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Alienation and First- Year Student Retention

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Abstract

Since Summerskill's study on college attrition forty years ago, the interest in this topic has never waned. This study was particularly interested in the relationship of race to retention. Various theoretical frames of references have been proposed: Price's organization theory, Durkheim's Suicide, and Marx's Alienation have been used to guide empirical studies. These theories have developed into the concepts of student equilibrium and student change. Critiques of these approaches are provided. It is proposed that Alienation, one of the aspects of student change, is an important theoretical reference to use in exploring first-year retention. Factors affecting retention were examined by using both binary and multinomial logistic regression to analyze the heterogeneous student population who did not return their second year. Findings suggest that race is related to retention but not in the anticipated way. Also, support was found for including a measure for Alienation to explain retention, as it was one of the most significant variables in the models.

Introduction

Since Summerskill's 1964 study on student attrition over 40 years ago, interest in the topic has remained strong. The interest in the study of student retention and attrition has been shaped by two prevalent philosophical thoughts of social sciences in the 1960s, functional theory and capitalism. The basic tenet of the functional theory from sociology suggests that society maintains its equilibrium when the functional importance of each job matches the compensation and skills required for that position (Parsons, 1964). The economic theory of capitalism requires open competition for a position, and the applicant with the most talent and skill fills the position.

Functional theory serves capitalism well because the idea of equilibrium incorporates the capitalistic principle of maximum

profit. *Equilibrium* is an abstract concept that refers to a more or less dynamic process in which society is constantly adjusting itself to seek the best-qualified person to fill the vacant—or sometimes replace the already occupied—position. This open process exemplifies the basic value of democracy America has espoused for many years.

The decision to enroll in and to obtain a degree from an institution of higher education was explained by functional theory and capitalism. Functional importance and difficulties of the positions determine the rewards. In an industrialized society, one's formal education and level of training determine whether one will move to a more difficult position and obtain more rewards. Education, especially higher education, becomes functional in bringing about success since education prepares the talents for a society. Access to higher education has become an intriguing area of study in the fields of sociology, higher education, psychology, political science, and economics. Students enroll and persist in enrollment as part of an equilibrium to achieve an economic reward. All these fields believe in the process of achievement in a democratic society.

Attempts to promote mobility through higher education have also gained support in Congress and federal government. Understanding and achieving equal opportunity has become an essential twofold goal for the U.S. policy of higher education. It is not enough to grant access to every student, regardless of race and gender. One must go further and demonstrate that the performance and achievement of students by race is equal. This prepares students for an equal opportunity for the rewards of the education. Retention rates and financial aid statistics reported in the IPEDS are used to demonstrate institutional performance and accountability by the federal government (<http://www.ed.gov/about/bdscomm/list/hiedfuture/reports/pre-pub-report.pdf>).

Regional accreditation institutions are also very interested in student success in college. Currently, the University of Minnesota Duluth (UM Duluth) is under a 10-year review by the Higher Learning Commission, and this paper reports on

research that is part of the evaluation effort. For the purposes of federal funding, the higher education community cannot simply present the figures to the lay board or external accreditation agencies; it must also provide a context for those numbers in order to make such figures relevant. The main purpose of this research is to ascertain whether minorities and whites have similar retention rates after first-year entry in college. In order to achieve this purpose, it looks at the factors that affect first-year retention. Is the withdrawal pool homogenous after considering personal and academic characteristics?

In addition to the many factors that might influence a student's first year of school, including race, this research also proposes that the student's sense of alienation has a major affect on retention, and that the equality of retention must be viewed while considering alienation. The following develops the concept of alienation as part of the frame of reference to the current considerations. It then analyzes retention with the use of a measure of alienation and considers the results in terms of their equality.

Theoretical Frame of Reference

A profuse amount of literature on retention and graduation rates exists in the field of higher education. As noted above, approaches meant to understand enrollment and retention have attempted to link student retention to a broader social theory. These approaches are built on the premise that students enroll because it is a functional way to improve their rewards. This enrollment then can either be viewed as a normal next step of growth in a balanced equilibrium or as a change in the student role. There is the *equilibrium* view, and there are the two perspectives that represent the *change* view: the *malintegration* approach and the *alienation* approach.

The Equilibrium View

The first, the equilibrium view, holds that enrollment occurs in the equilibrium of student and environment and was typified by Bean's study of retention (1980). Under the banner of organization

theory, the student dropout model in a college is a functional decision similar to staff turnover in an organization, and there are analogous objective and subjective measures for each model. For instance, the objective measures of academic performance, such as grade-point average (GPA), are analogous to pay in an organization. The subjective measures in the student dropout model, such as perceived quality of the institution, can be compared to the reputation of the company in the staff turnover model. These measures and satisfaction with various student needs will affect student (and employee) satisfaction, ultimately affecting the probability of withdrawal. The special feature of this theory is that the influence of “pay,” from the staff turnover model, is measured by objective and subjective surrogates in the student dropout model including GPA, development of ability, and institutional quality. These are surrogates of potential earning power, practical value, and usefulness of one’s education to secure employment (Bean, 1980).

However, this analogy presents difficulty because while everyone has an opportunity to negotiate higher pay with a company, very few students are in a position to successfully bargain for a higher grade with a professor. More importantly, the philosophical foundation that a student is treated as an employee, not a consumer, weakens the analysis of such an approach for many.

The Malintegration View

The second view understands retention within a change process. The malintegration approach is an analogy that models van Gennep’s *The Rites of Passage* (1909/1960) and French sociologist Durkheim’s *Suicide* (1897/1951). *The Rites of Passage* comprises three stages: separation, transition, and incorporation. In this model, a student’s move from high school to college resembles the movement from youth to adulthood in a primitive society. As applied by Tinto (1987), the individual leaves his or her old community (separation), moves to a new setting (transition), and seeks to integrate into that new setting (incorporation).

Malintegration is defined, therefore, as the lack of a fit for the student in the new culture of higher

education. The analogy of Durkheim’s *Suicide* (1897/1951) is the outcome after transition, and it occurs in the final stage—incorporation—when malintegration can exist and can lead to one of the four types of “suicide” identified by Durkheim. The *altruistic suicide* seen in *hara-kiri* is analogous to the decisions of the 1960–70s “dropouts” from colleges during the Vietnam War period. Those students dropped out to make a statement against the establishment (i.e., their personal sacrifice would ultimately benefit society). The *anomic suicide* is analogous to student focus on self-interest with a limited concern for the college. The rules of the environment and society become attenuated, and the role of the individual leads to short-term satisfaction of personal wants and interests. This also occurred during the Vietnam War period, when campuses were forced to close because students sought a self-focus rather than a concern for the larger needs of society. The *fatalistic suicide* compares to some of the student withdrawal during that time as well, because this group of students not only saw the campus rules as too restrictive but also did not perceive how they could improve conditions in the future. Finally, the *egoistic suicide* represents the situation where the student withdraws because he or she fails to integrate into the college community, so the community provides no support or personal reward to the enrolled student.

While the altruistic-suicide type of withdrawal and the anomic-suicide type of withdrawal were symptoms of 1970s student unrest, the fatalistic-suicide type of withdrawal was so rare that Tinto (1987) cited no example. Thus, only the egoistic-suicide type of withdrawal has remained to be a significant analogy with student withdrawal. The concept of malintegration, because of the failure to integrate resulting in a type of egoistic suicide, has become the major focus in retention study in the past 30 years.

Students who are well-integrated into social and academic life within the institution are more likely to graduate than those who are less integrated (Pascarella & Terenzini, 1991; Tinto, 1987). Active and engaged learning has become the strategy to improve the likelihood of student retention. An

inconsistency arose, however, when Tinto (1987) attempted to mesh Durkheim's *Suicide* (1897/1951) and van Gennep's *The Rites of Passage* (1909/1960) as a model for studying retention rates in American higher education. Anticipatory socialization of students in high school, which prepares them to integrate with the campus culture, is typically regarded as one of the best preparations for successful college work. Tinto insisted that during the first stage between a high school career and a college career—separation—a student is often required to disassociate himself or herself from family, local high schools, and local area residences not just physically, but also in terms of values and norms (Tinto, 1993). In doing this, Tinto encountered a problem conceptually. It is likely that from a student's view this separation is typified by tolerating and interlocking the new and different values of college life, as opposed to rejecting them, and that after the separation, student goals and values correlate more closely with the new and different higher education's values and goals than the values and goals of his previous situation.

This suggests that Tinto's analysis of student departure is an excellent illustration of the process, but that his analogy needs modification. Tinto's interpretation of Durkheim's integration and van Gennep's separation, transition, and incorporation creates an inconsistency that greatly limits his analogy of student departure. If Tinto's interpretation of van Gennep's theory is correct, then one has to reject the value of youth in order to reach adulthood. If this is true, then anticipatory socialization ceases to exist since it is prior to separation, and integration will become almost impossible. Of even more concern is that Tinto's readers may be led to believe that integration on campus is morally superior to the traditional values and ties of families.

The Alienation View

The third approach to retention identified above is that of alienation. This is also an approach of change where the student changes from a high school environment into a college environment. The meaning of *alienation* is twofold, according

to Nisbet (1966). First, it means man feels estrangement from others, work, and even self. The second definition places emphasis on society because of its remoteness, its meaningless form, and its impersonal complexity. Marx's concept of alienation embraces both meanings. For him, the essence of alienation lies in the fact that man estranges himself from his labor because his work is not voluntary but imposed upon him by the tyranny of capitalism. Since capitalism has transformed itself in the 20th century, the Marx tradition has had to adapt to the new economy. One example of that adaptation is the Frankfurt School, which escaped the Nazis by coming to the United States in order to extend the Marx tradition. It advanced a new critical theory on mass culture and authority, seeing both as related to the estrangement and, hence, alienation of people in modern society (Griswold, 1994). Alienation is more than simply the failure to become integrated or actively involved in a culture of higher education. It involves an active aspect of feeling that one does not belong, and it also involves a negative perception of the environment and a belief that the environment is wielding some inappropriate power. Alienation is more than a secondary aspect of malintegration and equilibrium because estrangement is dominant and pervasive: estrangement from others, work, and even from self (Nisbet, 1966).

A Brief Review of Alienation and Retention

Alienation

Oftentimes, when a student feels alienated, he or she withdraws from the college environment (Girves & Wemmerus, 1988). Loo and Rolison (1986) raised alienation as a retention issue in a study of minority student experiences on a predominately Caucasian campus. In addressing the failure to provide equal access to minority students at the University of California, Loo and Rolison cited alienation as a major problem facing minority students on campus. Their theoretical framework on alienation paralleled Marx's concept of alienation, stating that college attrition was a

direct consequence of alienation, which manifested itself through students' feelings of estrangement and dissatisfaction with their academic and social environments. The study concluded that alienation was indeed a major factor affecting minority retention.

Social alienation of disabled students from faculty members and students alike inhibits their academic success and satisfaction (Wiseman, Emry, & Morgan, 1988). A follow-up study of undergraduate student attrition at Indiana University found that alienation, openness, and college adjustment are all important predictors of persistence among Caucasian and minority freshmen (Bennett & Okinaka, 1989). Tutoring another student created a strong sense of belonging among Hispanic-American students and helped retention rates for that minority group (Hurtado & Carter, 1997).

In studies by Berg and Ferber (1983), as well as Loo and Rolison (1986), women and minority students are more inclined to feel alienated. The finding was supported in Hoi's (1983) research that found alienation and attrition to be closely related for African-American students. Native-American students on a predominantly Caucasian-American campus have experienced social isolation and powerlessness, which has resulted in a lower level of student satisfaction and a lower retention rate (Taylor, 2000). Hispanic-American students' sense of alienation, which consequently resulted in withdrawal (Hurtado & Carter, 1997; Nora, 1987), was strongly influenced by perception of a hostile climate. Issues of seniors who withdrew before graduating included dissatisfaction with academic counseling, quality of education, and feelings of alienation (Mohr, Eiche, & Sedlacek, 1998). Controlling for background variables, a sense of belonging was found to be related to intention to persist (Gaertner & Dovidio, 2000).

External Factors

Alienation is a reasonable theoretical frame of reference by which one can understand student retention in higher education. However, it is clear that other factors have also considerably influenced

retention rates. A review of scholarly literature highlights many of these factors, and it is important to recognize these factors in order to understand the true impact alienation may have on student retention. These factors tend to fall into one of two categories: external factors or characteristics associated with academic performance. Alienation seems to be the nexus between the two categories.

Exogenous, or outside, factors, including race, gender, socio-economic level, and housing option, are all included in the external category. These characteristics of individuals make much of their impact before an institution of higher education has any direct influence on a student. These exogenous factors have a significant impact on student retention rates. They are also sometimes called "factors of academic performance," because they are often highly associated with college academic performance (Lotkowski, Robbins, & Noethe, 2004).

Race and gender. Many studies have examined the impact of race and gender on higher education. For example, according to a study conducted by Allen in 1997, both minority status and gender exerted influence upon retention. The same study found that being a female would enhance the retention for both minority and European-American students. Additionally, gender and race are identified as being associated with educational attainment (Adelman, 1999; Cabrera, Burkum, & La Nasa, 2003).

Socio-economic level. Socio-economic level is often measured by the need for financial aid. In turn, financial aid status is a factor typically related to retention status—especially among minority students (Mallette & Cabrera, 1991). Financial difficulties are major factors that not only impact students' decisions to enroll in college, but also influence the type of college in which they enroll. Hispanic-American students are particularly prone to make decisions based on economic standing because they often have family responsibilities that European-American teenagers do not have (Rumberger, 1983). Among minority students also shoulder major family financial burdens when they attend college (Thao, 1999).

Housing option. Additionally, an influence on student retention is whether or not a student lives

on campus. Astin (1975) estimated that having freshmen live in a dormitory instead of in alternative housing options would increase retention rates by 10%. Bean (1980) found that housing had a direct impact on retention. Finally, a third study concluded that living on campus would improve the odds of second year retention for freshmen (Herzog, 2005). While this factor does not happen prior to enrollment, it is external to the academic process.

Academic Characteristics

While external factors like the ones listed above shed some light on retention rates, they cannot tell the entire story. Other variables that influence higher education retention are related to academics. The relevant variables included in this study are GPA, the Academic Admission Index, tutored status, and the perceptions of a supportive campus environment, the level of academic challenge, and the amount of “active learning” that occurs in an institution. These factors are all associated with success in college, and such success (or failure) is often linked to retention.

College GPA. A common measure for student retention among both male and female students is a measure of college academic performance—college GPA. Interestingly however, the role of GPA has been mixed. For example, academic performance was found to be related to retention rates only for male students (Bean, 1980). Similar findings appeared for full-time students, whose GPA substantially influenced retention, but not for part-time students (Stratton, O’Toole, & Wetzel, 2007). The increase of the first-semester GPA was found to be correlated with retention among incoming freshmen (Murtaugh, Burns, & Schuster, 1999).

Academic Admission Index. The Academic Admission Index is a measure of academic ability available to the university before a student enters a post-secondary institution. Like GPA, the Academic Admission Index is also a factor related to student retention rates in college. Yet, unlike GPA, which measures student academic performance in college, the Academic Admission Index measures preparation for academic success. This pre-college index has been a key variable in determining student

retention, where the higher the Academic Admission Index, the more likely it is that a student will continue to enroll at an institution (Astin, 1975; Tinto, 1987).

Tutored status. Tutoring programs, which have received special attention in educational settings where minority students need the most support, also seem to affect student retention rates. Using a multiple regression model, Longuevan and Shoemaker (1991) found that students who participated in a tutorial assistance program earned higher grades than the predictive model anticipated. Similar results were obtained when a study that controlled for motivation found that tutored students performed better at the end of the semester than non-tutored students (Landrum & Chastain, 1998). A second finding in that same study found that male students sought tutoring services more frequently than females. The effect of tutoring includes peer mentoring, and having a peer-mentoring experience is generally highly correlated with improvement of interpersonal skills and self-perception (Rice & Brown, 1990). Students in these mentoring programs have a higher level of academic performance and experience higher retention rates (Campbell & Campbell, 1997).

Supportive campus environment. Yet a fourth variable often associated with retention is the perception of a supportive college atmosphere. Astin and Scherrei (1980) suggested that one’s college environment influences retention. Learning and cognitive development are consequences of that environment (Pascarella, 1985). An encouraging and accommodating collegiate atmosphere is often greatly associated with success in higher education. As noted earlier, the institutional environment has been identified as a possible source of social integration and student withdrawal process (Berger & Braxton, 1998). According to the concepts of Marx, a supportive campus environment would be inversely related to alienation. For him, forced labor under capitalism in a factory that lacks a supportive environment would result in alienation. At the same time, it is important to note that an unsupportive environment is only part of alienation as it was defined above. Alienation also includes perceptions of a lack of similarity and belonging.

Level of academic challenge. While an institution must help a student's pursuit of knowledge, communication of high expectations and rigorous course work are also essential gradients of principles of an effective undergraduate education (Chickering & Gamson, 1999). These principles, measured in the scale of academic challenge, were found to be significantly related to student persistence and effective learning (Ryan, 2005).

Active learning. Chickering and Gamson (1999) identified active learning as another major principle for student success. The "active" or "cooperative" learning process is an umbrella concept; that is, it refers to models of education where the onus of learning is placed mainly on the learners, not the teachers (Bonwell & Eison, 1991). For Tinto, the lack of cooperative learning is a major factor in the student departure process (Tinto, 1997). Similarly, Braxton, Milem, and Sullivan (2000) found that active learning influences student retention. According to Marx, the relationship between retention and active learning could be interpreted as positive because active learning is a form of voluntary engagement and should be inversely related to alienation. He saw forced labor under capitalism as a the major source of alienation.

Data Sources and Methodology

This study was conducted in order to understand the impact the factors above have on the retention rates of our school (UM Duluth). The methodology looked at the contribution of Alienation to the explanation of retention when one also considered the other primary factors related to retention. The database consisted of 462 students that participated in the National Survey of Student Engagement (NSSE, 2005). This survey was used to develop the measures for support and engagement in a challenging academic environment and also the measure of Alienation. These 462 students were matched to the National Student Clearinghouse records in order to identify those students who dropped out and those who transferred to the University of Minnesota (UM) Twin Cities. Transferring to UM Twin Cities was used as a specific outcome category since there is a traditional

concept that our institution is a means to enter that institution.

The sample of students was those enrolled as freshmen in 2004–05, and the outcome measure was obtained based on their status in Fall 2005. An over-representative sample of minority students was taken in the institutional sample in order to obtain more stable estimates for this group.

The logistic regression coefficients indicate a change in the predicted log odds of the dependent variable for a one-unit change in the independent variable. A positive weight indicates more of the independent variable makes the event outcome more likely and the reference outcome less likely. The Wald statistic for a two-tailed test of logistic coefficient was used to produce p value for test of significance, as Kleinbaum and Klein (2002) suggested. A $p < .05$ was used as a level of significance. The overall fit of a logistic regression model was evaluated using G^2 , Cox & Snell pseudo R^2 , and Nagelkerke R^2 . These three were used to indicate the variances explained in the logistic regression as no consensus has been reached in the literature on the single best measure (Long, 1997).

Dependent Variable: Retention

Student retention was the dependent variable examined in this study. Retention refers to the enrollment status as of Fall 2005. When students were categorized into a dichotomous dependent variable as enrolled or non-enrolled at the UM Duluth, binary logistic regression was used (*Dropb*). When the non-enrolled group was further divided into two groups, the UM Twin Cities transfers and the non-enrollee group, multinomial logistic regression was used (*Dropm*). In all regressions, returning to enroll at UM Duluth was the reference group and was coded zero (0).

The Independent Variables

Alienation-Belonging. Using the NSSE scale, a surveyed student indicated whether he or she felt alienated on campus. A score of 1 indicated a strong sense of alienation, and a scale of 7 illustrated a sense of belonging. A negative weight for this variable in the logistic analysis indicates

that those feeling alienation were more likely to leave as they would have a low score on Alienation-Belonging (*Sense of Alienation* = 1) and a score of 1 on the dependent variable. The negative weight also indicates that those with a high score on the Alienation-Belonging scale (*Sense of Belonging* = 7) were more likely to return and would thus have a score of 0 on the dependent variable.

Race. African-Americans, Hispanic-Americans, Native-Americans, and Asian-Americans were all grouped into the category of "Minority," while Caucasian/Other were grouped as their own category. Sometimes in studies, Asian-Americans are put in a group with Caucasian/Other; however, at our university the retention of Asian-American students was found to be quite different from European-American students and very similar to other minority students. Thus, combining Asian-Americans with other minorities helped this study acquire a more meaningful European-American and accurate analysis. The sample of Asian-American students comprised many Hmong students (70%), which is most likely atypical of other universities. European-American/Other was coded one (1), and Minority was coded zero (0). A negative weight means that Minority students were more likely to leave, and European-American/Other students were more likely to return. This variable was not used in the multinomial regression because no minority students went to UM Twin Cities.

Housing. The housing category indicated whether a student lived on campus or lived off campus. On-Campus was coded one (1), and Off-Campus was coded zero (0). A negative weight means that those living on campus were more likely to return. This measure was not used in the multinomial regression since no Off-Campus students transferred to UM Twin Cities.

Tutored status. In order to gauge Tutored Status, an item from NSSE was used to indicate whether or not a student participated in a tutoring program designed to help students' academic performance. This was scaled from *Never* = 0 to *Very Often* = 3. A negative weight means that students receiving more tutoring were more likely to return.

Cumulative GPA. Academic performance and success were measured as the two-semester cumulative GPA obtained from university records. A negative weight means that students with higher grades were more likely to return.

Financial aid. Financial Aid indicated whether or not a student received any kind of financial aid from loans, grants, scholarships, or work study. This was also obtained from university records. Those receiving financial aid were coded one (1), and those not receiving financial aid were coded zero (0). A negative weight means that those receiving financial aid were more likely to return.

Academic Admission Index. The Academic Admission Index is the one used by UM Duluth in the admissions process to gauge college academic readiness. This is typically computed as high school rank percentile, but the Index can be computed from ACT scores in lieu of high school rank information if high school rank information is not available. If ACT composite scores are used, they are first multiplied by three in order to make these scores comparable to high school rank. For instance, a composite of 22 (computed to be comparable to a high school percentile rank of 66) is the minimum admission threshold. A negative weight for this measure in a logistic regression equation means that if all other factors were equivalent, those with a higher Academic Admission Index were more likely to return.

Collaborative learning scale. The NSSE scale for measuring Collaborative Learning included the following: "Asked questions in class or contributed to class discussions," "Made a class presentation," "Worked with other students on projects during class," "Worked with classmates outside of class to prepare class assignments," "Tutored or taught other students," "Participated in a community-based project as part of a regular course," and "Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)." A higher score means that the student perceived a higher level of collaborative learning opportunities. A negative weight means that a higher level of collaboration was associated with a higher likelihood of returning.

Supportive campus environment scale. The scale for Supportive Campus Environment included the following NSSE items: “Support provided by the campus environment to help students succeed academically;” “Helps a student cope with non-academic responsibilities;” “Support meant to help students thrive socially;” and “The relationships fostered between students and faculty and between students and administrative personnel.” A higher score means that the student perceived a higher level of support from the campus environment. A negative weight means that a higher perceived level of support was associated with a higher likelihood of returning.

Level of academic challenge. The NSSE scale for measuring the Level of Academic Challenge in this study included: “Preparing for class;” “Number of assigned textbooks;” “Books reading;” “Number of written papers;” “Coursework emphasizing analysis of basic elements of ideas;” “Coursework emphasizing synthesis;” “Coursework emphasizing judgment about the value of information;” “Coursework emphasizing the application of theories, and “Working harder than anticipated.” A higher score means that the student perceived a higher level of academic challenge. A negative weight means that a higher level of academic challenge was associated with a higher likelihood of returning.

Results: Analysis of Data

The following section first discusses the results from the binary logistic regression for the case where students were identified as being in one of two categories: Returning ($n = 345$) or Not Returning ($n = 117$). Next, multinomial logistic regression was used for the case where the dependent measure has three categories: Returning ($n = 345$), Transferring to UM Twin Cities ($n = 16$), and Dropout ($n = 101$).

This allows for the investigation of the net effect of each variable on overall retention in the presence of the other variables. In both analyses, returning to UM Duluth is scored 0, and not returning is scored 1. In other words, a negative weight in both results means that those who score higher on the independent measure are more likely to return to UM Duluth. A positive weight in both results means that those who score higher on the independent measure are more likely to not return but to be in the alternative category.¹

Binary Logistic Model

In the binary logistic model, this study found that the exogenous demographic variables all seemed to have at least some impact on retention rates, except for Financial Aid Status and Gender. Academic performance variables, including GPA and Supportive Campus Environment, also had profound impacts on retention. Other academic performance variables like the Level of Academic Challenge and Active and Collaborative Learning, however, did not have significant influence on retention. Perhaps the most useful finding of this study is how Alienation-Belonging affects retention, and while it may be alleviated by the host of other factors that affect retention—from either the demographic category or the academic performance category—it still has a significant, unique role in explaining returning to UM Duluth. The specific results for the binary logistic regression are shown in Table 1.

Race makes a significant contribution to explaining returning. With the positive weight ($b = 2.03$), it appears that minority students (scored 0) are more likely to return (scored 0) when all other factors are considered. When gender was tested, the result showed that it did not make a significant unique contribution to explain returning ($p < 0.05$).²

¹While it is more conventional to code returning 1 and not returning 0, the use of the reference category in the multinomial logistic analysis of SPSS made the procedure used in the research the more convenient alternative. This did require reflecting the weights in the binary logistic analysis, which uses the other convention.

²The regression model is based on the assumption of no significant interaction between gender and retention in estimating the dependent variable, so one cannot be sure of gender’s impact within each minority group. A cross tabulation of retention and gender indicated that for male minority students, the retention rate is only 30%, but for female minority students, the retention rate is 48%. An 18% difference strongly suggests that there is an interaction of race and gender in the explanation of retention for minority students.

Table 1
Binary Logistic Regression of Retention at the UM Duluth Versus Not Returning

Dropb	b	S.E.	Wald	Sig.
Race	2.027	0.875	5.368	0.021
Gender	0.345	0.360	0.920	0.338
Housing (on/off campus)	-1.182	0.460	6.609	0.010
Financial Aid Status	0.206	0.421	0.240	0.624
Academic Admission Index	-0.042	0.010	18.553	0.000
Alienation	-0.351	0.118	8.818	0.003
Tutored Status	-0.560	0.248	5.114	0.024
SCE (Supportive Campus Environment)	-0.030	0.010	8.657	0.003
Grade Point Average	0.780	0.319	5.965	0.015
ACL (Active and Collaborative Learning)	0.008	0.015	0.322	0.571
LAC (Level of Academic Challenge)	-0.015	0.015	0.895	0.344
Constant	2.308	1.431	2.601	0.107
Chi-square = 83.582, df = 11, $p < .001$ Cox & Snell R Square = .201 Nagelkerke R Square = .331				

This study also found that living in on-campus housing is positively associated with retention ($b = -1.18$). Students who live on campus (scored 1) will have greater contact with other students and staff and be more likely to return (scored 0). This confirms the findings by Astin (1975) who found that for both men and women who leave home to attend college, the retention rates are greater if they live in a dormitory rather than in private rooms. Some studies even imply that living on campus is an indicator of social integration and, therefore, has a positive impact on retention (Herzog, 2005). It is also consistent to anticipate that dormitory experiences will lessen alienation, which consequently helps retention.

While the role of financial aid has been that of a positive impact on retention in previous studies (DesJardins, Ahlburg, & McCall, 1999), no differences

in retention were found among the financial aid recipients and non-financial aid recipients in this analysis. Such findings are supported by similar conclusions, which indicated that neither loans nor grants improved retention rates (Stratton et al., 2007). Because the variable of financial aid included need-based, merit aid and grants, work-study, and loans, the results in this study are rather tentative. A higher Academic Admission Index, measured by high school rank or ACT, was found to have the most statistically significant positive influence upon retention ($b = -.042$). This finding is supported by previous studies. For example, academic performance measured by high school GPA at Oregon State has also been shown to have an impact on retention (Murtaugh et al., 1999). High school rank was a predictor of student retention among all students (Astin, 1975).³

³ Here again, and based on what Astin found, there may be an interaction with other factors such as race.

Alienation-Belonging was found to have a significant influence on retention ($b = -.351$). Alienation (a low score on this measure) estimates that the student is less likely to return (scored 1) while Belonging (a high score on this measure) estimates that the student is more likely to return (scored 0).⁴

According to this study, Tutored Status ($b = -.560$) and Supportive Campus Environment ($b = -.030$) were related to retention. Retention literature usually found that students are at risk of withdrawal when they are less involved and connected with college. When the college is supportive, the evidence is that a student performs better academically and thrives socially. Students that are being tutored would be more likely to see themselves as being in a supportive campus environment. A student who scores high in supportive campus environment would have less feeling of self-estrangement, according to Marx.

The role of GPA seems to differ from the previous findings in the literature. The positive impacts of grades upon retention were found in recent studies (Herzog, 2005; Leppel, 2002). GPA was singled out as the most influential factor affecting student retention (Astin, 1975); it had influence on the entire sample, for both male and female students, as well as Caucasian and minority students. Based on this sample however, while the association between grades and retention was statistically significant⁵, higher grades are not a sufficient condition for students to continue matriculating at an institution. These findings indicated that GPA was associated with retention, but the sign of the regression weight was unexpectedly positive ($b = .780$). In other words, given their other characteristics, students with higher grades are less likely to return. This result is contrary to most retention studies, and the reasons for this paradox may lie in the fact that there has been the traditional belief at UM Duluth that

some of the best academically able students also withdraw. One in five students with an “A” average withdrew in Astin’s sample (1975). The multinomial logistic regression provides additional information for interpreting this result.

Active and Collaborative Learning and Level of Academic Challenge were not statistically significantly related to retention in the binary logistic analysis, yet they both were related to the Alienation-Belonging scale in correlation. One plausible explanation is that the impact of the level of academic challenge and degree of active learning on retention is mediated by alienation, and thus, when alienation is also part of the consideration, these variables do not make a significant unique contribution to understanding retention.

Multinomial Logistic Regression Model

The binary logistic regression technique can be extended to multinomial discrete categories. There are three categories in the analysis: “Students Enrolled,” “Students Transferred to the UM Twin Cities,” and “Students Not-Enrolled (Dropout).” “Students Enrolled” is the reference category. This means that returning to UM Duluth is scored 0 as in the binary logistic analysis, and the other two categories are scored 1 when they are compared to those students who returned to UM Duluth. The results of the multinomial logistic regression analysis are shown in Table 2.

In Table 2, the upper panel shows the results when comparing Dropout versus Returning, and the lower panel indicates the results when comparing transferring to UM Twin Cities relative to returning to UM Duluth. Variables of Race and Housing were excluded from the analysis because none of the students who transferred to UM Twin Cities were minority students, and none of them lived off campus.

The basic results from the multinomial logistic regression were similar to those from the binary

⁴ This study also examined the correlations of Alienation with other factors included. The results show that for this group of students living on campus ($r = .473, p < .000$), active learning ($r = .133, p < .007$), and a sense of campus support ($r = .560, p < .000$)—all seem to reduce the perceived amount of alienation.

⁵ This and other intermediate correlation results are available from the author.

Table 2
Results from the Multinomial Logistic Regression of Returning to UM Duluth Versus Dropout or Transfer to UM Twin Cities

Dropm		b	Std. Error	Wald	Sig.
Not Enrolled (Dropout)	Intercept	4.142	1.260	10.805	0.001
	Financial Aid Status	0.180	0.442	0.166	0.684
	Academic Admission Index	-0.047	0.010	21.119	0.000
	Grade Point Average	0.480	0.337	2.028	0.154
	LAC (Level of Academic Challenge)	-0.020	0.017	1.452	0.228
	SCE (Supportive Campus Environment)	-0.032	0.011	7.995	0.005
	Alienation	-0.294	0.126	5.469	0.019
	ACL (Active and Collaborative Learning)	0.016	0.017	0.886	0.347
	Gender	0.450	0.396	1.288	0.256
	Tutored Status	-0.791	0.302	6.857	0.009
Transferred to UM Twin Cities	Intercept	-0.863	2.022	0.182	0.669
	Financial Aid Status	0.732	0.823	0.791	0.374
	Academic Admission Index	-0.031	0.016	3.756	0.053
	Grade Point Average	1.531	0.595	6.624	0.010
	LAC (Academic Challenge)	-0.010	0.026	0.135	0.713
	SCE (Supportive Campus Environment)	-0.024	0.019	1.654	0.198
	Alienation	-0.583	0.216	7.287	0.007
	ACL (Active and Collaborative Learning)	0.005	0.025	0.037	0.847
	Gender	-0.738	0.612	1.456	0.228
	Tutored Status	-0.314	0.380	0.684	0.408
Chi-Square = 84.661, df = 18, $p < .001$					
Pseudo R-Square					
Cox and Snell	0.203				
Nagelkerke	0.301				
McFadden	0.202				

logistic regression. The Academic Admission Index remained a positive statistically significant explainer of returning. Those with higher scores were more likely to return to UM Duluth in both cases of dropping out versus returning to UM Duluth ($b = -.047$) and the alternative of enrolling in UM Twin Cities versus returning to UM Duluth ($b = -.031$). The results for Alienation-Belonging were also consistent in that those with a greater feeling of alienation were less likely to return for the Dropout group ($b = -.294$) and the UM Twin Cities group ($b = -.583$). The role of GPA changed however. Its statistically significant weight ($b = 1.531, p < .010$), when considering those transferring to UM Twin Cities, indicates that students with a higher GPA were more likely to transfer to the UM Twin Cities (Av GPA = 3.25) than to re-enroll (Av GPA = 2.92) at UM Duluth. This seems to support the traditional wisdom noted earlier. Meanwhile, GPA was not statistically significant in the explanation of the differences between the Dropout group (Av GPA = 2.49) and students re-enrolled at UM Duluth. Indeed, the non-returning students seemed to be a heterogeneous group that included both academically high-performing students going to UM Twin Cities and students with lower grades dropping out. Finally, the Campus Supportive Environment (CSE) has a statistically significant effect for the comparison of returning with dropping out with those with higher CSE scores less likely to drop out ($b = -.032$). The CSE did not make a significant contribution to the explanation of returning when considering those going to UM Twin Cities. The same is true for Tutored Status, where those with tutoring were less likely to drop out ($b = -.791$), but this had no effect on going to UM Twin Cities.

Conclusion

Findings in this study contribute to an understanding of the level of connectedness and support a student feels. It appears that engagement, challenge, and a feeling of support are important as are academic abilities.

Three basic conclusions are worthy of note. The first conclusion is on the issue of Ethnicity. Ethnicity does seem to have some statistically significant explanatory capability when used in this situation

with this sample and these measures. The result, however, indicate that minority students are more likely to return than the European-American/Other students. There are many possible explanations for this difference ranging from personal study habits to institutional support programs. The limited sample size prevents these data from being used to make definitive conclusions, but further research is warranted. Particularly, more research is needed on the role of Race and how it interacts with the other independent measures such as Gender and Financial Aid.

A second conclusion is that it may not be appropriate to use a binary logistic regression when one of the categories is heterogeneous, as in the case of those who did not return to UM Duluth. If one used only the binary logistic regression, the issue of GPA along with the role of the Tutored Status and the role of perceiving a Supportive Campus Environment would have been missed or masked.

A third conclusion does seem to establish that Alienation-Belonging is indeed an important topic when considering the causes of retention rates. This aspect of the students' perception made one of the most consistent contributions to the explanation of student retention. In all cases, the more alienated students were more likely to leave regardless of whether that leave was to go to the UM Twin Cities or to simply not return to UM Duluth. Those with a sense of Belonging were more likely to return to the UM Duluth. Even more interesting is that this unique contribution seems to exist even when considering the students' perceptions of engagement, challenge, and support.

It would seem that the concept of alienation has gone beyond what is contained in the original use of the word. Marx saw the individual in subjection to capitalism, which estranges an individual from work, labor and, finally, himself. It is possible that the degree to which students see themselves in subjection to our institutions and estranged from the campus culture is a key to understanding retention. It would seem to be a good idea to consider alienation in future research on retention and to look at the possibility of developing a scale with items related to the aspects of alienation as discussed in the introduction to this research.

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