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How Institutional Research Can Create and Synthesize Retention and Attrition Information

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Abstract

This study reports how an institutional research office at a large public research university has taken the lead to call attention to retention problems, describe attrition/retention predictors, and influence policy. Building on existing retention theories and previous institutional research studies, the institutional research office began coordinating several first-year study-based initiatives whose primary purpose was to understand and promote first-year retention. Data on student characteristics, survey data on student involvement, NSSE data, nonreturning survey data, and data from various student engagement programs are analyzed and synthesized to better understand attrition and retention.

Introduction

Research on student retention has grown in the last 30 years as a result of increasing interest in enrollment management, the move to hold colleges and universities accountable for student success, and as a result of an increasing interest in institutional rating systems. Some researchers have even started to catalog the many approaches to studying student retention (e.g., Bean, 2005; Braxton & Hirschy, 2005; Braxton, McKinney, & Reynolds, 2006). Student retention can be viewed from two different perspectives that are of use to the institutional researcher. The first perspective has to do with broad-based benefits to the university and even to society. These benefits include "enrollment management" or maintaining stable enrollments to support the university's budget (Braxton, Vesper, & Hossler, 1995; Hossler, 1991; Levitz, Noel, & Richter, 1999). The enrollment management consulting firm Noel Levitz has a retention savings worksheet to quickly estimate gains in revenues as a direct result of increases in student retention. Stable enrollments based on higher retention

rates are more predictable, rely less on pressuring the admissions office to increase recruiting targets (while often lowering quality), and are more manageable in terms of course demand and level and type of student services required. A policy report by American College Testing (ACT) argued that retention helps students reach their goals and ultimately helps America's workforce compete globally (Lotkowski, Robbins, & Noeth, 2004). Institutional researchers can influence enrollment management practices (Braxton, Vesper, & Hossler, 1995) and, ultimately, student retention by applying advanced statistical tools such as logistic regression (Adelman, 1999), survival analysis (Murtaugh, Burns, & Schuster, 1999), and data mining (Luan & Zhao, 2006).

Higher retention benefits the image of the university when retention rates are used as indicators of institutional success. Higher retention rates typically lead to higher graduation rates. Retention and graduation rates are widely collected by Integrated Postsecondary Education Data System (IPEDS), state governments, *U.S. News & World Report* and others, and findings are subsequently publicized to internal and external audiences. Attrition has a negative public connotation, even when it is understood that students do not "drop out" but rather transfer to other colleges or universities (Sanoff, 2004). However, Porter (2003) both argues and provides evidence that retention is not simply a "stay in school" or "drop out" outcome. Students stay, leave, "stop out" for indefinite periods, or transfer out. Different groups of students have different determinants of retention. For example, attrition rates for females have been attributed to social factors more than for males (Landry, 2002). A meta-analysis done by ACT to investigate the relationship of academic and nonacademic factors to retention revealed that a combination of academic factors (ACT and high school GPA) and nonacademic factors (socioeconomic status, institutional commitment, academic goals, social support, academic self-confidence, and social involvement) are influential (Lotkowski, Robbins, & Noeth, 2004). A thorough understanding of retention requires data from multiple sources. Fortunately, institutional researchers have access to multiple sources of data, which they can synthesize to help their institutions better understand their own retention patterns.

The second perspective of retention has to do with fostering student success. When colleges and universities admit students as new freshmen, we invite them to become part of our campus communities. One of our goals is to enable individual students to be as successful as they can be. Retention is a necessary element of that success but not the sole consideration. In fact, to have them simply return to our campuses after their first year (retention) should be our minimal expectation for student success (T. Kahrig, personal communication, January 14, 2005). One way we can encourage success is to involve and engage students in their own education (Kuh, Shuh, Whitt, & Associates, 1991). Student involvement—academic, social, and goal commitment—is related to quality of undergraduate education (Astin, 1993). The National Institute of Education report *Involvement in Learning* suggested that students who are involved in activities related to their formal education grow as individuals, are more satisfied with their education, tend to persist in their education to graduation, and tend to continue their learning after college (Study Group on the Conditions of Excellence in American Higher Education, 1984). *Involving Colleges* discusses how colleges and universities should foster student involvement on their campuses (Kuh, Shuh, Whitt, & Associates, 1991) and suggests that one way to do this is to study and encourage student involvement. The experiences during the first (freshman) year affect students' development and performance throughout college. Indeed, attrition occurs most frequently during the first year, and retention programs most often are directed toward

freshmen. Student involvement and engagement studies provide information that is important to student retention and student development.

Furthermore, efforts to involve students in campus life are believed to have higher retention. According to Tinto (1999),

> Students are more likely to stay in schools that involve them as valued members of the institution. The frequency and quality of contact with faculty, staff, and other students have repeatedly been shown to be independent predictors of student persistence. . . Simply put, involvement matters, and at no point does it matter more than during the first year of college when student attachments are so tenuous and the pull of the institution so weak. (pp. 5–6)

Tinto and others have drawn a parallel between attrition rates and suicide rates. Tracing back to Durkheim's theories of suicide, communities with higher suicide rates were typically those with less social integration between individuals and society, and these communities were deemed to have less healthy environments. Campuses with high attrition rates are thought to offer students fewer opportunities for involvement and integration and are judged to offer less healthy environments for students. Elkins, Braxton, and James (2000) further studied this idea in terms of students "separating" from one community and entering or integrating with a campus community. Braxton, Milem, and Sullivan (2000) found that whether or not students are provided opportunities for active learning influences retention. Berger and Braxton (1998) have suggested that institutional practices and opportunities are strongly related to students' social integration and should be studied in terms of their effects on retention.

Significant evidence suggests that learning communities are an effective way to integrate and engage students to help them succeed. They contribute positively to educational outcomes (Lenning & Ebbers, 1999; Pascarella & Terenzini, 2005). Reported benefits for participants include increased student achievement and satisfaction, enhanced academic skills, and increased retention and graduation rates. Zhao and Kuh (2004) discussed the positive relationships between learning communities and student engagement, as measured by the National Survey of Student Engagement (NSSE). They facilitate students' development of relationships with other students and with faculty and staff (Hoffman, Richmond, Morrow, & Salomone, 2002).

For many years the institutional research office at Ohio University (OU or the University), a large public research university in the mid-west, has done an annual retention study (Office of Institutional Research, 2006b). OU's study takes existing data from the university's student information system and reports variables related to attrition/retention. Student characteristics such as sex, race/ethnicity, admissions status, residency, living arrangement, academic college and major, aptitude, high school and college academic performance, and course enrollment are among the variables studied. This study and these characteristics are similar to those advocated by Gardner, Barefoot, and Swing (2001). The report, entitled "Factors Associated with First-Year Student Attrition and Retention," has been widely distributed and is available online: http://www.ohiou.edu/instres/retention/RetenAthens.pdf. The information in the report has been used to identify areas in which retention is strong as well as areas with high attrition. The high attrition areas have then been addressed via different retention initiatives. For example, more females in certain academic colleges left with high grade-point averages (above a 3.0) than with low grade-point averages. As a result, the Office of Institutional Research established an intervention program to increase retention of these students from the first year to the second year (Williford, 1997; Williford & Moden, 1995).

In the intervention, Student Involvement Study responses are used to identify potential "leavers" (individual freshmen who are likely to leave the University after their freshman year but are academically eligible to continue). Individual freshmen predicted to be potential leavers are identified from their responses on a locally-developed Student Involvement Questionnaire (SIQ). A combination of a single question about returning the next year and a multiple regression formula are used to create a criterion for inclusion on the potential leaver list. The list of potential leavers was refined to eliminate students who were ineligible to return because of low academic performance (less than a 2.0 GPA). Various intervention methods were implemented over the years of the study, usually through contacts by Residence Life staff, faculty, and/or academic advisors. In the intervention contacts, these staff simply initiate a personal conversation with the students and attempt to identify any attrition-related problems they can help resolve. As a result of these contacts, students may be referred to the counseling center, financial aid, or academic advisors. One of the intervention goals is to get the students to preregister for fall courses. In addition, female freshmen with above a 2.0 GPA in four of the University's academic colleges were asked to complete an abbreviated SIQ after the fall quarter. During the winter quarter, Residence Life staff and advisors from the colleges contacted these potential leavers. These colleges were selected because their students had relatively higher female attrition rates.

The University's retention rate had increased from about 67% in the 1970s to a high of 86% in the 1990s. This change was commonly attributed to the university's shift from open admissions to selective admissions during this time and as a result of the involvement intervention program. However, in recent years, OU experienced a gradual decrease in first-year retention, currently at 82%. During this period, the Office of Institutional Research regularly communicated the university's retention rates by producing its retention report, which documents the year-to-year decline in retention. Each year, the report content, format, and distribution was changed in an attempt to actively communicate to the campus community about retention issues. Following the examples of other institutional researchers (Angelo & Rogers, 2003; Hansen, Borden, & Howard, 2003), data on courses which enrolled students who left the university were identified and reported. Information on the financial impact of attrition and the potential revenue benefits of increasing retention, even modestly, were communicated; however, little attention was paid to these findings, and retention continued to decline.

In 2003–04, a number of initiatives designed to increase student involvement and engagement were either launched or revitalized. Some of these are learning initiatives, residential learning communities, student engagement committees, supplemental instruction workshops, and academic probation intervention. The primary goal of these programs is to foster student success, especially for first-year students. "Student success" primarily means enhancing learning. Retention was not considered to be a primary goal of these programs, but it was believed that retention might increase as a result of them. Previous research suggests that these types of efforts benefit students in retention, academic success, and persistence by influencing their levels of academic and social integration (Kuh, Shuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1991; Tinto, 1993). Pascarella, Terenzini, and Wolfe (1986) found that participation in first-year programs, such as freshman seminars and orientation programs, had indirect positive effects on student persistence by positively influencing students' social integration and institutional commitment (i.e., encouraged a student to become a "stayer" rather than a leaver).

The Office of Institutional Research was asked by each program's administrator

to perform assessments or evaluations of many of these programs. Although retention was not considered a primary goal or outcome, retention was often requested as a dependent variable in studies of program effectiveness. Conversations about these programs presented opportunities to advocate retention being a primary outcome goal. "Retention" is defined as a measure of student success in student goal achievement by tracking a cohort of new first-year students (freshmen) to their second year of enrollment at this university.

The research questions for these assessments are, simply, are there retention differences between students participating in these programs and students not participating in these programs? Comparing different groups of participants, are there differences? What best practices can be identified and supported? The basic design of this research is to compare groups of students—participants to nonparticipants. Where possible, exploratory analyses among participant groups were done. Basic comparisons among sections, dates, courses, etc., were made to identify examples of best practices to practitioners. This approach, taken by an office of institutional research, is appropriate for a broad-based internal audience of faculty and staff (Bauer, 2004; Dooris & Nugent, 2001). It has also been used previously in assessing the effectiveness of supplemental instruction (Romoser, Rich, Williford, & Kousaleous, 1997).

Many factors can influence program outcomes—student characteristics, student aptitude, student prior academic performance, student experiences, differences in program delivery, student motivation, and attitudes toward learning. It is common to report institutional retention rates broken down by their level of admissions selectivity (Levitz, Noel, & Richter, 1999). Many studies of programs designed to involve students through learning communities compare retention rates of participants vs. nonparticipants, but they typically do not control for these influences (e.g., Johnson, 2000). Comparing program outcomes necessitates controlling for as many of these factors as possible, and this can be accomplished statistically by blocking and/or matching students on relevant and available variables. As a result, program participants can be virtually matched with comparable nonparticipants. Once variability from indirect and intervening factors is removed statistically, the final analysis will be a comparison of outcome variables of participants and nonparticipants. Previous studies have compared stayers and leavers, controlling for aptitude and prior academic success (Kahrig, 2005; Lombard; 2005; Williford, Chapman, & Kahrig, 2001).

The OU Office of Institutional Research has a 20-year history of studying student involvement and more recently, student engagement. In the last three years, an annual student involvement study has been conducted along with the annual administration of the NSSE. This allows comparisons between participants and nonparticipants and comparisons among participant groups. These comparisons not only describe the types of students who participate in these engagement programs and those who stay or leave, they also describe the different outcomes for different types of programs.

In addition to these existing surveys, in 2004–05, the Office of Institutional Research designed a new survey of nonreturning students. Many relationships between student characteristics variables and attrition/retention were identified, but the reasons students leave the university were not known. Previous institutional research studies at OU did not address the question of *why* students leave the university before their second year. Beginning in the fall quarter 2004, the Office of Institutional Research conducted a survey to assess why the fall 2003 freshmen leavers did not return for fall 2004.

To provide another perspective on attrition from students who are still enrolled, students' responses to the First-Year SIQ and the NSSE are presented. Comparisons in student involvement and engagement between stayers and leavers are

made to help better understand retention and attrition (Office of Institutional Research, 2005). This type of study by an office of institutional research was highlighted by Gardner and Barefoot (2005) as a best practice to identify programs that contribute to institutional excellence. Indeed, "offices of IR can carry out analyses to help guide enrollment management strategies as well as conduct assessment and evaluation studies of the effectiveness of various strategies" (Hossler & Anderson, 2005, p. 69).

The research problem for this study is to identify the primary influences on attrition and retention at OU. What do leavers tell us, after they have left the university, about why they left? What differences in involvement and engagement are there between stayers and leavers, using data collected while both groups are enrolled? Finally, are there retention differences between groups of students participating in programs such as residential learning communities and supplemental instruction? Are there best practices of retention support that can be identified and duplicated? The answers to these questions are helping shape practices and policy to improve first-year retention.

Method

Multiple methods are employed in this study. Annual first-year student retention studies done at OU identify characteristics of groups of first-year students who return for their second year and students who do not return. These studies, however, do not address the question of why students leave before their second year. One disadvantage of doing a survey of leavers is that the students who leave may be disenfranchised with the institution; therefore, low responses rates lead to low reliability of the responses. Despite the disadvantages of nonreturning student surveys, they can provide important information—after the fact and when combined with other information obtained from students while they are still enrolled—so that we can better understand the complexities of student attrition and retention.

A new questionnaire was developed to identify factors that influenced students' decisions to leave the university. The questionnaire is divided into three parts. First, respondents were asked to select their current status, i.e., whether they left the university temporarily or permanently. If they permanently transferred to another institution, they were also asked to name that institution. Second, respondents were asked to identify the major and minor reasons that influenced the decision to leave the university. Third, in open-ended questions, respondents were asked about other factors related to their leaving the university.

The survey was conducted in the fall 2004. As of the fall quarter 2004, 649 or 18% of the 3,672 freshmen entering in the fall 2003 did not return to the university. Eighty-six (13%) of the 649 nonreturning students were not surveyed because these students were suspended from the university for either disciplinary or academic reasons. Twenty were dismissed for disciplinary reasons, and 66 were dismissed for academic reasons (combined, 2.3% of the total class). Of the 563 leavers surveyed, 32% responded to a questionnaire sent to their last known address. Although slightly more females than males responded, the responses were otherwise generally representative of the population.

Two different assessments of student involvement and engagement are conducted during the first year. The Involvement Study first was conducted at the university in 1979 as part of the University of Michigan Project CHOICE (Center for Helping Organizations Improve Choice in Education) study. The questionnaire later was revised into the current SIQ, and the Involvement Study was adapted into an ongoing university-wide and department-based student assessment program.

The Offices of Institutional Research, Residence Life, and the Dean of Students conduct the Involvement Study annually. At the end of the winter quarter 2004, all enrolled freshmen who

matriculated in the fall quarter 2003 were asked to participate. A personalized cover letter from the Dean of Students was given to each student, asking them to participate in the study. Residence hall staff distributed the questionnaires to their residents; about 100 commuter students were surveyed by mail. The response rate for 2003–04 was 82%. Respondents were generally representative of the sample in terms of sex, race/ethnicity, academic college, and academic performance. The questionnaire collects information about the students' academic involvement (contacts with faculty and staff and participation in academic activities), social involvement (social-peer involvement and participation in activities), student satisfaction, goal commitment, personal goals, and adjustment to college. Many of these items ask how frequently students participated in various activities. Stayers and leavers were identified by whether or not they returned in the fall 2004.

The NSSE asks students to report, on continuous scales, how frequently they do activities that are associated with commonly believed-to-be-good educational practices (Kuh, 2003). Most questions ask students how frequently they do these activities, and item means are produced. A higher item mean indicates more engagement. In addition, students are asked to rate their perceptions of the educational environment at their college or university, such as quality of relationships, support services provided by the institution, and contributions the institution makes to their educational experience. Both paper and electronic versions of administration are available. At OU, the NSSE is administered electronically during the winter and spring quarters annually. In the winter and spring quarters of 2004, a sample of 1,792 new freshmen was invited to participate in the NSSE. The president of the university sent a personalized e-mail to these students asking them to participate. The response rate was 28%, and respondents were generally representative of the sample in terms of sex, race/ethnicity, academic college, and academic performance. Stayers and leavers were identified by whether or not they returned in fall 2004.

In addition to survey data, two first-year experience programs, residential learning communities (RLC) and supplemental instruction (SI), were studied to determine if there were differences between retention rates of students participating in these programs and students not participating in these programs. Participant groups were compared to determine if there were differences in retention rates. As a result, we hoped to identify best practices and areas for further improvements. The basic design of this research is to compare groups of students—participants to nonparticipants and within participant groups (e.g., different sections, courses, programs).

Many factors can influence program outcomes, especially student aptitude and student prior academic performance. Comparing retention rates necessitates controlling for these factors, which was accomplished statistically by blocking and/or matching students on relevant and available variables (ACT composite score and high school percentile rank). As a result, program participants are virtually matched with comparable nonparticipants, and comparisons of retention rates of participants and nonparticipants are made on comparable groups.

With an enrollment of nearly 20,000 students, OU's main campus is residential for the first two years. Eighty-five percent of the university's students are undergraduates. A total of 3,672 freshmen matriculated as degree-seeking students in the fall quarter 2003. Fifty-seven percent of the freshmen are female, 91% are Ohio residents, 6% are multicultural including international, and 23% are undecided in their major.

Results

Nonreturning Student Survey

When asked what they were doing after leaving the university, 82% said they were attending college elsewhere, while another 18% said they

had only left the university temporarily (and planned to return in the future). Three peer universities were mentioned most frequently as the other institution, and these institutions were also identified by data received from the National Student Clearinghouse "Enrollment Search" as universities to which our students subsequently enroll.

Students were asked to select from a list of 48 possible reasons, the major and minor reasons for leaving the university. The major and minor reasons for leaving the university were combined to create a "total reason" percentage for each potential reason item. Figure 1 shows the 16 total reasons leavers most frequently cited. Of the top six (major and minor combined) reasons for leaving the university, four were personal adjustment-related reasons. The third highest reason was the cost of attending, while the fifth reason was disappointment with the rural/small town location of the university. Other frequently selected reasons were insufficient financial aid or student employment; drug/alcohol abuse and excessive

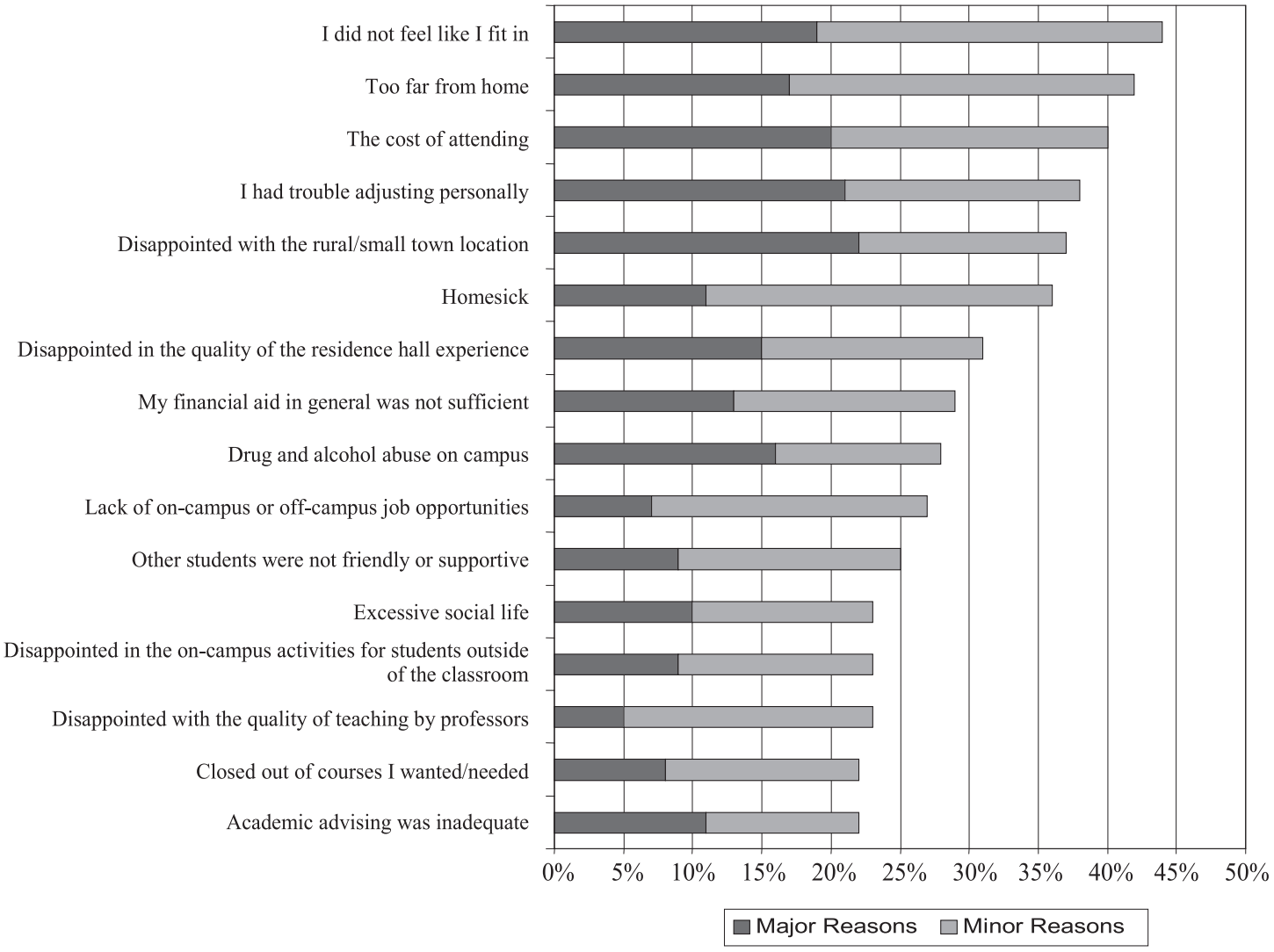

Figure 1. Frequency of major and minor reasons for leaving the University.

social life; disappointment with residence hall, social life; and quality of instruction, academic program, and advising. Students' responses to open-ended questions confirmed these factors as the most frequent reasons for leaving the university.

The list of potential reasons by just the major reason percentage produced a slightly different ordering, though the top five reasons for leaving remained in the top five. For example, the top major reason

Table 1

Mean Comparisons of 2004 National Survey of Student Engagement Between Stayers and Leavers

Stayers and Leavers Engagement Compared	Stayers	Leavers	Difference
Asked questions in class or contributed to class discussions	2.59	2.38	.21
Made a class presentation	2.00	1.89	.11
Prepared two or more drafts of a paper or assignment before turning it in	2.56	2.53	.03
Worked on a paper or project that required integrating ideas or information from various sources	2.83	2.60	.23
Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	2.57	2.30	.27
Came to class without completing readings or assignments	2.05	2.11	(.06)
Worked with other students on projects DURING CLASS	2.20	2.09	.11
Worked with classmates OUTSIDE OF CLASS to prepare class assignments	2.22	2.15	.07
Put together ideas or concepts from different courses when completing assignments or during class discussions	2.36	2.15	.21
Tutored or taught other students (paid or voluntary)	1.53	1.49	.04
Participated in a community-based project (e.g., service learning) as part of a regular course	1.31	1.32	(.01)
Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	2.71	2.49	.22
Used e-mail to communicate with an instructor	3.08	2.94	.14
Discussed grades or assignments with an instructor	2.43	2.26	.17
Talked about career plans with a faculty member or advisor	2.10	1.94	.16
Discussed ideas from your readings or classes with faculty members outside of class	1.68	1.66	.02
Received prompt feedback from faculty on your academic performance (written or oral)	2.55	2.40	.15
Worked harder than you thought you could to meet an instructor's standards or expectations	2.47	2.28	.19
Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	1.39	1.26	.13
Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	2.65	2.34	.31*
Had serious conversations with students of a different race or ethnicity than your own	2.30	2.11	.19
Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	2.78	2.53	.25

Note. Responses for items 1–22 were based on a four-point Likert-type scale with 1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Very often*.

*Statistically significant ($p < .05$)

for leaving was disappointment with the rural/small town location of the university, while that was only the fifth highest total reason for leaving.

Engagement of Stayers and Leavers

Table 1 provides mean comparisons of stayers and leavers (including only students eligible to return) on the first 22 items from the 2004 NSSE questionnaire related to individual student's engagement activities. The question asks, "In your experience at your institution during the current school year, about how often have you done each of the following?" Comparing the item means between stayers and leavers, on nearly all of the items, the returning students indicated greater engagement and preparation. The greatest differences were found in the following items: discussing ideas outside of class, including diverse perspectives in class discussions, having conversations with students different from you, putting together ideas or concepts from different courses, working on a project using different sources, using an electronic medium to discuss or complete an assignment, and asking questions in class.

Mean comparisons of stayers and leavers on the institutional emphasis items from the 2004 NSSE questionnaire are presented in Table 2. The question asks, "To what extent does your institution emphasize each of the following?" Stayers' item means were significantly higher on all items in this section except the item, "spending significant amounts of time studying and on academic work." The greatest differences were found in the following items: encouraging contact among students from different backgrounds, attending campus events and activities, providing support to thrive

Table 2

Mean Comparisons of 2004 National Survey of Student Engagement Institutional Emphasis Items Between Stayers and Leavers

Stayers and Leavers Engagement Compared on Perception of Institutional Emphasis on:	Stayers	Leavers	Difference
Spending significant amounts of time studying and on academic work	3.01	2.93	.08
Providing the support you need to help you succeed academically	2.95	2.48	.47*
Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	2.46	1.83	.63*
Helping you cope with your nonacademic responsibilities (work, family, etc.)	1.94	1.44	.50*
Providing the support you need to thrive socially	2.37	1.83	.54*
Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	2.75	2.12	.63*
Using computers in academic work	3.39	3.10	.29*

Note. Responses for Institutional Emphasis items were based on a four-point Likert-type scale with 1 = *Very little,* 2 = *Some,* 3 = *Quite a bit*, 4 = *Very much.*

*Statistically significant ($p < .05$)

Table 3

Mean Comparisons of 2004 National Survey of Student Engagement Institutional Contribution Items Between Stayers and Leavers

Stayers and Leavers Engagement Com.pared on Institutional Contribution to:	Stayers	Leavers	Difference
Acquiring a broad general education	3.13	2.63	.50*
Acquiring job or work-related knowledge and skills	2.57	2.17	.40*
Writing clearly and effectively	2.85	2.37	.48*
Speaking clearly and effectively	2.62	2.20	.42*
Thinking critically and analytically	3.16	2.71	.45*
Analyzing quantitative problems	2.59	2.24	.35*
Using computing and information technology	2.87	2.24	.63*
Working effectively with others	2.74	2.24	.50*
Voting in local, state, or national elections	2.08	1.61	.47*
Learning effectively on your own	2.96	2.63	.33*
Understanding yourself	2.76	2.41	.35*
Understanding people of other racial and ethnic backgrounds	2.37	1.73	.64*
Solving complex real-world problems	2.46	1.83	.63*
Developing a personal code of values and ethics	2.52	1.93	.59*
Contributing to the welfare of your community	2.10	1.80	.30*
Developing a deepened sense of spirituality	1.86	1.44	.42*

Note. Responses for Institutional Contribution items were based on a four-point Likert-type scale with 1 = *Very little,* 2 = *Some,* 3 = *Quite a bit,* 4 = *Very much.*

*Statistically significant ($p < .05$)

socially, and helping you [the student] cope with nonacademic responsibilities.

Table 3 shows item mean comparisons from stayers and leavers on the institutional contribution items. The question asks, "To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?" On all 16 items, stayers had higher means than the leavers, indicating greater engagement. The greatest differences were found in the following items: understanding people of other racial and ethnic backgrounds, solving complex real-world problems, using computing and information technology, developing a personal code of values and ethics, acquiring a broad general education, and working effectively with others.

Comparing the three NSSE sections, the greatest differences between stayers and leavers were found in the institutional emphasis and institutional contribution items. The individual engagement activity items were similar between stayers and leavers. Across all three sections, however, the items that were different had to do with diverse perspectives or conversations and contact with diverse groups of students. On diversity items, leavers reported much less individual engagement and institutional emphasis than stayers.

Table 4

Mean Comparisons of Freshmen Involvement Study Between Stayers and Leavers

Stayers and Leavers Involvement Compared	Stayers	Leavers	Difference
ACADEMIC INVOLVEMENT			
Conversations with Academic Advisor	1.96	1.85	.11
Conversations with faculty	1.59	1.28	.31
Conversations with Res. Life staff	1.34	1.53	(.19)
Conversations with Student Org. advisor	.31	.27	.04
Conversations with other staff member	.36	.33	.03
Contacts with career advisor or program	1.15	.97	.18
Weekly hours spent studying	11.16	11.02	.14
Number of books read each month	1.74	1.81	(.07)
Number of times to the library this year	14.42	11.32	3.10*
Conversations about research	.70	.50	.20
Social contacts with faculty	.47	.77	(.30)
Daily academic computer usage	2.51	2.42	.09
Email communication with faculty	7.75	8.04	(.29)
SOCIAL INVOLVEMENT			
Parties attended each month	6.59	5.94	.65
Drank alcohol at parties	5.54	5.05	.49
Go out with friends	10.08	9.11	.97*
Cultural events attended this year	4.20	3.73	.47
Conversations with international students	2.76	2.44	.32
Weekends spent on campus each month	3.49	2.84	.65*
Number of extracurriculars	1.41	1.19	.22*
Number of extracurricular hours	8.95	6.80	2.15*
Number of five best friends on campus	1.83	1.50	.33*
Daily personal computer usage	4.00	4.00	.00
GOAL COMMITMENT AND SATISFACTION**			
Right choice in attending	1.68	2.88	(1.20)*
Important to graduate from this university	1.60	2.70	(1.10)*
Important to graduate from any university	1.11	1.24	(.13)*
Will return next fall	1.35	2.94	(1.59)*
Quality of instruction	1.86	2.09	(.23)*

**Mixed Likert-type scales, 1 is *positive*, 5 is *negative*.

*Statistically significant ($p < .05$)

Involvement of Stayers and Leavers

Table 4 shows a summary of response means from academic involvement items, social involvement items, and goal commitment items. In most items, stayers reported greater frequency than leavers did. Students were asked to indicate how many conversations about educational plans, problems, or progress they had with their academic advisor, faculty, and Residence Life staff during the academic year. The large number of reported contacts by Residence Life staff for leavers may be due to the early involvement intervention, which targeted some of these students as high risk for attrition. Residence Life staff would have contacted these students as part of the potential leaver intervention program. The effectiveness of this program is assessed annually by the Office of Institutional Research (2006a). Except for reported social contacts with faculty, number of books read outside class, and email contacts with faculty, stayers reported greater frequency of involvement than leavers did. While the academic involvement differences between stayers and leavers were somewhat mixed, the stayers reported more involvement in all of the social involvement items. In the goal commitment and satisfaction items, scales were used for the different items, and a lower score indicates a more positive response (e.g., 1 = *very satisfactory*; 5 = *very*

Table 5

Frequency Comparisons of Freshmen Involvement Study Between Stayers and Leavers

SOCIAL INVOLVEMENT	% Important Stayers	% Important Leavers	Difference in % Important	% Satisfied Stayers	% Satisfied Leavers	Difference in % Satisfied
Peer relationships	93%	88%	5%*	82%	68%	14%*
Close friends	93%	84%	9%*	82%	67%	15%*
Student organizations	59%	39%	20%*	46%	27%	19%*
Campus activities	55%	42%	13%*	44%	29%	15%*
Cultural events	35%	26%	9%*	34%	27%	7%*
International students	31%	23%	8%*	28%	26%	2%
Different races	55%	46%	9%*	43%	37%	6%
Religious activities	36%	27%	9%*	34%	30%	4%*
Having a job	40%	46%	-6%*	31%	30%	1%
ACADEMIC INVOLVEMENT						
Major course	91%	84%	7%*	71%	58%	13%*
Nonmajor course	83%	82%	1%*	67%	58%	9%*
Faculty availability	82%	77%	5%*	66%	57%	9%*
Faculty social contacts	55%	48%	7%*	43%	33%	10%*
Academic advising	84%	74%	10%*	60%	44%	16%*
CAMPUS ATMOSPHERE						
Personal security	87%	85%	2%*	81%	72%	9%*
Physical environment	88%	82%	6%*	82%	70%	12%*
Social atmosphere	89%	84%	5%*	80%	62%	18%*
Academic atmosphere	88%	81%	7%*	77%	63%	14%*
Fit into community	85%	76%	9%*	75%	53%	22%*
PERSONAL GOALS						
Personal goals	94%	90%	4%*	83%	67%	16%*
Academic goals	93%	90%	3%*	80%	67%	13%*
Career goals	92%	89%	3%*	74%	60%	14%*
Adjust academically	92%	88%	4%*	78%	63%	15%*
Adjust socially	90%	85%	5%*	78%	60%	18%*
Adjust emotionally	88%	84%	4%*	76%	57%	19%*
Managing stress	88%	84%	4%*	66%	56%	10%*
Develop self-esteem	84%	79%	5%*	70%	58%	12%*
Develop values/beliefs	83%	78%	5%*	73%	61%	12%*
Develop life philosophy	73%	69%	4%*	62%	50%	12%*
Develop spiritually	63%	57%	6%*	56%	42%	14%*
Academic motivation	88%	83%	5%*	74%	62%	12%*
Academic achievement	89%	85%	4%*	75%	63%	12%*
Interested in studies	90%	87%	3%*	72%	60%	12%*

Note. Responses to Important and Satisfaction items were based on a five-point Likert scale with 1 = *Very important,* 2 = *Somewhat important,* 3 = *Neutral/Don't know,* 4 = *Somewhat unimportant,* 5 = *Not at all important* and 1 = *Very satisfied,* 2 = *Somewhat satisfied,* 3 = *Neutral/Don't know,* 4 = *Somewhat dissatisfied,* 5 = *Not at all satisfied.*

*Statistically significant ($p < .05$)

There were 2,455 Stayers and 343 Leavers

unsatisfactory). Students were asked how sure they were that they made the right choice in attending OU, how important it was for them to graduate from OU, and how important it was for them to graduate from any university. Students were also asked to rate the quality of instruction at OU. Stayers' response means were lower (more positive) than leavers' response means on all of these items.

The section of the SIQ used in this study has two parts and 37 questions. First, students were asked to rate how important each item was to them. The scale ranged from 1 *(very important)* to 5 *(not at all important)*. Second, students were asked to rate how satisfied they were with each item. The scale ranged from 1 *(very satisfied)* to 5 *(not at all satisfied)*. The responses were collapsed according to *very important* (1) and *somewhat important* (2) and *very satisfied* (1) and *somewhat satisfied* (2) to give a total importance and satisfaction percentage for each item. In addition, the percent differences in importance and satisfaction between stayers and leavers are presented (see Table 5). Except for having a job, all of the items were more important and satisfactory to the stayers than the leavers. When item means were calculated, statistically significant differences were found for nearly all items. The greatest differences were in social involvement satisfaction items.

Residential Learning Communities and Supplemental Instruction

Table 6 shows freshman retention rates for Residential Learning Community (RLC) participants and nonparticipants. The aggregated percentages are shown along with breakdowns by ACT composite score groups,

Table 6

Freshman Retention Rates of Residential Learning Community Participants and Nonparticipants.

	RLC Participants		Non-Participants	
	N	Percent	*N*	Percent
Retention:				
Fall to Fall Total	216	91%	2,794	82%
Fall to Fall by ACT Group:				
0–14	0	--	2	67%
15–18	6	100%	91	75%
19–23	101	91%	1,141	80%
24 and above	86	93%	1,295	84%
Fall to Fall by HS Percentile Rank Group:				
Bottom 20%	0	--	9	69%
21–40	8	100%	96	83%
41–60	54	93%	408	76%
61–80	67	87%	879	81%
Top 20%	54	96%	1,039	85%
Fall to Fall by GPA Group:				
Below 2.0	11	65%	106	39%
2.0 and Above	205	93%	2,688	85%
Retention within participant groups:				
Fall to Fall by Section:				
A	17	94%	0	--
B	6	100%	0	--
C	17	89%	0	--
D	16	80%	0	--
E	19	95%	0	--
F	16	80%	0	--
G	19	95%	0	--
H	18	100%	0	--
I	14	82%	0	--
J	18	100%	0	--
K	16	84%	0	--
L	10	91%	0	--
M	17	89%	0	--
N	13	100%	0	--

high school percentile rank groups, first-quarter grade-point average (GPA) groups, and then by RLC section (participants only). Both in the aggregate and when controlling for aptitude, previous high school performance, and first-quarter college performance, RLC participants had higher retention rates than nonparticipants. The greatest differences were in the lower performing groups. The participant/nonparticipant retention rate for students with an ACT composite of 15–18 was a difference of 25%, compared to about 10% for the upper two groups. Students in the bottom two quintiles of high school performance had a participant/nonparticipant retention rate difference of 17%, which was much higher than the top two groups. Students with a first-quarter GPA below 2.0 had a participant/non-participant retention rate difference of 26%, compared to a difference of 8% for students with a GPA of above 2.0. There was variability among the participant groups; the retention rates ranged from 82% to 100%.

Table 7 shows freshman retention rates for Supplemental Instruction (SI) participants and nonparticipants. The aggregated percentages are shown along with breakdowns by ACT composite score groups, high school percentile rank groups, first-quarter GPA groups, and then by SI course. SI participants had higher retention rates than nonparticipants in both the aggregate and when controlling for aptitude, previous high school performance, and first-quarter college performance. The greatest differences were in the lower performing groups. The participant/nonparticipant retention rate for students with an ACT composite of 15–18 was 13% different, compared to about 6% for the upper two groups. Students in the bottom two quintiles of high school performance had a participant/

Table 7

Freshman Retention Rates of Supplemental Instruction Participants and Nonparticipants.

	SI Participants		Non-Participants	
	N	Percent	*N*	Percent
Retention:				
Fall to Fall Total	725	87%	2,933	81%
Fall to Fall by ACT Group:				
0–14	0	--	2	67%
15–18	20	87%	77	74%
19–23	277	85%	965	80%
24 and above	289	91%	1,092	84%
Fall to Fall by HS Percentile Rank Group:				
Bottom 20%	1	100%	8	67%
21–40	21	88%	83	83%
41–60	75	82%	387	77%
61–80	223	87%	723	79%
Top 20%	250	89%	843	84%
Fall to Fall by GPA Group:				
Below 2.0	14	54%	103	39%
2.0 and Above	619	89%	2,274	85%
Retention within participant groups:				
Fall to Fall by Course:				
BIOS170	53	85%	113	77%
CHEM121	68	79%	89	72%
CHEM151	83	93%	199	84%
ECON103	114	83%	506	84%
GEOL101	24	92%	15	60%
MATH113	32	84%	195	77%
MATH115	12	100%	182	79%
MATH163A	34	94%	141	85%
MATH263A	6	100%	59	87%
MATH263B	6	86%	31	89%
PSY 101	198	89%	303	78%

nonparticipant retention rate difference of 5%, which was about the same as the top two groups. Students with a first-quarter GPA below 2.0 had a participant/nonparticipant retention rate difference of 15%, compared to a difference of 4% for students with a GPA of above 2.0. There was variability among the courses; the retention rate differences ranged from 32% to 7%. Among participants only, the retention rates ranged from 79% to 100%.

Discussion

OU's campus-wide retention has decreased about 1% per year over the last three years from 85% in 2000 to 82% in 2003. The attrition rate from the second year to the third year is about half that of the first year, and the attrition rate from the third year to the fourth year is about half that of the second year. According to Tinto (1999), during the first year, student goal commitment and the institution's influence are at their weakest points. If students can be retained beyond the first year, their probability for success increases in each subsequent year. Indeed, the results from the two comparative surveys showed that nonreturning students are less involved socially on campus and less engaged by the institution. Results from the Student Involvement Study showed that students who left after their first year were less involved academically and socially—mostly socially. They also indicated significantly less goal commitment and satisfaction. NSSE results showed that students who left after their first year were less engaged—as individuals and in their perceptions of the university's attempts to engage and support them. In addition, the survey of nonreturning students revealed that variables related to socialization (not fitting in, homesickness, trouble adjusting) were the most commonly reported reasons for leaving. Other reported problems, such as cost/financial aid, and negative environmental experiences (residence hall experience, drug/alcohol abuse on campus, other negative experiences with students and faculty or advisors), and low goal commitment combined with low institutional support resulted in higher rates of attrition.

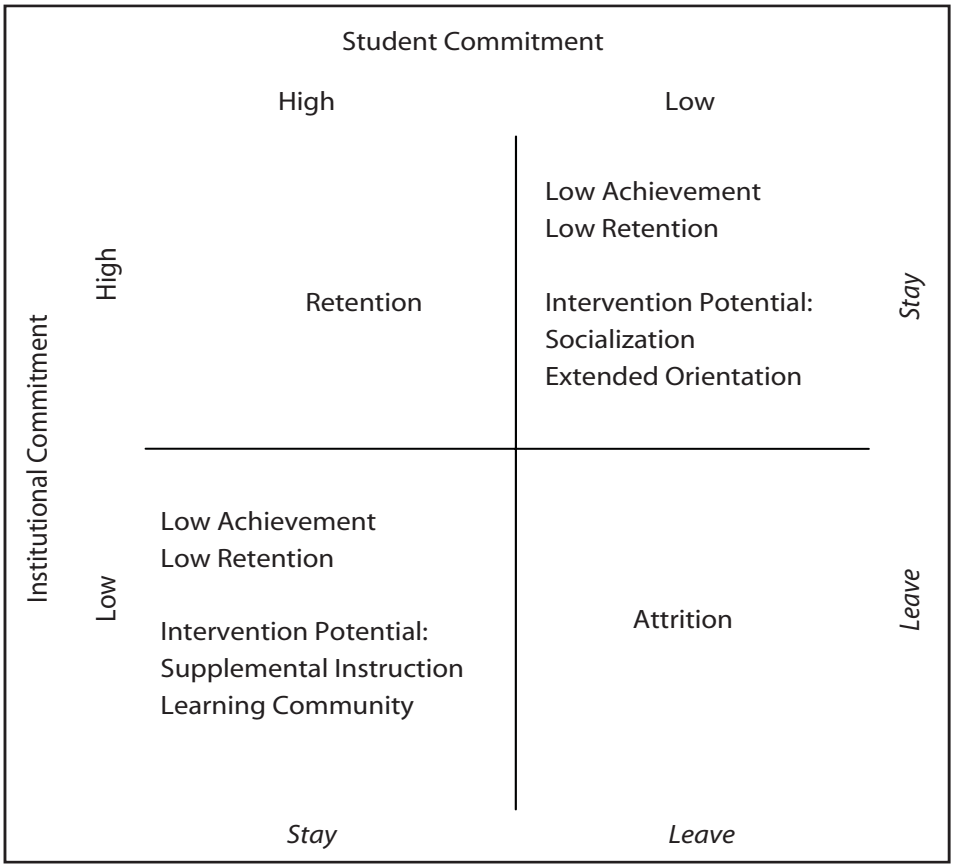

Figure 2. Outcomes of student commitment and institutional commitment.

Figure 2 shows a graphic interpretation of the outcomes of different levels of student commitment and different levels of institutional commitment. Student commitment, as measured by questions in the Student Involvement Study, has to do with students' goal commitment and general

satisfaction. Higher student commitment is related to higher retention, and lower student commitment is related to lower retention. Institutional commitment, as measured by NSSE institutional commitment and support questions, has to do with students' perceptions of how well the institution is poised to provide help and support. Higher institutional commitment is related to higher retention, and lower institutional commitment is related to lower retention. In addition, there is the potential for interaction between student commitment and institutional commitment.

A combination of high student commitment and high institutional commitment is optimal for high retention. A combination of low student commitment and low institutional commitment is optimal for high attrition. A combination of low student commitment and high institutional commitment might be evidenced by low student achievement, disciplinary problems, and low retention. Programs to help students are available, but the students are probably not taking advantage of them. As a result, the potential for lower retention exists. Possible interventions might include efforts to integrate and socialize these students through student activities, mentoring, advising, counseling, and learning communities. A combination of high student commitment and low institutional commitment might be evidenced by low student achievement and also low retention. Because these students are motivated to succeed, potential retention efforts might include supplemental instruction or learning communities. Making these types of programs available to more motivated students might compensate for their perceptions of institutional inadequacies in other areas. Furthermore, the existing success of programs such as residential learning communities and supplemental instruction, especially for students of lower academic ability, suggests that these programs are more effective for certain groups of students.

The enrollment management approach to retention would suggest to the admissions office to identify and recruit students who are likely to persist. That is, admissions should strive to recruit students oriented to high student commitment. Once matriculated, the institution needs to ensure that high institutional commitment and support is available. Targeting these students would lead to more stable enrollments, a profile of matriculating freshmen that is acceptable to faculty, and optimal student success.

A possible topic for further study might be to study the interaction between student commitment and institutional commitment. Which combination of high and low student and institutional commitments are more likely to lead to attrition? Which combination is more likely to respond to attrition interventions?

In addition to the retention projects described in this report, the Office of Institutional Research has taken on other initiatives designed to better describe attrition/retention. An advising assessment is being conducted to help identify strengths and weaknesses in academic advising.

A comprehensive first-year experience survey is being designed, the primary goal of which is to describe factors related to attrition/retention among currently enrolled students. The Office of Institutional Research already participates in two attrition intervention projects, one in the winter quarter and one in the spring quarter. This office has been asked to develop criteria to identify potential leavers as early as possible in the fall quarter, using instruments such as Making Achievement Possible at Ball State University (Woosley, 2004) and Georgia Southern University's Enrollment Management Plan (2004).

Findings from this study indicate that students who leave and those who return have very different perceptions about what the university's institutional environment emphasizes, how students' educational experiences have contributed to their personal and educational

development, and how these experiences contributed to their inability to adjust to college life. Students who leave often have different needs from students who stay, and if the university is not addressing these needs, they are likely to leave. As one comment from the nonreturning survey put it, ". . . felt isolated, deserted in my dorm, little to no help adjusting as a freshman." Ways to better meet the needs of our students include early intervention of at-risk students, increasing services to larger classes of freshmen, developing more learning communities, focusing more on student socialization and adjustment, and providing more student support. Yet how can we organize our retention efforts to meet the needs of different groups of students with different needs?

The OU Office of Institutional Research has been an active participant, and even a leader in bringing some of these questions and problems to light. It has helped to offer suggestions for solving the problem of attrition in several ways. First, helping the university community understand why students leave is important. Some students do not return for reasons that only they can understand or control; other students leave because their needs (personally and institutionally) are not being met. Second, it is crucial to help the university community understand that attrition represents a failure to meet students' needs by not helping them succeed. If retention is seen merely as a means by which to stabilize enrollment and the institutional budget, then students are being taken for granted and are not seen as the primary object of attention. Through "action" studies of student and institutional commitment, and identifying patterns of attrition behavior, institutional researchers can help disenfranchised students tell their story (Hansen & Borden, 2006; Hansen, Borden, & Howard, 2003). If the campus community is ready to listen to this story, then programs and practices can change so that future students' needs can be better met. Also, one previous article suggested ways in which the institutional research office can be a change agent to an institution in denial about the importance of retention issues (McLaughlin, Brozovsky, & McLaughlin, 1998). Third, the institutional research office should participate, as fully as its resources allow, by distributing reports, disseminating findings, attending meetings, offering to do extra analyses, and being an advocate for retention reform on campus. For example, we identified courses that were linked to lower-than-average retention rates. Some of these courses were appropriate for providing supplemental instruction. The Supplemental Instruction Coordinator adjusted the list of available courses so that supplemental instruction was offered for courses that were linked to higher attrition. Finally, the institutional research office can help the campus community identify a common, model experience for freshmen, especially for freshmen with special student or institutional commitment needs. Identifying what works already, such as Residential Learning Communities and/or Supplemental Instruction, and reinforcing those practices by widely disseminating information is in itself a best practice of institutional research.

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