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Comparing The Academic Success of Community College Transfer Students Versus Traditional Four Year Students

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Abstract

According to 2014 NMC Horizon Report, the fastest growing jobs in the United Sates in the next 10 years will require college degrees. Community College student enrollment has already increased more than 53% over the last 20 years to attempt to meet this demand (National Association of College and University Business Officers). Some reasons for the increasing trend of students starting their post-secondary education at community colleges may include cost reduction and general preparedness for post-secondary education. Our study analyzes the characteristics of transfers versus traditional students in terms of: GPA, graduation rates and multiple demographic characteristics. This research aims at comparing the academic performance of transfer students versus traditional 4 year students at a singular university, in the areas of graduation rates, timeframes and overall Grade Point Average.

Keywords: Transfer Students, Academic Performance, Community College

Introduction

College degrees are often correlated with higher earnings potential. In addition, the recent economic trends from manufacturing to service sector positions, from labor-intensive to knowledge workers is contributing to the need for wider access to higher education institutions. With a growing income disparity and rising tuition costs, affordability and access are issues confronting students. This has led to increased competition as well as collaboration between universities and community colleges. Many have partnered to provide a somewhat seamless transition to enable students to transfer to the traditional 4 year universities to complete their degrees.

There are, however, some inherent challenges for transfer students. Often admissions officers at four-year colleges are concerned that transfer students might have difficulties adjusting to the academic demands of their institutions. If community college transfers are not prepared academically, this might result in the need for additional support, which
might translate into higher educational costs and an extended timeframe to degree attainment. With roughly half of all students in postsecondary education starting at a community college (Ehrenberg & Smith, 2004; U.S. Department of Education, 2004), it is worthwhile to compare the academic performance (or success) of transfer students versus regular students. This study aims at contributing to this pertinent literature utilizing Slippery Rock University data as a case example. In particular, we will compare the academic outcomes of the transfer students versus non-transfer students in two areas of grades; in higher level courses and the graduation rates. The results will convey important information to the relative universities regarding the quality of incoming transfer students and enable them to adopt proper measures to ensure timely graduation as well as maintain the rigor of academic instruction.

Literature Review

Several studies have analyzed the characteristics of transfer students and compared them to that of the regular four year college students. Eggleston & Laanan, (2001) affirmed that transfer students face a variety of social and academic challenges in addition to adaptation to their new institutions. Branson & Green (2007) compared the characteristics of transfer students to regular students by gender, area of study and academic credentials and concluded that these groups were similar in composition. A comparison of the academic achievement of the transfer versus the regular students can be dated back to the early 1970s, which was followed by a national boom in the opening of new community colleges. Lewis, Wentworth and Orvis (1973) found that students at 2-year colleges performed significantly below their 4-year counterparts on the standardized Test of Understanding College Economics (TUCE). Consensus drawn from the early empirical studies that directly compared students at two-year with those from four-year institutions supported the view that community college students were less likely to attain a Bachelor's degree (Anderson, 1981; Christie & Hutcheson, 2003; Dougherty, 1992; Ganderton & Santos, 1995; Lee, Mackie-Lewis, & Marks, 1993; Nunley & Breneman, 1988).

In more recent work, Laband and Piette (1995) using data from the late 1980s and early 1990s, examined the academic performance of community college transfers with non-transfer students at Florida State University. They concluded that the community college transfer students performed poorly in upper division economics courses compared to the non-transfer students. Duggan & Pickering (2007-2008) presented evidence that noncognitive variables can be used to predict academic success and persistence for transfer students. In a series of articles, Hilmer (1997, 1999 and 2002) addressed the more general issue of whether previous college transfer experience has an impact on the labor market earnings of university graduates. Regarding consistency of performance, Hoyt & Winn (2004) asserts that transfer students are much more likely to drop out and have lower GPAs compared to the traditional students. However, Johnson (2005) argues there is no statistical evidence for a difference in the performance of transfer and regular students as measured by the GPA adjusted for precollege variables. Stewart & Martinello (2012) uses data from introductory-level courses at a Canadian university to confirm that the transfer and non-transfer groups of students did

not differ significantly in terms of course withdrawal rates and final course grades. A lack of consensus regarding the academic performance and outcomes of these two groups urges further research in this area. Our study contributes to the existing literature in studying the differences in academic performance between transfer and regular students by identifying the characteristics that distinguish the two groups, and extending the analysis to control for such differences.

Data

This study uses mid-sized public university located in the mid-Atlantic region of the United States as a case example. This is a public university and a member of the Pennsylvania State System of Higher Education, which enrolls a diverse student body from in and around the state of Pennsylvania. It offers a full range of traditional academic programs including Bachelor's, Master's and some Doctoral degrees. In many ways, the university reflects the institutional characteristics of a representative major public university in the country. Hence, our results can be generalized to a number of other universities and colleges with similar characteristics. Over the past decade, SRU has experienced a significant increase in the number of students transferring in from community colleges and other regional institutions.

Our sample consisted of all students whose final academic year in the university was between 2006-2013 across the eight different majors in the College of Business, Information and Social Sciences. The total number of transfer students was 2147, out of the total sample of 8895 (about 24 percent). The total number of transfer students increased by about 40 percent between 2006 and 2013. Figure 1 outlines the changes in the number of transfer students, by institution. As indicated by the figure, there has been a substantial increase in the number of transfer students over the past decade, and that increase is mainly driven by a rise in the transfers from two-year institutions such as community colleges[1]. In our study, transfer student is defined as a student who begins in a community college or other 4 year institution, and has earned at least 30 credits at the time of transfer.

Figure 1

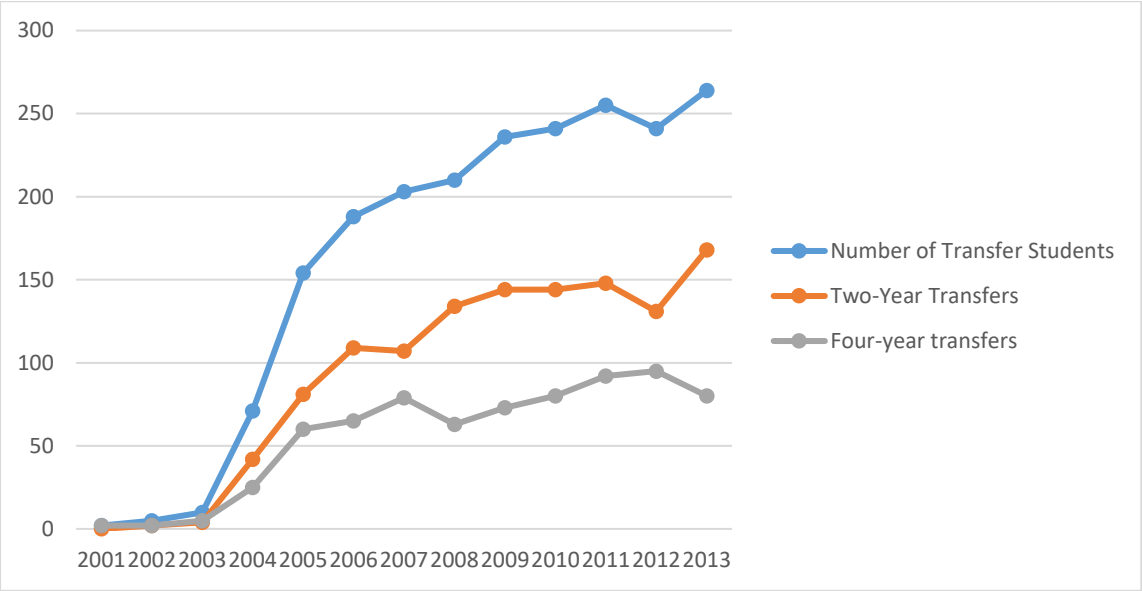


Table 1 provides the descriptive statistics for the sample. The second column reports the means and standard deviation for the academic aptitude, demographic characteristics, the majors and the transfer of credits for the entire sample. The next four columns provide the information for all traditional non-transfer students, transfer students, transfer from two-year and four-year institutions respectively. For all students in the sample with transfer credits, approximately 60 percent earned those credits at a two-year community college.

Academically, the overall GPA is slightly higher for the transfers (2.84) compared to the traditional students (2.83). The transfer students on average are older (28 years) compared to the transfer students (25 years). Approximately 38 percent of transfer students are female, compared to over 43 percent for native students. Over 63 percent of traditional students are white and about 5 percent are African-American. This compares to the 65 percent white and 7 percent African-American non-transfer students. The non-transfer students have higher SAT and ACT scores compared to the transfer students. However, the average ACT scores for transfers from 4-year colleges are close to the native student scores. The descriptive statistics indicate more students irrespective of their transfer status are likely to major in business, whereas the transfer students are less likely to major in communication, safety management and sports management. The transfer students on average transferred around 60 credits from the transfer institution.

[1] About 7 percent of the transfer students are from online institutions

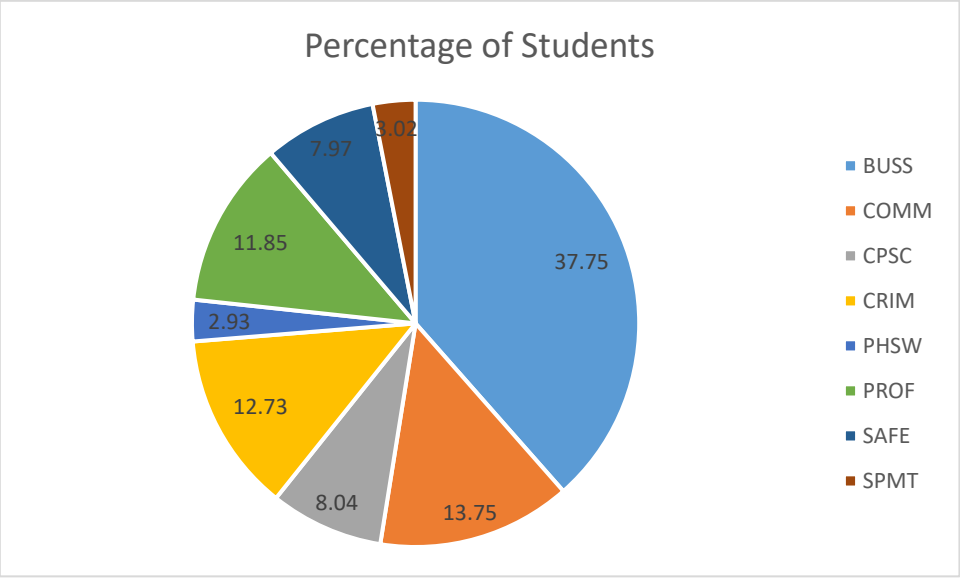
Table 1
Descriptive Statistics: Sample Means and Standard Deviations

Variable	All	Non-transfer	All Transfers	2-year College Transfers	4-year College Transfers
Dependent Variables					
GPA	2.84	2.83	2.84	2.85	2.85
	(0.64)	(0.68)	(0.73)	(0.71)	(0.75)
Graduation[2]	3.29	3.71	2.2	2.12	2.35
	(1.77)	(1.75)	(1.28)	(1.10)	(1.56)
Demographics					
Female (%)	42.07	43.44	37.77	38.31	38.56
Age	25.41	24.65	27.78	28.02	27.13
	(5.41)	(4.84)	(6.37)	(6.61)	(5.78)
Ethnicity[3]					
White (%)	85.49	64.97	63.86	64.58	58.12
African American (%)	8.92	7.38	4.80	3.86	5.29
Asian (%)	3.43	3.13	0.98	0.88	0.84
Hispanic (%)	1.53	1.38	0.47	0.40	0.36
Academic Aptitude					
SAT Verbal	485.56	488.15	451.04	448.62	456.13
	(68.21)	(66.82)	(76.74)	(76.22)	(77.49)
SAT Math	497.61	500.10	464.39	456.05	476.13
	(73.89)	(72.11)	(87.99)	(88.61)	(85.64)
ACT Eng	19.67	19.77	17.96	16.43	19.94
	(4.24)	(4.21)	(4.39)	(3.67)	(4.28)
ACT Math	20.25	20.34	18.81	17.5	20.06
	(3.79)	(3.75)	(4.10)	(2.99)	(4.53)
Major					
Business	37.75	37.21	39.45	40.72	38.43
Communication	13.75	14.43	11.60	11.57	12.63
Variable	*All*	*Non-transfer*	*All Transfers*	*2-year College Transfers*	*4-year College Transfers*

[2] Average time for all observations for graduation =awarded—a total of 4756 observations
[3] Total observations with ethnicity information: 6680

Criminology and Criminal Justice	12.73	12.98	11.92	11.33	12.77
Public Health and Social Work	2.93	2.77	3.45	4.18	2.66
Professional Studies	11.85	10.42	16.35	15.34	17.15
Safety Management	7.97	8.83	5.26	5.70	4.39
Sport Management	3.02	3.20	2.47	1.61	3.99
Transfer of Credits					
Transfer-2(%)		0.00	57.99	100.00	0.00
Transfer-4(%)		0.00	35.03	0.00	100.00
Transfer Hours		0.00	60.16	61.60	57.44
			(22.79)	(21.20)	(25.24)
Observations	8895	6748	2147	1245	752

Figure 2: Indicates the choice of major for our entire sample. The majority of the students declared a business major (about 38 percent), with communications being the next highest declared major (about 14 percent).



Key: Business (BUSS), Communication (COMM), Computer Science (CPSC), Criminology (CRIM), Public Health &Social Work (PHSW), Professional Studies (PROF), Safety Management (SAFE) and Sport Management (SPMT).

Methodology and Results

Our study utilizes the basic human capital framework (Becker, 1967), which has been modified in more recent years to account for the impact of attending specific types of institutions on student college graduation. We estimate the differences in academic performance of transfers versus regular students based on the model that closely follows

Melguizo et.al (2011). Three different outcome variables are used to measure the educational attainment of students: the grade point average (GPA_i) and graduation rates ($GRAD_i$), which is a measure of the dropout rates. Additionally, there are individual specific covariates which might influence the academic outcomes of these two groups of students, and failing to control for these factors might lead to biased estimates. In accordance with previous studies, the following variables are included in our model: major, age, socioeconomic status (as identified by whether the student applied for a Pell Grant), gender, race, SAT scores, ACT scores, marital status, class (freshman, sophomore, junior or senior), transfer from which institute and the transfer date.

Specifically, the model takes the following functional forms:

$$GPA_i = \alpha + \beta_1 TRAN_i + \beta_2 X_i + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where $TRAN_i$ is the main explanatory binary variable taking a value of 1 if the student *i* is a transfer and 0 otherwise. X_i includes the individual-specific covariates mentioned above.

$$GRADTIME_i = \gamma + \phi_1 TRAN_i + \phi_2 X_i + \nu_i \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where $GRADTIME_i$ is the number of years it for the student to graduate, contingent upon receiving the undergraduate degree.

$$GRAD_i = \gamma + \phi_1 TRAN_i + \phi_2 X_i + \nu_i \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where $GRAD_i$ takes the value of 1 if the student attained a bachelor's degree within six years of admission, and 0 if he/she did not complete that.

Equations 1 and 2 are estimated using OLS and equation 3 is estimated using probit regression analysis.

Table 2 below reports the OLS estimation of equation (1). The estimated equation yielded a significant F-statistic and acceptable R^2 for time-series data. In this equation, the main explanatory variable of interest is TRAN, which indicates whether the student is a transfer. The third and fourth column reports the estimates for transfers from a two-year and four-year institution respectively. The results indicate that being a transfer student is positively associated with a higher GPA, however, the coefficient is statistically significant at the 0.01 level. It indicates being a transfer student, the overall GPA is a 4.8 percentage points higher compared to a non-transfer. The coefficients for the two-year and four-year institutions are not statistically significant.

Analyzing the results for the control variables, we find that white students had higher cumulative GPAs relative to non-white students and females have higher cumulative GPA than male students. The coefficient for age is negative and statistically significant, indicating, holding all else constant, each decade of life reduced student performance by about 0.38 in overall GPA. This result might reflect the higher opportunity costs facing many older students. Student SAT scores are positively correlated with GPA, although the magnitudes are low. An

increase in hundred points in SAT score translated into an increase of only 0.1 in cumulative GPA.

Table 2 indicates no statistically significant relationship between the performances of Business majors relative to students enrolled in other majors. In relation to class standing, being a freshman or sophomore are associated with lower overall GPA, whereas being a junior or senior are positively correlated to the cumulative GPA. The coefficients of class standing are statistically significant and the magnitudes are relatively large.

Table 2
OLS Regression Results for Equation (1)
(Dependent Variable: GPA)

Variable	All transfers	2-year college transfer	4-year college transfer
Constant	2.29	2.29	2.3
TRAN	0.048*	0.043	0.042
	(0.030)	(0.039)	(0.046)
Female	0.235***	0.234***	0.234***
	(0.016)	(0.016)	(0.016)
Age	-0.038***	-0.037***	-0.037***
	(0.003)	(0.003)	(0.003)
White	0.044***	0.045***	0.045***
	(0.019)	(0.019)	(0.019)
SATVerbal	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
SATMath	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
Business	-0.081	-0.079	-0.078
	(0.054)	(0.054)	(0.054)
Freshman	-0.628***	-0.631***	-0.631***
	(0.038)	(0.038)	(0.038)
Variable	**All transfers**	**2-year college transfer**	**4-year college transfer**
Junior	0.071*	0.069*	0.071*
	(0.043)	(0.043)	(0.043)
Senior	0.264***	0.262***	0.262***
	(0.033)	(0.033)	(0.033)
Observations	5495	5495	5495
Adjusted R-squared	0.290	0.289	0.289
F-statistic	119.09	118.99	118.96

Standard errors are in parenthesis. *** denotes significance at 1%, ** denotes significance at 5%, * denotes significance at 10%.

Table 3 below reports the OLS estimation of equation (2). The estimated equation yielded a significant F-statistic and acceptable R^2 for time-series data. In this equation, the main explanatory variable of interest is again TRAN, which indicates whether the student is a transfer. The third and fourth column reports the estimates for transfers from a two-year and four-year institution respectively. As expected, the coefficient of TRAN is negative and highly significant, indicating transfer students require a lesser number of years to graduate. These

transfer students on average have 60 credit hours of course work completed before they begin at SRU, hence their graduation time is lesser compared to the non-transfer students. The coefficient indicates a 1.5 years reduction in graduation time for transfer students from 4-year institutions, whereas the transfer students from two-year institutions taking 1.3 years less to graduate compared to the native students.

The results for the demographic controls indicate no statistically significant impact of age and race on time to graduation. The negative and statistically significant coefficient indicates that female students are likely to graduate in lesser time compared to their male counterparts. The coefficients estimates of variables which indicate a measure of academic aptitude such as SAT scores are not statistically significant, hence indicating no plausible relationship between these scores and the time to graduation.

Table 3 indicates that Business majors are expected to graduate in lesser number of years compared to all other students who are non-business majors. The coefficient in column four indicates, that effect is even stronger for transfers from four-year institutions, indicating a higher likelihood of lesser time to graduation for Business majors who transferred from other four year colleges and universities. This in turn reflects lower administrative costs for SRU for these transfer students. The coefficients of class standing indicate freshman, sophomore and junior standing to be negatively correlated to graduation time.

Table 3
OLS Regression Results for Equation (2)
(Dependent Variable: GRADTIME)

Variable	All transfers	2-year college transfer	4-year college transfer
Constant	3.246***	3.137***	3.019***
	(0.281)	(0.287)	(0.288)
TRAN	-1.539***	-1.373***	-1.505***
	(0.069)	(0.093)	(0.107)
Female	-0.067**	-0.055**	-0.053**
	(0.037)	(0.038)	(0.038)
Age	0.002	0.002	0.002
	(0.007)	(0.007)	(0.007)
White	-0.058	-0.081**	-0.088**
	(0.043)	(0.044)	(0.045)
SATVerbal	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)
SATMath	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)
Business	-0.749***	-0.795***	-0.833***
	(0.124)	(0.126)	(0.127)
Freshman	-1.460***	-1.371***	-1.377***
	(0.087)	(0.089)	(0.089)
Sophomore	-0.699***	-0.646***	-0.655***
	(0.082)	(0.084)	(0.085)
Junior	-0.202***	-0.153*	-0.198***
	(0.098)	(0.100)	(0.100)
Senior	0.919***	0.964***	0.944***
	(0.075)	(0.077)	(0.077)
Observations	5494	5495	5495
Adjusted R-squared	0.351	0.319	0.317
F-statistic	157.40	136.66	135.18

Standard errors are in parenthesis. *** denotes significance at 1%, ** denotes significance at 5%, * denotes significance at 10%.

Equation (3) estimates the probability of graduation in less than six years of initial enrollment. The Probit estimates and the corresponding marginal effects for equation (3) are listed in the second and third column of table 4, respectively. The estimated equation fit the data well and predicted correctly 86.24 percent of the observations.

The coefficient for TRAN is negative and statistically significant at the 0.01 level. Being a transfer student, holding all else constant, decreases the probability of graduation by **11 percent.** Among the demographic variables, the older students are more likely to graduate, based on the negative coefficient on age. This is reasonable based on the higher opportunity costs that these older students face with delayed graduation. Being a **female** student increased the probability of graduation compared to the male students and white students are more likely to graduate compared to non-white students.

The academic aptitude variables like SAT scores did not have a statistically significant impact on the probability of graduation. Being a Business major reduces the probability of graduation by 8.7 percent, although the coefficient estimates are statistically significant at the 0.10 level. In terms of the class standing, as is expected, being a senior increased the probability of graduation whereas the other classes decreased the probability of graduation. The magnitudes of these coefficient estimates are quite high.

Table 4
Probit Regression Results for Equation (3)
(Dependent Variable: Grad)

Variable	Probit Coefficient	Marginal Effect
Constant		
TRAN	-0.293***	-0.112
	(0.087)	(0.032)
Female	0.136***	0.054***
	(0.050)	(0.019)
Age	0.140***	0.055***
	(0.009)	(0.004)
White	0.516***	0.198***
	(0.058)	(0.021)
SATVerbal	-0.001	-0.000
	(0.000)	(0.000)
SATMath	0.001	0.000
	(0.000)	(0.000)
Business	-0.221*	-0.087*
	(0.151)	(0.059)
Freshman	-0.833***	-0.291***
	(0.119)	(0.033)
Sophomore	-0.815***	0.290***
	(0.110)	(0.033)
Variable	**Probit Coefficient**	**Marginal Effect**
Junior	-1.195***	-0.367***
	(0.164)	(0.031)
Senior	1.221***	0.445***
	(0.089)	(0.028)
Observations		5495
% Correct Predictions		86.24
Log likelihood		-1890.798

Conclusions

The main objective of this study is to compare the academic outcomes of transfer students versus regular students. Two alternative measures of educational attainment were used: the grade point average and graduation rates, as measured by completion of a Bachelor's degree within six years of admission into the university. Several individual specific covariates which might influence the academic outcomes of these two groups of students, are used as control variables in the study. Transfer students' overall GPA is 4.8 percentage points higher

compared to a non-transfer. The results indicate differences in the GPA based on student demographic characteristics. In particular, white students had higher cumulative GPAs relative to non-white students and females have higher cumulative GPA than male students. No such differences in performance exists between the different categories of majors.

The results for the other measure of educational attainment indicate that being a transfer student reduces the probability of graduation by 11 percent, supporting the research of Hoyt & Winn (2004) regarding higher drop-out rates. The results also indicate differences in the graduation rates based on the demographic variables, with the older students and female students being more likely to graduate and non-white students less likely to graduate compared to white students. The results are further segregated according to the type of transfer institutions students come from, between community colleges and 4 year institutions. However, the results are not statistically significant for the institution level of study.

These findings are important given the increasing number of students who initiate their higher education experience at local community colleges and then transfer to public universities and the demand for educated employees in the marketplace. Educators at institutions receiving transfer students must be aware of the additional attention such students might require to achieve academic success. The results of this study demonstrate that although transfer students tend to have higher GPA's compared to their native counterpart, they take longer time to graduate, which translates into higher opportunity costs for both them and the recipient institution. This requires the institutions and administrators to be aware of the specific academic needs of the transfer students and the administrative costs involved in the process. Additional research is needed to determine the types of policies that could be implemented at the receiving institutions to enhance the graduation rates and success of the transfer students.

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