Transfer Shock: Predicting Academic Success after Transition

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Transfer students have gained the attention of higher education administrators and policy makers because of the high level of transfer activity (National Center for Educational Statistics, 2011). The phenomenon known as transfer shock is the overall integration difficulty transfer students face (Hills, 1965). This study examined Ball State University (BSU) transfer students in their first year and how to predict posttransfer GPA and 6-year graduation based on previous institution cumulative GPA, age, sex, previous institution type, and BSU college. Regression analyses were used to make predictive models for posttransfer GPA and 6-year graduation. The sample consisted of 1,857 entering transfer students. Previous institution cumulative GPA averaged 2.994, while the average posttransfer GPA was 1.681. Nearly 60% of the sample achieved 6-year graduation. Each model found most of the observed variables to be statistically significant predictors. When applied to the data, the 6-year graduation prediction model correctly predicted 6-year graduation 79.6% of the time.

The phenomenon known as transfer shock can be defined as the overall integration and adaptation difficulty transfer students face (Hills, 1965). Some transfer students have academic difficulty adjusting to new teaching styles, grading expectations, and levels of effort required to succeed. Previous research supported the idea of transfer shock resulting in decreased grade point average (Gawley & McGowan, 2006; Ishitani, 2008). Graduation rates are of interest to policy-makers who want to ensure public funds are used efficiently (Kinnick et al., 1998). This study examined Ball State University (BSU) entering transfer students (those enrolled in their first semester), and how to predict posttransfer GPA and 6-year graduation based on previous institution cumulative GPA, age, sex, previous institution type, and BSU college.

Literature Review

The philosophical underpinnings for this study rest with Tinto's (1993) Theory of Individual Departure from Institutions of Higher Education, which

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examined how different facets of integration influence a student's commitment to an institution. Building on Spady's (1970) work on students who are not socially integrated into an institution, and applied to Durkheim's (1961) theory that suicide happens more often when individuals are not integrated into society, Tinto recognized students must integrate into both academic and social systems. Students having trouble integrating academically, often resulting in poor grades, are more likely to drop out.

Personal characteristics may influence a student's decision to drop out. Tinto (1993) identified family background, individual attributes, and precollege schooling as pre entry attributes of his model. Prior to arriving on campus, students develop educational goals and commitments that shape their expectations of college. Background variables and goal development (separation) alone will not accurately predict departure. Tinto believed in a longitudinal process, and the student's interaction with the institutional environment is the next step (transition). Institutional experiences, academic and social, allow the student opportunities to integrate into the college society (incorporation). As students perceive returns on their educational investments, they feel more integrated, become more committed, and are more likely to persist. The opposite is also true.

Once opportunities for integration have occurred (incorporation), students revisit intentions, goals, and commitments. Sometimes students do not academically and socially integrate, so they depart. To explain this behavior, Tinto developed the conceptual Longitudinal Model of Institutional Departure. Beginning with pre-college, family, and individual attributes, the model progresses, identifying points where someone may depart. With these variables, students leave past environments and begin their college experience. If they integrate well, their commitment rises, and they are more likely to persist. Tinto (1975) also defined student subcategories, including those who transfer, drop out voluntarily, and are academically dismissed. Multiple researchers (e.g., Braxton et al., 2014; Braxton, Sullivan, & Johnson, 1997) have questioned the empirical backing of Tinto's theory and reworked issues associated with student departure based on whether the institution was a residential university, liberal arts college, or a two-year college.

Transfer Students

Transfer students are a significant portion (31.7%) of undergraduate populations (National Center for Educational Statistics, 2011). These students are often faced with challenges that may hinder their ability to academically succeed. Most research on student transfer has observed former community college students and how they perform academically at their new institution (Kozeracki, 2001). The process of transferring from a two-year to a four-year institution is known as vertical transfer, whereas transferring from one four-year institution to another is called horizontal transfer (McCormick & Carroll, 1997).

Social integration is a significant part of transfer shock (Gawley & McGowan, 2006). Academic integration is also challenging for transfer students. Adapting to new campus environments, classroom environments, and teaching techniques are

the biggest challenges students faced. These differences all influence a student's commitment to their academic goals and their institution. A foundational report on transfer students' academic integration was a meta-analysis written by Hills (1965). He found, almost universally, a phenomenon he coined "transfer shock" that encompasses transitional issues students face when adapting to new institution's academic and social environments. A major aspect of transfer shock is experiencing a grade point average (GPA) drop after transferring. This posttransfer (after a year at the new institution) GPA decrease occurred in almost all of the reviewed data sets.

Purpose of Grade Point Average and Graduation Metrics

For decades, researchers have focused on GPA as the most indicative and important measure of transfer student academic success (Arnold, 2001; Cejda, 1997; Kozeracki, 2001). Laanan (2001) noted much research about transfer student focus on GPA because of its significant role in admissions decisions. Diaz (1992) called for administrators to be aware of changes in GPA pre and post transferring. Graduation totals have also emerged as a statistic of interest to researchers (Alexander, Ellis, & Mendoza-Denton, 2009; Best & Gehring, 1993; Ishitani, 2008).

Kinnick et al. (1998) conducted a study of transfer students and found a 0.300 decrease from their community college cumulative GPA to first-term university GPA. The second-term university GPA was higher than the first-term, but lower than their community college cumulative GPA, which was consistent with other research (Diaz, 1992; Gawley & McGowan, 2006; Hills, 1965).

Some researchers, however, began to find individual groups of transfer students whose GPA increased after transferring (Cejda, 1997; Cejda, Kaylor, & Rewey, 1998; Nickens, 1972). Nickens coined this phenomenon transfer ecstasy. Cejda (1997) found students with majors in education, fine arts and humanities, and social sciences experienced transfer ecstasy. Cejda et al. (1998) found students with majors in fine arts, humanities, and social sciences received non statistically significantly higher GPAs.

In the late 1990s, the Oregon Joint Boards of Education became concerned about the process of transferring from a community college to an Oregon University System (OUS) campus (Arnold, 2001). After tracking incoming OUS transfer students from the 1993-94 cohort, 63.1% of them graduated by 1997. Best and Gehring (1993) wanted to find differences in GPA, graduation rates, and dismissal rates between groups of community college transfer students who earned 60 credits or more (transfer juniors) and those who earned less. While 40% of transfer juniors graduated in 6 years, only 30.9% of transfers with fewer than 60 credits graduated.

Predictive Demographic Characteristics

Since demographic variables influence persistence, previous institution cumulative GPA, age, sex, previous institution type, and academic college were selected for this study. Though studies have been conducted analyzing these characteristics, several have yielded varied results. Previous institution GPA has been found to be a significant predictor of posttransfer GPA (Carlan & Byxbe, 2000). In their study, among other factors, lower (previous institution) GPA was the strongest predictor of upper (posttransfer) GPA and accounted for 27% of the variance.

Age was examined because it was assumed older age implied more maturity and ability to commit to academic goals and an institution. There is minimal existing research on transfer students over 25, despite the fact they've been found to persist at a higher rate and earn higher GPAs than younger students (Bremer et al., 2013). Cejda et al. (1998) chose to include only transfer students 25 and younger in their study.

Sex may also influence GPA and persistence. It has often been examined; however, the data are mixed: Elkins, Braxton, and James (2000) found women were significantly less likely to persist than men, and Bremer et al. (2013) found men were less likely to persist than women, and they achieved lower GPAs. Peng (1978), researching vertical transfer students, found no significant difference in grades between sexes.

Since differences between two- and four-year institutions exist, previous institution type was examined. Horizontal transfer students were found to earn higher posttransfer GPAs and graduate more frequently than vertical transfer students (Arnold, 2001; Stewart & Martinello, 2012). Thirty-five percent of transfer activity is horizontal (Ishitani, 2008). Berkner, He, and Cataldi (2003) found that within 6 years of beginning at a two-year institution, 36% of the students who transferred to a four-year institution completed a bachelor's degree.

Until the last few decades, little research examined whether or not a student's college had any bearing on their ability to academically achieve. Arnold (2001) found the lowest posttransfer GPAs belonged to students with majors in science, social science, and arts and letters. Students enrolled in foreign language and English composition however, performed well. Similarly, Cejda (1997) found students whose majors were in business, math, and sciences experienced a decrease in GPA, while transfer ecstasy happened to education, fine arts and humanities, and social sciences majors. The majors with the students most likely to underachieve were general studies and undeclared (Stewart & Martinello, 2012).

Method

The purpose of this study was to examine Ball State University (BSU) entering transfer students and develop a way to predict posttransfer GPA and 6-year graduation based on previous institution cumulative GPA, age, sex, previous

institution type, and BSU college. The research question was, among BSU entering transfer students, which of the observed demographic characteristics are statistically significant predictors of posttransfer GPA and 6-year graduation? The following hypothesis was tested in this study: Previous institution cumulative GPA, age, sex, previous institution type, and BSU college are statistically significant predictors of posttransfer GPA and 6-year graduation.

Design of the Study

The population in this study included all entering transfer students at BSU. The sample consisted of all 1,857 entering transfer students in the fall semesters from 2004-2006 so the most current 6-year graduation totals could be computed.

Quantitative methods were used in this study. Descriptive statistics were utilized to describe individual data points; multiple linear regression was used to predict an output (posttransfer GPA) from several input predictor variables (observed characteristics). Logistic regression was used to predict the dichotomous dependent variable, 6-year graduation. These inferential statistics were used to make predictions about the population based on the information gathered about the observed sample.

Data Collection Procedures

The setting of this study, Ball State University, is located in Muncie, Indiana, and is ranked as a research university with high research activity by the Carnegie Foundation for the Advancement of Teaching. This state-assisted residential university had a total undergraduate and graduate enrollment of 20,544 during the fall semester of 2004 (20,503 in fall 2013). The Office of Institutional Effectiveness provided the sample data. Instead of names, a de-identified ID number was assigned to each student. Demographic characteristics (e.g., sex, previous institution, and BSU college) were provided for all students.

The researcher identified previous institutions of all transfer students in the 2005 edition of the Carnegie Classification file from the Carnegie Foundation for the Advancement of Teaching (2013) website and coded them as previous institution type depending on their level. The year the student enrolled at BSU, their previous institution cumulative GPA, posttransfer GPA, and semester of graduation, if applicable, were also included in the file. The 6-year graduation variable was created by the researcher using institutional data resources. The data were analyzed after combining the three years into one set.

Statistical Design and Analysis

The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 21. For these analyses, previous institution cumulative GPA and age were treated as continuous variables. Sex and previous institution were treated as

categorical variables. BSU college was represented by eight dichotomous variables, one corresponding to each academic college, and one for majors that were interdepartmental or not housed in an academic college.

Findings

Transfer student's age averaged 21.82. Previous institution cumulative GPA averaged 2.994 and posttransfer GPA averaged 1.681. The students ranged from age 17 to 59; 90.2% were age 24 or under. The majority were male (52.9%), 61.3% transferred from a four-year institution (horizontal transfer), and 58.1% achieved 6-year graduation.

Predicting Posttransfer Grade Point Average

To predict posttransfer GPA, multiple linear regression analysis was used. The Pearson correlation coefficient (R) measured 0.330, indicating a medium strength of linear relationship. The observed coefficient of determination value, $R^2 = 0.109$, suggested there was a small amount of variance in posttransfer GPA explained by the model. Analysis of variance (ANOVA) was used to determine whether or not the observed R^2 value was statistically significant, indicating whether the model predicted the dependent variable. The test resulted ($p < 0.001$) in a significant ($p < 0.050$) ANOVA that validated the analysis used. Table 1 shows the coefficients in the analysis used to predict posttransfer GPA. Because sex, previous institution type, and BSU college were categorical variables, they were coded with dummy variables to be entered in the regression. Incorporated into the constant were data indicating male, previous two-year institution, and no college/interdepartmental major. The coefficients in Table 1 developed the following model for predicting posttransfer GPA. Posttransfer GPA = 0.509 + 0.331× Previous Institution Cumulative GPA + 0.008 × Age - 0.008 × Sex - 0.181 × Previous Institution Type + 0.073 × CAP + 0.178 × CAST + 0.056 × CCIM + 0.074 × CFA + 0.027 × CSH - 0.062 × MCOB + 0.058 × TC.

Since several variables in Table 1 were non-significant, another analysis excluding these variables was necessary. In the next analysis, only previously significant variables were used. The new ANOVA was significant, assuring the revised analysis and model were valid. Revised regression coefficients for predicting posttransfer GPA are presented in Table 2. For this analysis, data that indicated previous two-year institution or any college other than CAST were incorporated into the constant. The coefficients in Table 2 developed the following revised model for predicting posttransfer GPA: Posttransfer GPA = 0.510 + 0.335 × Previous Institution Cumulative GPA + 0.008 × Age - 0.183 × Previous Institution Type + 0.157 × CAST.

TABLE 1

Coefficients of Multiple Linear Regression for Predicting Posttransfer GPA

Variable	Unstandardized			Standardized	
	β	SE	β	t	p
Constant	0.509	0.115		4.423	<0.001
Previous Institution Cumulative GPA	0.331	0.029	0.273	11.350	<0.001
Age	0.008	0.003	0.056	2.376	0.018
Sex	-0.008	0.033	-0.006	-0.237	0.813
Previous Institution Type	-0.181	0.032	-0.135	-5.732	<0.001
BSU College					
CAP	0.073	0.096	0.020	0.761	0.446
CAST	0.178	0.059	0.102	3.030	0.002
CCIM	0.056	0.066	0.026	0.855	0.393
CFA	0.074	0.082	0.024	0.898	0.369
CSH	0.027	0.053	0.019	0.513	0.608
MCOB	-0.062	0.061	-0.033	-1.016	0.310
TC	0.058	0.067	0.027	0.859	0.391

Predicting 6-Year Graduation

Logistic regression was used to predict 6-year graduation. All observed demographics were incorporated into the model. Statistically significant (p < 0.050) omnibus tests confirmed the ability of the analysis to predict 6-year graduation. Also, the Cox & Snell R^2 and Nagelkerke R^2 values were above the alpha-level, indicating the model had statistically significant predictive power. The model accurately predicted 6-year graduation 79.6% of the time.

The coefficients produced in the analysis used to predict 6-year graduation are shown in Table 3. For this analysis, data that indicated male, previous two-year institution, and no college/interdepartmental major were incorporated into the constant. The coefficients in Table 3 developed the following model for predicting 6-year graduation. Six-Year Graduation = $e^{-2.518} \times e^{1.091 \times \text{Previous Institution Cumulative GPA}} \times e^{-0.039 \times \text{Age}} \times e^{-0.325 \times \text{Sex}} \times e^{0.428 \times \text{Previous Institution Type}} \times e^{0.095 \times \text{CAP}} \times e^{0.632 \times \text{CAST}} \times e^{0.900 \times \text{CCIM}} \times e^{0.316 \times \text{CFA}} \times e^{0.259 \times \text{CSH}} \times e^{0.348 \times \text{MCOB}} \times e^{0.560 \times \text{TC}}$.

Discussion

The following discussion responds to the research question, including sections addressing the prediction of posttransfer GPA and 6-year graduation. Suggestions for practice, limitations of the study, and recommendations for future research are also included.

Predicting Posttransfer Grade Point Average

Whether or not the observed demographics were statistically significant predictors of posttransfer GPA was the focus of the research question. The first characteristic, previous institution cumulative GPA, was found to be a statistically significant predictor, confirming previous research (Carlan & Byxbe, 2000).

TABLE 2

Revised Coefficients of Multiple Linear Regression for Predicting Posttransfer GPA

| | Unstandardized | | Standardized | | |
Variable	β	SE	β	t	p
Constant	0.510	0.105		4.846	<0.001
Previous Institution Cumulative GPA	0.335	0.028	0.277	11.756	<0.001
Age	0.008	0.003	0.057	2.433	0.015
Previous Institution Type	-0.183	0.031	-0.137	-5.836	<0.001
CAST	0.157	0.041	0.090	3.867	<0.001

TABLE 3

Coefficients of Logistic Regression for Predicting 6-Year Graduation

Variable	β	SE	Wald	p	Exp.(β)
Constant	-2.518	0.405	38.682	<0.001	0.081
Previous Institution Cumulative GPA	1.091	0.107	109.161	<0.001	2.978
Age	-0.039	0.011	12.154	<0.001	0.962
Sex	-0.325	0.111	8.533	0.003	0.723
Previous Institution Type	0.428	0.106	16.162	<0.001	1.534
BSU College					
CAP	0.095	0.315	0.090	0.764	1.099
CAST	0.632	0.199	10.122	0.001	1.881
CCIM	0.900	0.229	15.446	<0.001	2.460
CFA	0.316	0.278	1.289	0.256	1.372
CSH	0.259	0.179	2.111	0.146	1.296
MCOB	0.348	0.203	2.943	0.086	1.416
TC	0.560	0.226	6.124	0.013	1.751

The second characteristic was age. This study agreed with the literature that older transfer students achieve higher GPAs than younger transfer students (Bremer et al., 2013). Younger transfer students most likely have less college experience at their previous institutions, meaning they are undertaking a second environmental change in a short time. This likely magnifies the shock and makes academic integration more difficult.

Sex yielded inconsistent results in the literature with regard to how it influences GPA. In this study, women had a non-significantly lower (0.008) posttransfer GPA than men, corroborating Peng's (1978) study and contradicting the Bremer et al. (2013) study.

Previous institution type was a statistically significant predictor. Horizontal transfer students earned lower posttransfer GPAs than vertical transfer students. In contrast, previous researchers concluded horizontal transfer students earned higher posttransfer GPAs (Arnold, 2001; Hills, 1965; Stewart & Martinello, 2012). This discrepancy is perhaps due to the fact that horizontal transfer students accounted for 61.3% of the sample for this study, whereas most quantitative research on transfer activity focused on vertical transfer students (Kinnick et al., 1998; Peng, 1978). Many students in this study came from two-year institutions that, perhaps, are designed to directly prepare students to transfer to a four-year institution. If this were true, students attending would already have some expectation of transition, lessening the magnitude of shock.

The only BSU college that was a statistically significant predictor of posttransfer GPA was the College of Applied Sciences and Technology (CAST). Students in CAST earned higher posttransfer GPAs than students in other colleges, contradicting previous research (Arnold, 2001; Cejda, 1997; Gawley & McGowan, 2006). This inconsistency could be caused by the difficulty in comparing academic colleges from different institutions. For example, a Nursing major could be in one institution's sciences and humanities college, while in the applied sciences college of another.

Predicting 6-Year Graduation

This study also sought to find statistically significant predictors of 6-year graduation. Some previous researchers concluded younger transfer students are more likely to graduate (Ishitani, 2008), while others found the opposite (Bremer et al., 2013). This study found that, as age increased, so did the likelihood of graduation at a statistically significant level. This likely reflects an older transfer student's maturity, making them more committed to their academic goals, increasing their chances of graduation.

This study found women graduated at a statistically significantly higher level than men. Women have been identified by some previous researchers as the sex less likely to graduate (Elkins et al., 2000), while others found women to be more likely to graduate (Bremer et al., 2013; Pascarella & Terenzini, 1979). Previous researchers have proposed that differences in degree completion between sexes are due to different persistence habits (Pascarella & Terenzini, 1979).

Though horizontal transfer students had a lower posttransfer GPA in this study, they were more likely to achieve 6-year graduation. This finding affirmed previous research (Arnold, 2001; Hills, 1965; Stewart & Martinello, 2012). Four-year institutions have many things in common, including a vibrant campus life, a residential campus, and a student profile. Perhaps, transferring from a four-year institution to another induces a lesser transfer shock than that experienced by a vertical transfer student. This less difficult integration process could be the reason for higher 6-year graduation likelihood.

Three of the seven BSU colleges were statistically significant predictors of 6-year graduation (CAST, CCIM, and TC). Students enrolled in these colleges were more likely to graduate than students in other colleges, perhaps, because several of the top-rated and well-known programs (Nursing in CAST, Journalism and Telecommunications in CCIM, Education in TC).

Transferring appeared to help some students achieve 6-year graduation. As suggested earlier, if someone was not integrated at their original institution, they would likely drop out of that school. However, when students are committed enough to their academic goals, they may choose to transfer their enrollment to a different institution. After transferring and interacting in a new campus environment, they may become socially and academically integrated, commit to their new institution, and persist to graduation.

Suggestions for Practice

An examination of the current admissions criteria for transfer students may be necessary. Because this study identified several factors as influential to 6-year graduation, they should be strongly considered when making admissions decisions. Of these factors, previous institution GPA was the strongest predictor of posttransfer GPA. Therefore, an applicant should have a high previous institution cumulative GPA, since they may soon face the transfer shock which lowered the sample average 1.313.

A possible solution to lessen transfer shock is the creation of a transfer student integration program. This could include a mandatory transfer orientation in which specific conversations could be had about the potential causes and impacts of transfer shock. Also, educators could offer academic resources to these students throughout their first year through informal programs and meetings. An investment in a peer mentorship program may also prove beneficial for students, encouraging campus integration. Another part of the integration program could include campus resources, such as the career assessments from counseling or career centers that would be used to help students define their academic goals. Other resources, including those at an institution's learning center, library, academic advising office, student life offices, disability services, and cultural centers, could also be introduced to students. The creation of a scholarship for entering transfer students based on their academic performance or an opportunity to have lunch with a faculty member or administrator may also be a good investment for students to succeed.

If students met with a representative of their college or department upon arrival to campus, they would immediately have a contact person if they needed help. If an institution has an office dedicated to student retention, educators in the office should consider the possibilities they have to help transfer students. Retention educators could develop relationships with students through emails, phone calls, and meetings. By proactively reaching out to these students, retention educators could identify students at risk of not integrating and make referrals to professors or staff in partner offices. A smoother integration into the campus environment could allow students to achieve at a higher level academically, possibly earning a higher posttransfer GPA and graduating.

Limitations

This was a single-site study, so it is not advisable to unfittingly generalize the results. A sample timeframe longer than three years would also allow administrators to better understand the academic integration issues of entering transfer students. The study did not account for the number of credit hours transferred, limiting it. The foundational expectations and integration issues faced by a student who transferred 60 or more credits may be very different from a student who transferred 20-60 credits and different still from someone transferring fewer than 20 credits. Another limiting factor for this research was the little amount of existing research on horizontal transfer students (Kinnick et al., 1998; Peng, 1978).

Recommendations for Future Research

Since this study focused purely on quantitative data, a supplemental qualitative research study may bring valuable student voice to the results. A study attempting to discover and understand the experiences of transfer students in their first year may be helpful. Further, since most colleges require a minimum 2.0 GPA to graduate, future researchers could try to find how students were able to "recover" and earn a GPA high enough to graduate.

Several other variables could be researched to see if they are predictors of academic success measures. For example, full- or part-time enrollment, ethnicity, class standing, and reasons for leaving may influence academic success measures and might be worth researching.

These suggestions for future research would further help enrollment administrators tailor admission practices. Educators and administrators may also continue to benefit by better identifying at-risk transfer students and providing them with resources to help them succeed. Qualitative data would allow administrators to learn what content in programs and support services would benefit transfer students and help them academically succeed.

References

Alexander, S., Ellis, D., & Mendoza-Denton, R., (2009). *Transfer student experiences and success at Berkeley. A SERU project research paper*. Research & occasional paper series: CSHE.3.09. Center for Studies in Higher Education. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED504778&site=ehost-live

Arnold, J. C. (2001). Student transfer between Oregon community colleges and Oregon university system institutions. *New Directions for Community Colleges, 114*, 45-59. doi: 10.1002/cc.20

Berkner, L., He, S., & Cataldi, E. (2003). Descriptive summary of 1995-96 beginning postsecondary students: Six years later. *Education Statistics Quarterly, 5*, 62-67. Retrieved from https://nces.ed.gov/programs/quarterly/

Best, G. A., & Gehring, D. D. (1993). The academic performance of community college transfer students at a major state university in Kentucky. *Community College Review, 21*(2), 32-41. doi: 10.1177/009155219302100205

Braxton, J. M., Doyle, W. R., Hartley, H. V., Hirschy, A. S., Jones, W. A., & McLendon, M. K. (2014). *Rethinking college student retention*. San Francisco, CA: Jossey-Bass.

Braxton, J. M., Sullivan, A. S., & Johnson, R. M. (1997). Appraising Tinto's Theory of College Student Departure. In J. C. Smart (Ed.) *Higher education: Handbook of theory and research, volume 12* (pp. 107-164). New York, NY: Agathon Press.

Bremer, C. D., Center, B. A., Opsal, C. L., Medhanie, A., Jang, Y., & Geise, A. C. (2013). Outcome trajectories of developmental students in community colleges. *Community College Review, 41*, 154-175. Retrieved from http://crw.sagepub.com/

Carlan, P. E., & Byxbe, F. R. (2000). Community colleges under the microscope: An analysis of performance predictors for native and transfer students. *Community College Review, 28*, 27-42. doi: 10.1177/009155210002800202

Carnegie Foundation for the Advancement of Teaching, (2013). *Institutional lookup*. Retrieved from http://classifications.carnegiefoundation.org/resources/

Cejda, B. D. (1997). An examination of transfer shock in academic disciplines. *Community College Journal of Research and Practice, 21*, 279-288. doi:10.1080/1066892970210301

Cejda, B. D., Kaylor, A. J., & Rewey, K. L. (1998). Transfer shock in an academic discipline: The relationship between students' majors and their academic performance. *Community College Review, 26*(3), 1-13. . Retrieved from http://crw.sagepub.com/

Diaz, P. E. (1992). Effects of transfer on academic performance of community college students at the four-year institution. *Community/Junior College Quarterly of Research and Practice, 16*, 279-291. Retrieved from http://www.tandfonline.com/toc/ucjc19/7/1

Durkheim, E. (1961). *Suicide* (J. Spaulding & G. Simpson, Trans.). Glencoe, IL: The Free Press.

Elkins, S. A., Braxton, J. M., & James, G. W. (2000). Tinto's separation stage and its influence on first-semester college student persistence. *Research in Higher Education, 41*, 251-268. Retrieved from http://www.aabri.com/rhej.html

Gawley, T., & McGowan, R. A. (2006). Learning the ropes: A case study of the academic and social experiences of college transfer students within a developing university-college articulation framework. *College Quarterly, 9*(3), 1-18. Retrieved from http://collegequarterly.ca/

Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *Journal of Experimental Education, 33*, 201-215. Retrieved from http://www.tandfonline.com/loi/vjxe20

Ishitani, T. T. (2008). How do transfers survive after "transfer shock"? A longitudinal study of transfer student departure at a four-year institution. *Research in Higher Education, 49*, 403-419. Retrieved from http://www.aabri.com/rhej.html

Kinnick, M. K., Ricks, M. F., Bach, S., Walleri, R. D., Stoering, J., & Tapang, B. (1998). Student transfer between community colleges and a university in an urban environment. *Journal of Applied Research in the Community College, 5*(2), 89-98. Retrieved http://newforums.com/our-titles/journals/the-journal-of-applied-research-in-the-community-college/

Kozeracki, C. A. (2001). Studying transfer students: Designs and methodological challenges. *New Directions for Community Colleges, 114*, 61-75. doi: 10.1002/cc.21

Laanan, F. (2001). Transfer student adjustment. *New Directions for Community Colleges, 114*, 5-13. doi: 10.1002/cc.16

National Center for Educational Statistics. (2011). *Web tables: Six-year attainment, persistence, transfer, retention, and withdrawal rates of students who began postsecondary education in 2003–04*. Retrieved from http://nces.ed.gov/pubs2011/2011152.pdf

Nickens, J. M. (1972). *"Transfer shock" or "transfer ecstasy?"* Paper presented at the annual meeting of the American Education Research Association, Chicago, IL

Pascarella, E. T., & Terenzini, P. T. (1979). Interaction effects in Spady and Tinto's conceptual models of college attrition. *Sociology of Education, 52*, 197-210. doi: 10.2307/2112401

Peng, S. (1978). Transfer students in institutions of higher education. *Research in Higher Education, 8*, 319-342. Retrieved from http://www.aabri.com/rhej.html

Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1*, 64-85. doi: 10.1007/BF02214313

Stewart, J. & Martinello, F. (2012). Are transfer students different? An examination of first-year and course withdrawals. *Canadian Journal of Higher Education, 42*(1), 25-42. Retrieved from http://ojs.library.ubc.ca/index.php/cjhe/index

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125. doi: 10.3102/00346543045001089

Tinto, V. (1993). *Leaving college*. Chicago, IL: The University of Chicago Press.