

October 2019

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Recommended Citation

Buckley, G. (2019). Deaf Community College Transfer Students Moving to The National Technical Institute for the Deaf: A Comparative Analysis. *JADARA*, 26(3). Retrieved from <https://repository.wcsu.edu/jadara/vol26/iss3/7>

DEAF COMMUNITY COLLEGE TRANSFER STUDENTS MOVING TO THE NATIONAL TECHNICAL INSTITUTE FOR THE DEAF: A COMPARATIVE ANALYSIS

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Abstract

Community colleges are estimated to be serving 3,000-5,000 deaf and hard-of-hearing students annually. A growing number of these community college students are seeking to continue their postsecondary education at the National Technical Institute for the Deaf. This study examined the experiences of community college students who moved to NTID and involved a comparative analysis of this group with a group of native students who enrolled in the Institute during the same time period (1979-1983). Transfers and natives were compared on 28 variables with four major areas: entry-level characteristics, entry-level academic skills, entry-level communication skills and academic achievement at RIT. Significant differences between the two groups were identified in 9 of the areas examined. On the basis of this data, it was concluded that these two student populations were not homogeneous. Recommendations related to improving the transfer experience based upon the results of these students are provided.

Of the more than 13 million Americans enrolled in the 3,400 colleges in this nation, an estimated 9,000 are deaf or hard-of-hearing individuals (Nash, 1992). Over the past quarter of a century, postsecondary access for deaf

individuals has expanded enormously to a point where approximately one-half of secondary graduates are enrolling in postsecondary training programs (Walter, MacLeod-Gallinger & Stuckless, 1987). This is in marked contrast to the pre-1960's when only 10 percent of the population continued their education beyond high school.

Community colleges have played a critical role in expanding opportunities for deaf individuals as well as for general populations. Beginning with the establishment of the first specialized community college program in Riverside, California in 1961, the number of two-year colleges now providing specialized programs of service for deaf students has grown to more than 80 campuses (Rawlings, Karchmer & DeCaro, 1988). An additional 600 community colleges report serving "hearing-disabled students" as well (Hartman, 1987). Community colleges are estimated to be serving 3,000-5,000 deaf and hard-of-hearing students annually.

This study concerned itself with one segment of the deaf and hard-of-hearing community college student population, transfers who continue their education at a four-year institution. While other studies (Cole, 1987; Giddings, 1985; Office of Institutional Research, 1985; Rivera, 1987) have been conducted on the topic of disabled and minority populations, there had been no effort to examine the transfer experiences of deaf and hard-of-hearing community college students. Several studies have examined the entry-level characteristics of deaf transfer students in general

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(MacLeod-Gallinger, 1986), but the present study represented the first effort to focus specifically and longitudinally on deaf community college transfer students.

Method and Design

Community college transfer student experiences are often studied through the use of a "native versus transfer" model in general populations research (Giddings, 1985; Office of Institutional Research, 1985). For the purposes of such studies, "native" students are those who have attended only the four-year institution in question, while "transfer" students are those who have previously enrolled in community colleges. Utilization of this model requires that both a critical mass of deaf transfer students and a reliable database for comparative purposes be available. The National Technical Institute for the Deaf (NTID) is one of the eight colleges within Rochester Institute of Technology and serves approximately 1,100 deaf students per year. Approximately one-third of all new students from NTID have attended other postsecondary programs prior to their admissions to the college. In addition to having a critical mass of transfer students, NTID also has developed and maintained a data-base on students which greatly enhanced the analytic objectives of this study.

Utilizing the native versus transfer student model, this study involved a comparison of these two groups on twenty-eight variables which were grouped into four major areas:

- entry-level characteristics;
- entry-level academic skills;

- entry-level communication skills;
- academic achievement.

Subjects

The subjects for this study consisted of a cohort of deaf students who entered NTID from Fall, 1979, through Fall, 1983. Because the research design involved a comparison of persistence in college, the cut-off year of 1983 was used to ensure that a majority of the cohort had completed academic efforts within the Institute. The native student was defined as any student who had entered NTID without having attended any other postsecondary program. Transfer community college students were specifically defined and identified as those who had previously attended a two-year community college prior to enrolling at NTID.

A computer search of the more than 1,900 student records who enrolled at the Institute from 1979-1983 yielded a sample of 176 students who were transfers from community colleges. A native student sample group of 191 students was randomly selected from the same panel.

Procedure and Analysis

Following identification of the two sample groups, the two sets were tracked and compared from entrance to exit on the twenty-six variables listed in Table 1. Cross-tabulations, chi square analysis and one-way analysis of variance were utilized to compare these groups.

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Table 1

Summary of Native Versus Transfer Comparisons

VARIABLE	SIMILAR	STATISTICALLY DIFFERENT	NATURE OF DIFFERENCE
I. <u>Characteristics</u>			
A. Gender	X		
B. Race	X		
C. Age		X	Transfers 4 Years Older
D. Region		X	Different Regions
E. High School Type	X		
F. Parents' Educational Level		X	Transfers' Parents More Educated
G. Parents' Occupational Level	X		
H. Parents' Hearing Status	X		
II. <u>Academic Skills</u>			
A. Achievement		X	Natives' .4 Grade Equivalents Higher
B. Reading Comprehension		X	Natives' .4 Grade Equivalents Higher
C. Math Concepts		X	Natives' .7 Grade Equivalents Higher
III. <u>Communication Skills</u>			
A. Pure Tone Average	X		
B. Discrimination	X		
C. Speech	X		
D. Manual Communications	X		
IV. <u>Academic Achievement</u>			
A. Credits Transferred	n/a		
B. Deaf Program Status	n/a		
C. Environment		X	Transfers Placed Higher Levels
D. Declared Major		X	Enrolled in Different Schools
E. Majors of Graduates		X	Graduated from Different Schools
F. GPA Cumulative	X		
G. GPA NTID Technical	X		
H. GPA NTID Liberal Arts	X		
I. GPA RIT Technical	X		
J. GPA RIT Liberal Arts	X		
K. Exit Status RIT/NTID	X		
L. Degree Type Earned	X		

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Results

As Table 1 shows, statistically significant differences between the native and the transfer groups were identified in 9 areas. A brief summary of the results in each major area follows. Entry level characteristics included data on gender, race, age, region of permanent address, high school type, parents' educational level, parents' educational status and parents' hearing status. Significant differences were found between natives and transfers related to age, region of permanent address and parental educational status. As Table 2 indicates, transfer students, as expected, had a higher mean age and a wider range of entry ages than natives. This finding reflects the fact that transfer students have spent significant time at community colleges before enrolling at NTID. Significant differences were also found in the regions of the nation from which students came to NTID. More transfers tended to come from the West and fewer from the Northeast and the Midwest. Options in the West (Rosen, 1987), appear to influence this trend. Table 3 presents Chi square comparisons on the variable. Vocational Rehabilitation policies which favor local educational placement (Stewart, 1986), the prevalence of postsecondary programs, and parental educational status all influence college choice. A surrogate measure of socio-economic status was defined by looking at data from parents' level of education (MacLeod-Gallinger, 1986). To facilitate analysis, data from the parent of each student who had the highest level of education was used in the analysis. Table 4 reports that transfers' parents had attained higher levels of formal education. Entry level academic skill comparisons involved utilization of grade equivalent levels in three major areas: achievement, reading comprehension, and mathematics. Achievement skills were reported as the total scores from the Stanford Achievement Test (Madden, Garver, Karlsen & Merwin, 1972). Reading comprehension

skill levels were scores from the Reading Comprehension subtest, and mathematics skill levels were from the Mathematics Concepts subtest of the Standard Achievement Test (Madden, et al., 1972). The means and standard deviations of each group were compared through a one-way analysis of variance. Natives were found to possess significantly higher achievement, reading comprehension and math concept skills than transfers. Table 5 presents a comparative summary of all of the variables examined within this category. These results are consistent with a previous NTID study on entry level skills of general transfer students (MacLeod-Gallinger, 1986).

Entry level communication skills were compared utilizing data on the Pure Tone Averages of students' hearing loss, discrimination, speech and sign communication skills. No significant differences were found between the groups with regard to these variables.

The fourth major area of comparison involved an examination of overall academic achievement at RIT/NTID. Rochester Institute of Technology is a comprehensive four-year university offering 200 degree programs to more than 13,000 students. NTID, as one of the eight colleges of RIT, offers 40 sub-baccalaureate degree programs for deaf students. NTID students pursue career training via a wide variety of programs, levels and coursework. Academic achievement in this complex setting can best be examined through a review of the variables listed in Table 1 in this area.

Significant differences between native and transfer students were noted in three of the areas: educational environments, declared majors, and graduation majors. Educational environments were examined utilizing the categorical placement model suggested by Walter and Welsh (1986). The NTID students were defined as students who had registered in the sub-baccalaureate degrees within the college of NTID. The "mixed" group consisted

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Table 2
Age of Entry Comparisons at NTID

Sample	N	Mean Age	SD	Range
Natives	191	18.8	1.2	17-25
Transfers	176	22.5	4.7	18-53

Table 3
Chi Square Comparisons Between
Natives and Transfers by Region of Permanent Address

Sample	Northeast	Midwest	South	West
Count	91	54	27	19
Natives Percent	47.6	28.3	14.1	9.9
Count	60	49	27	49
Transfers Percent	34.1	22.7	15.3	27.8

Chi square = 21.106, $p = .0001$

Table 4
Chi Square Comparisons Between
Natives and Transfers by Parents' Educational Level

Sample	Educational Levels Completed				
	Elementary	Secondary	Two Years College	Four Years College	Four+ Years College
Count	15	52	28	33	14
Natives Percent	10.6	36.6	19.7	23.2	9.9
Count	8	39	22	33	20
Transfers Percent	6.6	32	18	27	16.4

Chi square = 4.2579, $p = .037$

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of students who were registered in majors both at NTID and within the baccalaureate programs of RIT. The baccalaureate group consisted of students who were enrolled only in RIT majors.

As the chi square analysis in Table 6 shows, transfer students tended to be placed in significantly larger percentages in the more academically advanced mixed and Bachelor degree environments than did native students. This result, when viewed in conjunction with the average lower academic skills of the transfers, strongly suggests that the transfer community college student population is bimodal. In other words, the transfer student population is made up of two types of students. Those who possess lower academic skills than natives and also those who possess higher skills and are thus placed within more advanced academic environments. Additional research is needed to further examine the experience of transfer students who are placed within the more advanced environments of RIT to verify this finding.

Grade point average comparisons yielded no significant differences between the two groups, as shown in Table 7 and tested through a one-way analysis of variance. The final variables examined within this longitudinal study involved the exit status and type of degree earned by graduates. Tables 8 and 9 show the chi square comparisons which indicated no significant differences between the two groups was found.

Discussion

In summary, this study arrived at two major findings with regard to native and transfer students at NTID. First, these student populations were not homogeneous in regard to characteristics, entry level academic skills or academic achievement at RIT. The second major finding of this study was that despite these significant differences, transfer students did enroll, persist and

graduate from RIT/NTID in percentages that were comparable to natives. This study represented an initial effort to examine the experiences of deaf community college transfer students. The unique longitudinal design enabled the investigator to compare these experiences with those of native students over time. The following recommendations are made based upon the findings of this project.

1. Enhanced collaboration between programs to enhance the transfer for deaf students must occur. Watson (1987) and others have called for expansion of formal articulation agreements and the establishment of "feeder-receiver" relationships similar to these that exist serving general populations. The field should go beyond these steps and explore innovative models which involve a wider range of sharing and dialogue between programs such as those supported by the Ford and Melton Foundations (Ford, 1984; Copeland, 1987). The emphasis of these efforts should be on supporting strategies and processes which enhance the ability of students to transfer and successfully complete career goals. It is especially important that the issue of transferability of coursework be addressed within the context of this recommendation. Confirming the results of previous NTID research (MacLeod-Gallinger, 1986), this study found that less than 10 percent of the transfer students were awarded credit for their previous coursework. Enhanced collaboration between postsecondary programs should lead to enhanced transferability of credits in the future.

In addition to increased collaboration on the postsecondary level, there must be a renewed emphasis placed upon fostering similar efforts between secondary and postsecondary programs.

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TABLE 5
ENTRY-LEVEL ACADEMIC SKILLS SUMMARY COMPARISON

Sample Data	Overall Achievement	Reading Comprehension	Math Concepts
Natives Mean	9.1	10.1	7.6
Transfers Mean	8.6	9.3	7.2
Natives <u>SD</u>	1.2	1.5	1.7
Transfers <u>SD</u>	1.2	1.7	1.9

TABLE 6
CHI SQUARE COMPARISONS BETWEEN
NATIVES AND TRANSFERS BY EDUCATIONAL PLACEMENT

	NTID	Mixed	B.S.
Count	164	23	4
Natives Percent	85.9	12	2.1
Count	135	27	14
Transfers Percent	76.7	15.3	8

Chi square = 8.08870, $p = .0175$

TABLE 7
SUMMARY TABLE OF GPA COMPARISONS BETWEEN
NATIVES AND TRANSFERS

Coursework	Natives GPA	Transfer GPA
Cumulative	2.82	2.92
NTID Technical	2.04	2.04
NTID Liberal Arts	2.63	2.62
RIT Technical	2.01	2.14
RIT Liberal Arts	2.00	2.07

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Secondary preparation remains a critical key to postsecondary success, and yet there remains uncertainty as to how high school programs can and should best prepare deaf students who are college bound. Guidelines such as proposed by the College Board (1983) and the NTID/MSSD Mathematics and Science Preparation Project (Abrams, Parker & Vadney, 1984; Lang, 1985) should be examined, revised, approved and implemented on a national basis.

2. The standards for postsecondary education programs (Stuckless, 1973) developed by the Conference of Executive Administrators at Schools for the Deaf (CEASD) should be updated and revised. Primary emphasis should be placed upon guidelines which seek to enhance the quality of programmatic efforts. The revised standards should be developed collaboratively with input from a variety of professional and consumer-based organizations within the field. Recommendations from the National Association of the Deaf (Rosen, 1987) should be reviewed as part of this process.

3. The field of postsecondary education of the deaf must collaborate to develop and maintain a strong information base. The research information base within the field is presently fragmented and disjointed. Local, state, regional and national programs should actively collaborate on the development of the base. Future policy and funding decisions related to the field should be based upon the data available from this information base.

4. Minority member issues and concerns within the field must receive increased attention and resources. The pool of deaf minority ages 18-21 years old is expected to grow to 39 percent of the total population of deaf students by the year 2000 (Nash, 1992). Research indicates clearly that deaf minority students lag behind in academic achievement (Nash, 1992) and there is mounting evidence that college graduation rates are also significantly lower. Educators at the elementary, secondary and postsecondary level must work collaboratively to address the needs of this population.

**TABLE 8
CHI SQUARE COMPARISONS BETWEEN
NATIVES AND TRANSFERS BY CURRENT EXIT STATUS**

	Graduated	Inactive	Leave of Absence	Enrolled	Withdrawn
Count	95	2	-	2	92
Natives Percent	49.7	1	-	1	48.2
Count	77	3	1	7	88
Transfers Percent	43.8	1.7	.6	4	50

Chi square is 5.34624, p = .2536

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TABLE 9
CHI SQUARE COMPARISONS BETWEEN
NATIVES AND TRANSFERS BY TYPE OF EXIT DEGREE

Sample	Certificate	Diploma	Associate	Bachelor
Count	8	40	39	8
Natives Percent	8.4	42.1	41.1	8.4
Count	4	33	24	16
Transfers Percent	5.2	42.9	31.2	20.8

Chi square = 6.4293, p = .0925

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