

 THE RESEARCH AGENDA

Conceptualization of College Student Retention

By Xi Shi

This study is an exploration of the probability of modeling higher education to optimize student retention for a desired academic outcome. As college students can be viewed as “consumers” of education institutions, this paper examines the applicability of business concepts of customer loyalty and retention and reviews the business hypothetical measures to validate their appropriateness to conceptualize college student retention. The key variables in the business conceptual model that are relevant to higher education settings are reviewed and analyzed. Limitations of the findings are discussed, and recommendations are offered on how to apply appropriate business measures to model the higher education process to ensure its outcome.

In the United States, higher education expenditures amount to hundreds of billions of dollars per year. For example, in academic year 2013–14, postsecondary institutions spent approximately \$517 billion, or approximately \$26,600 *per FTE student* (Ginder, Kelly-Reid, and Mann 2016). Assuming that successful higher education outcomes promote economic growth, it is worth modeling the higher education process to ensure its outcome. The ultimate goal of colleges is to educate students. If students satisfy academic requirements, they should graduate with degrees that recognize their academic achievement and certify their intellectual capacity for the marketplace.

Studies of college preparedness and student success relevant to college student retention have prompted

much discussion and research. Among the researched determining factors regarding college student retention, cognitive factors have received a preponderance of attention. These factors, such as students’ motivation and high school performance measures, are mostly possessed by students (Sommerfeld 2011). Other factors, mostly not possessed or controlled by students, have also been discussed and reported in college student retention studies (Pritchard and Wilson 2003; Young and Koplow 1997). These include but are not limited to family economic background, school facilities, and other campus features. However, it is not clear how these factors, cognitive and non-cognitive non-academic, are conceptualized, grouped, and measured and whether any—and especially the non-cognitive non-academic

factors—have a direct or indirect impact on students' decisions to persist and complete an academic program.

A general exploration of customer retention studies indicates that customer loyalty and retention are also well-researched topics in business. In retail, customer loyalty is a pretty simple and identifiable objective for all types of stores, from department stores to specialized retail establishments, chains to small businesses, online as well as physical. Customer loyalty has a direct impact on business profit (Parasuraman, Zeithaml, and Berry 1985, 1996). Marketing scholars report their findings that customer loyalty has been regarded as a strategic objective in service industries (Cooil, Keiningham, Aksoy, and Hsu 2007; Nyadzayo and Khajezadeh 2016), and the role of customers in any business cannot be underestimated (Murali, Pugazhendhi, and Muralidharan 2016). In the automobile industry, for example, loyal customers are perceived as critical assets because it costs more to create a new pool of buyers than to retain existing customers. For industries providing continuing services, such as mobile phone services and local restaurant owners, loyal customers play an important part in increasing or decreasing profitability (though of course both returning and new customers are appreciated). All in all, both business researchers and practitioners agree customers' satisfaction, loyalty, and retention increase profit (Cooil *et al.* 2007; Murali *et al.* 2016; Nyadzayo and Khajezadeh 2016).

In light of research findings related to business, this study investigates some key variables identified as determinants of customer retention, and then examines their counterparts in education and their influence on college student retention. A literature review of the main constructs of customer loyalty and retention in business is offered, followed by analyses of corresponding variables in higher education.

Literature Review of Business Conceptual Model

In the marketing literature, substantial research findings indicate that customer loyalty can be predicted by service quality (Parasuraman *et al.* 1985; Quach, Thairachon, and Jebarajakirthy 2016; Zeithaml *et al.* 2006) and

customer satisfaction (Nyadzayo and Khajezadeh 2016; Oliver 1999). Basically, the conceptual model states that when customers purchase a service, such as Internet access, or a product, such as a car, they form a judgment regarding the level of performance of said service or product. Depending on the customers' pre-existing needs and expectations, they may feel happy about their purchasing experience when the perceived service or product performance exceeds their expectations. These customers are most likely to return to the service provider or the seller of the product and to recommend the service or product to others. Alternatively, when the perceived performance falls short of customers' expectations, they are unlikely to return or recommend the service or product to others. The following discussions present details of each of the key variables in the model.

Service Quality

Service quality is a customer's perception of the level of a service provider's performance after the services are consumed. According to Parasuraman *et al.* (1985, 1991), the measurable service dimensions include *tangibles* and *intangibles*. These dimensions describe the service characteristics that are often used by customers to evaluate service quality when forming their judgment. Consider the following descriptions of each service dimension.

- Reliability: ability to perform the promised service dependably and accurately
- Responsiveness: willingness to help customers and provide prompt service
- Assurance: employee's courteous behavior and knowledge of the firm's products and services
- Empathy: the employee's knowledge, courtesy, and ability to inspire trust and confidence
- Tangibles: appearance of physical facilities, equipment, personnel, and communication materials.

Customer Satisfaction

Customer satisfaction has been defined in business as customers' judgment of whether a purchased product or service meets, exceeds, or falls short of their expectations. This definition is known as "disconfirmation

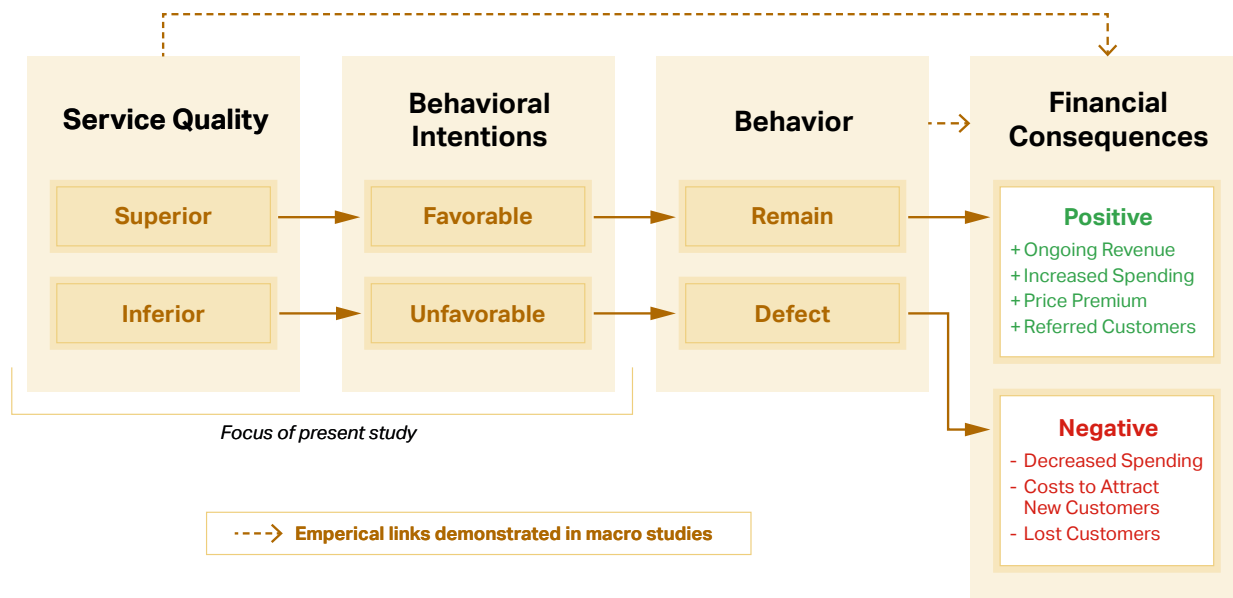


FIGURE 1 ► The Behavioral Consequences of Service Quality

of expectations” (Oliver, Rust, and Varki 1997; Oliver 1993; Westbrook and Reilly 1983; Yi 1990). The disconfirmation theory describes customer satisfaction as a comparison assessment before and after a purchase is made. In this process, customers compare the product or service after consumption with their pre-purchase expectations or needs. If evaluation outcomes exceed customers’ expectations or needs, the customers are satisfied; if the evaluation outcomes fall short of customers’ pre-existing expectations or needs, the customers are dissatisfied.

Service quality and customer satisfaction are two distinctive constructs, though they are positively correlated. The measure of customer satisfaction is often transaction based, and the measure of service quality is more an overall judgment of customers, representing a cumulative evaluation of the service provider’s performance that is developed over all the experiences customers have had with the service provider. As many researchers report, customers who feel they have received a higher quality of service often express higher satisfaction (Gupta and Zeithaml 2006; Nyadzayo and Khajehzadeh 2016).

Customer Loyalty and Retention

Customer loyalty is described in marketing literature as the result of a positive purchasing experience, satisfaction with the product or services, and perceived value of such product or services. It is defined as a deeply held commitment to constantly repurchase or re-patronize a specific product or service in the future (Nyadzayo and Khajehzadeh 2016; Oliver 1999). Customer loyalty may result in repetitive consumption of the same brand of products and services from the same company or provider, despite situational influences, such as marketing efforts of competitors (Olive 1999).

Figure 1 was originally presented by Zeithaml, Berry, and Parasuraman (1996) in “The Behavioral Consequences of Service Quality” (33). Considering the findings of other studies, Figure 2 presents a modified business conceptual model of customer retention.

College Student Retention

The literature makes it clear that in the business world, researchers and practitioners alike understand that customer retention is directly related to business profitability. It is also clear that service quality and customer

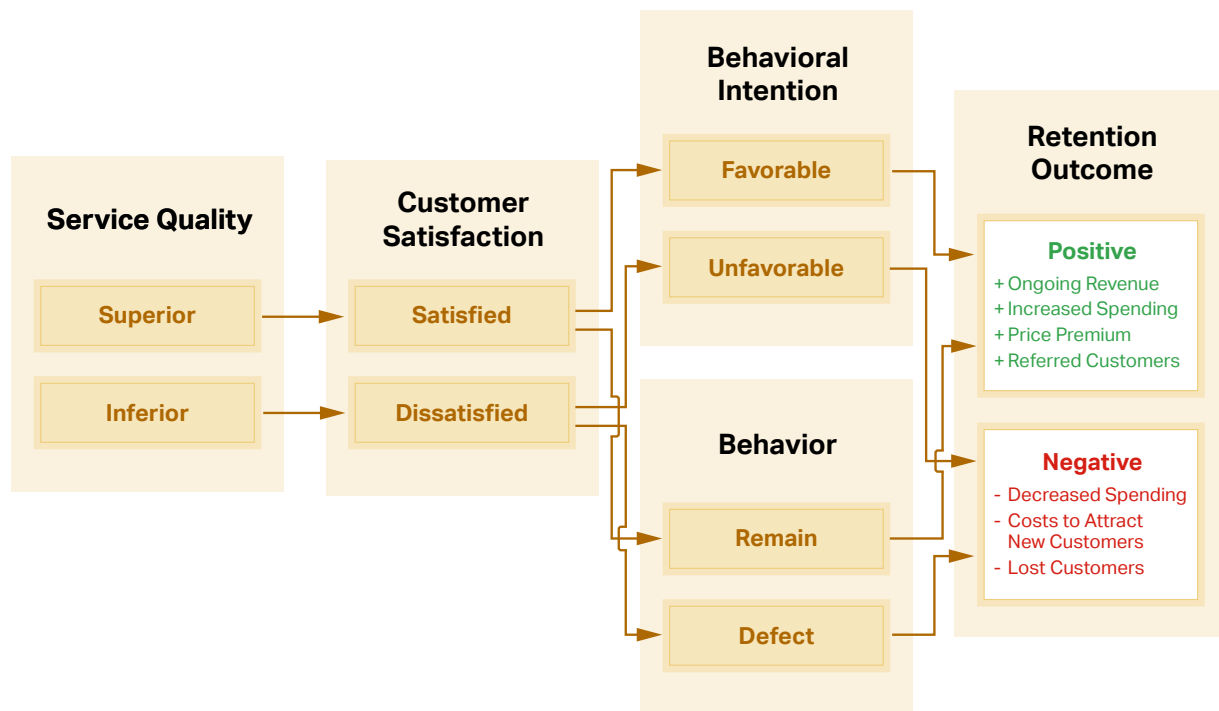


FIGURE 2 ► Conceptual Model of Customer Retention

satisfaction are key predictors of customer loyalty, and customer loyalty leads to customer retention.

In order to understand college student retention, a list of the top-ranked colleges with the highest freshman retention rates was obtained from *U.S. News & World Report*. According to *U.S. News*, approximately one in three first-year students don't return for their sophomore year (usnews.com/best-colleges). Table 1 shows the top 24 national universities with the highest retention rates, listed from highest (99 percent) to lowest (97 percent) and displaying the average proportion of freshmen entering in fall 2011 through fall 2014 who returned to school the following fall.

The following observations are worth noting:

- All are renowned colleges, including all eight Ivy League schools.
- Nineteen are private, and five are public.
- All five of the public colleges are well-known in the higher education marketplace.

Assuming "brand name" has an impact on student retention, this study turns to the marketing literature for findings related to the effects of branding on consumer behavior to confirm explanations of brand loyalty. Albert, Merunka, and Valette-Florence (2013) found that brand identification and brand trust may influence consumers' passion for a brand. Carroll and Ahuvia (2006) found that consumers' brand affection and brand attachment influence their buying decisions. Schmitt (2012) found that customers' brand trust and brand attachment influence repeat consumption and willingness to pay a higher price for the trusted brand. Research findings also indicate that the relationship between brands and consumers comes with the consumers' judgment of unique characteristics of the brand and perception of its service quality by consumers, their family members and friends, and others they know. According to Cartelligent, an online dealership (cartelligent.com/blog/top-ten-brands-customer-loyalty), 42 percent of Mercedes Benz owners choose to buy Mer-

cedes again; 46 percent of Lexus owners choose to buy a Lexus again, and 53 percent of BMW owners choose to buy a BMW again. Although new car prices and ongoing maintenance costs of these cars are more expensive than those for many other brands, customers' passion for the brand, *e.g.*, the privilege or prestige associated with it and the more personalized services offered by the dealer(s), are perceived by the owners as unique and only existing for the elite. For example, customers are provided with a choice of either a loaner car or pick up and drop off while their car is being serviced, or, if they choose to wait for the maintenance, coffee, tea, and snacks are readily available in the waiting room. This level of service is not typically offered by other car brands. Similarly, some elite colleges, such as Princeton University and the University of Pennsylvania, may offer unique services and outcomes—for example, generous scholarships, bright career prospects, and other perks—that few other colleges do.

Brand support, brand trust, and brand attachment are also relevant in education settings. Dennis, Papagiannidis, Alamanos, and Bourlakis (2016) reported their findings that brand attachment in higher education is associated with commitment, satisfaction, trust, and brand equity; a study conducted by Palmer, Koenig-Lewis, and Asaad (2016) found that great academic experiences may help develop brand identification, and stronger brand identification may lead to greater brand loyalty and brand support. However, both studies indicated that the drivers of support for loyalty to a uni-

versity are under-researched, and findings related to students' loyalty behavior are inconclusive.

In order to better understand college student retention, education research first must verify the applicability of the constructs used in the business model of customer retention. The two major determining constructs in the business conceptual model are service quality and customer satisfaction, which are believed by researchers and business practitioners to be the key drivers of customer loyalty and retention.

In higher education, service quality can be easily applied because education is a process in which teach-

TABLE 1 ➤ Top Rated College Ranking of Freshmen Retention Rate

College Name	Location	Type	Average Freshman Retention Rate (%)
Columbia University	New York, NY	Private	99
University of Chicago	Chicago, IL	Private	99
Yale University	New Haven, CT	Private	99
Brown University	Providence, RI	Private	98
Dartmouth College	Hanover, NH	Private	98
Massachusetts Institute of Technology	Cambridge, MA	Private	98
Princeton University	Princeton, NJ	Private	98
Stanford University	Stanford, CA	Private	98
University of Notre Dame	Notre Dame, IN	Private	98
University of Pennsylvania	Philadelphia, PA	Private	98
California Institute of Technology	Pasadena, CA	Private	97
Cornell University	Ithaca, NY	Private	97
Duke University	Durham, NC	Private	97
Harvard University	Cambridge, MA	Private	97
Johns Hopkins University	Baltimore, MD	Private	97
Northwestern University	Evanston, IL	Private	97
Rice University	Houston, TX	Private	97
Tufts University	Medford, MA	Private	97
University of California	Berkeley, CA	Public	97
University of Michigan	Ann Arbor, MI	Public	97
University of North Carolina	Chapel Hill, NC	Public	97
University of California	Los Angeles, CA	Public	97
University of Virginia	Charlottesville, VA	Public	97
Vanderbilt University	Nashville, TN	Private	97

ing and learning activities are facilitated in a systematic manner to ensure the provision and delivery of instruction to students and the acceptance and acquisition of new knowledge and skills by students. Education thus can be viewed as a specialized service.

Customer satisfaction in higher education settings has been analyzed and measured as student satisfaction (Elliott and Healy 2001; Aitken 1982; Schertzer and Schertzer 2004) in the same way that customer satisfaction is measured in marketing and other business areas, where satisfaction is defined as a disconfirmation result of customers' pre- and post-consumption evaluation. In education, student satisfaction is viewed as students' comparison assessment of whether their college experience and academic outcomes have met, exceeded, or fallen short of their expectations and intellectual needs and desires.

Next, the characteristics of education service quality and student satisfaction are specified to determine their impact on student retention. Specific features of education services are discussed and analyzed.

Education Service Quality

Five service dimensions have been widely used to measure business service quality, so this study explores comparable attributes that may describe education services. On businessinsider.com, the eight Ivy League schools are ranked according to six features: academics, affordability, campus, job prospects, student body, and student life. In searching for features that describe services provided by all types of colleges, 24 colleges and universities were randomly selected from the *U.S. News and World Report* college ranking (www.usnews.com/best-colleges). Table 2 presents the names of the selected colleges in alphabetical order as well as the background data that are available from the College Profile section. Profile data were verified using data from the Integrated Postsecondary Education Data System (IPEDS). The list includes private, public, nonprofit, and for-profit colleges and universities. Because no consistent profile data from community colleges are available from collegedata.com, their enrollments, return rates, and graduation rates are discussed separately.

The data in Table 2 include the type of college, number of enrolled undergraduate students, selectivity, number of full-time faculty, proportion of full-time faculty holding a Ph.D. or terminal degree, number of part-time faculty, percentages of first-year students and all students living in on-campus housing, percentage of classes enrolling between ten and nineteen students, percentage of first-year students returning, percentage of students graduating within four years, and percentage of students graduating within six years. The data from these nine categories represent diverse college types, student intellectual preparedness, academic characteristics of the college, campus life, first-year students' retention rates, and graduation rates within 100 percent (four years) and 150 percent (six years) of typical program completion time.

Of the 24 selected colleges, three are private for profit, nine private, and twelve public. To examine the possible influences of the variables on retention and graduation rates, the lowest-ranked colleges are excerpted. (Data for the three for-profit colleges' first-year student return and four- and six-year graduation rates are not available from collegedata.com.) Then the available profile data were checked. Findings are as follows:

- **Selectivity:** The selectivity of all three of the lowest-ranked colleges is non-existent; 100 percent of students who apply are accepted.
- **Academics:** At all three of the lowest-ranked colleges, the numbers of part-time faculty are substantially greater than the numbers of full-time faculty. For example, 1,292 of Capella faculty are part time whereas 256 are full time; 111 of DeVry at Atlanta faculty are part time, though it is not clear whether that number is in addition to the "approximately 4,700 independent contractors who teach as adjunct faculty and instructors" (DeVry Education Group 2016, 35), and 41 are full time; 487 University of Phoenix faculty are part time and 35 are full time. None of the three colleges reported the percentage of full-time faculty with a Ph.D. or a terminal degree. In addition to information about faculty, collegedata.com provides information about class size in the "academics" category that is treated as an academic

TABLE 2 ► Selected Undergraduate College Profile Data

College Name	Type	Size	Selectivity (%)	Faculty Composition			College Housing		Regular Class Size		1st Year Return	Graduate in ...	
				Full-Time	with Ph.D. (%)	Part-Time	1st-Year (%)	All (%)	Range	% Within Range		4 Years (%)	6 Years (%)
Boston University	Private	17,932	33	1,699	88	957	99	75	10–19	43	93.0	89.6	85
Capella University	Private ²	7,487	100	256	–	1,292	0	–	n/a	–	n/a	n/a	n/a
Colby College	Private	1,857	23	180	95	32	100	94	10–19	33	92.9	90.6	94
Delaware State University	Public	3,943	44	211	93	146	81	55	10–19	23	71.1	22.4	42
DeVry University, Atlanta	Private ²	1,684	100	41	–	111	0	–	n/a	–	–	–	–
Dominican College	Private	1,522	71	73	67	155	70	44	10–19	36	71.0	25.7	45
Florida A&M University	Public	8,128	51	545	74	183	100	–	10–19	18	85.0	12.2	40
Iowa State University	Public	30,034	87	1,603	93	281	94	40	10–19	24	87.0	40.0	71
Jackson State University	Public	7,475	68	387	76	219	75	37	10–19	19	77.8	18.9	43
Michigan State University	Public	39,143	66	2,433	90	406	95	39	10–19	18	92.5	50.7	77
Montana State University, Bozeman	Public	13,707	83	581	82	403	76	25	10–19	33	77.0	21.7	52
Ohio Northern University	Private	2,259	69	211	84	77	96	68	10–19	36	86.0	50.2	66
Princeton University	Private	5,402	7	919	93	253	100	98	10–19	42	97.4	89.7	97
Rutgers University, Piscataway	Public	35,484	58	2,027	98	2,033	87	42	10–19	27	92.6	58.4	80
Seton Hall University	Private	5,839	79	460	–	520	75	42	10–19	36	84.0	50.2	64
Stanford University	Private	6,999	5	1,589	99	26	100	93	10–19	34	98.0	75.2	93
Texas A&M University	Public	48,960	66	2,834	90	765	70	23	10–19	36	89.8	50.6	79
University at Albany	Public	12,908	56	675	90	494	92	59	10–19	22	83.0	58.8	68
University of CA, Los Angeles	Public	29,585	17	1,931	98	611	98	44	10–19	28	96.0	73.6	91
University of Pennsylvania	Private	9,726	10	1,458	100	627	98	n/a	10–19	40	98.0	87.1	95
University of Phoenix	Private ²	3,718	100	35	–	487	0	–	n/a	–	–	–	–
University of Virginia, Charlottesville	Public	16,736	30	1,365	91	100	100	40	10–19	38	97.0	87.2	93
University of Wyoming	Public	10,045	96	754	81	65	88	24	10–19	27	76.0	25.8	55
Yale University	Private	5,532	7	1,159	93	476	100	84	10–19	44	99.0	87.4	96

¹ Indicates percent accepted² For-profit

factor in this study. Class size is listed as “not applicable” for all three for-profit colleges because most of their academic programs are online; DeVry notes on its website that it is both on line and on campus.

■ **Campus Life:** All three colleges are designated as not providing campus housing.

■ **Student Retention:** Most important, the category for outcome factors, including first-year students’ re-

turn and graduation rates, is not available for the three lowest-ranked colleges, indicating either that they do not report their data in the same way in which other colleges do, or they do not report the same data to all sources.

After reviewing the data from the colleges rated lowest on the basis of student retention, those from the colleges rated highest were analyzed. Seven

were selected from the 24 for a comparison analysis, as only they had both a first-year student return rate and graduation rate within six years greater than 90 percent. (See Table 3.)

As Table 3 demonstrates, five of the seven colleges are private and two are public. Findings for the same variables used when analyzing the lowest-rated colleges are summarized as follows:

- **Selectivity:** The selectivity of these seven colleges is considerably higher than that of the other colleges, indicating that they are more competitive than the rest of the 24 colleges included in this study. Acceptance percentages range from 5 percent of applicants accepted to Stanford University to 30 percent to the University of Virginia at Charlottesville. Above-average selectivity suggests greater cognitive intellectual capacity of incoming students.
- **Academics:** The full-time vs. part-time faculty ratios at these seven colleges are substantially different from those of most other colleges, as is the student-to full-time-faculty ratio. For example, at Colby College, the undergraduate student population is 1,857, and the college has 180 full-time faculty for an almost ten to one student-faculty ratio. Of the 180 full-time faculty, 95 percent have a Ph.D. or the terminal degree in their field. The college has only 32 part-time faculty. At Colby, 33 percent of “regular” classes (versus lectures or labs) have between ten and nineteen students. In this study, class size between ten and nineteen students is used across all analyses because it is on the lower end of the mid-range of all class sizes. (The smallest class size reported in research studies is between two and nine students.) Many education researchers (Almulla, 2015; Koniewski, 2013; Shamaki, 2015) believe that class size has an impact on academic achievement, so this study identified a class size of between ten and nineteen students to verify whether small class size represents better

TABLE 3 ► Top Rated College Retention and Graduation Data

College Name	Type	1st Year Returning (%)	Graduate Within 6 Years (%)
Colby College	Private	92.9	94
Princeton University	Private	97.4	97
Stanford University	Private	98.0	93
University of CA, Los Angeles	Public	96.0	91
University of Pennsylvania	Private	98.0	95
University of Virginia, Charlottesville	Public	97.0	93
Yale University	Private	99.0	96

quality of instruction and, thus, higher quality of education. For the seven best-rated colleges, the percentage of classes enrolling between ten and nineteen students varies from a high of 44 percent (Yale University) to a low of 28 percent (UCLA). Further investigation revealed that at UCLA, 23 percent of classes enroll between two and nine students—an exceptionally high percentage of small classes.

- **Campus Life:** At five of the seven top-ranked colleges, 100 percent of freshmen live on campus. At the remaining two—UCLA and Penn—98 percent of freshmen live on campus.
- **Student Retention:** Data for the seven highest-rated colleges suggest that the first-year student return rate and graduation rate are closely related—that is, colleges that have high first-year student return rates tend to also have high graduation rates. For example, at Princeton, the first-year student return rate is 97.4 percent, and the graduation within six years rate is 97 percent; at Yale, the first-year student return rate is 99 percent, and the graduation within six years rate is 96 percent. To verify the association between the first-year student return rate and graduation within six years rate, the next six lowest-rated colleges were compared.
 - ★ Delaware State University’s first-year student return rate was 71.1 percent, and its graduation within six years rate was 42 percent.
 - ★ Dominican College’s first-year student return rate was 71 percent, and its graduation within six years rate was 45 percent.

- ★ Jackson State University's first-year student return rate was 77.8 percent, and its graduation within six years rate was 43 percent.
- ★ Montana State University at Bozeman's first-year student return rate was 77 percent, and its graduation within six years rate was 52 percent.
- ★ The University of Wyoming's first-year student return rate was 76 percent, and its graduation within six years rate was 55 percent.

Data from these lower-rated colleges also indicate that the first-year student return rate appears closely associated with graduation rate and that the colleges that have low first-year student return rates tend to also have low graduation rates, suggesting that the first-year student return rate and graduation rate are positively associated and vary in the same direction.

The upcoming discussion addresses the other three variables identified above:

- **Selectivity:** a cognitive variable that indicates students' intellectual level of preparedness or readiness for college;
- **Academics:** included in this study are full-time faculty-student ratio, faculty composition, and class size;
- **Campus Life:** a non-cognitive non-academic variable that is analyzed as a tangible variable in business terms (Parasuraman *et al.* 1985) or situational variable used in satisfaction research (Shi, Holahan, and Jurkat 2004; Spreng, MacKenzie, and Olshavsky 1996).

Selectivity

According to collegedata.com, a selective college does not admit everyone. Selectivity is measured by the percentage of applicants who are admitted. The lower the percentage, the more selective the school is. As several education research findings report, college selectivity can predict academic performance (Rabiner, Godwin, and Dodge 2016; Sanders, Daly, and Fitzgerald 2016), career achievement (Eide *et al.* 1998; Reitz 1975), and lifetime earnings (Brand and Halaby 2006; Loury and Garman 1995; Thomas 2003). The intent and focus of the

current study is to verify whether college selectivity has any effect on retention and graduation rates.

As indicated in the business customer retention model, customers' satisfaction with and positive judgment regarding service performance are influenced by their expectations, desires, and needs. Expectations may be influenced by customers' personal experience with the product or services as well as the perceived value of a brand. In turn, the customers' experience and expectations may enforce their passion for the product or services consumed—and, therefore, their loyalty to the brand and repeat purchases.

As the data from the current study demonstrate, college selectivity is closely associated with retention. Data from the non-selective, least selective, and highly selective colleges show that the more selective a college is, the higher its retention and graduation rates. Conversely, the less selective a college is, the lower its retention and graduation rates. In addition to the education research findings that selectivity is related to students' levels of intellectual preparedness (Lei, Bartlett, Gorney, and Herschbach 2010; Rabiner *et al.* 2016), findings discussed in this study suggest that the psychological impacts on students' intellectual preparedness may come from many sources, including but not limited to family members' educational experiences and financial situation, students' high school experiences, community experiences, and friends and social group influence. All these factors may affect students' motivation, self-confidence, and striving for higher achievements in order to be competitive. Combined with expectations associated with the perceived value as a return on investment, such as better career choices, higher potential earnings, etc., students' effort and commitment to challenge the competitiveness may provide inspiration for a higher standard.

Academic Factors

In this study, faculty-student ratio, faculty composition, and class size are considered academic factors for analyzing the driving impact on student retention, although many other academic factors, such as instructional methodology (Bridgeman *et al.* 1986) and library services (Soria, Fransen, and Nackerud 2013), are reported in

the literature. The data presented above show that the number and proportion of full-time faculty and the percentage of full-time faculty having a Ph.D. or terminal degree are correlated with student retention. Although some research findings indicate no relationship between faculty credentials and student retention (Flaherty 2013; Ronco and Cahill 2004), a Pearson correlation coefficient was calculated to verify whether current data support the findings (Jacoby 2006; Tinto 2006) that the number of full-time faculty as a proportion of the entire instructional staff and the ratio of students per full-time faculty may influence student retention. The computation measured the student-to-full-time faculty ratio and graduation within six years rate. (Data from DeVry University were excluded because the institution's enrollment and graduation data were inconsistent among collegedata.com, the university's website, and IPEDS. Data from the University of Phoenix were also excluded because of inconsistency in the number of full-time faculty and graduation data available from various sources.) The Pearson correlation coefficient of $r = -0.80$ indicates a strong association between the two variables: number of students to full-time faculty and graduation within six years, confirming that the higher the student to full-time faculty ratio, the lower the graduation rate; conversely, fewer students per full-time faculty is positively associated with a higher probability of graduation within six years.

Smaller class size is another factor found to be linked to student retention, although research findings on the relationships between class size and academic achievement, student satisfaction, and student retention are mixed. Some findings indicate little or no correlation between class size and academic success (Hess 1979; Hoxby 2000). Other findings suggest that smaller class size encourages interactive learning and provides more opportunities for innovative teaching and learning as well as more personalized or customized teaching to meet students' needs; smaller class size can also contribute to better control of the learning environment, *e.g.*, less classroom noise and less disruptive behavior in class to ensure social engagement with the instructor as well as with other students. Data from the current study show that colleges with higher return and gradu-

ation rates offer more classes with small class size (ten to nineteen students). For example, UCLA has a first-year return rate of 96 percent and a graduation within six years rate of 91 percent. 28 percent of their regular classes enroll between ten and nineteen students, and 23 percent of regular classes enroll between two and nine students, so that 51 percent of all UCLA regular classes enroll fewer than 20 students.

Campus Life

In education research, factors not considered “cognitive” or “psychological” are loosely grouped and defined. No consistent agreed-upon measures describe non-cognitive non-academic variables. Campus housing, for example, is reported in some studies (Peltier, Laden, and Matranga 2000; Schudde 2011) as one influencing variable. However, there are insufficient research findings to validate the causal effect of living on campus on student retention, especially for first-year college students. Reports on other non-cognitive non-academic variables can be found in the literature. Examples include “urbanicity” (Jenkins and Fink 2016) and “place of residence” (Peltier et al. 2000). Other campus life factors are also referenced in the literature, such as childcare services in programs designed for adult learners, student services to help commuter students, etc. Although these factors may have relevance to college students' experiences, they are not discussed here given the current study's focus on the relevance of factors to first-year students' return the following academic year and on their ultimate graduation. Because data related to campus housing are presented alongside other data compiled for this study, they are considered among the non-cognitive non-academic factors that may represent student campus life.

All of the seven top-ranked colleges provide campus housing, and at five of the seven, 100 percent of freshmen live on campus. At each of the other two colleges, 98 percent of first-year students live on campus. By contrast, none of the three non-competitive colleges provides housing. The next five lowest-ranked colleges also have lower percentages of first-year students living on campus—from 70 percent at Dominican College to 88 percent at the University of Wyoming.

All Factors Considered

In education research, findings on college student retention point in all directions; propositions and discussions are non-cohesive; and factors, variables, features, and elements used to describe and measure the possible impacts or influences are unclear—and, thus, far from conclusive. The purpose of the current study is to explore the driving influences on college student retention and to find a representative set of factors describing what makes students return and what makes them graduate. In the past 30 years, research on customer retention in business has become much more narrowly focused on factors that have been replicated across many industries, from simple products bundled with sales and maintenance services, such as cars and appliances, to newer and more complex products and services, such as the Internet and cell phones. The conceptual model of customer retention has been commonly accepted by business researchers and practitioners, and the measures, using five dimensions to evaluate service quality, are agreed upon by the majority of researchers and consistently reported in the findings.

Factors Not Included in This Study

For many reasons, a variety of factors reported in education research are not included in this study. Most are non-cognitive non-academic factors. Following are some examples and reasons for non-inclusion. Money or cost is not included. Cost is a complicated variable in the education setting. The “face value” listed in college fact books or websites may not reflect accurate information. For example, the cost of attending Princeton University is listed by collegedata.com as \$64,390 (tuition and fees total \$45,320) whereas the cost of attending the State University of New York, *e.g.*, SUNY Albany, for in-state students is listed as \$24,731 (tuition and fees total \$9,124); the cost of attending a public institution thus appears to be a fraction of that to attend Princeton. Yet these figures do not represent accurate cost information, because no accurate general cost can be estimated. In reality, the actual cost of attending any college varies from student to student. The final cost for an individual student to attend any college is based on an analysis of

the eligibility for scholarships, grants, and other forms of financial aid in addition to money that may have been awarded on the basis of academic performance in high school. Therefore, in reality, a student enrolled at Princeton University may not pay more than if this student (or another student) attended SUNY Albany.

Factors That Need Better Explanations

Selectivity is considered in this study, and data analysis shows its association with student retention and graduation rates. However, selectivity is used in the current study as a proxy for students’ intellectual preparedness. When standardized test scores or high school rank are used as proxies for students’ preparedness, the effects of selectivity become less clear.

On the SUNY Business Intelligence Dashboards (suny.edu/analytics), 2014 selectivity data are presented as a combination of high school average (HSA) and composite SAT. The most selective group (group 1) includes students who have a combination of HSA 85 + SAT 1300 to HSA 95 + SAT 1100. Only two of all 64 SUNY campuses list their group 1 student graduation data: At SUNY Binghamton, the graduation rate within six years is listed as 77.7 percent, and at SUNY Geneseo, it is 71.5 percent. Assuming these students were admitted to and attended an Ivy League institution or a top-ranked public institution such as UC Berkeley, which has a graduation rate of 91 percent within six years, would they have a higher graduation rate? The gap between graduation rates in the 70s and in the 90s is significant and requires explanation, particularly assuming that students’ intellectual preparedness is a controlled variable.

Academic factors also require further research. In the current study, undergraduate data related to academics are only sampled from four-year colleges and universities. Although community college data are not analyzed in this study, it is noteworthy that approximately 50 percent or more of all undergraduates are enrolled at community colleges; thus, retention issues at community colleges cannot be ignored. In an effort to assess an institution’s effect on student outcomes, Jenkins and Fink (2016) tracked the progress of students

for six calendar years after they first enrolled at a community college. Of their sample ($n=719,371$) for the fall 2007 cohort, 33 percent ($n=237,126$) transferred to a four-year institution; 42 percent completed a bachelor's degree within six years. The overall graduation rate was 14 percent (Jenkins and Fink 2016).

In Jenkins and Fink's (2016) study, the selectivity of the institutions to which students transferred was found to correlate with completion of a bachelor's degree, indicating an association between selectivity and graduation rate for those who enroll initially at a community college and later transfer to a four-year school. Highly selective colleges have a 19 percent higher graduation rate for transfer students than do moderately selective colleges and a 36 percent higher graduation rate than those transferring to non-selective colleges (22). Jenkins and Fink (2016) also found that "the type of four-year institution that students transferred to was more important than the type of community colleges they transferred from" (38). The authors note that although only 17 percent of transfer students enrolled at very selective schools, their post-graduation earnings were substantially greater than those of students who graduated from moderately and non-selective schools. These findings are in agreement with the data in the current study.

Even though the final two years of college may be more immediately associated with completion of a bachelor's degree, community colleges play an important role in higher education. Educators assume that community colleges should provide high-quality education services so their students will be well-prepared if they choose to transfer to a four-year institution to complete a bachelor's degree. Data from one community college—SUNY Rockland Community College (RCC)—were sampled given RCC's size and retention rate and the availability of desired data.

RCC's size is in the mid-range of all 30 SUNY community colleges, with a cohort count of 1,325 (for 2015 fall semester). Its first-year student return rate is also in the mid-range, at 67.8 percent (retention rates at the 30 SUNY community colleges range from 52.6 percent to 89.9 percent). Data related to full- and part-time faculty ratio, class size, etc. were available.

Of the features used for previous analyses—*i.e.*, selectivity, academics, and campus life—only RCC's academics could be considered. (RCC is open to all who apply, making selectivity a non-factor, and RCC does not provide campus housing.) According to IPEDS data, RCC employs 105 full-time tenure-track faculty (some of whom are on full release time to perform administrative duties) and 290 full-time non-instructional staff. This number indicates that only about one of every four full-time RCC employees provides instructional services; the other three of every four employees do not provide instructional services or services directly related to instruction.

Additional data provided by RCC's institutional research office show a low ratio of full-time faculty teaching fundamental classes: Only 36 percent of full-time faculty teach Mathematics 101, and 30 percent of full-time faculty teach English 101. Full-time faculty are more likely to teach higher levels of subject- or career-oriented classes such as nursing, hospitality, and tourism, although 43 percent of the 114 nursing faculty, 57 percent of the 111 math faculty, 64 percent of the 14 hospitality faculty, and 69 percent of the 174 English faculty are part-time employees.

The typical class size of English 101 at RCC is 24 to 25 students, though classes of fewer than ten students are offered to international students and those who need skill enhancement. Most Math 101 classes enroll more than 30 students; separate skill enhancement classes are offered to students who need them before being permitted to enroll in Math 101. Comparing data describing academic factors at RCC and those for returning first-year students reported by 30 SUNY community colleges (ranging from 52.6 percent to 89.9 percent) as well as the data reported by Jenkins and Fink (2016), the 14 percent graduation rate should not be considered surprisingly low. These data, however, do beg an answer to the following question: if those students had received better education services when they attended community college as freshmen and sophomores, would they have a higher probability of transferring to a four-year school and graduating with a bachelor's degree?

More Thoughts and Recommendations for Future Research

The descriptive analysis presented in this study is to explore and find an operational model that can provide clearer explanations of college student retention and graduation; to identify the factors that may influence outcomes; and to understand the conditions in which desired outcomes can be reached. Several factors are found to have strong associations with retention: selectivity, the ratio of full-time faculty to the number of students, class size, and campus life.

Selectivity

Selectivity is a key predictor of college student retention. Data pertaining to students admitted directly to a four-year institution as well as those transferring to a four-year institution from a community college suggest higher first-year return and graduation rates. The expectations of students applying to very selective colleges include prospective career outlooks and higher earnings after graduation. If the reputation of those selective colleges remains intact, they will be able to attract more competitive students.

Fewer than 20 percent of transfer students are accepted to and attend very selective colleges. If more transfer students were accepted, those very selective colleges might not be so selective any more, since selectivity is measured by the percentage of those accepted versus those who applied. The smaller the group offered admission, the more competitive the incoming students' intellectual level.

Faculty

Colleges and universities educate students and produce graduates with academic degrees. To meet these goals, every education institution must give top priority to instructional services. In business, employees are hired either to make products or to provide related services in order to reach established objectives. In higher education, effective teaching and learning require qualified and committed personnel who are capable of providing high-quality instructional services. At the freshmen

and sophomore or community college level, the quality of instructional services is just as important, since the quality of entry-level classes will affect students' preparedness for higher-level classes at four-year institutions. According to the data in the current study, the ratio of students to full-time faculty is strongly associated with student retention.

Recommendations

Analyses and discussions to this point suggest that future research should further investigate the business customer retention model as it pertains to college student retention. In the business model, customers evaluate business performance, and companies and service providers improve their services accordingly. In higher education, students enter colleges with pre-existing intellectual capacity and expectations. Education institutions need to provide the quality of services to satisfy students' intellectual needs and, more important, to ensure that students graduate.

Analyses from the current study as well as from other studies suggest use of a narrower set of measures for the college student retention model. Perhaps future research may focus on measures more closely related to teaching and learning. For example, consider and test the use of tangible features, such as campus housing, classroom conditions, and information technology infrastructure, and of intangible features, such as the quality and competence of the faculty, numbers of instructional versus non-instructional staff, and the number of full-time versus part-time faculty. Findings may provide clearer directions and guidelines for institutional leaders to manage the education process so that instruction is delivered successfully and learning is accomplished.

Conclusion

U.S. higher education is a billion-dollar industry. In an effort to help ensure the success of this industry, the current study sought to conceptualize college student retention using the business customer retention model. Students (the customers in the model) should evaluate the education services they receive based on their intellectual desires and needs, academic readiness, and

expectations. In addition, students should assess their individual situations to identify the most appropriate colleges at which to fulfill their educational expectations.

On the other hand, colleges and universities, as service providers, should manage the entire business process to achieve desired outcomes. The education services

that colleges and universities provide should meet or exceed their students' expectations so as to warrant their loyalty and position them for academic success. More important, colleges and universities should deliver what their students come to college for—knowledge and skills to prepare for success in the marketplace and society.

About the Author



Xi Shi

Xi Shi, Professor of Library Services, works at SUNY

Rockland Community College. She earned a Ph.D. in Management Information Sys-

tems; an M.L.S. in Information and Library Science; and an Ed.M. in Education.

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