ISSN 1526-2049

COMMUNITY COLLEGE RESEARCH CENTER

CCRC BRIEF

NUMBER 21 AUGUST 2004

The Characteristics of Occupational Students in Postsecondary Education

Thomas Bailey, Timothy Leinbach, Marc Scott, Mariana Alfonso, Gregory Kienzl, and Benjamin Kennedy

This Brief presents a profile of the enrollment, demographic, and educational characteristics, and the educational goals, of community college students in occupational programs. It compares their features with those of community college students in academic programs and with baccalaureate students. This analysis further considers the distinct features of occupational students enrolled in certificate degree programs. The Brief stands alone as a comparative description of these students, but also provides important background material for CCRC's companion Briefs on postsecondary occupational students, *Educational Outcomes of Postsecondary Occupational Students* and *Who Benefits from Postsecondary Occupational Education? Findings from the 1980s and 1990s*.

Community college students, as defined here, are those taking for-credit courses at a two-year or less than two-year institution, or at a four-year institution; and are pursuing a certificate or associate degree, or seeking no degree. Thus, *community college student* is a descriptive term independent of the type of institution that the student is attending; rather, the designation is based on the student's type of degree program. While we include some students at four-year institutions because of their stated degree objective; nearly 90 percent of all community colleges students fitting this definition attend two-year or less than two-year institutions, with more than three-quarters attending public two-year institutions.

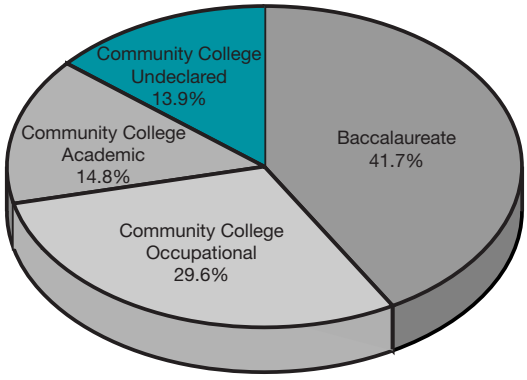
Occupational students constitute a group within the community college student population whose self-reported major is in one of the following vocational fields of study: agricultural business and production, agricultural sciences, business, communication technologies, computer and information science, construction, engineering, engineering technologies, health professions, home economics, mechanics and repair, personal services, precision production, protective services, science technologies, or transportation. *Academic students* also constitute a group of community colleges students; their self-reported major is in an academic field of study (humanities, mathematics, science, or social science). *Baccalaureate students* are those taking for-credit courses toward a bachelor's degree at a four-year institution.

The purpose of this profile of occupational students is to identify and highlight the distinctive enrollment and demographic characteristics of these students and to contrast them with other – and more widely studied – students in postsecondary education. We conclude the Brief with policy recommendations that could promote beneficial educational outcomes for postsecondary occupational students.

Enrollment Characteristics of Community College Students

Size and Distribution. Students enrolled in community college programs comprise nearly 60 percent of all postsecondary students (see the box on page 6 of this Brief for information on data sources for this study). Over half of all community college students and nearly 30 percent of all postsecondary undergraduates are occupational students (see Figure 1). In addition, 15 percent of postsecondary undergraduates are community college academic students, while another 14 percent

Figure 1:
Percentage of Postsecondary Undergraduate Students by Level and Major Type

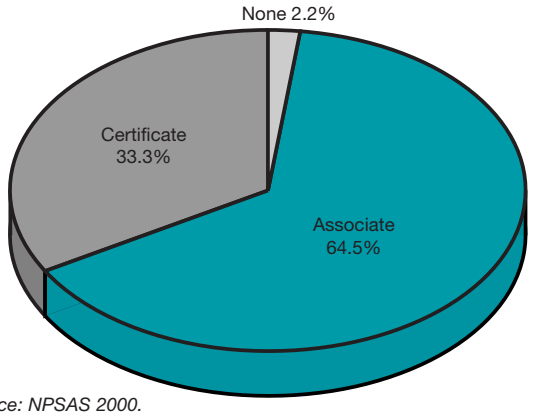


Source: NPSAS 2000.

are community college students who have not declared a major. Only 15 percent of all postsecondary students represent the image of the traditional college student enrolled in a baccalaureate institution with a major in one of the liberal arts: humanities, mathematics, science, or social science.

Fields of Study and Credentials. In NPSAS 2000, the fields of study with the largest percentage of community college occupational students are: business and office (27 percent), health (26 percent), computer and data processing (17 percent), trade and industry (10 percent), and engineering and science technologies (7 percent). The two main credential awards pursued by community college students are associate degrees and certificates. At nearly two-thirds, associate degree programs are by far the most popular goal of occupational students (see Figure 2). There are also occupational education students who take non-credit courses. These students are usually seeking very specific job skills, are preparing to take industry certification exams, or simply desire personal enrichment.

Figure 2:
Percentage of Occupational Students by Degree Type



Source: NPSAS 2000.

Institution Type. More than three-quarters (78 percent) of community college students attend public two-year institutions, and nearly nine out of ten (89 percent) attend some public institution of higher education. The remainder attend private for-profit and not-for-profit institutions. While occupational students are more likely to attend private postsecondary schools than their non-occupational peers, still over 82 percent are educated at public institutions.

Characteristics of Community College Students

All Students

There are significant differences in a variety of measures between community college students and baccalaureate students.

Gender, Ethnicity, and Age. Community college students are slightly more likely to be female (57 percent versus 55 percent), more likely to be from a minority population (35 percent versus 29 percent), and much more likely to be older (52 percent versus 29 percent are age 24 or over) than are baccalaureate students.

Socioeconomic Status. Relative to baccalaureate students, community college students are disadvantaged in several socioeconomic (SES) measures: household income (dependent student median parental income is $45,267 versus $55,752); parents' education (only 45 percent versus 63 percent had a parent with at least an associate degree, and, further, 44 percent of community college students had parents with a high school diploma or less as their highest level of education); and single with a dependent status (16 percent versus 7 percent).

Educational Background. Community college students are much less likely than baccalaureate students to have taken a rigorous academic curriculum in high school (16 percent versus 37 percent), yet more likely to have taken a curriculum that includes a vocational focus (15 percent versus 4 percent) or is non-focused (14 percent versus 5 percent). Furthermore, they are less likely to be in the top quartile of high school class rank (20 percent versus 52 percent), and less likely to be in the highest quartile of combined scores from standardized reading and math tests (13 percent versus 46 percent).

Enrollment Patterns. Community college students are more likely to have non-traditional enrollment and attendance patterns in postsecondary education. A larger proportion of these students than baccalaureate students (50 percent versus 22 percent) delay their initial postsecondary enrollment by at least a year after high school completion; a much smaller proportion (26 percent versus 62 percent) attend on a full-time and full academic year basis. Among students who work, community college students are much less likely than baccalaureates to self-identify as a student (48 percent versus 80 percent) than as a worker.

Occupational Students

In this section, we compare occupational community college students with academic community college students. Occupational students comprise approximately 51 percent of all community college students; those with academic majors comprise only 25 percent of the total, and the remainder are undeclared or have no major. With respect to the demographic and enrollment characteristics, academic students hold an

intermediate position between baccalaureate and occupational students on most measures. That is, the proportion of academic students exhibiting a particular characteristic usually lies somewhere between the two other populations. In addition, research findings indicate that many of the characteristics that are more common among occupational students are associated with lower rates of postsecondary completion.

Gender and Ethnicity. Occupational students, when compared with academic students, are less likely to be female (54 percent versus 64 percent), more likely to be from a minority population (39 percent versus 32 percent), and more likely to be older (55 percent versus 46 percent are age 24 or over).

Socioeconomic Status. Occupational students are more economically disadvantaged than academic students in several measures: household income (dependent student median parental income is $42,241 versus $47,385); parents' highest level of education (41 percent versus 49 percent with at least an associate degree); and single with a dependent status (20 percent versus 12 percent).

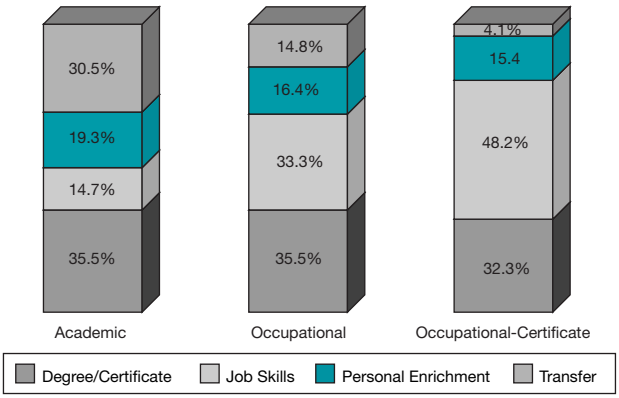
Educational Background. Occupational students are about as likely as academic students to have taken a rigorous academic curriculum in high school (16 percent versus 15 percent) or a non-focused curriculum (14 percent versus 13 percent), though they are more likely to have taken a curriculum that included a vocational focus (19 percent versus 11 percent). Furthermore, occupational students are only slightly less likely to be either in the top quartile of class rank (19 percent versus 22 percent) or in the highest quartile of combined scores from standardized reading and math tests (11 percent versus 14 percent). In general, there is little significant difference in the educational backgrounds of occupational and academic community college students.

Occupational students are less likely than academic students (20 percent versus 23 percent) to have taken a remedial course in college. However, this small difference does not necessarily imply better preparation for postsecondary education, but may suggest lower academic requirements for occupational programs.

Enrollment Patterns. Occupational students are more likely than academic students to have non-traditional enrollment patterns. A larger proportion of occupational students (53 percent versus 42 percent) delay their initial postsecondary enrollment by at least a year after high school and a slightly smaller proportion (28 percent versus 31 percent) attend on a full-time and full academic year basis.

Reason for Enrolling. Identical proportions (36 percent) of occupational and academic student respondents in NPSAS 2000 gave degree or certificate attainment as their primary reason for enrolling (see Figure 3; the question was asked only of students in two-year and less than two-year institutions). However, more than twice as many occupational students than academic students (33 percent versus 15 percent) cited the attainment of job skills as a primary enrollment reason, while fewer occupational students cited transfer to another institution (15 percent versus 31 percent). Grouping occupational students by age reveals a nearly universal pattern of reason for enrolling: the proportion citing degree/certificate attainment and transfer declines from the younger to the older age categories, while the proportion citing job skill attainment increases with the older age categories.

Figure 3:
Percentage of Academic, Occupational, and Occupational-Certificate Students by Primary Reason for Enrolling



Source: NPSAS 2000.

Occupational Students in Certificate Programs

Occupational students in certificate programs are a sub-population distinct from other community college occupational students, and they can be seen as outliers within the postsecondary universe. Their uniqueness is manifested in particular demographic and enrollment characteristics.

Ethnicity and Age. Certificate students have the highest proportion of minority students (44 percent) and students age 24 or older (65 percent) of any postsecondary sub-population.

Socioeconomic Status. Certificate students are the most economically disadvantaged (dependent student median parental income of $39,441), have the highest proportion of parents with a high school diploma or less as their highest level of education (56 percent), and are the most likely to be single with a dependent (25 percent).

Educational Background. With respect to measures of postsecondary education readiness,

certificate students are the least likely to have taken a rigorous academic curriculum in high school (8 percent) and the most likely to have taken either a vocational (23 percent) or a non-focused (24 percent) curriculum. They are also the least likely to be in either the top quartile of class rank (10 percent) or the top quartile of combined scores from standardized reading and math tests (6 percent).

Interestingly, however, certificate students have the highest proportion with previous postsecondary degrees (37 percent) and the highest proportion with each type of previous degree: certificate (22 percent), associate (7 percent), and bachelor's (8 percent).

Enrollment Patterns. Certificate students are far more likely to have non-traditional enrollment patterns than are other postsecondary students: 64 percent delay their postsecondary enrollment after high school and only 20 percent attend on a full-time and full academic year basis.

Reason for Enrolling. A final example of the outlier status of certificate students is their primary reason for enrolling. Almost half (48 percent) say their primary reason is to obtain job skills, while 32 percent cite the attainment of a degree or certificate and a mere 4 percent are enrolling for transfer.

Occupational Students in Non-Credit Courses

The portion of the postsecondary occupational education population that is enrolled in non-credit courses dwarfs that of all for-credit students. In 1999, over 110 million people were enrolled in non-credit courses, as compared with 32 million in for-credit courses. Nearly half of the non-credit students—54 million—were in job-related occupational courses. Non-credit occupational students typically are seeking very specific job skills or are preparing to take industry certification exams. They may be taking anything from a single course that lasts a few hours to multiple courses requiring several days' work for completion.

There are 2.3 million of these job-related occupational non-credit students enrolled in public two-year community colleges and another one million in public two-year vocational schools. Though constituting a relatively small proportion of all non-credit occupational students, they represent an important and growing segment of the community college student population. The 1999 National Household Education Survey (NHES) indicated that non-credit students accounted for 36 percent of all occupational students at public two-year community colleges and 42 percent of all occupational students at public two-year vocational schools.

The demographic and background characteristics of non-credit students in job-related occupational courses in postsecondary institutions are very different from those of their for-credit counterparts. In general, when compared with for-credit occupational students, non-credit job-related occupational students attending postsecondary institutions are more likely to be male, less likely to be from a minority group, more likely to be older, more likely to have an income above $25,000 per year, and much less likely to be single with dependents. They are also much more likely to have earned a degree previously: 40 percent alone have a bachelor's degree. Still, 43 percent of all job-related non-credit students have no more than a high school degree. Over four million students (about 800,000 in public two-year community colleges and vocational schools) enroll in non-credit English as a Second Language, Adult Basic Education, and General Education Development diploma (ESL/ABE/GED) courses annually. Therefore, while there are many students, within the non-credit occupational population, whose demographic and enrollment characteristics and educational objectives make them a population distinct from those in for-credit programs, other non-credit students – those without a previous postsecondary education or in ESL/ABE/GED courses – may benefit from policies and programs that help them move into for-credit postsecondary degree programs.

Trends in Community College Student Characteristics

To ascertain whether the characteristics and enrollment of all community college students and, specifically, those in occupational programs are changing over time, we compared the NPSAS 1996 to NPSAS 2000 survey data. Even during the brief four-year period between the surveys, there were significant observed shifts. The following are the trend highlights:

There was an increase in the gap in household income between dependent baccalaureate and community college students, exacerbating the previous income difference. The median annual parental income for dependent baccalaureate students increased over $3,000: from $52,430 to $55,752. Parental income for dependent community college students rose by only a few hundred dollars, however: from $44,523 to $45,267.

There was a large increase in the proportion of computer and data processing majors among occupational community college students. While the proportion of students in all other occupational majors remained stagnant or declined, students with computer and data processing majors jumped from 9 percent in 1996 to 17 percent in 2000. This increase is most readily attributable to the rapid proliferation of computer, specifically internet, technology in the late 1990s.

There was an increase in community college students with previously earned degrees. In 1996, less than 20 percent of all community college

students held another degree, but by 2000 that proportion grew to over 30 percent. The gain was the highest among those who held a bachelor's degree as their highest prior degree: from 2 percent to 9 percent. This large shift occurred within the occupational and occupational-certificate populations as well. In fact, among certificate students, the proportion with a bachelor's degree grew phenomenally from a mere 1 percent in 1996 to over 8 percent in 2000.

There was a shift in the primary reason for enrolling among community college students. Earning a degree or certificate is now the most commonly cited primary reason for enrolling among both occupational and academic students at two-year and less than two-year institutions, perhaps due to the expectations of employers in a competitive job market. This represents a shift from job skills as the most common reason in NPSAS 1996 among occupational students, and from transfer as the most common reason cited by academic students. The change bodes well for greater persistence and degree completion in the future. However, it may portend a shift in emphasis of community college education (at least from the students' perspective) away from the traditional function of preparing students for further education at a four-year institution and toward providing them with a credential in preparation for entering the job market immediately.

There was a convergence of occupational-certificate students toward other community college students in terms of background characteristics. As the proportion of certificate-seekers among all occupational students increased from 30 percent in 1996 to 33 percent in 2000, their demographic distinctiveness became less conspicuous. For example, the proportion of male certificate students increased from 38 percent in 1996 to 47 percent in 2000. Similarly, the proportion of white certificate students grew slightly, despite a decrease of over 5 percentage points in the proportion of whites among all occupational students. The one demographic characteristic of certificate students that continues to distinguish them from their peers is age. Certificate-seekers have higher proportions among the oldest age cohorts. In fact, while all other community college groups exhibited a slight decline from 1996 to 2000 in the proportion of students age 30 and over, the proportion of certificate students in this cohort increased from 39 to 43 percent.

The gap in economic disadvantage between occupational-certificate students and all occupational and other community college students, as measured by parents' income and level of education, shrank from 1996 to 2000, although a gap existed in both survey years. Median parental income, the proportion whose parents earned more than $50,000, and parents' highest level of education increased more for certificate students than for either occupational or all community college students.

Finally, the distribution of occupational-certificate students' reasons for enrolling looked more similar to that of all occupational students in 2000 than it did in 1996. While job skills continued to be the most popular reason, less than half of all certificate students (48 percent) cited it in 2000 (compared to over 60 percent in 1996). The percentage that indicated earning a credential as their primary reason grew to almost one-third, a rate only slightly lower than that for all occupational students in 2000.

These trends in the characteristics of occupational-certificate students may foreshadow a new type of certificate student entering postsecondary education. The new certificate-seekers are not drawn from the traditional certificate student population (i.e., predominantly disadvantaged and low-achieving students in high school vocational programs); rather they have relatively more socioeconomic and demographic advantages, and many already have degrees (including a bachelor's degree). The prominence of returning students also helps explain the increase in the proportion of older certificate students.

Conclusions and Policy Considerations

In recent years, occupational education has been shifting from high school to higher education, particularly to community colleges, and has been gaining greater prominence within the postsecondary universe. Nevertheless, it is still perceived to have a lower status in a higher education system predicated on the academic baccalaureate model of education. Thus, it is crucial for federal and state governments to support this significant component of American higher education and to continue their commitment to direct resources toward the group of postsecondary students from the most disadvantaged backgrounds with the greatest barriers to educational achievement.

Community college students (when compared with baccalaureate students), occupational students (when compared with academic students), and certificate students (when compared with all occupational students) are more likely to enter postsecondary education less prepared academically and economically than each of their peer populations. Therefore, while federal, state, and institutional programs might provide funds to target institutions and educational programs attended by disadvantaged students, they must incorporate innovative resource allocations that maximize student benefits and student success once enrolled. For example, a refinement in targeting might take account of the fact that

community college students are more likely to work longer hours, to work off campus, and to view themselves as workers (rather than students), and of the different reasons (family obligations, for example) why they do so.

Policies must also recognize the magnitude and great variety of non-traditional postsecondary enrollment, and implement appropriate measures of institutional accountability. A policy that favors full-time enrollment could be at odds with the realities of community college education. Thus, institutions experiencing large part-time and interrupted student enrollment would be hard pressed to reap rewards for high graduation rates within a given period of enrollment. Perhaps alternative measures should be devised, such as calculating the period of attendance before graduation as full-time-equivalent enrollment. Conversely, it is also reasonable to ask whether accountability policies should be designed to encourage institutions to promote more traditional enrollment patterns, and whether a financial aid policy that encourages traditional attendance might also have benefits in that it would facilitate faster program completion.

Given that vast numbers of students enroll with a primary intention other than degree attainment or transfer, it might not be fair to criticize institutions for low completion and transfer rates. Funding agencies must decide whether institutions should be expected to redirect students toward credentials or further education or whether students' own definitions of educational success should be the yardstick by which institutions and the educational system are measured.

Currently, certificate programs do not strengthen the academic skills of students whose skills are poor when they enroll, and earning a certificate does not usually lead to higher levels of educational attainment. Since certificate-seekers tend to be more educationally disadvantaged than other community college occupational students, funding levers might provide incentives to certificate programs to help students obtain academic skills and achieve higher levels of postsecondary education.

Finally, while earlier federal policy has not specifically addressed the educational needs of non-credit students, a large number of them may be at high educational risk and in need of services to help them to improve their employment opportunities. These students tend to enroll in ESL/ABE/GED programs in community colleges, and, thus, promoting innovations to help them progress from non-credit to for-credit programs is worthy of serious consideration.

DATA SOURCES

National-level survey data from the National Center for Education Statistics (NCES) provided the information on the student groups that is presented here. A primary source was the 1999-2000 National Postsecondary Student Aid Study (NPSAS 2000), a nationally representative sample of for-credit students enrolled in a selected sample of postsecondary institutions. We also used the 1995-96 NPSAS (NPSAS 1996) data for comparison and trend analysis. Other national surveys provided supplementary data: the 1995 and 1999 National Household Education Surveys (NHES), the National Education Longitudinal Study of 1988, the 1980-92 High School and Beyond study, and the 1989-94 and 1995-98 Beginning Postsecondary Students Longitudinal Studies.

Thomas Bailey is the Director of both the Community College Research Center and the Institute on Education and the Economy. He is also the George and Abby O'Neill Professor of Economics and Education at Teachers College, Columbia University.

Timothy Leinbach is a Research Associate at the Community College Research Center, Teachers College, Columbia University.

Marc Scott is an Assistant Professor of Educational Statistics at the Steinhardt School of Education, New York University.

Mariana Alfonso is a post-doctoral Research Associate at the A. Alfred Taubman Center for Public Policy and American Institutions at Brown University and formerly a Senior Research Assistant at the Community College Research Center, Teachers College, Columbia University.

Gregory Kienzl is a Research Analyst at the Education Statistics Services Institute of the American Institutes for Research and formerly a Research Associate at the Community College Research Center, Teachers College, Columbia University.

Benjamin Kennedy is a doctoral student in the Department of Mathematics, Rutgers University and formerly a Research Assistant at the Community College Research Center, Teachers College, Columbia University.

This Brief was prepared by the Community College Research Center (CCRC), Teachers College, Columbia University. More information about the research summarized here is available from CCRC.

Community College Research Center
Teachers College, Columbia University
525 West 120th Street, Box 174
New York, New York 10027

Director: Thomas R. Bailey
Managing Editor: Lisa Rothman
(212) 678-3091 fax (212) 678-3699

ccrc@columbia.edu
http://www.tc.columbia.edu/ccrc