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ABSTRACT

The purpose of this study was to examine the relationship between type of associate degree and academic performance at the four-year college of community college students who transferred with an associate degree to a four-year institution. Academic performance was measured by baccalaureate-degree completion rate and grade point average (GPA) upon completion of the baccalaureate. A brief review of previous studies related to community college transfer rates by type of associate degree and then outline the data source and methodology of the current study is provided. The hypotheses that framed the study include: (1) there would be no difference in the baccalaureate degree completion rate of those who received A.A. degrees and those who received other associate degrees; and (2) there would be no difference in the baccalaureate exit grade point average of those who received A.A. degrees and those who received other associate degrees. A positive significant relationship was found to exist between type of associate degree and baccalaureate degree completion (A.A. degree holders were more likely to complete their baccalaureate), and no statistically significant relationship was found to exist between the type of associate degree and GPA upon attainment of the baccalaureate. (Contains 21 references.) (RC)



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Tying Transfer to Type of Associate Degree: A Tangled Knot

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When the public junior college was initially created at the beginning of the twentieth century, one of its central missions was transfer education. Individuals who desired a baccalaureate degree could attend the two-year college to complete the first two years of an undergraduate degree and transfer with an Associate of Arts (A.A.), considered to be a transfer degree, to a four-year college or university.

During the twentieth century as the junior college turned into the community college, other associate degrees were created, including the Associate of Applied Science (A.A.S.) and the Associate of Science (A.S.) degrees. The A.A.S. degree is typically viewed as an applied, non-transfer or "terminal" degree for those seeking immediate employment in semi-professional or technically oriented fields requiring less than a bachelor's degree for career entry. Some states, e.g., California, Kentucky, Oregon, do not offer the A.A.S. degree because in these states the A.S. degree functions as a non-transfer degree. In other states the A.S. degree is considered a transfer degree for those seeking a baccalaureate in engineering or a science. In still other states, e.g., Missouri, both the A.S. and the A.A.S. are viewed as vocational technical or applied/non-transfer degrees.

Although the A.A.S. degree and sometimes the A.S. degree are not meant to be transfer degrees, almost from the community college's beginning as a junior college, there has been a history of students in applied programs transferring and attaining a baccalaureate (Eells, 1943; Frye, 1992; Kintzer, 1983). Currently many community college students in applied associate degree programs seek a baccalaureate. In a national study conducted in the 1980s, Palmer (1987) found that 26% of vocational students planned to transfer. More than a decade later, Berkner, Horn, and Clune (2000) examined data from the 1995-96 Beginning Postsecondary Students Longitudinal Study and found that almost 32% of students in associate degree programs with majors in applied fields intended to transfer to a four-year college or university. Not only do students in vocational or "terminal" associate degree programs intend to transfer, many do. Using data from the High School and Beyond Study, Grubb (1991) found that many students transferred with vocational associate degrees: over 23% of community college students from the class of 1980 as compared to almost 50% with an academic associate degree.

Even though students with applied associate degrees do transfer to four-year institutions, there have been few studies of their academic performance, as illustrated by baccalaureate degree completion rate and exit grade point average (gpa), at the senior institution. One study was conducted by the Illinois Community College Board, which examined almost 10,000 Illinois community college students who transferred to Illinois public four-year colleges and universities in fall 1979. Five years later, almost 54% of students in transfer programs had completed the



baccalaureate as compared to over 48% of the A.A.S. transfers (Illinois Community College Board, 1986, as cited in Bender, 1991). Cox and Harden (1989) conducted a single-institution study in which they examined the performance of students admitted to the University of West Florida in fall 1983 with the A.S. or A.A.S. degree. The degree completion rate was higher for transfer students with the A.A. degree (67% by summer 1988 as compared to 48% of the students with an A.A.S. or A.S. degree), but the proportion of students who left because of academic suspension was comparable among associate degree types, as was the proportion who left in good standing. Fredrickson (1998) did not use receipt of an associate degree as a variable, but she did look at transfer students in the University of North Carolina System, based on the students' classification as college transfer or technical students when at the community college. Seventy percent of the transfers who enrolled in fall 1993 were classified as college transfer students, with the remaining 30% classified as coming from technical programs. As regards academic performance, she found that after two university semesters, the grades of the technical program students were slightly higher than the transfer program students' grades. However, the persistence rate of the transfer program students was higher.

In sum, there has little research on the question, Do students who transfer to a four-year college or university with an applied or vocational technical associate degree perform better, as well, or worse than those who transfer with an academic or college preparatory degree?

Purpose of Study

The purpose of this study was to examine the relationship between type of associate degree and academic performance at the four-year college of community college students who transferred with an associate degree to a four-year institution. Academic performance was measured by baccalaureate-degree completion rate and gpa upon completion of the baccalaureate. The independent variable was type of associate degree (A.A. or other), and the dependent variables were baccalaureate-degree completion rate and baccalaureate exit gpa.

Data Source and Methodology

The population for the study was all individuals who graduated with an associate degree from a Missouri public two-year college during the 1995-1996 academic year. From this associate degree cohort were drawn all students who transferred to a Missouri public four-year institution in fall 1996, spring 1997, or summer 1997, and graduated from a Missouri public four-year institution by the end of summer 2000.

The data for this study were derived from required records submitted to the Missouri Coordinating Board of Higher Education by the state institutions. The records contain completion, fall enrollment, and term-by-term performance data on all enrolled students. From these records, the following information was sought for each associate degree recipient: (1) gender, (2) race/ethnicity, (3) type of associate degree, (4) community college gpa upon completion of degree program, and (5) transfer status. For those who transferred to a Missouri public four-year college and attained a baccalaureate, the following information was sought: (6) semester and year baccalaureate degree was completed, (7) four-year college gpa upon



graduation, and (8) exit major from four-year college for students in applied degree programs. Due to insufficient information on institutional records, transfer students could only be classified in two categories: those who received the A.A. degree, and those who received another type of associate degree (either the A.S. or the A.A.S).

The hypotheses were that (1) there would be no difference in the baccalaureate degree completion rate of those who received A.A. degrees and those who received other associate degrees, and (2) there would be no difference in the baccalaureate exit grade point average of those who received A.A. degrees and those who received other associate degrees.

A chi-square test at the .01 level of significance was conducted to determine the relationship between type of associate degree received (A.A. or other) and baccalaureate degree. A T-test of independent groups at the .001 level of significance was conducted to determine the relationship between type of associate degree received and gpa upon graduation from the four-year college.

Results

During 1995-96, 6,171 students received an associate degree from a Missouri public two-year college. Fifty-five percent (3,371) received the A.A. degree while 45% (2,800) received either the A.S. or the A.A.S. Of the associate degree recipients, almost 26% (1,585) transferred to a Missouri public four-year college during 1996-1997. Table 1 provides a demographic profile of these two groups. Almost 83% (1309 students) transferred with an A.A. degree, while over 17% (276) transferred with either an A.S. or an A.A.S. Thirty-nine percent of the A.A. degree recipients transferred, as compared to 10% of those receiving the A.S. or A.A.S. For a comparison of the race/ethnicity and gender composition of all associate degree recipients to those who transferred, see Table 2.

The cumulative total of those who had graduated with a baccalaureate by spring 2000 was 61.3% (948 students). Almost 63% (822) of those who transferred with an A.A. degree received a baccalaureate as compared to over 46% (126) of those who transferred with another kind of associate degree. (See Table 3 for the demographics of the two groups receiving the baccalaureate.) A positive significant relationship was found to exist between type of associate degree and baccalaureate degree completion (X^2 =6.859, df=1, p < 0.009), with A.A. degree holders more likely to complete their baccalaureate within the time period of the study (Table 4).

For the A.A. recipients who graduated with a baccalaureate degree, the average gpa was 3.12, while the average gpa of applied degree recipients was 3.18. No statistically significant relationship was found to exist between type of associate degree and gpa upon attainment of the baccalaureate (Table 5).

For informational purposes, the exit baccalaureate major of applied degree recipients was compared with their major or program in the community college. As Table 6 shows, the percentage of students receiving a baccalaureate in the same major as their associate degree program varies from 00% for the major, Science Technology Technical Education, to 75% for the majors, Health Occupations-Technical Education, and Hospitality/Culinary Arts. The Table



also reveals that all the students who transferred with vocational technical degrees and who graduated with a baccalaureate received that baccalaureate in the same program of their associate degree.

Discussion and Implications

The finding that type of degree is related to degree completion rate at a four-year college is not surprising, given that the degree associated with the higher completion rate is the A.A. As an academic or college preparatory degree, the A.A. is supposed to prepare students to succeed in attaining the baccalaureate. The more intriguing finding is that there is no difference in the academic performance of those who received the transfer degree and those who received vocational technical degrees. Because only 10% of those who received an A.A.S. or A.S. degree transferred, it may be that they are the "cream of the crop" among students with applied degrees and thus might be expected to do well at a senior institution.

Perhaps because the majority of community college students who transfer to a four-year college do so before completing an associate degree (NCES, 1997), the bulk of studies about the academic performance of transfer students defines the population to be studied in terms of community college credit hours earned before transferring (e.g., Carlan & Byxbe, 2000; Nolan & Hall, 1978; Townsend, McNerny, & Arnold, 1993). While the findings of this study are consistent with those of the few others that have looked at the academic performance of transfer students with applied degrees (Cox & Harden, 1989; Fredrickson, 1998; Illinois Community College Board, 1986), more studies need to be conducted, especially at the state level, to ascertain the relationship between type of associate degree and academic performance upon transfer.

In addition to providing insight about the relationship between type of associate degree and academic performance at a senior institution, this study also provides some information about the transfer rate of two-year college students in Missouri. At least for this particular cohort, the transfer rate, at almost 26%, was higher than estimates of the national transfer rate. Nora (2000) estimated that rates were between 15 and 20%, while the Center for the Study of Community Colleges (2001) found a rate of 23% in 1993. However, these estimates did not use receipt of an associate degree in calculating transfer rates but rather used enrollment at the community college for a limited number of hours. Thus comparisons to these transfer rates is inappropriate. To our knowledge, there are no studies of transfer rates for associate degree recipients.

To gain a more accurate picture of transfer rates, state systems need to track the extent to which applied associate degree recipients transfer and attain baccalaureates. Community colleges can anticipate a higher transfer rate if applied degree students are considered in calculation of rates, as is evidenced in this study. Note that in this study, Missouri's transfer rate for associate degree recipients was increased by 4.5% with the inclusion of students with applied degrees.

It is possible that the percentage of people who transfer with applied associate degrees may be higher in Missouri than in other states, because Missouri has been encouraging the development of institutional articulation agreements for A.A.S. degrees since 1996 (Missouri Coordinating



Board for Higher Education, 1996). Perhaps as a result of this encouragement, by the end of 1999-2000, 25 of Missouri's four-year colleges (both public and private), as well as three four-year colleges in Kansas and one in Iowa, had developed technology bachelor's degree articulation agreements with AAS/AS degrees. Missouri's two-year colleges had in place 157 agreements, most of which had been developed since 1996 (Missouri Coordinating Board for Higher Education, 2001). The growing importance of this development was illustrated at the state's 2001 Transfer and Articulation conference, where, for the first time, a session was held on "Successful AAS-BS Partnerships: Models for Articulation." Also, the value of the articulation agreements may be illustrated by the fact that all vocational technical associate degree recipients who received a baccalaureate received it in the program area of their associate degree.

Other states may also begin to encourage institutional articulation agreements for applied degrees as the recent efforts of the League for Innovation in the Community College to encourage " 'upside-down' 2 + 2 programs" with four-year colleges bear fruit. In these programs, the four-year institution accepts the two-year college work in the vocational field as the student's major and provides the general education component of the baccalaureate (Carnevale, 2001). For some institutions, particularly regional universities, this upside-down degree could become a market niche.

Limitations of the Study

This study has several limitations. First of all, only the transfer of those associate degree recipients who transferred to a public four-year college in Missouri was examined. It is possible that some associate degree recipients transferred either to private colleges in Missouri or to out-of-state institutions. Also, it is possible that some who received their associate degree during 1995-1996 transferred after 1996-97, but their transfer is not traced in this study. Another limitation is the clumping together of students with the A.S. degree and those with the A.A.S. degree because institutional records submitted to the Missouri Coordinating Board of Higher Education do not differentiate between students who receive the A.S. degree and those who receive the A.A.S. degree. A clearer picture of how well transfers with the A.A.S., considered by most states to be a non-transfer degree (Ignash and Townsend, 2000), perform at the four-year level would have been possible if the two groups could have been separated.



Table 1.

<u>Demographics of All 1995-96 Associate Degree Recipients, including Transfers to Four-Year Public Institutions During 1996-97</u>

Characteristics		ate Degree Recipients = 6,171)		er Students = 1,585)
	n	%	n	%
Asian	69	1.1	13	.8
Black	510	8.3	122	7.7
Hispanic	81	1.30	19	1.2
Indian	19	.3	8	.5
Non-Resident Alien	19	.3	3	.2
Unknown	144	2.3	44	2.8
White	5,329	86.3	1,376	86.8
Female	3,764	61.0	935	59.0
Male	2,407	39.0	650	41.0



Table 2.

Demographics of Academic Transfers (A.A.) and Vocational Technical Transfers

(A.A.A./A.S) to Four-Year Public Institutions During 1996-97

Characteristics		idemic Transfers = 1,309)	Vo	cational Technical Transfers $(\underline{N} = 276)$
	n	%	n	%
Asian	18	1.4	2	.6
Black	106	8.1	19	6.9
Hispanic	17	1.3	3	1.2
Indian	7	.5	2	.6
Non-Resident Alien	4	.3	1	.4
Unknown	25	1.9	5	1.8
White	1132	86.5	244	88.5
Female	847	64.7	161	58.2
Male	462	35.3	115	41.8



Table 3.

Demographics of Academic Transfers (A.A.) and Vocational Technical Transfers

(A.A.A./A.S) Who Graduated with Bachelor's Degree

Characteristics	Acade $(N = 1)$	emic Transfers 822)	Vocat (<u>N</u> = 1.	ional Technical Transfers 50)
	n	%	n	%
Asian	4	.5	 1	.6
Black	65	7.9	10	6.9
Hispanic	11	1.3	2	1.2
Indian	3	.4	1	.3
Non-Resident Alien	3	.3	1	.4
Unknown	11	1.3	2	1.2
White	725	88.3	133	89.4
Female	460	56.0	86	57.0
Male	362	44.0	64	43.0



Table 4.

<u>Baccalaureate Degree Completion Rate by Type of Transferred Associate Degree</u>

Graduation Status	Acad	emic	Voca	tional Technical	Total	I
	n	%	n	%	n	%
Graduated	822	62.8	150	54.3	972	61.3
Not Graduated	487	37.2	126	45.7	613	38.7
Total	1309	100.0	276	100.0	1585	100.0

 $X^2 = 6.859$, df = 2, p = .009



Table 5.

Exit Baccalaureate Degree Grade Point Average by Type of Transferred Associate Degree

Associate Degree (N=893)*	N	<u>M</u>	SD	<u>SE</u>
Academic	750	3.12	0.58	0.02
Vocational Technical	143	3.18	0.61	0.05
t = -1.0590, df=891, p =	0.2909			

^{*} Data were missing from institutional records for 79 of the baccalaureate degree degree recipients: 72 of those with the academic associate degree and 7 of those with the vocational technical associate degree.



Table 6.

Comparison of Associate Degree Major and Baccalaureate Major of A.A.S. and A.S.

Degree Recipients upon Graduation from Public Four-Year Institution

		<u></u>		
Vocational/Technical Program (N=276)		Baccalaureate Degree Major (N=150)		
	n		n	%
Agriculture Business & Mgt	03	Agriculture Bus. & Mtg	02	67
Comp. & Infor. Syst Tech Ed	14	Comp. & Infor. Syst Tech Ed	09	64*
Criminal Justice	35	Criminal Justice	16	46
Early Childhood Education	34	Early Childhood Education	22	65
Eng. Related Tech Ed	19	Eng. Related Tech Ed	11	58*
Gen. Bus. & Admin. Service	42	Gen. Bus. & Admin. Service	26	62
Health Occupations-Tech Ed	08	Health Occupations-Tech Ed	06	75*
Horticulture	02	Horticulture	01	50
Hospitality/Culinary Arts	04	Hospitality/Culinary Arts	03	75
Journalism/Communications	04	Journalism/Communications	02	50
Legal Assistant	10	Legal Assistant	05	50
Marketing and Distribution	11	Marketing and Distribution	04	36
Mechanics & RepTech Ed	05	Mechanics & RepTech Ed	02	40*
Other Health Occupations	38	Other Health Occupations	14	39
Other Mechanics & Repairers	05	Other Mechanics & Repairers	03	60
Precis. Prod Trades-Tech Ed	18	Precis. Prod Trades-Tech Ed	11	61*



Table 6. (Cont'd)

<u>Comparison of Associate Degree Major and Baccalaureate Major of A.A.S. and A.S.</u>

<u>Degree Recipients upon Graduation from Public Four-Year Institution</u> (cont'd)

n		n	%
22	Engineering	13	59
02	Science Tech. Tech Ed	00	00
	22	22 Engineering	n n 22 Engineering 13

^{*} Targeted program included in the MO State Plan for Postsecondary Technical Education



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