

Factors Affecting Persistence Rates among Arizona State University Freshmen and Implications for Policymaking

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Abstract

This paper analyzes the factors that affect freshmen persistence rates at Arizona State University (ASU). Persistence can be defined as the number of students who continue into the second year of their undergraduate degree. Data for this study was collected from the 2001 First Year Student Survey (FYSS). Several indicators were used to measure the ways a student can be integrated into the system in order to increase the persistence rates. The indicators included: the number of stimulating and challenging courses taken by a student, overall undergraduate experience, interaction of students with peers/faculty members inside and outside of the classroom, likelihood to graduate from ASU, availability of financial aid/scholarships, and housing arrangements. The results suggest that students who are academically and socially better integrated into the university system tend to have greater long-term educational commitments than students who are less integrated into the system. The study also indicates that non-white and non-residential students were less likely to continue at the university into their sophomore year. Students who spent greater time working for pay off-campus were less likely to integrate into the system, thus leading to decreased persistence rates among them. This study has several policy implications for university administrators and policy makers who are trying to serve the needs of first-year students. The persistence literature can serve as a guide to help an educational institution design services and programs that can lead to improved persistence among freshmen. Since persistence tends to lead to graduation, these rates also serve as early indicators of future graduation.

Introduction

Student retention in college has long been of interest to university administrators and faculty. An institution's persistence rate may be used to assist in the evaluation of a broad range of institutional policies, practices, and services in areas such as admission, curriculum, and student services programs. Persistence rates can inform policy makers on how well the institution is serving the needs of students and also provide insight into how students are adjusting to college life. Since the literature indicates that persistence leads to graduation, these rates also serve as early indicators of future graduation.

Spady (1971) and Astin (1975) began exploring the issue of college dropouts about three decades ago. Subsequent researchers continued to examine the reasons why college students drop out. One of the more important and widely used measures of outcomes in higher education is student retention or persistence. The persistence rate is expressed as the percentage of freshmen who continue into their second year. Persistence rate serves as both a convenient and sometimes meaningful measure of the effectiveness of a college or university (Leppel, 2001). The freshman year was the focus of the present study because it is most critical in shaping persistence decisions (Astin, 1993; Pascarella and Terenzini, 1991; Tinto, 1987).

Several theories have been advanced to describe and explain undergraduate persistence. The two most widely used theories are Tinto's (1993, 1997) Student Integration Model and Bean and Metzner's (1985) Model of Student Attrition. Tinto (1993, 1997) in his work on college persistence emphasized the importance of social and academic integration. Bean and Metzner (1985) discussed how psychological, environmental, and academic variables interact to determine whether students remain in college. The variables used by Bean and Metzner include factors such as finances, hours of employment, outside encouragement, goal commitment, family responsibilities, satisfaction, and stress. Cabrera, Casteneda, Nora, and Hengstler (1992) combined Tinto's (1993) integration model with Bean's attrition model and concluded that in addition to shaping student commitments to staying in school, environmental factors influence socialization and academic experiences of the students.

Tinto's student integration model

Tinto was perhaps the most influential scholar in the field of persistence research among college freshmen. According to Tinto, the more a student's experiences serve to integrate the student socially and intellectually into the life of the institution, the more likely the student is to persist until completing a degree. The factors that affect student performance following admission were referred by Tinto as "integration" variables. These variables are

affected by school policies and practices. Tinto (1987, p. 123) suggested that “the more central one’s membership is to the mainstream of institutional life the more likely, other things being equal, is one to persist.”

The purpose of this study is to analyze the various factors that may affect persistence rates among freshmen at Arizona State University based on a survey conducted in the year 2001. Since persistence is a growing concern at Arizona State University, these findings will help in the development of policy recommendations to the university’s administrators and the Arizona Board of Regents. The findings indicate that a student who was socially and academically integrated into the system was more likely to persist than a student who did not feel a part of the university system.

Method

The data for the study was collected from the 2001 First Year Student Survey. This survey is administered by the Office of University Evaluation (OUE), a research entity on campus. In accordance with requests by the ASU President and the Arizona Board of Regents, OUE conducts surveys every year to help assess the skills, perceptions, and progress of its students. The Office collected the information to help policy makers further understand the factors that inhibit and encourage students’ timely academic progress toward graduation from ASU. The unit of analysis for this study is the individual student. The survey is administered annually between November 5 and November 16 to all students enrolled in first-year composition courses to capture the opinions and experiences of freshman students near the end of their first semester. The instructors are encouraged to administer the survey to their students.

The data from the survey contain about 100 variables including students’ reasons for attending ASU, future expectations, experiences at ASU and several demographic variables. The survey does not ask for any information about the students’ age, sex, or race. The Office of University Evaluation queries the university data warehouse to retrieve additional demographic data. The total number of respondents was 4,010. The data are comprised of both nominal and ordinal variables.

Description of the Variables

Based on the literature, the variables were divided into three main categories: 1) academic integration factors, 2) social integration factors, and 3) institutional/goal commitment factors. Each category was further divided into sub-categories. The academic integration factors included student responses on issues such as: 1) contribution to class activities and presentations, 2) impressions about the quality of courses taken, and 3) overall undergraduate experience. The social integration factors included responses to questions that were aimed at measuring the social life and experiences of the students through self-reflection, and interaction with faculty, peers, and other people. The third category of institutional goal commitment included responses from the freshmen on questions that were aimed at measuring the long-term goals of the students, their career expectations and plans, and their likelihood to continue and graduate from ASU. For ease of comparison across different factors, variables on similar scales were combined. In addition to the above factors, financial aid/scholarships and external factors like housing arrangements also were used as variables to predict persistence. Several hypotheses were formulated based on the literature review. These will be discussed in the following section.

Hypotheses

H1: The more stimulating and challenging courses a student takes the more likely he/she is to persist.

Numerous studies have indicated that students who are highly integrated into the academic community of the campus are more likely to flourish on all measures of success compared with students who are less fully integrated. Tinto (1975) found that students who value their educational experience and who are satisfied with the opportunities to achieve success are more likely to be academically integrated into the university, and hence, more likely to persist. In another study, Donovan (1984) found that academic integration positively affects persistence. I hypothesize that persistence rates are directly affected by the number of academically stimulating courses taken by the student.

The survey asked students for their impressions about the quality of courses they were taking at ASU. The questions were designed to measure the number of courses the students thought were intellectually challenging and offered stimulating classroom experiences. The overall student satisfaction with courses was also measured. These experiences help students integrate academically into the system and hence affect their success at school.

H2: An increased sense of connectivity and belonging to the university can lead to higher persistence rates.

According to Tinto (1987), persistence is a function of the match between an individual's motivation and academic ability, and the institution's academic and social characteristics. Tinto argues that college integration, or the extent to which students involve themselves in the academic and social domains of college life, is the most important mediating variable between students' backgrounds and persistence. I expect that respondents who increasingly feel they are able to contribute something to the school would have higher persistence rates than students who do not consider themselves a significant part of ASU.

H3: Persistence increases when a student places value on his/her long-term graduating goals.

Student commitment to personal values and goals, including academic or occupational goals, was found to be an important determinant in college retention (Muskat, 1979). It has also been found that students who have clearly established goals, and whose goals are more concrete in nature, are more likely to persist than students who lack such clearly defined goals and aspirations (Tinto, 1975). I anticipate that students who plan on getting a bachelor's degree from ASU and who value their long-term goals are more likely to persist than those who do not tend to value their long-term graduation goals.

H4: Student interactions with other people, as well as time spent participating in extra-curricular activities, is correlated with persistence.

Tinto's model (1987, 1993) explains the student integration process as primarily a function of academic and social experiences in college. He evaluated social integration by the development and frequency of positive interactions with peers and faculty and involvement in extracurricular activity. Tinto found that integration along these two dimensions produced stronger student commitment to their specific institutions and increased their persistence. Therefore, I suggest that increased social experiences of a student at ASU could lead to a rise in the rates of persistence.

Student interactions, such as discussing ideas with classmates and faculty members as well as working on projects with other students, can help enhance the social integration process. Time spent participating in extra-curricular activities like organizations, campus publications, student government, social fraternity or sorority, intercollegiate and intramural sports help boost the process of integration. The data shows that this in turn affects the persistence rates.

H5: Freshmen who spend greater amounts of time working for pay off-campus are less likely to persist than students who spend lesser time working away from campus.

Bean (1980) provided evidence that student interaction with faculty and lack of student involvement on campus due to time spent working off campus plays an important role in the persistence process. Working off campus can alienate a student from different activities and interactions on campus. Thus, I would expect to see an indirect relationship between persistence rates and working away from campus.

H6: Financial support, such as scholarships and grants, increases persistence rates.

The effect of tuition pricing and financial aid on persistence has received increasing attention with the development of theories that assign an important role to finances in determining students' college participation decisions (Bean & Metzner, 1985; Cabrera, Nora, & Castaneda, 1992). Although lack of finances often is a real problem that discourages persistence and is the main reason students most often give for dropping out, there is conflicting evidence about its relative importance to other factors. Leslie and Brinkman (1988) found that financial aid has a positive influence on persistence. In general, national studies on undergraduate persistence have found that financial aid has a positive influence on persistence (Terkla, 1985). I hypothesize that students who are financially supported through scholarships and grants by the university have a higher rate of persistence than students who do not have this kind of support.

H7: The percentage of persistence varies according to the residency status of the students.

Spady (1971) noted that students transferred back to public universities in their home communities because the person-in-environment fit was better. I hypothesize that students who are not residents of Arizona and who are away from their home state have a greater likelihood of dropping out. This factor can have a tremendous effect on the decreasing persistence rates at ASU. Researchers have found that greater distance from college is related to higher withdrawal rates. Responses from the survey indicated that students who did not persist often stated that their reason for transferring to another college was their desire to be closer to home.

H8: Satisfaction with housing arrangements has an impact on student persistence rates.

Housing issues that make it difficult for students to find convenient and affordable housing or force them into living arrangements that interfere with their learning process are less likely to persist (Alfert, 1966). Housing can be an important issue as 61 % of the freshmen reside in campus housing at ASU. Therefore, I hypothesize that dissatisfaction with the type and quality of housing arrangements could lead to decreased rates of freshman persistence.

H9: Increased parental support leads to enhanced persistence among students.

Students from families that support them in their effort to complete a baccalaureate degree are much more likely to persist than students from families that do not provide such support. Nora and Cabrera (1996) found that parental encouragement exerted a positive effect on the integration of students to college, on their academic and intellectual development, and on their academic performance and commitments. Familial emotional support is related to desire to complete one's education. I would expect that students who receive greater parental support would be more likely to pursue their degree than students whose parents are not that supportive of their educational needs.

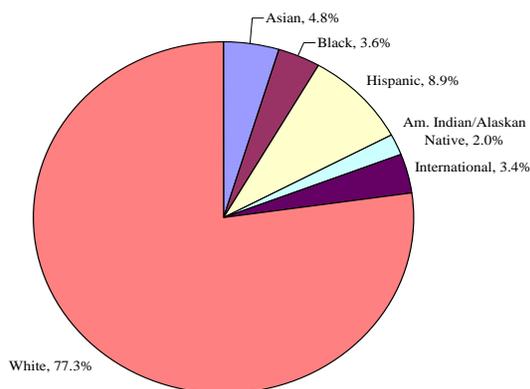
H10: Non-white students are less likely to integrate socially due to a feeling of being alienated and isolated from the majority.

The social integration of underrepresented students is brought about through their personal interaction with other members of the campus community (Wright, 1987). Successful retention intervention programs are characterized by instilling in students the sense of being integral to the campus life. Individual feelings of social isolation, alienation, rejection, and prejudice are believed to be significant factors affecting undergraduate persistence in higher education (Smith, 1989). I hypothesize that feelings of isolation and alienation will result from the inability of students to become integrated into the campus community. This set of circumstances can result in decreased persistence among non-white students.

Results

Descriptive Statistics

The percentage of students who persisted compared with students who did not persist was measured. The total *N* for the study was 4,010 freshmen out of a total of 6,586 enrolled in 2001-02. The 2001-2002 freshmen survey data indicated that 21.5% of the students did not persist while 78.5% persisted into their second year at school. The sample has slightly more female than male students, 58% versus 48%. The data had 22.7% of non-white students, which include: Asian/Pacific islander, Black, Hispanic, Native American/Alaskan, and international non-resident aliens compared to 77.3% white students. A graphic representation of the total number of freshmen by different races can be seen in Figure 1.



*Figure 1. Total distribution of freshmen by race.
Data based on First Year Student Survey (FYSS) 2001-02.*

Figure 2 represents the total number of students who did not persist by race.

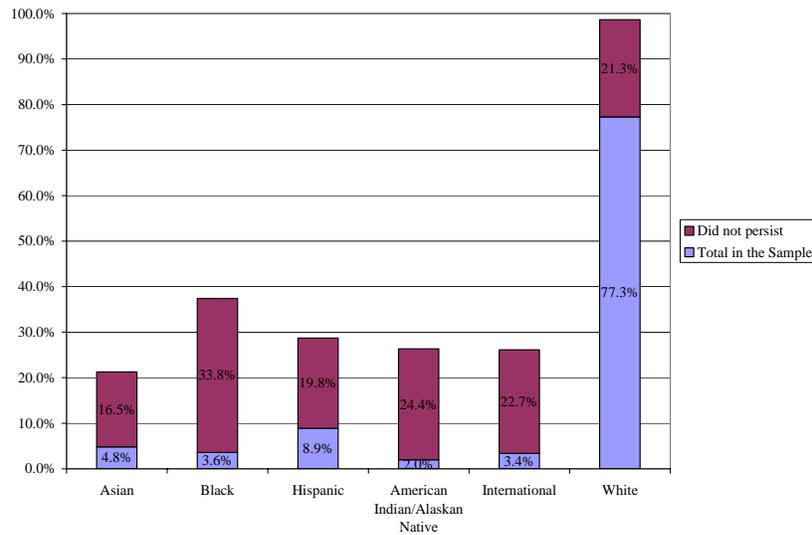


Figure 2. Total number of freshmen in the sample versus students who did not persist by race. Data based on First Year Student Survey (FYSS) 2001-02.

The average age of most of the freshmen was 18.37 years with a median age of 18 years. A summary of the descriptive statistics is presented in Tables 1 and 2. Table 1 gives the overall sample size and percentage of various demographic variables and Table 2 breaks these down by the persistence rates. Overall about 44% of the students were non-Arizona residents, out of which 53.2% did not persist. Thirty-seven percent of non-Arizona residents who did not persist at ASU beyond their first year thought that the education offered by a public university in their home state was better than ASU, raising considerable issues around persistence.

Table 1: Descriptive Statistics by Gender, Race, Residency Status and Age

	N	%
Gender		
Male	1912	47.7
Female	2098	54.3
Race		
Asian/Pacific Islander	188	4.8
Black	139	3.6
Hispanic	348	8.9
American Indian/Alaskan Native	78	2.0
International	132	3.4
White	3009	77.3
Residency		
Non-resident	1760	43.9
Resident	2250	56.1
Age		
18 or younger	3324	82.9
19 or older	685	17.1

Table 2: Descriptive Statistics of Students Broken Down by Persistence Rates

	Persisters		Non-Persisters	
	N	%	N	%
Gender				
Male	1480	47.0	432	50.1
Female	1668	53.0	430	49.9
Race				
Asian/Pacific Islander	157	5.1	31	3.6
Black	92	3.0	47.0	5.5
Hispanic	279	9.1	69	8.0
American Indian/Alaskan Native	59	1.9	19	2.2
International	102	3.3	30	3.5
White	2367	77.5	642	74.5
Residency				
Non-resident	1301	41.3	459	53.2
Resident	1847	58.7	403	44.8
Age				
18 or younger	686	79.6	2638	83.8
19 or older	176	20.4	509	16.2

The literature suggests that students who show long-term commitments are more likely to persist (Allen & Nora, 1995; Astin, 1975). Seventy-five percent of students who highly valued their long-term goals to graduate from ASU persisted as compared to 47.8% of non-persisters. About 92% of the students who planned on getting a bachelor's degree from ASU persisted. About 70% of the students who persisted planned on getting more than a bachelor's degree. Almost three quarters of the students who persisted planned on graduating in four years or less. Among the students who continued being enrolled at ASU after their first year, 42.5% felt academically very prepared to succeed at ASU versus 33% of the non-persisters. Sixty-five percent of the students who persisted were extremely or very confident in their ability to earn good grades when compared to 55% who did not persist. When asked their likelihood to returning to ASU in the fall of 2002, students who were 100% sure were nearly four times more likely to persist than the students who were sure that they would not return. These data suggest that students who are academically sound and who place greater value on their education are more likely to persist than the students who are less motivated to succeed. Overall, 26% of the students who were very satisfied with their undergraduate experience persisted as compared to 14% of the non-persisters.

Apart from academic achievements, students who persisted placed greater emphasis on their surroundings and social environment. Eighty-nine percent of the freshmen who persisted were very satisfied or satisfied with their social life experience at ASU when compared with 80% of the non-persisters. Students who spent greater amounts of time participating in extra-curricular activities like organizations, campus clubs, and athletic events tended to increase their degree of persistence. To improve the social integration process at the university, ASU conducts a program called Campus Match, designed for first-year students designed to help them more easily adjust to college during their first semester. Six hundred sixty students stated that they were currently participating in Campus Match; and 2,748 stated that they were not participating in the program. Another 602 individuals did not provide a response to the question.

Satisfaction with housing arrangements was also an important factor while considering persistence rates. Nearly 30% of the students who did not persist were very dissatisfied or dissatisfied with the on-campus housing arrangements such as residence halls and fraternity or sorority houses. Among the students who did not persist and those who were non-Arizona residents, 31.5% were very dissatisfied or dissatisfied with the housing arrangements.

Independent Sample t-tests

Stimulating and challenging courses

Independent sample *t* tests were performed to evaluate the difference between the means of two independent groups (persisters and non-persisters). Tests determined whether the mean value of the test variable, which in this case is the number of academically stimulating courses taken by a student, differs significantly across the two groups of students. The test shows that there is a significant mean difference between students who

persisted and those who did not persist on the number of academically stimulating and challenging courses taken ($p < .001$). A summary of the independent sample t test for various factors that affect persistence is presented in Table 3.

Table 3: Summary of Independent Sample t-tests on Various Factors by Persistence Rates

	Non-Persisters			<i>t</i> Statistic	Persisters		
	Mean	SD	N		Mean	SD	N
Stimulating and Challenging Courses	2.57	.958	852	-6.418*	2.81	.924	3116
Sense of belonging and connectivity	2.11	.596	834	3.469*	1.83	.534	3087
Long term goals	1.95	1.106	857	20.335*	1.34	.667	3139
Likelihood to return to ASU next fall	6.07	3.935	856	-32.530*	9.09	1.776	3129
Interactions with other people	3.0	.459	801	5.069*	2.91	.479	2923
Time spend participating in extra-curricular activities	0.80	1.321	843	-4.911*	1.08	1.521	3097
Time spent working off-campus	1.81	2.466	844	4.450*	1.42	2.163	3100
Financial Support	3.25	.955	771	4.848*	3.05	1.008	2902
Residency Status	.4675	.499	862	-6.278*	.5867	.492	3148
Satisfaction with living arrangements	2.17	.868	851	5.875*	1.99	.781	3104
Parental support	1.50	.804	857	4.266*	1.33	.689	3139

* $p < .001$

Students who had taken a greater number of stimulating and challenging courses were more likely to persist and academically integrate than students who had taken a lower number of stimulating courses. The t value of -6.42 indicates that the mean of academically stimulating courses taken by students who did not persist is significantly less than the mean for students who had taken greater number of challenging and stimulating courses and who persisted. Figure 3 suggests that increased satisfaction with the courses taken leads to increased persistence rates.

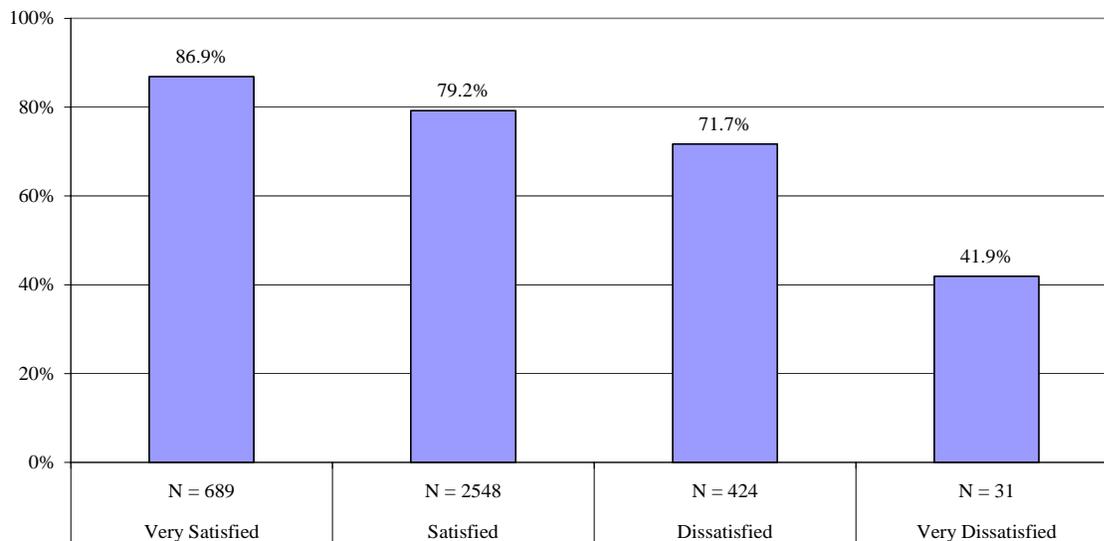


Figure 3. Persistence rates by overall satisfaction of courses taken. Data based on First Year Student Survey (FYSS) 2001-02. Persistence information obtained from ASU Data Warehouse.

Sense of belonging and connectivity

In considering issues of social integration, the independent sample *t* test presented in Table 3 indicated that there was a significant amount of difference ($p < .001$) between the means of the two groups of students in the way they felt about being ASU students. Students who felt a deep connection and a sense of being able to contribute significantly were more socially integrated into the system, leading to increased persistence rates.

Long-term graduation goals of students

Analyzing data on the value a student placed on his/her graduation revealed that there was a significant amount of mean difference ($p < .001$) between students who persisted and who did not persist. Students who agreed that it was very valuable to their long-term goals to graduate from ASU were far more likely to persist than students who were less committed to their graduation goals.

Interactions and participation in social and extra-curricular activities

There was a significant amount of mean difference ($p < .001$) between non-persisters and persisters on factors related to working and discussing ideas with their peers and faculty outside of classes. Apart from the interaction factors, students who tutored and taught other students showed to have higher persistence rates than students who rarely participated in these activities. A mean amount of significant difference ($p < .001$) was also found in satisfaction rates of social, recreational, and cultural experiences between students who continued to persist and who failed to continue. These findings indicate that students who are better integrated socially into the system have a greater chance to persist than students who isolate themselves.

Working away from campus

Students who spent between six to 10 hours in a week working away from the campus were significantly less likely to persist than students who spent fewer hours (one to five hours) working off campus jobs ($p < .001$). This supports the theory Bean and Metzner (1985) posited that apart from the social and academic integration factors students who spent greater number of hours working away from the campus lose that sense of connectivity and might eventually drop out. A graphic representation of persistence rates by number of hours spent working off-

campus is presented in Figure 4. The figure suggests that a student who spends less time working for pay off-campus is more likely to persist.

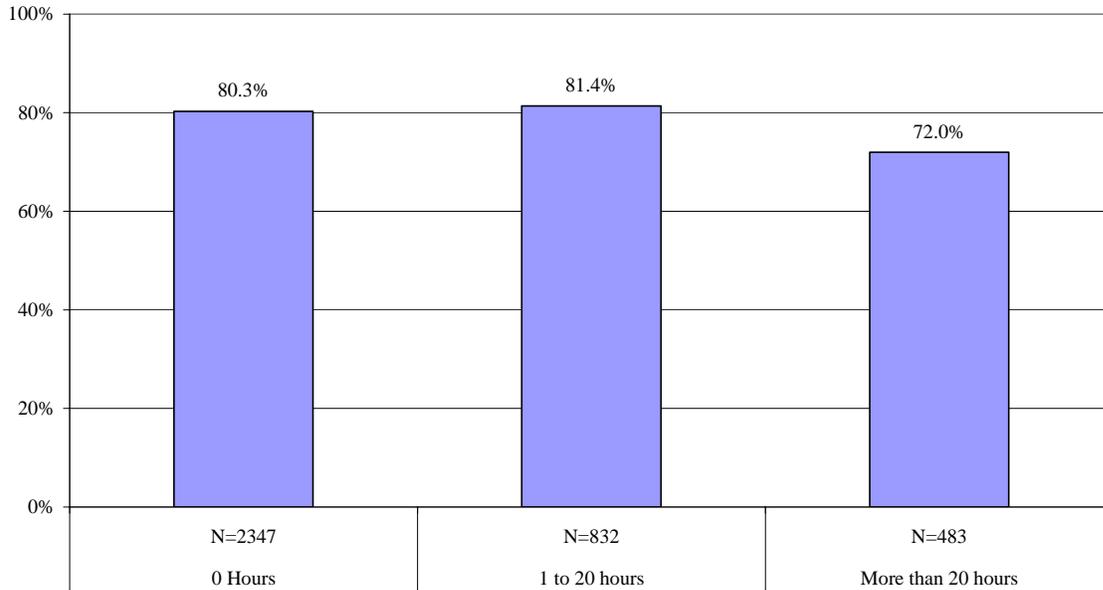


Figure 4. Persistence rates for freshmen who work 0 hours, 1 to 20 hours, and more than 20 hours per week at off-campus jobs. Data based on First Year Student Survey (FYSS) 2001-02. Persistence information obtained from ASU Data Warehouse.

Financial Support

Persisters and non-persisters also receive significantly different ($p < .001$) amounts of financial support. Students who had close to 50% of their tuition paid for in the form of scholarship or grants were more likely to continue their education than students who had less than half of their tuition costs covered. Figure 5 suggests that persistence rates increase if a student had some form of financial aid or grant when compared to students who did not have this support from the university.

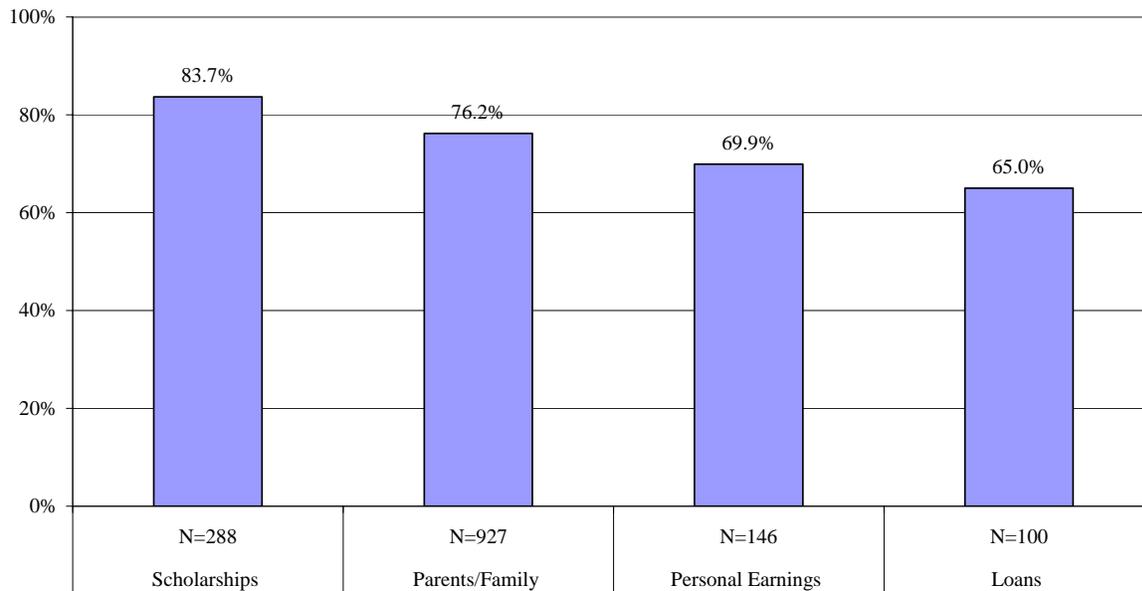


Figure 5. Persistence rates for students who pay for all of their college education through scholarships, parental/family contributions, loans, and personal earnings. Data based on First Year Student Survey (FYSS) 2001-02. Persistence information obtained from ASU Data Warehouse.

Residency Status

The residency status of a student was significantly different ($p < .001$) across the two groups. The students who were residents of Arizona tended to have higher degrees of persistence rates than students who belonged to places other than Arizona. The top reason students gave for transferring back to their home state was their desire to be closer to home. Fifteen percent of the students considering transfer to another university said that they were too far from home.

Housing Arrangements

The independent sample t test indicated a mean significant difference ($p < .001$) in satisfaction with housing arrangements. Students who were dissatisfied by their living arrangements in resident halls seemed less likely to continue at ASU. Thirty-three percent of the students who did not persist and were living in residential halls were very dissatisfied or dissatisfied with the housing services. After coding the results for the general comments provided by the students we found that overall, 186 comments were made about campus housing, including housing policies, dining halls, and maintenance issues. Each comment was coded as positive, negative, or neutral. Overall, 159 comments about housing were negative, 14 were positive and 13 neutral.

Parental support

Comparing means across the two groups of persistent and non-persistent students, parental support was found significant ($p < .001$). The parents of students who persisted beyond their first year were more supportive of their children's education and enrollment at ASU. The results are presented in Table 3.

Social integration of non-white students

Social integration processes were significantly different for white students and non-white students ($p < .05$). For this study non-white students included Asian, Black, Hispanic, Native American/Alaskan, and international non-resident aliens. The results indicate that non-white students tend to spend less time participating in

extra-curricular activities and were less likely to work with classmates outside of class on projects and assignments. Minority students said that they did not meet many students like them. This could lead to lower rates of social integration among non-white students. The results for the analysis are presented in Table 4.

Table 4: Independent Sample t-test for Comparison of Social Integration Factors by Race

	Non-white			<i>t</i> Statistic	White		
	Mean	SD	N		Mean	SD	N
Satisfaction with Social life/experience	1.9	.687	878	2.510*	1.8	.697	2,981
Met students who are a lot like me	2.04	.817	871	3.328*	1.92	.787	2,982
Participation in co-curricular activities	0.90	1.303	863	2.663*	1.05	1.525	2,966

* $p < .05$

Discussion

The findings seem to confirm the past research on persistence studies. Those students who are better integrated into the academic and social processes of the school tend to be greatly committed to their personal and institutional goals.

Recommendations for minority students

The analysis suggested that minority students are less likely to integrate socially when compared to White students. Policies designed to promote programs and activities for minorities should be encouraged. Evaluating individual needs by ways of conducting personal interviews and focus groups will help understand the requirements of the minority students. Additional encouragement from instructors and counselors may help raise the minority persistence rates. Administrators should be watchful for individual instructors and advisors may have biases that reinforce social stereotypes and discourage minority students. These instructors or advisors should be recommended for training to ensure that they are made aware of their biases and encouraged to be supportive of all students.

Services for non-resident students

Programs that increase student interactions and that help smooth the transition process should be provided. This especially pertains to the non-resident students. A large part of the freshmen population was non-resident (44%), out of which 53% did not persist. The high non-persistence rates among out-of-state students should be a matter of grave concern to policy makers and university administrators. Programs should be encouraged to provide opportunities for non-resident students to come to ASU three to six months prior to the start of the session to experience the academic and social atmosphere of the school. Currently ASU conducts a five-week Summer Bridge program to ease transition from high school for the freshmen who face the greatest hurdles to succeed in college. Students earn seven to eight credit hours by attending ASU classes while they live on campus. However, most of the students who attended these bridge programs are Arizona residents.

Since non-resident students provide a good source of revenue to the school, increased attention to providing better programs and services to retain them throughout their undergraduate years should be advocated. Close to 32% of the non-residents who did not persist were unhappy with their housing arrangements. This could be one of the reasons students go back to their home state. Providing better and cleaner residential halls can help increase persistence rates among non-resident students. Twenty-three percent of non-resident students who did not persist were unhappy with the advising services available on campus.

Ways of integrating students

Experiences that promote social and intellectual integration into the college community are likely to strengthen commitment and therefore reinforce persistence. The absence of integrative interactions will lead students to disassociate themselves from the social and academic communities that comprise college life. Failure to become integrated and to establish competent membership in either the social or academic life of the campus can lead to non-persistence among students. Matching the student's needs, interests, and skills with other incoming freshmen can help ease the process of integration. Tinto's model validates the need for schools to assume a proactive role in a student's integration process. Accordingly, many colleges include a "freshman experience" orientation that Koutsoubakis (1999) showed can increase persistence. These orientations are used to: (a) assist new freshmen in making the transition from high school to college, (b) orient students to the services and culture of the college and its campus, and (c) integrate students into an intellectual community of students and faculty.

Freshmen in the survey were asked whether they were part of the new program started on campus called "Campus Match." This program was intended at increasing social integration rates among freshmen students. Results of this analysis show that 41% of ASU freshmen are unaware of the Campus Match program. If program organizers seek larger enrollments, more information about Campus Match should be provided to incoming students, including those not attending orientation. Current participants indicated that they got involved in the program to meet new people, for academic benefits, such as greater access to study groups, ease in registration and scheduling, and to help them adjust to campus life. These potential benefits to students could be highlighted in informational materials about this program.

Currently, the ASU office of Freshman Year Experience is striving to enhance the experiences for the university's freshmen. The Freshman Year Experience provides a strong foundation that will foster students' academic and personal success through academic support services, faculty interaction, and involvement with the university community. Though there are numerous programs available on campus for freshmen, most of the students are unaware of these services. More time and energy should be expended in developing and advertising these services. Advisors should be instructed to inform students about these services. The first week of orientation does provide students with information on these various programs and services. Since not all the students can attend the welcome week activities, a booth should be installed outside any prominent place on campus to provide year-round information to freshmen about these services.

Findings also indicated that students who worked for pay away from campus were less likely to persist. Increased job opportunities for freshmen should be provided on-campus with wages on par with work off campus. More work-study programs should be initiated. Data indicated that only 5% of the students pay their tuition costs through work-study programs. Since financial aid had a positive influence on persistence rates, increasing the number of scholarships and grants to freshmen may help improve persistence rates.

Parental support is another important factor that proved significant in determining persistence rates among students. ASU already invests in providing information to parents and students before start of a new academic year through various campus tours. Information can be mailed to parents about the availability of various programs and services available to their sons and daughters who are planning to get a degree from ASU. These programs and pamphlets can also provide parents with tips on how they can serve as a source of emotional support for their children.

Conclusion

Caveats and limitations

In addition to having information about these variables, the above analysis could have been more insightful to policy makers if the researcher had additional background information. The data were lacking in the area of secondary school performance, academic ability, family's economic and social status, and the ACT and SAT scores of entering students. These background characteristics not only provide information on how well a student will perform but also how he or she will integrate into the institution's academic and social system. The study indicated that the non-residents were an important part of the total persistence equation. Having information on the survey about their home state and reasons for choosing ASU could have helped understand the needs of the non-resident students better.

Overall the findings are consistent with the previous research done on persistence rates of freshmen students. The results suggest that academic and social integration are key factors for a student to have long-term commitment not only to the institution but also to the cause of education. To ensure that students are made to feel a part of the system, the university has to provide better facilities, programs, and services to the freshmen. Of major

concern should be the quality of residential halls. In addition, providing information to the non-white students on programs that could make them feel more connected may help increase retention rates.

Some caution must be observed when using persistence rates to evaluate institutional effectiveness. First, although widely utilized, persistence rates are merely surrogate measures of the desired outcomes of undergraduate education. Because the outcomes of undergraduate education are difficult to measure, we often rely too heavily on persistence rates to evaluate institutional effectiveness. Second, withdrawal is not necessarily negative. From the perspective of the student, withdrawal is often viewed as a positive development. Nevertheless, in the absence of reliable measures of the desired outcomes of undergraduate education, persistence rates will continue to serve as an expedient way to evaluate institutional effectiveness. Therefore, it is vitally important to fully understand not only the definition but also the limitations of persistence.

The above study was limited to a single institution, single-year sample. Replication of the investigation on samples from other institutions on a similar level can trace persistence behaviors past the freshman year would be useful in furthering the predictive validity of the study. Every year, ASU conducts a survey for the graduating seniors; comparing data for the freshmen who persisted with those who actually reached their senior year would add credibility to the study. This would also help administrators design policies that would reflect a student's long-term graduation goals.

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