

Early Intervention and Students at Risk: An Analysis of the College Student Inventory

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Abstract

Increasing numbers of students entering higher education are at risk for academic difficulty and attrition. The student affairs programs in this study used the College Student Inventory as an early intervention instrument to assist with retention as they served students with financial need, students who are ethnic minorities, students with disabilities and students who are the first in their families to attend college. Findings present which variables were significantly associated with first-year retention and academic difficulty. In addition, ethnicity is further disaggregated to study differences between Hispanics, the institution's largest ethnic minority group, and other ethnic populations.

Introduction

Student populations have become increasingly diverse due to greater access for students with financial need, students who are ethnic minorities, students with disabilities, under-prepared students and students who are the first in their families to attend college, underscoring the need for multiple approaches regarding the types of academic and social services provided throughout the college experience (Adams, Bell & Griffin, 1997; Adams, Blumenfeld, Casteñeda, Hackman, Peters & Zuniga, 2000; Rendon, Garcia & Person, 2004; Gaither, 2005). For students who are at risk for academic difficulty and attrition, early intervention is key.

Between 1991-2001, enrollment of ethnic minority populations increased in higher education, with Hispanics enjoying the greatest increase of 75%. Asian-American student enrollment increased 53.7%, African-American student enrollment grew by

36.9% and Native American student enrollment increased 35%. Caucasian enrollment decreased by 4.6% (Edmonds, 2005). Located in the southwestern region of the United States, the University of Arizona has a growing population of Hispanic students. Now at 14%, more than 90% of the student growth over the next ten years is predicted to be Hispanic. In striving to become a Hispanic Serving Institution, the University of Arizona has been engaged in significant program development to enhance the fit between itself and its Hispanic students (The Wildcat Online, 2006). Because of this, the analysis in the article not only focuses on populations at greater risk for attrition such as ethnic minority students at a predominantly white institution, but disaggregates further to look specifically at Hispanic students.

This Research I public institution currently serves over 28,000 undergraduate students, with a total student body of approximately 37,000 students. Over 70 percent of students are Arizona residents, and 25 percent are ethnic minorities (The University of Arizona 2005 Factbook). In an effort to improve retention, persistence and graduation rates of undergraduate students, the University of Arizona created a Recruitment and Retention Master Plan in 2005 to underscore its mission as a “student-centered” university. Part of this commitment to students and retention included using a pre-enrollment instrument to identify potentially at-risk students prior to their enrollment at the University (2005 University of Arizona Strategic Retention Plan, Action Item I.A.1). To identify at-risk students and provide early intervention, several departments in Student Affairs adopted the College Student Inventory (CSI) from the Retention Management System through Noel Levitz, which measures dropout proneness, receptivity to institutional help, educational stress and predicted academic difficulty.

One of these departments, Multicultural Affairs and Student Success (MASS), adopted the CSI and conducted an investigation to assess its effectiveness in regard to predictability for minority and first-generation students. MASS utilizes a holistic retention model to assist students in attaining their educational goals, focusing on academic support, leadership development, and increasing access and opportunities. A broad range of programs are available to help acclimate students to their first year including the New Start Summer Program, a six-week summer program designed to connect students to university life before the semester begins; TRIO/Student Support Services, a federally funded program designed to assist first generation, low-income and/or students with disabilities to successfully attain their academic goals; and Connections: Making the Most Out of the College Experience, a three-unit course which focuses on first year academic success skills and diversity issues, supporting students through free tutoring and peer mentoring. Connections is the result of a collaboration between MASS and Disability Resources, whose mission is to promote universally designed environments and to facilitate full access through reasonable accommodations, training, collaboration and innovative programming. A number of students enrolled in MASS programs also receive assistance through Disability Resources, and these students have been included in this study. Other MASS programs designed to create communities and resources within the general campus community include the First Year Academic Success Track (FAST) program, which assists first-year and transfer African American students; the Success Express Program: LRC First Year Experience, which includes a three-unit two semester course to assist Hispanic students; the LOTUS Leadership Program, which assists Asian Pacific students in gaining leadership skills; and the First

Year Scholars Program, which provides a living-learning community to assist first year, full-time, on-campus Native American students. MASS programs have had a positive impact on the retention and graduation rates for all underrepresented minority groups at the UA. Over 22% of all African American, Hispanic, Native American and Asian American first-time, full-time freshmen at the UA participated in MASS Programs in 2005-2006. Ethnic minority students participating in MASS programs in 2005-2006 had a higher retention rate than their non-participant peers: 13.27 percentage points greater for African American students, 12.73 percentage points greater for Hispanic students, 10.89 percentage points greater for Native American students and 14.65 percentage points greater for Asian Pacific students. The overall first year retention rate for MASS program participants is 84.51 percent, 5.71 points higher than the average non-participant.

MASS program development and staffing is grounded in higher education literature and departmental research, and is responsive to critical issues for the students served. Based on this foundation, this investigation of the CSI was conducted and asks the following research questions.

- What variables, including the CSI compound scales, significantly predict first-year retention?
- What variables, including the CSI compound scales, significantly predict that students will be on academic warning or probation (a GPA lower than 2.0)?
- Which variables demonstrate a significant difference between Hispanic students and students of other ethnicities in the sample?

Literature Review

A 2005 study by the Higher Education Research Institute demonstrates that degree completion rates vary substantially by academic preparation, ethnicity, gender and the type of institution attended (Engle, 2005). Asian students have the highest four-year completion rates (38.8 percent) and white students had rates of 37.6 percent. For under-represented groups, the rates are much lower: 21.3 percent for Hispanic students, 21.6 percent for Native American students and 28.9 percent for African American students. When six-year completion rates are considered, the rates increase by 20-25 percent, but ethnic group differences remain (Engle, 2005). These statistics indicate a need for specialized programs that address the specific issues of individual populations.

A consistent finding in student attrition is that students leave because the college is not a good match for their needs socially, academically, economically or religiously. Fitting in depends on a number of variables between the student and the institution, and either can change to enhance fit (Bean & Eaton, 2000). Bennett and Okinaka (1990) found that for Hispanic and Caucasian students, students who feel alienated and are unsatisfied with college tend to experience attrition, while more satisfied students who feel connected remain. However, they also found that fourth-year African-American and Asian-American students who are retained at the institution studied tend to feel more socially alienated than ethnic peers who left (Bennett & Okinaka, 1990).

Students must be helped to find a social and academic niche with adequate faculty and peer mentors (Pascarella & Terenzini, 2005). Once the student finds that niche, he or she has an anchor or reference point to provide a foundation for developing individual attitudes and behaviors (Kuh, Kinzie, Schuh, Whitt, & Associates, 2005). A major part of the impact of the college experience is determined by the extent of a student's

interactions with faculty and peers, who are major agents of college socialization. The effects of interpersonal interaction with faculty and peers are evident in intellectual outcomes and changes in values, aspirations, and psychosocial characteristics (Pascarella & Terenzini, 2005). Student involvement is also a key determinant: the greater the student's involvement in academic work or in the academic experience of college, the greater the student's level of knowledge acquisition (Astin, 1993; Pascarella & Terenzini, 2005).

Swail, Redd and Perna (2003) state that retention efforts should be comprehensive and coordinated campus wide, requiring that a broad range of college faculty and staff work cooperatively. They suggest four efforts that can improve retention: increasing need-based financial aid for low-income, at-risk students; requiring attention in classroom advising; using the campus's social and cultural activities to keep students focused; and encouraging academic advising outside the classroom.

With regard to the College Student Inventory, Allen (1999) examined the relationship between motivation to achieve and college persistence, analyzing the structural relationships between motivational factors, student background factors, academic performance and persistence. For minority students, only high school rank was statistically significant in explaining first-year cumulative grade-point average. For nonminority students, first-year grade point averages were likely to be higher if students received financial aid, entered with a higher high school rank, and had parents with advanced education. Regarding persistence, desire had a direct effect for minority students, and high school rank had an indirect effect. For nonminorities, a direct effect on persistence was observed with GPA, and indirect effects included high school rank

and parental education. A motivational effect was observed for minority students but not for nonminority students (Allen, 1999). Smith, Szelest and Downey (2004) found that high school GPA was predictive for second semester GPA, and that the CSI subscales of Academic Difficulty and Dropout Proneness were predictive of retention.

Methods

This study is a snapshot of one cohort of students at a large, predominantly White Research I institution in the southwest region of the United States, and may not necessarily be generalized to other populations. While the generalizability of findings is limited, there are interesting findings regarding first-year retention and academic probation.

The survey sample consisted of 1089 students enrolled in MASS programs who took the CSI in the between June and September of their freshman year at the university. The sample was predominantly female (61.6%) with 67.6% of students being ethnic minorities and 24.8% being first generation college students. Most of the students were in-state students (74.7%) and full-time (97.2%), and 25.3% identified as having a disability (physical, mental or learning). Only 10.8% of students did not return for the second year, and 22.1% of students had a first-year GPA below 2.0, resulting in academic action.

There are two forms of academic action at The University of Arizona: academic warning or probation. Freshmen who have completed fewer than 14 units at the university with cumulative GPA between 1.750 and 2.000, or who have completed from 14 through 26 units at the university with a cumulative GPA of between 1.840 and 2.000 are put on academic warning status. Academic warning status invokes no academic

penalties and is not indicated on the student's permanent record. This status serves as a warning to students beginning their college careers that their performance is below the level required for successful completion of an academic program. Students in this status are strongly encouraged to seek academic counseling. Students not meeting the standards of normal progress on academic warning status are put on academic probation. Students on academic probation are subject to restrictions with respect to courses and extracurricular activities that are imposed by the academic dean of the college in which the student is enrolled. Students are removed from probation upon earning the minimum cumulative GPA required (fewer than 14 units: 1.750, from 14 through 26 units: 1.840, 27 or more units: 2.000) (The University of Arizona Academic Policies). Adopting the CSI was a move to reduce the number of students on academic warning or probation and increase retention through early intervention. In this article, "academic action" will be used to describe those students with a first-year GPA of 2.0 or below, who are either on academic warning or probation.

According to Noel-Levitz (Stratil, n.d.), the CSI is a psychometric instrument designed primarily to measure the motivational traits and social background factors related to student academic outcomes, and is especially salient to incoming first-year students. A reliability and validity study conducted by Noel-Levitz in 2001 indicated that the scales have a reliability index of 0.79, which exceeds the minimal accepted level of 0.7 (Miller, 2001). The University of Arizona uses Form B, which consists of 100 questions measuring 16 scales in four compound scales: Academic Motivation (Study Habits, Intellectual Interests, Verbal Confidence, Math Confidence, Desire to Finish College and Attitude Toward Educators), Receptivity to Support Services (Academic

Assistance, Personal Counseling, Social Enhancement, Career Counseling and Financial Guidance) and General Coping Ability and Social Motivation (Family Emotional Support, Sense of Financial Security, Opinion Tolerance, Career Closure and Sociability). Each of the four compound scales is measured on a stanine, with a normal distribution scale from one to nine as follows: one equals low risk, five equals average risk and nine equals high risk. These four compound scales translate to four variables which were used for this study: Academic Difficulty, Dropout Proneness, Educational Stress, and Receptivity to Help.

Other variables used in this study were first-year retention, academic action (GPA below 2.0), gender, first generation college status (using the strictest definition of neither parent having attended college), ethnicity, residency, full-time/part-time credit load, and ability. Dummy variables were created for these variables and analyzed using Chi-Square within SPSS. Significant findings are included in the Chi-Square table below, and cross tabulation tables are included in Appendix A.

Findings

This analysis was conducted to determine what differences in variables exist regarding first year retention and academic action. Students who were retained from the first year to the second year of college were more likely to have a lower stanine for Academic Difficulty and Educational Stress, and less likely to be on academic warning or probation. Students on academic warning or probation were more likely to have a higher stanine for Academic Difficulty and Dropout Proneness. They were also more likely to be male.

Chi-Square Table

Survey Item	X ² (df, <i>n</i>)	P Value	Cramér's V & V ²
Retention/ Academic Difficulty	29.657 (8, 1089)	.000	.165, .027
Retention/ Educational Stress	26.471 (8, 1089)	.001	.156, .024
Retention/ Academic Action	120.754 (1, 1058)	.000	.338, .114
Academic Action/ Academic Difficulty	76.666 (8, 1058)	.000	.269, .072
Academic Action/ Dropout Proneness	27.848 (8, 1058)	.001	.162, .026
Academic Action/ Gender	29.060 (1, 1058)	.000	.166, .027

While an analysis of retention and Dropout Proneness appeared to be significant, the results were distorted because 22.2% of the cells have an expected count of less than 5. There were no significant differences regarding retention or academic action for first generation college status, ethnicity, residency, full-time/part-time credit load, and ability. In addition, the CSI's measure of Receptivity to Help was not significantly linked to retention or academic action.

Because the University of Arizona is striving to become a Hispanic Serving Institution, the data was further disaggregated from ethnic minority students and non-ethnic minority students to Hispanic students and students of other ethnicities (including Caucasian). In this study, Hispanic students made up 43% of the sample, primarily because they were drawn from programs that serve higher numbers of Hispanic students, such as the New Start Summer Program. Significant results are presented in the Chi-Square table below and cross tabulations are in Appendix B.

Chi-Square Table: Hispanic Students

Survey Item	X ² (df, <i>n</i>)	P Value	Cramér's V & V ²
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First Generation	61.770 (1, 1089)	.000	.238, .057
Dropout Proneness	26.481 (8, 1089)	.001	.156, .024
Receptivity to Help	33.128 (8, 1089)	.000	.174, .030
Residency	155.976 (1, 1089)	.000	.378, .143
Disability	234.257 (1, 1089)	.000	.464, .215

The purpose of this analysis was to determine what differences in the variables exist between Hispanic students and students of other ethnicities. Hispanic students were more likely to be the first in their families to attend college, and were more likely to have a higher stanine for Dropout Proneness, suggesting a greater risk for attrition. However, Hispanic students were also more likely to have a higher stanine for Receptivity to Help, indicating openness to retention interventions. Hispanic students were more likely to be in-state students, probably reflective of the ethnic and socio-economic characteristics of the region where the university is located, as well as the programs from which the sample was drawn. Finally, Hispanic students were less likely to have a disability. This is probably due to fee-based university programs for students with disabilities that tend to attract a more affluent, Caucasian clientele.

There were no statistical differences between Hispanic students and students of other ethnicities for gender, Educational Stress, Academic Difficulty, full time student status, first-year retention or academic action.

A comparison of retention rates for MASS participants against students who did not participate in MASS programs indicates that MASS participants have higher retention rates, as noted previously. An increase in retention rates for MASS participants may be

due both to the use of an early intervention instrument and the impact of social and academic support offered by retention personnel. The results of this study indicate that the CSI is a helpful instrument for informing the practice of working with students individually and to guide the direction of intervention programs. MASS has programs specifically geared toward populations traditionally at risk for attrition as well as more general retention programs that serve multiple audiences. Through these programs, students not only learn about how to improve study skills, but they also gain cultural capital in navigating the university system.

Conclusion

Findings indicate statistical significance associated with predicting retention and academic action for several items on the CSI: Academic Difficulty, Educational Stress, and Dropout Proneness. For Hispanic students, Dropout Proneness and Receptivity to Help were significant. These findings suggest that the CSI is valuable for providing information and strategies to better work with students, guiding retention efforts. Additional research is needed, and researchers plan to further populate the data and extend the analysis.

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Appendix A: Cross Tabulation Tables for Retention and Academic Probation

0 = No, 1 = Yes

		Retention		Total
		0	1	
Acad. Difficulty	1	1	21	22
	2	3	57	60
	3	6	124	130
	4	21	199	220
	5	27	250	277
	6	34	154	188
	7	15	99	114
	8	11	39	50
	9	0	28	28
Total		118	971	1089

		Retention		Total
		0	1	
Educ. Stress	1	3	29	32
	2	8	74	82
	3	5	131	136
	4	24	209	233
	5	27	229	256
	6	16	162	178
	7	21	89	110
	8	11	31	42
	9	3	17	20
Total		118	971	1089

		Retention		Total
		0	1	
Acad. Action	0	26	791	817
	1	61	180	241
Total		87	971	1058

		Acad. Action		Total
		0	1	
Acad. Difficulty	1	21	1	22
	2	58	2	60
	3	115	14	129
	4	181	32	213
	5	212	58	270
	6	116	63	179
	7	69	42	111
	8	27	19	46
	9	18	10	28
Total		817	241	1058

		Acad. Action		Total
		0	1	
Dropout Prone	1	40	6	46
	2	89	18	107
	3	134	28	162
	4	235	57	292
	5	161	50	211
	6	98	53	151
	7	46	22	68
	8	10	6	16
	9	4	1	5
Total		817	241	1058

		Acad. Action		Total
		0	1	
Gender	M	277	128	405
	F	540	113	653
Total		817	241	1058

Appendix B: Cross Tabulation Tables for Hispanic Students

0 = No, 1 = Yes

		Hispanic		Total
		0	1	
First Gen.	0	521	298	819
	1	98	172	270
Total		619	470	1089

		Hispanic		Total
		0	1	
Dropout Prone	1	35	11	46
	2	68	39	107
	3	110	55	165
	4	165	133	298
	5	114	102	216
	6	86	76	162
	7	34	40	74
	8	5	11	16
	9	2	3	5
Total		619	470	1089

		Hispanic		Total
		0	1	
Receptivity	1	4	2	6
	2	13	4	17
	3	24	15	39
	4	67	34	101
	5	107	48	155
	6	115	79	194
	7	110	90	200
	8	96	90	186
	9	83	108	191
Total		619	470	1089

		Hispanic		Total
		0	1	
In-state Student	0	245	30	275
	1	374	440	814
Total		619	470	1089

		Hispanic		Total
		0	1	
Disability	0	354	460	814
	1	265	10	275
Total		619	470	1089