, 1997). When asked what services other than instruction were offered to students, tutoring was the most frequently named service at 89.3%, up from 71.1% in the previous study (Boylan, Bonham, Bliss, & Saxon, 1995). Academic advising was used 78.6% of the time, up from 73% (Boylan, Bonham, & Bliss, 1994). Study skills workshops were offered at 64.3% of institutions, and freshman seminar or orientation was offered at 60.7%. Supplemental Instruction was offered at 25% of institutions surveyed (see Table 4).

Table 4

Other Services Offered on Campus

Service Provided	Percent of Time Used
Tutoring	89.3
Academic advising	78.6
Study skills workshops	64.3
Freshman seminar/orientation	60.7
Supplemental Instruction	25.0

Class Size

Developmental educators have long believed that there is an inverse correlation between class size and student success (Conference on College Composition and Communication, 1989). The amount of change in class size over the past decade was negligible with an average of 20 students per writing class, 18 students in reading, and 21 in math (see Table 5). The results of the American Association of Community Colleges (AACC) 2000 study also indicated that the largest classes were in math, with a median of 25 students per class. In reading and writing classes the median was 20 students per class (Shults, 2001). Forty percent of respondents indicated that the numbers varied slightly depending on the level of the course. It should also be noted that class sizes invariably become smaller during the course of a semester as students drop out either officially or unofficially.

Table 5
Class Size per Subject

Subject Area	Median Number of Students
Writing	20
Reading	18
Math	21

Grading

In all three developmental subject areas the standard A through F grading scale was utilized, although a D grade was often eliminated because a grade of C or better was required to move to the next level. Satisfactory/unsatisfactory grading was used much less often and pass/no pass was rarely used. Other grading scales included using "R" for repeating the course, "NC" for no credit instead of "D" or "F," and "Y" to indicate the student passed the class but did not pass out of developmental education courses altogether (see Table 6).

Table 6
Number of Institutions Using Various Grading Scales

Subject Area	Grading Scales			
	ABCDF	Pass/No Pass	Satisfactory/Unsatisfactory	Other
Writing	9	3	5	11
Reading	11	1	4	11
Math	14	1	4	10

Instructional Techniques

Frequent testing, immediate feedback, and active learning strategies were the most popular instructional methods, but required in-class remediation, laboratory work, mastery level performance, computer-assisted instruction, collaborative learning, individualized instruction, and Classroom Assessment Techniques were also frequently used. Findings from this study indicate that online instruction in developmental education has increased a negligible amount in the past decade. The National Center for Education Studies (1996) also reported that only 3% of developmental courses were taught exclusively online (see Table 7).

Table 7
Frequency of Instructional Techniques by Subject Area

Instructional Techniques	Average Likert Scale Responses*		
	Writing	Reading	Math
Frequent testing	2.1	1.8	1.5
Immediate feedback on test performance	1.6	1.4	1.3
Active learning strategies	1.7	1.8	2.1
Required in-class remediation	2.4	2.4	2.8
Laboratory work	2.0	2.2	2.4
Mastery level performance	2.5	2.5	2.6
Computer-assisted instruction	2.2	2.4	2.5
Collaborative learning	3.2	3.2	3.4
Individualized instruction	2.6	2.5	2.7
Classroom Assessment Techniques	2.1	2.1	2.4
Online instruction: with face-to-face meetings	3.6	3.8	3.7
Online instruction: totally online	3.8	4.0	3.9

*Likert Scale: Always-1, Frequently-2, Occasionally-3, Never-4, Information not available-5

Faculty

The existing research suggests that the most successful developmental education programs employ the highest percentage of full-time faculty (Boylan, 2002; Boylan & Saxon, 1998). Recent research also suggests that overuse of part-time faculty has a negative effect on student retention

(Jacoby, 2006). However, respondents to this study have indicated that only 21% of all developmental courses are taught by full-time faculty. This is an increase of about 3% in the use of full-time faculty to teach developmental courses since the first National Study of Developmental Education (Boylan, Bonham, Claxton, & Bliss, 1992).

According to the data reported here (see Table 8) there has been a minor trend toward reducing the percentage of adjunct or part-time faculty used to teach developmental courses. Reading was taught by full-time faculty 20% of the time, nearly the same as in the first study. In mathematics 21% of developmental courses were taught by full-time faculty, up from 17% in 1992. Developmental writing classes were taught by 25% full-time faculty, an increase from 20% in 1992 (Boylan, Bonham, Claxton, & Bliss, 1992).

Table 8
Percentage of Developmental Courses Taught by Full-Time Faculty

Subject Area	1992	2004
Reading	21%	20%
Writing	20%	25%
Math	17%	21%

Discussion

Many researchers argue that developmental education is essential for students lacking the required skills to succeed in higher education and provides the opportunity for those students to improve their own lives and the lives of their families (Boylan, 1999; McCabe, 2000; McCabe & Day, 1998). Without these programs, many people would never have the chance to realize their dreams of graduating from college or simply getting a better job. When colleges offer developmental programs, they are saying they realize the value of creating opportunity for all citizens. Consistent with this realization, it appears that the percentage of programs utilizing research-based best practices has also increased in the past decade.

Professionals in the field are evaluating their programs more often, demonstrating an understanding that in order to improve these programs they must first find out what is being done well and what is not. Only then can effective change take place. They are also realizing the importance of evaluating how successful their students are. Evaluation data help to make the case for developmental education and often demonstrate that these programs help students prepare for higher education coursework.

Assessment and mandatory placement have shown a dramatic increase, indicating that developmental programs, frequently at the urging of state legislators (Russell, 1997), are putting greater emphasis on placing students in appropriate courses based on test results.

In the 1992 study, only 35% of 2-year institutions mandated placement based on test results (Boylan, Bonham, & Bliss, 1994). By 1995, this rose to 67%, and by 2000 mandatory placement rose to 74% (NCES, 1996, 2003). In this study, 79% of participating institutions required students to take the courses into which they placed. Given the choice, many students needing remediation have opted not to take it, risking course failure or a lower grade than if they had taken the recommended class (Boylan, 1985; McCabe & Day, 1998). Mandatory placement, however, required students to develop prerequisite skills before enrolling in college level courses.

Tutoring, academic advising, and a range of other services provided to assist developmental students are also becoming more prevalent. The availability of tutoring for developmental students has increased by 18% in this study compared to the previous national study (Boylan, Bonham, Bliss, & Saxon, 1995). Academic advising targeted specifically for developmental students has increased by 5% since the first national study (Boylan, Bonham, & Bliss, 1994).

Professionals in the field are becoming more aware that students need assistance outside of mandatory class time and that this assistance sometimes includes factors other than the academic work itself. Although cognitive factors weigh heavily on the ability of a student to succeed academically, noncognitive factors also come into play, and a range of support services can help students become aware of these factors when considering patterns and habits that affect their ability to succeed. Although this study suggests that these factors are being taken into consideration, it also reveals a need for much more improvement. The use of noncognitive assessment for developmental students, for instance, is employed at only 7% of responding institutions. This is in spite of the fact that a substantial body of research indicates noncognitive factors

influence the success of underprepared students (Bloom, 1976; Casazza & Silverman, 1996; Sedlacek, 2004).

It is also worthy to note that the percentage of adjunct faculty teaching developmental courses has actually declined since the first national study (Boylan, Bonham, Jackson, & Saxon, 1994). Although the decline is relatively small (only 3%), this is still a promising trend.

The results of the National Study II suggest that practitioners are consulting the research and literature of the field more often in designing and delivering their programs. The utilization of research-based best practices such as mandatory placement, program evaluation, support services, and decreased use of adjuncts is increasing among developmental programs at U.S. community colleges.

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