10-1-2007

Predicting Academic Success in Undergraduates

Mary E. Pritchard
Boise State University

Gregory S. Wilson
University of Evansville

Predicting Academic Success in Undergraduates

Mary E. Pritchard, Boise State University
Gregory S. Wilson, University of Evansville

Pritchard, Ph.D., is Assistant Professor of Psychology, in the College of Social Science and Public Affairs, and Wilson, P.E.D. is Chair and Associate Professor of Human Kinetics and Sport Psychology in the School of Education.

Abstract

College academic success and retention have traditionally been predicted using demographic and academic variables. This study investigated the influence of student health on GPA and intent to drop out of college. A longitudinal survey of 242 freshmen revealed that emotional and social factors (e.g., stress, living in the dorm, being in a study group) predicted second semester GPA and intentions to drop out (e.g., perfectionism, fatigue). Implications for intervention strategies are discussed.

Introduction

A major challenge facing four-year colleges and universities is the successful retention of students, and this issue becomes particularly important when examining rates of retention for first year college students. It has been found that approximately one-quarter of incoming freshman do not return to the same institution the following year, with half of these students making the decision to leave in the first six weeks (Upcraft & Gardner, 1989). Although some students leave for reasons beyond the control of these institutions (e.g., family emergency), most attrition is preventable (Levitz & Noel, 1989). Previous studies have examined the importance of student characteristics in predicting student success, including gender (Sheilds, 2001), age (Owen, 2003), high school GPA (Hoffman & Lowitzki, 2005; Kirby & Sharpe, 2001), high school rank (Haviland, Shaw, & Haviland, 1984), ACT/SAT scores (Gifford, Briceño-Perriott, & Mianzo, 2006; Hoffman & Lowitzki, 2005), initial college GPA/ academic difficulties (Kirby & Sharpe, 2001; Sheilds, 2001) and parents' education (Ting & Robinson, 1998). However, few studies have examined one crucial impediment to academic success and retention: student well being (Leafgran, 1989).

Not surprisingly, it has been found that students who are depressed (Fazio & Palm, 1998) tend to have lower GPAs than students who are not, whereas students reporting high stress levels are more likely to have a lower GPA (Pritchard & Wilson, 2003; Sheilds, 2001). Certain personality characteristics such as conscientiousness (Tross, Harper, Osher, & Kneidinger, 2000), and achievement-oriented or perfectionistic behavior (Pritchard & Wilson, 2003) are associated with a higher college GPA. Several studies have found that personality traits also affect retention (Cody, 1996). Students with adaptive perfectionism (Rice & Mirzadeh, 2000) tend to adjust better to college, and thus tend to stay in school; whereas individuals who reported more fatigue and lower self-esteem than their peers are more likely to report an intent to drop out on academic surveys (Pritchard & Wilson).

Because GPA (Brooks & DuBois, 1995) and retention (Upcraft & Gardner, 1989) are predicted by social support, researchers need to examine the kinds and degree of support students receive. Students with good support from friends and family and favorable impressions of other students have higher retention rates. In fact, just the support provided by residential group membership (Upcraft & Gardner, 1989) can improve retention. Students who live on campus also tend to report a greater sense of

201

community (Lounsbury & DeNeui, 1996). Furthermore, students who are not involved in campus organizations exhibit poorer academic performance (Hartnett, 1965) and are more likely to leave the university (Okun & Finch, 1998).

The Present Study

The purpose of the present study was to conduct a longitudinal examination of the relationship between the well being of college freshmen and academic success (i.e., academic performance, intent to drop out). Specifically, changes in well being were tracked from orientation week to the end of the second semester. It was hypothesized that emotional (e.g., stress, psychological health) and social (e.g., participation in study groups) would affect GPA and intent to drop out. Because few studies of factors predicting academic success have examined a cohort of freshmen over time, a primary contribution of this study is its longitudinal panel design examining both outcomes and variables that are responsible for these outcomes. By tracking individuals from freshman orientation to the end of their freshman year, this study will pinpoint specific issues that colleges must address.

Method

We conducted a longitudinal investigation of first-year college students at a small Midwestern private institution in the 2003-2004 academic year. Wave 1 data were collected during orientation week. Questionnaires were distributed to all 525 first year students with a cover letter explaining the study and that all responses would remain confidential. Wave 1 provided baseline measures of mental health, self-esteem, stress, and personality characteristics. One month before the end of the second semester, we administered Wave 2 questionnaires in a classroom setting, with questions similar to those found on Wave 1.

Three hundred fifty (67% of the first year class) students participated in Wave 1 (65% female) and 381 (73%) completed Wave 2 (60% female). Two hundred forty-two individuals (46%) completed both Waves. Of those who completed both waves, 94.5% were Caucasian, 2.5% were African American, .5% were Hispanic, 1.5% were European, and 1% were Native American. Average age at Wave 1 was 18.02 (SD = 1.44) and 18.93 (SD = 1.30) at Wave 2. Each participant read and signed an informed consent form prior to this study, and were informed that responses would be confidential. Before the study was begun, the University Subcommittee for the Protection of Research Subjects approved procedures for this investigation.

Measures

Demographic variables and intent to drop out

At Wave 1, students were asked to indicate whether their parents had attended college, their gender, high school GPA, and SAT or ACT score. ACT scores were converted to SAT equivalents. At Wave 2, students were asked to report their current GPA and their intent to drop out by rating the following statement: "I doubt I will still be in college next year," on a scale from 1 (strongly disagree) to 4 (strongly agree).

Emotional health

We assessed various stressful events specifically oriented to college students' lives (e.g., "struggling to meet your own academic standards") at Wave 2 using questions adopted from Kohn, Lafreniere, and Gurevich (1990). Participants were asked to rate to what extent such events have been a part of their lives in the past month on a scale from 1= not at all part of my life to 4 = very much part of my life. Responses were averaged to create a scale score.

Perfectionistic tendencies were assessed at Wave 1 by asking participants various questions on their performance levels in activities such as school and the influence of the expectations of others (e.g., family, teachers, parents; "Only outstanding performance is good enough in my family."). Responses were rated on a 6-point scale (1=never, 6=always) and were summed to create a scale score. This measure is a subscale of the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983) and demonstrated adequate reliability in this sample (alpha = .78).

Levels of self-esteem were measured using the Rosenberg Self-Esteem Scale (1965) at Wave 2. This scale uses a variety of questions assessing personal feelings about oneself as well as positive and negative emotions (e.g., "I feel I have a number of good qualities."). Responses were measured on a 4-point scale (1=strongly agree, 4=strongly disagree) and were summed to create a scale score (alpha = .79).

Students were asked to respond to the 12-item Life Orientation Test (Scheier, Carver, & Bridges, 1994) at Wave 1 to assess whether they are optimists or pessimists. Responses were rated on a scale from 0 (strongly disagree) to 4 (strongly agree) and were summed to create a scale score (alpha = .75). To measure psychological adaptation, at Wave 2, students responded to a 30-item short version of the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1981). The POMS assesses anxiety, tension, depression, anger, vigor, confusion, and fatigue. Responses were measured on a 5-point scale, from 1 (not at all) to 5 (extremely). Scale scores were created according to the protocol by McNair et al.

Social health
Students were asked about participation in study groups, where they lived (dorm or other), and whether they felt they fit in at the university on a 4-point scale (1=strongly agree, 4=strongly disagree).

Results
GPA and Intent to Drop Out
The second semester GPA averaged 3.17, with a standard deviation of .54 for females and 3.06, with a standard deviation of .64 for males. Responses from Wave 2 indicated that 86% of the students surveyed strongly believed that they will be in college next year, 10% believed that they will be in college next year, 1% believed that they will not be in college next year, and 2% strongly believed that they will not be in college next year.

Demographic Variables
To determine if any demographic variables need to be controlled in the analyses, we ran multiple regressions to assess the influence of demographic variables on GPA and intent to drop out of college. The combined influence of all of our demographic variables had a small, statistically significant relationship with GPA. The F value (6, 541) was 11.75, with a p value of less than .001, and the overall index of regression coefficient was .10. Gender made a significant contribution, with a B value of -.16, a standard error of .07, and a beta weight of -.10, with a p value of less than .05. SAT score (or equivalent) also made a significant contribution, with a B value of .01, a standard error of .00, a beta weight of .30, with a p value of .001. Thus, we will control for these variables in all data analyses involving GPA. The combined influence of all of our demographic variables had no relationship with intent to drop out, with an F value (6, 540) of 1.35, and the overall index of regression coefficient was .01.

Using Emotional Health as a Predictor
Multiple regressions were run to assess the relationship between emotional health (depressive symptomotology, mood, fatigue, and self-esteem, perfectionism, and optimism) and GPA and retention. Because gender and SAT score (or equivalent) related to GPA, these were entered in the first step and the predictor variables were entered in the second step. After accounting for the influence of gender and SAT score in the first step, with an F value (2, 209) of 25.29, and a p value less than .001, with the overall index of regression coefficient equaling .20, the combined influence of emotional health had a significant relationship with GPA, with an F value (9, 202) of

8.16, a p value of less than .001, and the overall index of regression coefficient of .27. Stress was a significant predictor, with a B value of -.01, a standard error of .00, a beta weight of -.20, and a p value of less than .05.

We also assessed the influence of emotional health on intent to drop out. The combined influence of emotional health had a significant relationship with intent to drop out, with an F value (7, 227) of 3.35, a p value of less than .01, and the overall index of regression coefficient equal to .09. Perfectionism made a significant contribution to the regression equation, with a B value of .01, a standard error of .01, a beta weight of .15, and a p value of less than.05. Fatigue also made a significant contribution, with a B value of .02, a standard error of .01, a beta weight of .19, and a p value of less than .05.

Using Social Health as a Predictor

Multiple regressions were run to assess the relationship between social health (study group membership, dorm residence, and feelings of fit) and GPA and retention. Once again, gender and SAT score were entered in the first step and the predictor variables were entered in the second step. After accounting for the influence of gender and SAT score in the first step, the F value (2, 210) was 26.70, with a p value of less than .001, and an overall index of regression coefficient of .20, the combined influence of social health had a significant relationship with GPA, with an F value (5, 207) of 13.88, a p value of less than .001, and an overall index of regression coefficient of .25. Where students lived was also a significant predictor with a B value of .-.32, a standard error of .11, a beta weight of -.19, and a p value of less than .01. Finally, whether they belonged to a study group made a significant contribution to the regression equation, with a B value of -.19, a standard error of .10, a beta weight of -.12, and a p value of less than .05.

We also assessed the influence of social health on intent to drop out. The combined influence of social health had a significant relationship with intent to drop out, with an F value (3, 366) of 7.02, a p value of less than .001, and an overall index of regression coefficient of .05. Where students lived made a significant contribution to the equation, with a B value of .-.16, a standard error of .07, a beta weight of -.12, and a p value of less than .05. How much they felt they fit in at the university also made a significant contribution, with a B value of -.14, a standard error of .04, a beta weight of -.19, and a p value of less than .001.

Discussion

Previous collegiate studies have proposed that most attrition is preventable (Levitz & Noel, 1989). Studies further suggest that demographic variables such as standard test scores may not be very predictive of success (Hoffman & Lowitzki, 2005; Sternberg, 2005); rather, student health may be a more important contributor to academic success than previously believed (Leafgran, 1989). The purpose of the present study was to investigate the relationship between student well being and college student GPA and intent to drop out. We found that demographic variables, as well as both emotional and social health factors related to student performance and intent to drop out as will be detailed below.

Demographic Variables

Similar to previous studies, we found that demographic variables predicted student success. We found that both gender and ACT/SAT scores (see also Brooks & DuBois, 1995; Gifford, Briceño-Perriott, & Mianzo, 2006) predicted college GPA. However, similar to Tross et al. (2000), we did not replicate previous studies finding an impact of high school GPA (Ting & Robinson, 1998) or parents' education (Ting & Robinson) to college GPA during the first year. In addition, none of the demographic variables predicted student retention. This underscores the need to examine other variables that might influence student academic success.

Emotional Health

We found that students' emotional health was significantly related to GPA and intent to drop out. Similar to previous studies (Pritchard & Wilson, 2003), we found that students reporting high

stress levels are more likely to have a lower GPA. This is not surprising given the concern over the increase in the amount of stress reported by college students (Brooks & DuBois, 1995).

In addition, an individual's emotional health related to one's intention to drop out of college. Students who indicated their intent to drop out reported more fatigue and had lower levels of perfectionism than their peers. This is not surprising given that previous studies have found a relationship between retention and adaptive perfectionism (Rice & Mirzadeh, 2000) and low levels of fatigue (Pritchard & Wilson, 2003).

Social Health
Consistent with prior research (Brooks & DuBois, 1995; Upcraft & Gardner, 1989), we found that social support related to GPA and intent to drop out. Specifically, students who belonged to a study group and students who lived in the dorm had higher GPAs. In addition, students who lived in the dorm (see also Upcraft & Gardner; Lounsbury & DeNeui, 1996) and students who felt they fit in at the university were less likely to indicate their intent to drop out.

Implications
Several limitations of this study should be noted. First, our sample was selected from a small private Midwestern university. Hence, this study is institution specific with a homogenous population, and the possible generalizability of these findings to other institutions may be limited. Second, we assessed only student intent to drop out and not actual attrition rates. Many factors may go into actual decisions to leave the university rather than intentions. Despite these limitations, the present findings offer important implications to college administrators.

Results from this study indicate that while student characteristics play a role in student success, it is important to note that emotional and social health are also significantly related to success during the freshman year. Given this, institutions might benefit by addressing some of these problems with their student populations. For example, it is likely that freshman stress levels are high because freshmen over-commit themselves. Intervention strategies might include giving talks about stress management and ways to achieve a healthy balance between work, school, and extra curricular activities to incoming freshmen.

References

Brooks, J. H., & DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first year of college. Journal of College Student Development, 36, 347-360.

Cody, T. J. (1996) Use of the Myers-Briggs Type Indicator to predict persisters and dropouts at a small liberal arts college. Dissertation Abstracts International Section A: Humanities & Social Sciences, 56(7-A), 2609.

Fazio, N. M., & Palm, L. J. (1998). Attributional style, depression, and grade point averages of college students. Psychological Reports, 83, 159-162.

Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15-34.

Gifford, D. D., Briceño-Perriott, J. & Mianzo, F. (2006). Locus of control: Academic achievement and retention in a sample of university first-year students. Journal of College Admission, 191, 18-25.

Haviland, M. G., Shaw, D. G., & Haviland, C. P. (1984). Predicting college graduation using selected institutional data. Psychology: A Journal of Human Behavior, 21, 1-3.

Hartnett, R. T. (1965). Involvement in extracurricular activities as a factor in academic performance. Journal of College Student Personnel, 6, 272-274.

Hoffman, J. L., & Lowitzki, K. E. (2005). Predicting college success with High School grades and test scores: Limitations for minority students. Review of Higher Education: Journal of the Association for the Study of Higher Education, 28, 455-474

Kirby, D., & Sharpe, D. (2001). Student attrition from Newfoundland and Labrador's public college. Alberta Journal of Educational Research, 47, 353-368.

Kohn, P. M., Lafreniere, K., & Gurevhich, M. (1990). The inventory of college student's recent life experiences: A decontaminated hassles scale for a special population. Journal of Behavioral Medicine, 13, 619-630.

Leafgran, F. A. (1989). Health and wellness programs. In M. L. Upcraft & J. N. Gardner (Eds.), The freshman year experience (pp. 156-167). San Francisco, CA: Jossey-Bass Publishers.

Levitz, R., & Noel, L. (1989). Connecting students to institutions: Keys to retention and success. In M. L. Upcraft & J. N. Gardner (Eds.), The freshman year experience (pp. 65-81). San Francisco, CA: Jossey-Bass Publishers.

Lounsbury, J. W., & DeNeui, D. (1996). Collegiate psychological sense of community in relation to size of college/university and extroversion. Journal of Community Psychology, 24, 381-394.

McNair, D.M., Lorr, M. & Droppleman, L.F. (1981). Manual for the Profile of Mood State. San Diego: Educational and industrial Testing Service.

Okun, M. A., & Finch, J. F. (1998). The Big Five personality dimensions and the process of institutional departure. Contemporary Educational Psychology, 23, 233-256.

Owen, T. R. (2003). Retention implications of a relationship between age and GPA. College Student Journal, 37, 181-189.

Pritchard, M. E., & Wilson, G. (2003). Using emotional and social factors to predict student success. Journal of College Student Development, 44, 18-27.

Rice, K. G. & Mirzadeh, S. A. (2000). Perfectionism, attachment, and adjustment. Journal of Counseling Psychology, 47, 238-250.

Rosenberg, M. (1965). Society and the adolescent self-image. New Jersey: Princeton University Press.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A re-evaluation of the Life Orientation Test. Journal of Personality and Social Psychology, 67, 1063-1078.

Sheilds, N. (2001). Stress, active coping, and academic performance among persisting and nonpersisting college students. Journal of Applied Biobehavioral Research, 6, 65-81.

Sternberg, R. J. (2005). Augmenting the SAT through assessments of analytical, practical, and creative skills. In Camara, W. J. & Kimmel, E. W. (Eds.), Choosing students: Higher education admissions tools for the 21st century (pp. 159-176). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Ting, S. R., & Robinson, T. L. (1998). First-year academic success: A prediction combining cognitive and psychosocial variables for Caucasian and African American students. Journal of College Student Development, 39, 599-610.

Tross, S. A., Harper, J. P., Osher, L. W., & Kneidinger, L. M. (2000). Not just the usual cast of characteristics: Using personality to predict college performance and retention. Journal of College Student Development, 41, 323-334.

Upcraft, M. L., & Gardner, J. N. (1989). The freshman year experience. San Francisco, CA: Jossey-Bass Publishers.