Relationship Between Selected Student Characteristics and Community College Agriculture Program Enrollment

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Community colleges play a major role in American higher education. Nationwide, during the fall 1990 semester, 38 percent of undergraduate students were enrolled in two-year colleges (National Center for Education Statistics, 1993). In Mississippi, during the fall 1992 semester, 98,233 undergraduates were enrolled in certificate and degree programs in the state's public institutions of higher education. Of this total, 51 percent were enrolled in community colleges (Mississippi Institutions of Higher Learning Board, '1993; Dr. Larry Day, Mississippi Junior College Board, personal interview, March 24, 1993).

Banks (1990) stated that, "In any given state, community colleges offer vocational training, remedial education, adult and continuing education, as well as a starting point from which many students can continue on to four-year colleges and universities" (p. 53). Given these four distinct and often competing functions, there is little wonder that a lively debate exists among various factions (e.g. taxpayers, educators, employers, public officials, etc.) concerning the mission of the modem community college (for example, see Cohen and Brawer, 1982; Brint and Karabel, 1989).

A primary issue within the overall debate concerning the community college's mission is the relative role and importance of the academic (transfer) and vocational-technical education functions (Brint and Karabel, 1989; Cohen and Brawer, 1982, Doughetry, 1987; Pincus, 1980; and Shearson, 1989).

According to Palmer (1986), approximately two-thirds of all associate degrees are awarded in vocational-technical areas. Cetron and Gayle (199 1) predicted continued growth for both high school and community college vocational-technical education. Their prediction is based on the continued advancement of technology and on a growing shortage of technically trained workers available for employment. According to Cetron and Gayle (1991):

> Fully three out of four people who hold down technical jobs are either technicians or blue-collar workers . . For would-be data processing specialists, medical technicians, and similarly skilled workers, a good vocational education can be a surer route to a career than traditional academic. [studies]. (p. 69)

Likewise, Phipps and Osborne (1988) have predicted continued growth for postsecondary vocational-technical agriculture programs. They stated that:

> A large percentage of jobs now require education in agriculture beyond high school . . As relevant, practical, and realistic education in agriculture programs are provided at the postsecondary level, employers will seek these graduates as new replacement employees. Persons interested in employment in agricultural occupations are recognizing, in increasing numbers, the need for postsecondary education. (p. 463)

Despite its popularity with students, community college vocational-technical education is not without its critics. Many of these critics focus on the presumed role of vocational-technical education in reinforcing existing inequalities of social class, race, and gender (Brint and Karabel, 1989; Pincus, 1980). These and other critics have

been so persistent and intense that Doughetry (1987, p. 86) has stated that they constitute "the class-reproduction school of community college scholarship."

Pincus (1980) summarized the criticisms of the class-reproduction school of thought when he wrote:

> And just as the community college student body is more apt to be working-class and nonwhite than the student body of the more selective four-year institutions, the terminal vocational programs within community colleges have a higher proportion of nonwhite and working-class students than the transfer programs. This stratification within higher education and within community colleges tends to reproduce the class and racial inequalities existing in the larger society. Different schools and different tracks lead to different economic outcomes. (p. 334)

Brint and Karabel (1989) have extended the criticism of community college vocational-technical education beyond those of the class-reproduction scholars. They have stated that, "Our fear, in short, is that vocational training, especially of the narrowly specialized sort that is often found in community colleges, fails to prepare students for life in a democratic society." (p. 11)

An implicit assumption of Brint and Karabel's (1989) argument is that if students were not enrolled in community college vocational-technical programs, they would be enrolled in academic transfer programs. Shearson (1989), in a review of Brint and Karabel's article, questioned this assumption. He writes, "Chances are all students [in the vocational-technical programs] would not be in four-year colleges, nor would they be in transfer programs." (p. 8) Doughetry (1987) asserted that the availability of community college vocational-technical programs promotes higher levels of educational attainment and participation for students not aspiring to complete a four-year degree.

Palmer (1986) reviewed studies comparing community college vocational- technical and transfer students. Based on his review, Palmer wrote that, "While the average vocational student has a lower academic and socioeconomic profile than the average transfer student, the averages conceal a wide variance in the characteristics of vocational students." (p. 58) Palmer concluded that:

> Though the body of research on community college vocational students is relatively small, it provides sufficient evidence to challenge the assumptions that vocational programs serve as a separate, terminal track for less able students. There is, in fact, a significant overlap in the academic and socioeconomic characteristics of students in occupational and transfer programs. (p. 63)

While Palmer's (1986) review and conclusions addressed the total spectrum of community college vocational-technical education, he readily admitted that, "The backgrounds of students in [specific] vocational programs may vary by program." (p. 63) A need exists for studies which compare community college vocational-technical and transfer students within specific program areas (e.g. agriculture, business, home economics, engineering technology, etc.). This study was conducted to determine if program choice serves as a mechanism for socioeconomic, academic, racial or gender-based stratification of Mississippi public community college agriculture students.

Purpose and Objectives

The purpose of this study was to compare agriculture students enrolled in vocational-technical (vo-tech) and college transfer (transfer) programs at Mississippi public community colleges. Specific objectives were to:

> Compare vo-tech and transfer agriculture students on selected demographic, academic and aspirational characteristics.
>
> Determine the relationship between selected demographic, academic, and aspirational characteristics and community college agriculture program choice (vo-tech or transfer).

Procedures

This study was conducted as a descriptive research design using a mailed survey instrument. The population for this study was comprised of all

students enrolled in the nine Mississippi public community college agriculture programs during the spring 1992 semester (N=503). Of these students, 281 (55.9%) were enrolled in vo-tech programs and 222 (44.1%) were enrolled in transfer programs. The entire population was included in the study.

Data were collected using an instrument originally developed by a team of rural sociologists for use in a 1977 USDA/Cooperative States Research Service (CSRS Project S-114) study of undergraduate agriculture students. During the instrument development process, researchers at participating universities conducted qualitative case study interviews with selected agriculture students to determine and refine items to be used in the instrument. A draft version of the instrument was pilot-tested with agriculture students at three participating institutions. The results of the pilot-test were used to enhance clarity of the items and instructions included in the final version of the instrument (Howell and Parent, 1979).

The S-l 14 instrument has been used in subsequent studies of undergraduate agriculture students (Bowen and Lee, 1985; Taylor, 1989; Taylor and Johnson, 1993). Owens (1986) used a slightly modified version of the S-l 14 instrument to profile students enrolled in Mississippi public community college agriculture programs. Owens pilot-tested the revised instrument to ensure clarity and found that the members of the pilot-test group "reported no problems understanding the questionnaire" (Owens, 1986, p. 28). The S-l 14 instrument, as modified by Owens, was used to collect the data reported in this study.

Prior to data collection, one agriculture instructor at each community college was contacted by telephone. At this time, the researcher explained the purpose and procedures of the study, obtained current enrollment figures, and invited each instructor to serve as the contact person for his or her college. All of the instructors agreed to cooperate in the study.

In March 1992, survey instruments and a cover letter detailing data collection procedures were mailed to each contact person. Three days after the mailing, each contact person was telephoned to confirm receipt of the instruments and to answer any last minute questions concerning the data collection process. The contact persons distributed the instruments to their students, collected the completed surveys, and mailed the instruments back to the researcher. Data collection was completed in May 1992.

Completed survey instruments were received from all nine community colleges. By group, 194 of 281 (69.0%) vo-tech students and 146 of 222 (65.8%) transfer students provided usable responses for an overall response rate of 67.6%. The results and conclusions presented are limited to the respondents; generalizations to the entire population of Mississippi public community college agriculture students are not warranted without additional study.

All data were analyzed using appropriate descriptive statistics. Measures of association were interpreted using the descriptors suggested by Davis (1971) (.O to .09 = negligible; .10 to .29 = low; .30 to .49 = moderate; .50 to .69 = substantial; and .70 or higher = very strong).

Results

The mean age of the vo-tech respondents was 23.6 years (SD = 7.68) with a range of 16 to 55 years. The transfer respondent group had a mean age of 20.03 years (SD=2.27) with a range of 18 to 35 years. The median and modal age for the vo-tech group was 20; for the transfer group, the median and modal age was 19. There was a low negative correlation (r_{pb} = .286) between age and respondent program choice (vo-tech = 1 and transfer = 2).

White males comprised a majority of respondents within both groups. However, the vo-tech group had a higher percentage of both nonwhite and female respondents than did the transfer group. Low negative associations existed between respondent program choice and the variables of race and gender (Table 1).

Information was also sought from respondents concerning the highest level of formal education completed by their parents. The highest percentage of respondents in each group indicated that their parents had completed high school but had not completed a four-year college degree. Low positive associations existed between each parent's

Table 1. Association Between Program Choice and Gender and Race

Variable Category (code)*	Program (code)* Vo-Tech (1) n	%	Transfer (2) n	%	Cramer's V
Gender					
Male (1)	154	79.4	133	91.1	-.160
Female (2)	40	20.6	13	8.9	
Race					
white (1)	168	88.0	137	95.1	-.124
Nonwhite (2)	23	12.0	7	4.7	

*Code refers to the code numbers used to quantify nominal level variables

Table 2. Association Between Program Choice and Parents' Highest Levels of Formal Education

Parent Level of Education (code)*	(Program (code)* Vo-Tech (1) n	%	Transfer (2) n	%	Cramer's V
Mother					
<High school graduate (1)	26	14.2	9	6.2	
High School Graduate c bachelors (2)	104	56.8	92	63.5	
Bachelors degree or higher (3)	53	29.0	44	30.3	.129
Father					
< High school graduate (1)	31	17.3	15	10.3	
High school graduate < bachelors (2)	96	53.6	78	53.8	
Bachelor's degree of higher (3)	52	29.1	52	35.9	.110

*Code refers to the code numbers used to quantify nominal and ordinal level variables.

level of education and respondent program choice (Table 2)

Respondents were also asked to provide information concerning their parents' total annual income. Readers should be aware that 41 of 194 (21%) vo-tech respondents and 7 of 145 (4.8%) transfer respondents did not respond to this item. A majority of respondents in each group providing information on this item reported that their parents had total annual incomes of $25,000 or more (vo-tech, 60.9%; transfer, 71.0%). A low positive association (Cramer's V = .108) existed between respondent program choice and total annual parental income.

Low positive relationships were found between respondent program choice and the variables of high school GPA and composite ACT score. Transfer respondents reported earning higher high school grades and composite ACT scores than did the vo-tech respondents. Conversely, a low, negative relationship existed between program choice and college GPA with vo-tech students reporting higher college GPAs than transfer respondents. Table 3 presents summary statistics for these academic variables.

A moderate positive association existed between program choice and the respondents' desired level of formal education. Although vo-tech respondents tended to have lower educational aspirations than did transfer respondents, a majority of students in both groups aspired to complete at least the bachelors degree. Table 4 presents a summary of the respondents' educational aspirations.

A low positive association existed between respondent program choice and anticipated initial income upon completion of formal education. A majority of vo-tech respondents expected initial annual incomes of less than $20,000. Conversely, a majority of transfer respondents expected initial annual incomes of $20,000 or more. (Table 5)

Table 3. Relationship Between Program Choice and Selected Academic Variables

Variable	Program Choice (Code*)						
	Vo-Tech (1)			Transfer (2)			
	n	Mean	SD	n	Mean	SD	f
Composite ACT Score	152	16.93	3.55	138	18.02	3.70	.150
High School GPS**	189	2.43	.65	145	2.63	.65	.152
College GPS**	171	2.84	.61	134	2.69	.52	-.127

*Code refers to the code numbers used to quantify nominal level variables.
**Based on a 4.0 scale.

Table 4. Association Between Program Choice and Desired Level of Formal Education

Desired Level of Education (code)*	Program (code)				
	Vo-Tech (1)		Transfer (2)		
	n	%	n	%	Cramer's V
Technical (A.A.) degree or less (1)	68	36.2	2	1.4	.436
Bachelors degree (2)	44	23.4	35	24.7	
Graduate degree(s) (3)	76	40.4	105	73.9	

*Code refers to the code numbers used to quantify nominal and ordinal level variables.

Table 5. Association Between Program Choice and Anticipated Annual Income First Job After College

Income (code)*	Program (code)*				
	Vo-Tech (1)		Transfer (2)		
	n	%	n	%	Cramer's V
<$10,000 (1)	11	6.1	4	2.8	.255
$10,000 - $19.999 (2)	114	63.3	59	41.6	
≥$20,000 (3)	55	30.6	79	55.6	

*Code refers to the code numbers used to quantify nominal and ordinal level variables.

summarizes initial annual income expectations by respondent program choice.

Conclusions and Discussion

Using the descriptors suggested by Davis (1971), low relationships were found between program choice and the respondent characteristics of race, gender, parental education and income, composite ACT score, and high school and college grades. For these respondents, the researchers concluded that program choice did not serve as a particularly powerful means of stratification based on race, gender, socioeconomic status or academic aptitude and performance. This conclusion supports the conclusions of Palmer (1986), and refutes those of Pincus (1980).

Put simply, many of the vo-tech respondents share similar backgrounds, abilities, experiences, and aspirations with respondents in the transfer group. The results of this study support Palmer's (1990) contention that:

> By looking at averages only, it is too easy to ignore the full range of students served by vocational curricula, revert to stereotypical notions of the vocational student, and leap to the conclusion that low-income and low-ability students are tracked away from the academic curriculum leading to the baccalaureate. (p. 23)

As a group, the vo-tech respondents reported lower high school GPAs and composite ACT scores than the transfer respondents; however, the vo-tech respondents reported higher college GPAs than the transfer respondents. Differences in the distribution of requirements in the two curricula may provide at least a partial explanation of this reversal in relative academic performance. In a typical transfer curriculum, 30 (48%) of 64 required semester credit hours must be earned in academic core courses. In a typical technical curriculum, only 15 (23%) of 64 required semester hours must be earned in academic core courses (Hinds Community College, 1990).

An important finding of this study is that choice of program was only moderately associated (Cramer's V = .436) with the respondents' desired level of formal education. This was accounted for by the finding that 63.4% of the vo-tech respondents aspired to complete at least the bachelors degree. These findings raise an important question, "If a student aspires to complete a four-year degree, why would the student enroll in a vo-tech program rather than a transfer program?"

Palmer (1990) states that the vocational-technical versus transfer distinction represents an artificial dichotomy which has vastly more meaning for administrators and researchers than it does for community college students. According to Palmer, when community college occupational curricula have baccalaureate counterparts, the occupational curricula "serve both . . . transfer and job-training functions; much depends on the students' goals and the degree to which programs are articulated with upper-division curricula for four-year institutions." (p. 22)

While community college students may pay little attention to the vo-tech versus transfer distinction, many four-year institutions are quite attentive when evaluating transcripts and awarding transfer credit. Bogart and Murphy (1985) state that enrollment in an occupational curriculum "creates even greater transfer credit difficulty if and when the student decides to pursue a baccalaureate degree" (p. 19).

Mississippi State University (MSU) is one of two institutions in the state offering baccalaureate degrees in agriculture. Currently, the College of Agriculture and Home Economics (CAHE) at MSU will accept a maximum of 16 semester credit hours in vocational-technical agriculture earned at a community college (Brian Baldwin, assistant to the dean of the CAHE, personal communication, February 16, 1993). The typical associate degree curriculum specifies a minimum of 30 semester credit hours in vocational-technical agriculture (Hinds Community College, 1990). An associate degree graduate loses a minimum of 14 semester credit hours upon transferring to MSU. Conversely, students in transfer agriculture programs at Mississippi public community colleges can complete two full years at the community college, transfer to MSU as juniors, and apply all credit hours earned (to a maximum of 64) toward the bachelors degree. Current course acceptance practices at MSU work against vo-tech students aspiring to complete a four-year degree.

Recommendations

The following recommendations are based on the results of this study:

This study provides data to defend community college vocational-technical agriculture programs against charges of socioeconomic, academic, racial, and gender-based stratification. These results should be shared widely with educators, policy makers, and the general public.

High school and community college counselors and advisors should make systematic efforts to inform students about the transfer and course acceptance criteria in place at Mississippi's four-year institutions. Specifically, those advising prospective vo-tech agriculture students should make certain students understand that a maximum of 16 semester hours of vocational-technical coursework will be accepted toward a baccalaureate degree in agriculture at Mississippi State University.

Mississippi State University officials should examine existing transfer and course acceptance policies to determine if they serve educationally valid purposes. If the policies serve valid purposes, these purposes should be clearly stated and communicated to community college administrators, faculty and students. If the policies do not serve valid purposes, they should be discontinued. In any case, undue obstacles should be removed from the paths of community college vo-tech students desiring to complete four-year degrees.

Further research should be conducted on the educational aspirations and accomplishments of community college vo-tech agriculture students. Specifically, research should be conducted to answer the following questions:

> Do community college vo-tech agriculture students actualize their educational aspirations by enrolling in four-year institutions? If not, what factors prevent their enrollment? If so, do they complete degree programs?

How do the academic performance and degree persistence of vo-tech students continuing on to four-year institutions compare with their transfer curriculum counterparts?

Do the educational aspirations of vo-tech agriculture students increase once the students are enrolled in a community college?

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