

**Understanding Retention Outcomes: Using Multiple Data Sources to
Distinguish Between Dropouts, Stopouts and Transfer-Outs**

Paper presented at the Second National Forum on First-Year Assessment, February 16, 2001,
Houston, Texas

Stephen R. Porter
Director of Institutional Research
237 High Street, Room 322 North College
Wesleyan University
Middletown, CT 06459
Phone: (860) 685-2530
Fax: (860) 685-2011
Email: sporter@wesleyan.edu

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Abstract

Both assessment practitioners and administrators often view retention as a stay versus go outcome, but first-year outcomes are much more complex, as some students decide to stay, others to transfer, some simply take some time off and others decide to discontinue their education altogether. This paper discusses theoretical and empirical problems in confining retention studies to stay-versus go outcomes, and details data resources such as exit surveys, transcript requests, withdrawn student surveys, state transfer student databases, and the National Student Loan Clearinghouse's Enrollment Search program that can all be used to gain a richer understanding of first-year outcomes.

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Introduction

Over the past decade accountability demands from state legislatures and accreditation bodies have been increasing. Although many researchers in higher education have turned to accountability and benchmark measures based on student-centered survey research, external actors such as state legislatures and college rankings / book publishers such as *Peterson's* and *U.S. News and World Report* continue to focus on “hard” outcomes such as retention and graduation rates. For the near future understanding and attempting to increase institutional retention rates will continue to be an important aspect of higher education assessment.

When an institution reports a low retention rate, the implication is that many students there are dropping out. Yet many of these so-called dropouts (or more accurately, stopouts) are actually transfer students. Distinguishing between the two is quite important, as an institution can legitimately argue that its retention rate should be revised to include these transfer-out students. This is especially true for community colleges, with their stated mission to promote the transfer of their students to four-year institutions.

In addition, any retention initiatives devised by colleges must be tailored to these two types of students. Students who decide to continue their education at another institution and students who decide to drop out altogether have very different needs and may require quite different interventions to prevent their leaving.

Most researchers, however, have neglected this aspect of retention outcomes, generally because a lack of data has not allowed a more complex view of retention behavior.

A variety of statistical tools and data collections now allow us to pursue more complex studies of retention. This paper reviews some of the theoretical and empirical issues surrounding this aspect of retention studies.

Theoretical approaches

Many scholars have traditionally viewed retention as fixed in both time and choices. That is, they only examine outcomes after one-year (although a few occasionally go beyond one-year to two and three years). Almost all researchers also confine retention outcomes to a stay-versus-go dichotomy. Such an approach ignores the fact that retention can vary over time and that students can leave their institution after every single semester. It also does not take into account that leavers are comprised of two very different groups of students: students who leave to attend another institution, and students who leave higher education altogether.

Time

The main focus of retention research has been understanding what causes students to return after one year in college. This focus is not surprising. One-year retention has been used as a common benchmark to compare institutions, and is also used in college rankings and state legislative performance funding programs as a measure of quality.

Yet students face the stay-versus-go decision every semester. The probability of leaving may be much higher for some semesters than others; for example, most students tend to leave at the end of the academic year rather than after the fall semester. But they still face this decision every semester, and we should take this into account when thinking about retention analyses and retention initiatives.

A few researchers have attempted to do so through the use of survival models (DesJardin et. al, 1999; Ronco, 1996; Willet and Singer, 1996). Survival models, also known as hazard models, model the probability of students “surviving” across multiple time periods, in this case semesters. The strength of this approach lies in the ability to use the standard predictors of retention, such as grade-point average and amount of financial aid, and allow them to *vary* over time. Traditional studies of retention based on multiple regression or structural equation modeling are faced with using constant values derived by fixing a point in time to measure these variables.

Choices and other institutions

Numerous studies of persistence have been estimated over the past several decades, focusing on such varied factors as student integration and goal commitment (Allen & Nora, 1995, Cabrera, Nora, & Castaneda, 1993, Okun, Benin, & Brandt-Williams, 1996, Pascarella & Terenzini, 1980, Tinto, 1993), financial aid (Nora, 1990, St. John, 1994; St. John, 1996, St. John et al., 1990), human capital (Manski & Wise, 1983), and organizational attributes (Bean, 1980; Bean, 1983, Berger & Braxton, 1998, Nora et al., 1996). The standard approach for constructing dependent variables in these studies tracks student registration behavior from one year to the next and codes students as re-enrollees or stopouts based on registration activity. Alternatively, some researchers have used a dependent variable based on student survey responses (Berger & Braxton, 1998, Braxton et al., 1995). For example, Berger and Braxton (1998) used a five-point Likert scale ranging from “likely to reenroll” during the next fall semester to “extremely unlikely” in a survey administered to new freshmen. In both cases retention outcomes are viewed as two possibilities along one

dimension: stay versus go.

Besides not addressing the issue of time, these studies also tend to ignore the complex choice situation that students face every semester. While we generally think of retention as a simple dichotomous stay versus go decision, students in fact face a trichotomous choice: continue their education by returning to their home institution, continue their education by transferring to another institution, or discontinue their education altogether and either take some time off or immediately enter the workforce. This choice set could also be further refined, in that the decision to transfer can be broken down into a choice between two alternatives: either transfer to pursue a baccalaureate degree at a four-year institution or transfer to pursue an associate's degree at a two-year institution.

Many students whom we treat as stopouts are actually transfer-outs. By leaving their home institutions, transfer-out students make a much different decision compared with stopouts. Transfer-outs still wish to continue their education, but for some reason they decide that finishing at another institution would help them better achieve their educational goals than remaining where they matriculated. Conversely, true stopouts decide their goals are best met by discontinuing their education altogether. Thus students face a choice every semester between several alternatives, and these alternatives must be taken into account in any study of retention. Researchers would be wise to model retention outcomes as the college choice literature does (e.g. Fuller et. al, 1982; Manski and Wise, 1983; Ordovensky, 1995; Weiler, 1986, 1996).

Data collected at the University of Maryland, College Park and combined with a national database of transfer students compiled by the National Student Loan Clearinghouse (NSLC) indicates how prevalent transfer behavior can be (see Table 1). For this particular

first-year cohort, 13% did not return after their first year in college. Of those, 40% transferred to another institution, although this percentage probably is underestimated due to the less than 100% coverage of the national database. Interestingly, of those that transferred, over half transferred to a community college instead of another four-year institution. Clearly retention outcomes are more complex than we have previously believed, to the extent that our beliefs are reflected in our retention analyses.

Table 1. One-Year Persistence of Fall 1996 First-Year Cohort

Student group	Fall 1997 outcome	%	N
Entire cohort	Enrolled	87.4	3,105
	Not enrolled:		
	Unknown outcome (stopouts)	7.5	267
	Transferred to:		
	In-state 4-year	0.5	17
	In-state 2-year	1.4	51
	Out of state 4-year	2.0	70
	Out of state 2-year	1.2	43
	100.0	3,553	
Only not enrolled	Unknown outcome (stopouts)	59.6	267
	Transferred to:		
	In-state 4-year	3.8	17
	In-state 2-year	11.4	51
	Out of state 4-year	15.6	70
	Out of state 2-year	9.6	43
	100.0	448	

Source: Porter (forthcoming).

Data options

We can see theoretically that retention decision-making and outcomes are complex. Clearly we need a way to get beyond the stay-versus-go dichotomy and somehow account for

this complexity. The question, of course, is how can we do that? Registration data and beginning student surveys can only provide data on whether or not a student is retained (or is planning to return) during a given semester. There are several other possible solutions, each with its own advantages and disadvantages: exit surveys, withdrawn student surveys, transcript requests, state transfer student databases and the National Student Loan Clearinghouse's Enrollment Search database.

Besides cost, these solutions tend to differ by coverage and amount of information collected. Exit surveys and withdrawn student surveys can collect all sorts of information about why a student left and what they are doing with their lives after leaving school. Unfortunately, their coverage is questionable: many students may not fill out the surveys, raising questions of response bias. On the other hand, state and national databases usually have excellent coverage and manage to record information for most students who transfer, but they obviously do not track students who drop out of higher education, and the amount of information they can provide is limited to the name of the transfer institution.

To illustrate some of the pitfalls and potential of these options, throughout the paper I will present some information on the Fall 1999 full-time degree-seeking first-year students (N=732) and their Fall 2000 retention outcomes at Wesleyan University.

Exit surveys

Because retention results are not known until a student does or does not register for classes, it may seem strange that we can track retention results before they technically occur. With schools that strictly regulate leaves of absence and returns, however, exit surveys offer one way of tracking retention outcomes and causes. If students are required to apply to

withdraw from an institution or to take a leave of absence, part of the required paperwork can be a survey instrument asking them why they are leaving and what their future plans are. The Appendix has two sample surveys used by Wesleyan University for students applying for academic and non-academic leave. The surveys ask the student to list reasons why they are leaving, what their intended plans are, and to list how probable it is that they will return to campus in the future.

These types of exit surveys can be very useful. They are virtually free (except for printing costs), and can collect very detailed information about the student's decision to leave. Their coverage may leave something to be desired. Students can be required to fill out forms, but if they are leaving they may have little incentive, as the possibility of being punished for failure to do so may be quite remote. In addition, many institutions serve populations that do not take four or five years of uninterrupted schooling. If students often stop out for a semester and then return, it may simply be impossible to administer these kinds of exit surveys.

One variation of the exit survey is administered at the community college level at graduation (e.g. Kraemer, 1995). These types of surveys ask the student what their plans are after graduation: continuation of their studies at a four-year institution or entering the workforce.

Another issue with exit surveys (as well as withdrawn student surveys) is accuracy. A student who left a selective four-year institution may be embarrassed to admit that he or she is currently attending a community college, and instead may claim that they are taking a year off to travel or to work, or they may perhaps say they are attending another four-year institution.

As an example, consider the 732 full-time degree-seeking first year students at Wesleyan. Thirty-seven (5%) did not return for the Fall 2000 semester. In theory all students wishing to go on an academic or non-academic leave are required to fill out paperwork to leave the university, but of these 37 students, only 12 (32%) filled out the exit survey. Part of this can be attributed to lack of administrative oversight as well as students simply declining to fill out the forms. Such a small proportion raises the question of whether we can draw any reliable conclusions from these data, as the 12 students who responded may be very different from the 25 who did not respond.

Of those that did fill out the paperwork, six students indicated they would be transferring to another institution and provided the name of that institution, and six students indicated they would be pursuing work or other non-academic activities. Matching the declared transfer students to a national database of transfers (explained below) revealed that only two out of the six students actually enrolled in their declared transfer institution for the Fall 2000 semester. The other four did not appear in the transfer database. Of the six students who indicated they would be pursuing non-academic activities, two showed up in the national database attending school at another four-year institution. Although the numbers are quite small, they suggest that at least some responses to exit surveys must be treated with caution.

Withdrawn student surveys

A popular option used by many schools is a withdrawn student survey, usually administered irregularly to students who have failed to return after a given time period. As with the exit survey, coverage can be a problem. First, the probability of response is likely to

be correlated with attitudes towards the institution, with happier former students more likely to respond. This would obviously skew the results of any analysis in a positive direction. Second, these surveys are usually sent not to the student, but to the last known address of the student's parent. Potential bias here is unknown.

Unlike the exit survey, withdrawn student surveys can be costly. In order to achieve a high response rate, multiple mailings using the Dillman (2000) method are required. Phone calls to non-respondents can also be expensive.

Skidmore College administers a withdrawn student survey every other year (see the Appendix for a copy of their instrument). After two mailings to the last recorded address of the parent, they usually achieve a response rate of around 50%. Note that they time their mailings to coincide with Thanksgiving and Christmas in the hopes of catching the student when they are visiting their family. After the second mailing they then call the parent and attempt to interview either the student or the parent about why the student left Skidmore. Through this process they get about another 30%, yielding overall response rates at around 80%. The Skidmore example shows how a well thought out process can yield impressive coverage for a withdrawn student survey, but at substantial cost due to postage and long distance charges. Although Skidmore has not formally checked their withdrawn student data against the NSLC's database, they have reviewed where students say they have transferred and seem confident that the student responses are quite accurate.

Transcript requests

One option for tracking student leavers involves examining transcript requests and calling all institutions where a student has submitted a transcript to verify enrollment

(Kraemer, 1995). This approach offers very clean data, but the costs can be high for larger institutions with large numbers of stopouts, and may not be practical for many assessment and institutional research offices.

For offices on a very strict budget who may be unwilling or unable to pay for the NSLC’s national database, transcript requests without follow-up phone calls might be an acceptable proxy for whether or not a student has transferred. The question, of course, is how well the number of transcript requests predicts actual transfer behavior. Again using the 37 first-year stopouts at Wesleyan, I pulled their transcript requests and compared them to whether or not the student had actually transferred, again using the NSLC database. The results are presented below.

Table 2. Transcript Requests and Transfer Behavior for One-Year Stopouts of Fall 1999 Cohort

Number of requests	Transferred?		Total
	No	Yes	
0	11	3	14
1	6	2	8
2	1	5	6
3 or more	4	5	9
Total	22	15	37

Number of requests	Transferred?		Total
	No	Yes	
0	79%	21%	100%
1	75%	25%	100%
2	17%	83%	100%
3 or more	44%	56%	100%
Total	59%	41%	100%

Source: Wesleyan University and NSLC data.

As can be seen, the number of transcript requests does not appear to be a good predictor of subsequent transfer behavior. The main difference appears to be between students who requested two or more transcripts and students who did not request a transcript or only requested one transcript. Two-thirds of the former were recorded as having transferred in the NSLC database for the Fall 2000 semester, while less than a quarter of the latter were recorded as transfer students. Based on this one example, transcript requests appear more useful for tracking down former students to administer a withdrawn student survey than as a measure of actual transfer behavior. This result, of course, may vary with different institution types.

State databases

Many state higher education agencies track student movement between public two-year and four-year institutions (DesJardins & Pontiff, 1999; Ronco, 1996), and their databases are a useful option for institutions whose stopouts tend to reenroll at institutions within their state. Many community colleges and public four-year schools would fall into this category.

There are three drawbacks to using state databases to track stopout behavior. First, unlike exit surveys and withdrawn student surveys, these databases can provide only limited information about retention outcomes, generally date and place of transfer.

Second, these databases treat students who transfer to in-state private or out-of-state institutions as stopouts rather than transfer outs (although some states track students in all institutions regardless of their public/private status). Depending on the student body and their

preferred transfer choices, this may not be a problem for some institutions (e.g. Ronco, 1996).

The third drawback involves how states define transfer students. Because many students will take one or two courses at various institutions after high school and during summers throughout their academic career, states generally establish a credit cutoff to determine who is a transfer student.

For example, Karl Boughan at Prince George's Community College in Maryland used the NSLC database to recalculate the transfer-out rate at his institution. Using state data from the Maryland Higher Education Commission (MHEC), the transfer rate for one cohort after five years was 13%; combining the state data with the NSLC data increased the transfer rate six percentage points to 19%. About half of this increase was from students transferring to an out-of-state institution or an institution within Maryland that does not report data to MHEC.

Interestingly, the other half of the increase was due to MHEC's definition of a transfer student. Students are defined as transfers by the state of Maryland if they enroll with twelve college credits or more (excluding advanced placement credits). So quite a few students would take two or three courses at Prince George's and then enroll at another college, but because of the state's definition they slipped under the radar and were not reported as transfer students to the state's transfer student database.

National database – the National Student Loan Clearinghouse

The National Student Loan Clearinghouse now offers a service called “Enrollment Search” that provides another way to track transfer-out behavior (see http://www.nslc.org/services/EnrollmentSearch/EnrollmentSearch_SvcDescrip.htm for more

information). The NSLC has built a database of student enrollments throughout the country based on its student loan reporting service. For a fee (currently 10 cents times an institution's total fall headcount enrollment), a college can submit a list of students who are no longer enrolled at their institution and discover if they are enrolled in another institution in the NSLC database. Their Enrollment Search database allows researchers to:

1. Determine which of their students have transferred.
2. Identify the name and FICE number of the transfer institution.
3. Identify when the student first enrolled there.

In order to participate in the Enrollment Search service, an institution must already be a member of the NSLC.

The NSLC acts as a central reporting agency for colleges and lenders and assists both with various aspects of student loans, such as tracking and confirming the deferment status of borrowers¹. Member institutions periodically report enrollment information to the NSLC. Because some students may receive loans at one institution and then appear at another institution and not receive any loans, institutions report enrollment information on *all* students, not just those students receiving financial aid. The resulting data is used for their Enrollment Search program.

In the Enrollment Search program participating institutions submit the names, birth dates and dates of last attendance of students who fail to reenroll during a given semester. The NSLC takes this information and searches their database for a match among other participating institutions. If a match is found, information about when and where the student

¹ See <http://www.nslc.org/> for more information.

transferred is provided to the home institution. Data provided by the NSLC for each student found include the name and FICE code of their new institution, school type (two-year versus four-year), and transfer term begin date. As of July 1999, the NSLC had enough colleges participating (or planning to participate) that approximately 81% of the enrolled students nationwide were covered (see Table 3).

Coverage rates vary quite a bit by state, ranging from almost zero coverage in Puerto Rico and Hawaii to almost 100% in Kentucky and Utah. The Clearinghouse has posted a list of participating schools by state at http://www.nslc.org/member_info/schools/schools.htm.

In the past the NSLC has experienced some problems with the Family Educational Rights and Privacy Act and their attempts to provide transfer student data to member institutions under their old “Transfer Track” program. The Enrollment Search program has been redesigned to overcome those problems and the Department of Education has stated that the program is in compliance with FERPA (see <http://www.ed.gov/offices/OM/OMltrs/herndonva.html>).

The advantage of the NSLC data is its national scope and over 80% coverage rate. For institutions such as Wesleyan that have students enrolling from all over the country, the NSLC database is an invaluable tool for tracking retention outcomes. And as the Prince George’s Community College example illustrated, even institutions whose students tend to stay in one state can benefit from using their data. The drawback to their data is its narrow scope: they can only provide date and place of transfer. And compared with some of the previous data options, the Enrollment Search data can be much quicker and cheaper, especially for smaller institutions.

Table 3. Coverage Rates of Enrollment Search Data

State	Total enrollment	Active participants	Preparing participants	Total participants	% share
Alabama	229,511	169,800	3,200	173,000	75.4%
Alaska	31,500	30,000	0	30,000	95.2%
Arizona	274,932	124,000	19,800	143,800	52.3%
Arkansas	96,294	82,100	2,500	84,600	87.9%
California	1,835,791	1,719,500	137,050	1,856,550	100.1%
Colorado	241,295	210,300	0	210,300	87.2%
Connecticut	159,990	126,600	0	126,600	79.1%
Delaware	44,197	22,200	3,200	25,400	57.5%
District of Columbia	77,705	43,800	5,566	49,366	63.5%
Florida	634,237	363,200	133,400	496,600	78.3%
Georgia	308,587	226,500	11,700	238,200	77.2%
Hawaii	64,322	2,800	0	2,800	4.4%
Idaho	60,393	39,000	13,200	52,200	86.4%
Illinois	731,420	589,000	90,700	679,700	92.9%
Indiana	292,276	89,400	0	89,400	30.6%
Iowa	172,450	97,300	0	97,300	56.4%
Kansas	170,603	76,200	12,100	88,300	51.8%
Kentucky	182,577	170,200	4,000	174,200	95.4%
Louisiana	203,567	170,400	8,300	178,700	87.8%
Maine	56,724	45,300	0	45,300	79.9%
Maryland	266,214	176,100	41,900	218,000	81.9%
Massachusetts	416,505	312,900	15,770	328,670	78.9%
Michigan	551,307	292,000	0	292,000	53.0%
Minnesota	289,300	258,500	0	258,500	89.4%
Mississippi	120,884	92,000	18,000	110,000	91.0%
Missouri	293,810	255,200	240	255,400	86.9%
Montana	42,000	36,500	1,800	38,300	91.2%
Nebraska	116,000	95,800	2,000	97,800	84.3%
Nevada	64,085	41,000	0	41,000	64.0%
New Hampshire	62,847	41,200	0	41,200	65.6%
New Jersey	335,480	205,600	0	205,600	61.3%
New Mexico	101,881	12,000	55,100	67,100	65.9%
New York	1,057,841	957,100	100	957,200	90.5%
North Carolina	369,386	334,900	20,400	355,300	96.2%
North Dakota	53,000	41,000	0	41,000	77.4%
Ohio	549,304	445,000	1,126	446,126	81.2%
Oklahoma	185,174	111,000	7,600	118,600	64.0%
Oregon	164,447	133,400	500	133,900	81.4%
Pennsylvania	611,174	554,600	0	554,600	90.7%
Puerto Rico	75,000	0	260	260	0.3%
Rhode Island	74,718	40,300	13,900	54,200	72.5%
South Carolina	173,070	156,000	4,800	160,800	92.9%
South Dakota	38,500	36,000	0	36,000	93.5%
Tennessee	242,966	226,700	400	227,100	94.2%
Texas	954,495	600,600	93,100	693,700	72.7%
Utah	146,196	109,300	3,000	112,300	76.8%
Vermont	43,870	29,800	500	30,300	69.1%
Virginia	354,149	284,900	68,000	352,900	99.6%
Washington	284,662	239,200	2,000	245,200	86.1%
West Virginia	87,741	51,800	0	51,800	59.0%
Wisconsin	303,861	284,300	0	284,300	93.6%
Wyoming	42,300	32,000	0	32,000	75.7%
Total	14,340,538	10,888,300	787,242	11,675,542	81.4%

Source: NSLC.

Data from the NSLC

After submitting a data file of stopouts, an institution will receive a summary report and a data file of individual students. The summary report for the 37 Wesleyan stopouts for the Fall 2000 semester appears below:

Results Summary

37 Records Submitted

37 Records Found

22 - No Transfer Record Located

15 - Transfer Record Located

Of the 15 Transfer Records Located, 4 records are blocked, so no student level detail information can be provided.

Schools reflected on Blocked Records :

002707 Columbia University – 2

001445 Georgetown University – 1

003378 University of Pennsylvania – 1

Summary of Student Level Detail Provided:

001305 Stanford University – 2

001154 San Francisco State University – 1

001172 Pitzer College – 1

001434 American University – 1

002221 University of Massachusetts @ Amherst – 1

002711 Cornell University – 1

002785 New York University – 1

003237 Bryn Mawr University – 1

003675 University of Utah – 1

020653 Prescott College – 1

The report indicates that the 37 students submitted were found in the NSLC enrollment database (this is listed because it is possible for institutions to submit students for the Enrollment Search service, but some of these students were never included in the

enrollment reports filed by that institution). Fifteen of the students (41%) appeared in the enrollment reports of another institution for the Fall 2000 semester.

Because students at an institution can request that their directory information be blocked from public view, their records cannot be released by the NSLC to Enrollment Search enquiries from other colleges and universities. Here we can see that four of the fifteen transfer students have blocked their information, so we will only be able to discover for these individuals whether or not they transferred. However, the Enrollment Search report can still list the breakdown of institutions where these students transferred to even if they cannot list the institution for each of the four students.

The remainder of the report lists a summary of the transfer schools for students who can be individually identified. In the Enrollment Search data file these students will have listed next to their name a “yes” marked in a column indicating transfer student status as well as the FICE code and name of their transfer institution. For the four students with a data block, there will only be “yes” marked in the transfer student column.

Uses of the data

Once an institution obtains data from the NSLC, it can be used in several different ways. The simplest is to take the stopout rate and determine how many of an institution’s stopouts are actually transfer-outs. For example, the 1996 cohort of full-time degree-seeking first year students at the University of Maryland, College Park, has a one-year retention rate of 87%. Of the 13% of the cohort normally labeled as stopouts, the NSLC data revealed that 40% of this group were actually transfer-outs. (This is of course an underestimate, since the less than 100% national coverage of the NSLC data results in some true transfer-outs being

classified as stopouts due to a lack of data.) For the Fall 1999 cohort at Wesleyan University, the NSLC data revealed that at least 41% of this group were actually transfer-outs. Retention rates can then be recalculated to include this transfer-out component.

The transfer institution data can also be taken into account when calculating transfer-out rates. Transfer behavior is often viewed quite differently at the two-year and four-year levels. For a community college, transferring is generally viewed as good – one of the main functions of the community college is to provide an avenue for students to obtain a baccalaureate degree.

For four-year institutions, however, transferring can be seen as a negative outcome, because students are in essence rejecting their home institution to graduate at another. But for some four-years this may not necessarily be the case, as long as students are transferring to a more competitive institution. The FICE codes provided by the NSLC can be used to differentiate between different types of transfer institutions.

Finally, the NSLC data can be used to refine statistical models of retention behavior, where outcomes can be defined as trichotomous (stay, transfer or stopout) rather than the traditional dichotomous outcome (stay versus go). My 1999 Northeast Association of Institutional Research paper is an example of this and can be found online at <http://sporter.web.wesleyan.edu/neair99.pdf>

Conclusion

Students in higher education face many decisions while pursuing their degree. Two of the most fundamental are whether to finish, and whether to finish at the institution where

they matriculated. Only by disentangling these decisions can researchers and administrators hope to gain a greater understanding of persistence behavior.

We now have a variety of options to track student transfer behavior, each with advantages and disadvantages. The most profitable approach would be to combine various data options to create the most accurate picture of student behavior possible. The first step in this process would be to combine data from the National Student Loan Clearinghouse with a state transfer database (if available). This is probably one of the quickest and cheapest ways to get transfer information.

Next, for those stopouts who do not appear in this combined database, an analysis should be conducted of their transcript requests. Even a combined NSLC-state transfer student database will not have data for every institution of higher education in the country, and an examination of transcript requests will yield several leads as to where the stopouts might have reenrolled (also note that some international students may have returned to an institution in their home country, which should be revealed in their transcript request). These institutions can then be contacted to discover if a particular stopout did indeed enroll there. This approach should be less costly than simply contacting the institutions listed in transcripts requests for *all* stopouts, as Kraemer (1995) did in her study.

At this point a withdrawn student survey should be considered. Rather than simply send the survey to parents, building a transfer student database at the beginning will allow the mailing of the survey directly to the student at their new institution. This should yield higher response rates than mailing to the parent's last known address and reduce response bias.

By combining several of the options listed above, it should be possible for assessment and institutional research offices to develop a retention and transfer database that has both

excellent coverage (which minimizes errors due to response bias) and in-depth information about the student and why he or she decided to leave the institution. Armed with these data researchers can then begin to conduct more complex analyses of persistence behavior, and begin to tailor retention initiatives to stem both stopout and transfer-out behavior.

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