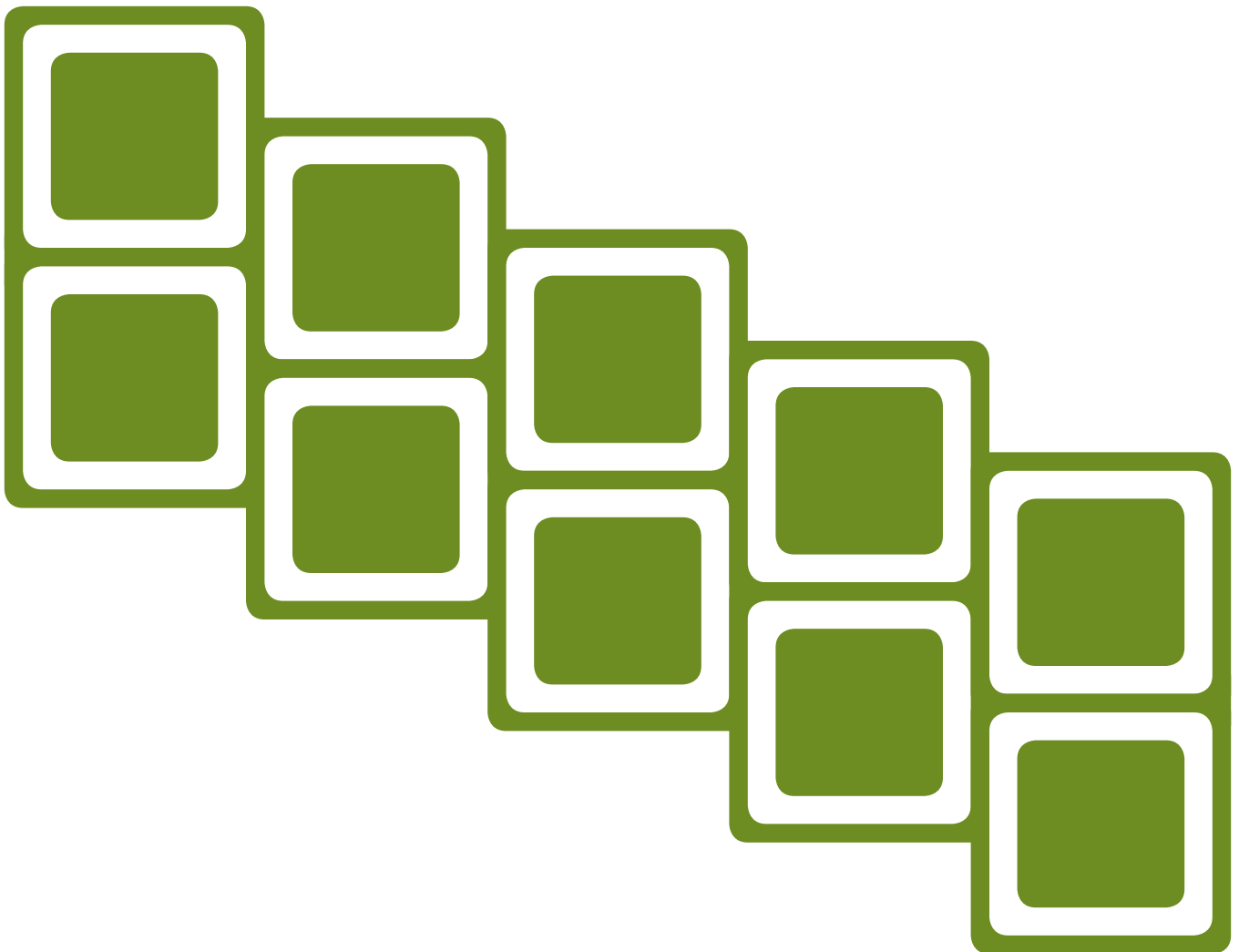# Research Papers

Student Characteristics and Summer Enrollment: A Comparison of Earlier Research with Findings from Nationally Representative Data

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Abstract

Earlier research on small samples of students has identified certain characteristics of students who enroll in summer programs. This study analyzed these previously identified characteristics using enrollment data from a large, nationally representative sample from the 2008 National Postsecondary Student Aid Study. Our research confirmed that the previously identified relationships of some characteristics such as age, class level, and residence hold true in the nationally representative data. Other prior findings about gender and choice of major, and their relationships to summer enrollment, were not confirmed. This study provides a background for institutions to compare the characteristics of their own populations of students with national patterns and to shape curriculum, marketing, and student support efforts to increase summer enrollment.

Enrollment in summer sessions is of significant benefit both to institutions and to students. For institutions, summer session enrollment enhances revenue, improves facility utilization, and facilitates other academic objectives (Doane & Pusser, 2005; Martin, 1997; Vedder et al., 2010). For students, participation in summer session is associated with improved retention, increased likelihood of degree completion, and enhanced contact with faculty members (Adelman, 2006; DiGregorio, 1997). For these reasons, summer session professional and other enrollment managers have a significant interest in maintaining and increasing enrollment in summer sessions. Therefore, understanding which students are more or less likely to attend in summer is a critical line of inquiry in summer session research.

There is a rich history of practical research into summer sessions, including studies of students' interests and behaviors related to the choice to enroll in summer term. Much of the existing research on the characteristics of summer session students has been based, out of necessity, on samples of students from one or two institutions or groups of institutions in a single region. Findings related to these limited populations are valuable, but the demographic differences among students across institutions may make it difficult to apply research findings on students in a single institution or region in a meaningful way. To fill this gap in the literature, we conducted an earlier study of the predictive value of characteristics of students who enroll in summer using a nationally representative sample (Smith, 2011; Smith & Read, 2012).

Purpose of the Study

The findings from the nationally representative sample may also be compared with the findings of earlier research on summer session enrollment patterns. The intent of such a review would be not to question the findings of earlier research but to confirm where smaller scale studies pointed to larger national patterns or where findings in the smaller samples might not match up with patterns seen nationally. Therefore, the purpose of this study was to review and summarize earlier summer session studies that hypothesized or had findings about the characteristics of students who were likely to enroll or not enroll in summer, and to compare those hypotheses and findings with the summer enrollment behaviors seen in the nationally representative sample of students.

Conceptual Framework

The identification of student characteristics related to summer session enrollment was guided by the more general conceptual framework of access to higher education. Access to higher education was defined broadly as entering college (enrollment), successfully participating on terms that meet the student's life circumstance (persistence), and ultimately achieving the educational credential that is of value to the student (attainment) (Adelman, 2006, 2007; Callan, 2001; Pascarella & Terenzini, 2005; St. John & Chung, 2006; Tinto, 1993). Characteristics associated with access were identified and grouped using Heller's (2001) generalizations on the historically considered components of access:

- *Financial accessibility:* Does the student have the financial resources necessary to attend college?

- *Geographic accessibility:* How far does a potential student have to travel to attend college?

- *Programmatic accessibility:* Is the academic program that the student wants available?

- *Academic accessibility:* Has the student had the proper academic preparation in her or his precollegiate years?

- *Cultural/social/physical accessibility:* Do precollege students receive the necessary encouragement and support to attend college from their parents, families, peers, schools, and others? Do some policies (either de jure or de facto) prohibit or encourage the enrollment of students from particular groups, such as racial minorities, or older, nontraditional college students? Are there physical barriers to attendance, especially for students with a disability that limits their mobility? (p. 2)

The theoretical model for this study is that characteristics of individuals may affect their access to higher education. The extension of this approach to the study of summer session participation views summer participation as one component of access and offers the hypothesis that the characteristics of students who enroll in summer session will differ from those of students who do not enroll in summer session, indicating different degrees of access or interest associated with certain characteristics.

Review of the Literature

Reading prior research on summer sessions and summer-enrolled students through this lens of access and the access-related characteristics of students reveals a range of traits that have been highlighted as relevant to summer-enrolled populations. The following is a brief summary of the relevant findings of several prior studies, with emphasis on the student characteristics mentioned in each study.

Taylor, Lee, and Doane (2001) studied the impact of summer attendance on time to degree completion. Their two-phase study first collected information on the characteristics and enrollment patterns of arts and sciences students at 10 public and private research universities, with a follow-up study of the specific experiences of students who graduated in less than four years at a single public institution. Findings in the first phase of their study point to several characteristics related to summer enrollment. Financial pressures were found to be an important factor in the decision to enroll. Summer enrollees tended to have lower mean SAT scores and lower GPAs. Gender did not appear to be a factor, as men and women exhibited similar enrollment patterns (Taylor et al., 2001). This earlier research highlights financial characteristics such as the cost of education and the availability of aid (grants and loans) or income to help pay for education. It also notes academic characteristics related to preparation for college (SAT scores) as well as academic success while in college (GPA). The relationship of gender and the decision to enroll is a social/cultural/physical characteristic.

Patterson, Sedlacek, and Tracy (1981) conducted a study of a random sample of 386 summer-enrolled students at the University of Maryland, College Park. Their research summarized several of the characteristics of these students. Sixty percent of the students enrolled in summer were working either full-time or part-time, and only 6% reported that they lived in a campus residence hall. The distribution of class levels differed significantly for summer-enrolled students, with only 19% describing themselves as freshmen or sophomores while 48% described themselves as juniors or seniors. The remaining 33% were graduate students or not classified. Demographically, more females than males enrolled in summer, and the mean age of the summer students was 25.8 years, which was significantly older than students in the regular term. This study's findings highlighted financial, geographic, and social/cultural/physical characteristics that may be related to summer enrollment, including employment status, residence while enrolled, class level, age, and gender.

Chandler and Weller (1995) studied a random sample of 300 summer-enrolled business students at a Midwestern regional university. They found that students were motivated to attend in summer by the financial obligations to pay a lease during the summer and the opportunity to use up available scholarship funds. They also found that sophomore students who had not been admitted into a major (undeclared majors) were particularly motivated by the opportunity to gain admission to their program of choice by completing summer courses rather than meeting regular admissions requirements. This study points to financial and geographic factors related to the residence of the student while enrolled as well as programmatic factors related to the student's major and class level.

Jenkins, Brown, and Yang (2007) examined the summer school enrollment patterns of three entering classes of students across the 16 campuses of the University of North Carolina system. Their study found that more females than males enrolled in summer and that Asian and American Indian students were more likely to enroll than White or Hispanic students. Students who did not receive financial aid were also more likely than students who did receive financial aid to attend in summer. This research highlights social/cultural/physical characteristics of gender and race as well as financial characteristics related to the reliance on student financial aid.

Harris and Fallows (2002) conducted a case study of the experience of the University of Luton, U.K., when it offered a summer session for the first time. Their review found that when summer courses were first offered, the majority of students who participated lived within close proximity to the school or along convenient routes that led to the school. The participants in summer session at the University of Luton were predominantly female (70% versus 57% during the academic year) and were older than the normal fall and spring population of students. This study highlights the geographic characteristic of distance between permanent home and the institution, as well as gender and age as possible predictors of enrollment.

Several other prior studies point to single characteristics that fall in the financial or programmatic dimensions. A survey of 631 graduating students in the Texas A&M commerce program on their satisfaction with the level of student loans they received indicated that some regretted not borrowing more money so they could attend year-round (Manton & English, 2002). A review of the borrowing trends of students who received Gates Millennium Scholarships (Erisman & McSwain,

2006) found that those who borrowed funds in addition to their scholarship did so primarily to support summer attendance not covered by the Gates program.

Programmatically, the choice to attend in summer was motivated by the opportunity to prepare more fully in a specific field of study for about one-third of the students who attended in summer at Miami University, Ohio (Keller, 1982). A 1990 review of existing summer programs in Australia found that the most common program offerings in summer were in education, business, arts, law, sciences, and languages; the most common enrollments were in business programs (Richmond & Piper, 1991). An online survey of 438 randomly selected students at Colorado State University (Gotshall, 2005) found that juniors and seniors were more likely to plan to attend summer session than freshmen or sophomores.

In summary, these studies with limited sample sizes point to several student characteristics that have been linked to summer enrollment and that could be tested for applicability in the nationally representative sample.

Design and Methodology

The purpose of this study was to summarize earlier summer session-specific studies that had findings or hypotheses about the characteristics of students who were likely to enroll or not enroll in summer sessions and to compare those findings and hypotheses with summer enrollment behaviors of a nationally representative sample of students. The nationally representative sample was drawn from the National Postsecondary Student Aid Study conducted in 2008 and referred to as NPSAS:08 (Cominole, Riccobono, Siegel, & Caves, 2010). The population for the NPSAS:08 survey was all eligible students enrolled at Title IV participating postsecondary institutions in the United States or Puerto Rico between July 1, 2007, and June 30, 2008. The NPSAS:08 study used complex sampling strategy to obtain a nationally representative sample. Weights were applied to each case for the sample so that analysis results would represent the overall population.

A subsample of the total NPSAS:08 sample was selected for analysis. The focus of this study was undergraduate student choices; therefore only undergraduate participants were selected. To filter the effects that proprietary or two-year institutions and institutions using alternative calendars might have on student attendance patterns, only students who attended a public or nonprofit four-year institution on the semester system were selected for analysis. The resulting weighted subsample included 39,020 participants, or 31% of the total weighted survey sample and 36% of the total weighted undergraduate survey sample. It is important to note that institutional factors not available in the data set may affect summer session attendance. For example, some institutions do not offer summer sessions. Also, to use the financial data available in NPSAS:08 it was necessary to look at students who attended a single institution during both the academic year and the summer. There may have been students in the sample who did not attend summer session at their regularly enrolled institution but did attend at another institution. The results of the study should be considered within these initial delimitations. The institutional and demographic characteristics of the resulting subsample are displayed in Tables 1 and 2.

Table 1: Institutional Characteristics of Subsample

Institutional Characteristic	n	%
Enrollment		
Very small (<1,000)	670	1.7
Small (1,000–2,999)	4,560	11.7
Medium (3,000–9,999)	10,000	25.6
Large (10,000 or greater)	23,800	61.0
Institutional control		
Public	28,540	73.1
Private	10,490	26.9

Note: n rounded to nearest 10. The table uses Carnegie Size Classifications (Carnegie Foundation for the Advancement of Teaching, 2011).

Table 2: Demographic Characteristics of Subsample

Demographic Characteristic	n	%
Gender		
Male	17,800	45.6
Female	21,220	54.4
Age group		
15–23	28,560	73.2
24–29	5,340	13.7
30 and above	5,120	13.1
Race/ethnicity		
American Indian or Alaska Native	860	2.2
Asian	2,580	6.6
Black or African American	5,390	13.8
Hispanic or Latino origin	4,530	11.6
Native Hawaiian/other Pacific Islander	480	1.2
Other	1,030	2.6
White	29,930	76.7
Family/independent student annual income		
$0 to $25,000	9,560	24.5
$25,001 to $50,000	7,750	19.9
$50,001 to $75,000	6,380	16.4
$75,001 to $125,000	9,500	24.3
Greater than $125,000	5,840	15.0

Note: n rounded to nearest 10. Categories for race/ethnicity are not mutually exclusive, so the number of cases adds to more than the subsample, and percentages add to more than 100%.

Variables described directly or similarly to the student characteristics highlighted in the literature review were selected, screened, and recoded to serve as the dependent variables in a series of *t*-test and chi-square analyses. The independent variable for this study was enrollment in the summer term, with enrolled students and not-enrolled students serving as two independent groups for *t*-test and chi-square analysis.

For purposes of this study, enrollment in the summer term was defined as enrollment in June 2008 at a semester-based school. It should be noted that this definition depends upon the assumption that semester-based schools have ended their spring semester by the beginning of June and have begun summer session by the end of June. This assumption is supported by Integrated Postsecondary Education Data System definitions (National Center for Education Statistics, 2012) and academic calendar research by Ashford (2001).

The relationship of a student's characteristics to their enrollment in summer session was analyzed using a *t* test for continuous variables and Pearson's chi square for categorical variables. Significance testing was set at a higher level of $p \leq .01$ to address unknown effects of the nested survey methods employed for NPSAS:08 (Thomas, Heck, & Bauer, 2005). Effect size for continuous variables was calculated using Cohen's *d*. For categorical variables, an odds ratio calculation served as the effect/size indicator.

Findings

Financial Characteristics

Six out of the 10 studies reviewed pointed to financial characteristics of students as an indicator of enrollment. Taylor et al. (2001) refer broadly to financial pressures, while others are more specifically about the availability of loans and grants (Chandler & Weller, 1995; Erisman & McSwain, 2006; Jenkins et al., 2007; Manton & English, 2002) or the need to work (Patterson et al., 1981). A *t* test of the relationship of four student characteristics—cost of education, use of grants, use of loans, and family Income—found that summer-enrolled students had a slightly higher cost of education, had a lower family income, and used more loans to pay for the cost of education. There was no significant relationship between the use of grants and summer enrollment. The detailed results of this analysis are displayed in Table 3.

Table 3: *T* Tests of Financial Characteristics

Variable	N	M	SD	t	Cohen's d
Cost of education				-6.64*	0.13
Enrolled	2,960	134.8	39.2		
Not enrolled	36,070	130.3	35.0		
Family income				8.38*	0.16
Enrolled	2,960	223.7	115.3		
Not enrolled	36,070	242.2	115.0		

Variable	N	M	SD	t	Cohen's d
Use of grants				-1.55	0.03
Enrolled	2,960	19.9	23.6		
Not enrolled	36,070	19.2	22.7		
Use of loans				**-4.52***	**0.09**
Enrolled	2,960	24.8	29.0		
Not enrolled	36,070	22.3	28.4		

Note: Cost of education and family income were converted to square roots of cost prior to analysis to reduce skewness. Means above represent square roots of annual student budget. *N* rounded to nearest 10. *M* = mean. *SD* = standard deviation. *t* = computed value of *t* test. Cohen's *d* = Cohen's estimate of effect size. *p ≤ .01.

A chi-square analysis of the relationship of summer enrollment to the employment status of students is displayed in Table 4. Students who did not report working while enrolled at any time during the year were less likely to enroll in summer. Their odds of enrolling were only about 81% of those of students who worked full-time or part-time. On the other hand, students who reported working full-time were nearly 1.5 times more likely to enroll in summer than students who did not work or worked part-time. The relationship of working part-time to summer enrollment was not significant.

Table 4: Chi-Square Tests of Financial Characteristics

Variable	N	Percent enrolled		χ^2	OR
		Yes	No		
Not working					
Yes	12,080	6.6	93.4	24.54*	0.81
No	26,950	8.0	92.0		
Working part-time					
Yes	20,320	7.4	92.6	2.00	*ns*
No	18,700	7.8	92.2		
Working full-time					
Yes	6,630	9.9	90.1	64.27*	1.45
No	32,400	7.1	92.9		

Note: N rounded to nearest 10. χ^2 = computed value of chi-square test. *OR* = odds ratio. *ns* = not significant. *p ≤ .01.

Geographic Characteristics

Two studies noted the relationship of off-campus living arrangements to summer enrollment (Chandler & Weller, 1995; Patterson et al. 1981). Another noted that most students enrolling in summer session lived in close proximity to the institution (Harris & Fallows, 2002). A chi-square analysis conducted on the student characteristics of living off campus and living 35 miles or farther from campus is displayed in Table 5. Both characteristics were significantly related to summer enrollment in the national sample. Students who lived off campus were about 1.6 times more likely to enroll in summer than students whose residence was on campus or with their parents. Students whose permanent address was more than 35 miles from their campus were also less likely to enroll in summer. These students were only about 81% as likely as students who lived within 35 miles of campus to enroll in summer.

Table 5: Chi-Square Tests of Geographic Characteristics

Variable	N	Percent enrolled		χ^2	*OR*
		Yes	**No**		
Permanent home more than 35 miles from campus					
Yes	18,950	6.8	93.2	28.56*	0.81
No	20,070	8.3	91.7		
Local residence off campus					
Yes	19,830	9.2	90.8	145.00*	1.60
No	19,200	5.9	94.1		

Note: N rounded to nearest 10. χ^2 = computed value of chi-square test. *OR* = odds ratio. *ns* = not significant. *$p \leq .01$.

Academic Characteristics

Taylor et al. (2001) noted academic characteristics and their relationship to enrollment in summer. Their study found that summer-enrolled students had lower average SAT and GPA scores than the broader population of students. Results of a *t* test to determine the difference in SAT and GPA scores between enrolled and not-enrolled students in the national sample are displayed in Table 6. In this analysis, students who enrolled in summer had slightly lower SAT scores but higher GPA scores. Both relationships were statistically significant ($p \leq .01$), but the effect sizes calculated using Cohen's *d* were small.

Table 6: *T* Tests of Academic Characteristics

Variable	N	M	SD	t	Cohen's d
SAT score					
Enrolled	2,250	1,028.3	188.6	3.04*	-0.07
Not enrolled	30,090	1,040.8	191.6		
Grade point average					
Enrolled	2,960	306.2	70.1	-8.49*	0.16
Not enrolled	36,070	295.6	64.9		

Note: N rounded to nearest 10. M = mean. SD = standard deviation. t = computed value of t test. Cohen's d = Cohen's estimate of effect size. *$p \leq .01$.

Programmatic Characteristics

Programmatic characteristics referenced in earlier studies included year of study and major (Chandler & Weller 1995; Gotshall, 2005; Patterson et al., 1981). All noted that year of study seemed to be related to summer enrollment, with upper-division students more likely to enroll. A chi-square analysis of year of study found that being a first-year student was significantly associated with not attending in summer, while being a third-year student or not having a classification was significantly associated with being enrolled in summer. Freshmen were only 66% as likely to attend in summer session as other students, while juniors were 1.5 times more likely to attend in summer than other students. The full results are displayed in Table 7.

Three studies also noted the relationship of major to the decision to enroll (Chandler & Weller, 1995; Keller, 1982; Richmond & Piper, 1991). A chi-square analysis of 12 majors, displayed in Table 8, found that being an undeclared major or majoring in humanities was significantly associated with not enrolling in summer session. Undeclared majors were only 73% as likely as other majors to enroll in summer session, and humanities majors were only 83% as likely. On the other hand, health-related majors were 1.33 times as likely to enroll in summer as other majors; they were the only majors significantly associated with summer enrollment.

Table 7: Chi-Square Tests of Programmatic Characteristics: Class Level

Variable	N	Percent enrolled		χ²	OR
		Yes	No		
First year					
Yes	9,360	5.6	94.4	69.12*	0.66
No	29,670	8.2	91.8		
Second year					
Yes	7,820	7.0	93.0	5.09	*ns*
No	31,200	7.7	92.3		

		Percent enrolled			
Variable	N	Yes	No	χ²	OR
Third year					
Yes	8,950	9.9	90.1	90.75*	1.49
No	30,070	6.9	93.1		
Fourth year					
Yes	10,960	7.6	92.4	0.00	ns
No	28,060	7.6	92.4		
Fifth year					
Yes	1,440	8.2	91.8	0.79	ns
No	37,580	7.6	92.4		
Unclassified year					
Yes	500	10.7	89.3	6.96*	1.5
No	38,530	7.5	92.5		

Note: N rounded to nearest 10. χ² = computed value of chi-square test. *OR* = odds ratio. *ns* = not significant. *$p \le .01$.

Table 8: Chi-Square Tests of Programmatic Characteristics: Major

		Percent enrolled			
Variable	N	Yes	No	χ²	OR
Undeclared					
Yes	2,070	5.7	94.3	11.14*	0.73
No	36,950	7.7	92.3		
Humanities					
Yes	5,430	6.5	93.5	10.36*	0.83
No	33,590	7.7	92.3		
Social sciences					
Yes	4,520	7.4	92.6	0.13	ns
No	34,500	7.6	92.4		
Life sciences					
Yes	3,510	6.8	93.2	3.71	ns
No	35,510	7.7	92.3		
Physical sciences					
Yes	600	6.7	93.3	0.72	ns
No	38,420	7.6	92.4		

| | | Percent enrolled | | | |
Variable	*N*	Yes	No	χ^2	*OR*
Math					
Yes	300	7.3	92.7	0.04	*ns*
No	38,720	7.6	92.4		
Computer science					
Yes	1,000	9.1	90.8	3.50	*ns*
No	38,020	7.5	92.5		
Engineering					
Yes	2,380	6.5	93.5	4.54	*ns*
No	36,640	7.6	92.4		
Education					
Yes	3,280	7.5	92.5	0.01	*ns*
No	35,750	7.6	92.4		
Business					
Yes	7,150	8.0	92.0	2.63	*ns*
No	31,880	7.5	92.5		
Health					
Yes	3,320	9.6	90.4	20.44*	1.33
No	35,710	7.4	92.6		
Vocational education					
Yes	370	9.4	90.6	1.81	*ns*
No	38,650	7.6	92.4		
Technical education					
Yes	4,270	8.5	91.5	6.23	*ns*
No	34,750	7.5	92.5		
No major					
Yes	830	8.1	91.9	0.33	*ns*
No	38,190	7.6	92.4		

Note: N rounded to nearest 10. χ^2 = computed value of chi-square test. OR = odds ratio. ns = not significant. *$p \leq .01$.

These findings confirm a relationship between being an undeclared major and enrolling in summer session. However, findings specific to business majors may be limited to the single institution that was reviewed by Richmond and Piper (1991).

Social/Cultural/Physical Characteristics

The social/cultural/physical characteristics of students identified in the prior studies include age, gender, and racial/ethnic identity (Harris & Fallows, 2002; Jenkins et al., 2007; Patterson et al., 1981; Taylor et al., 2001). A chi-square analysis on these three characteristics found no relationship between gender and summer enrollment but confirmed earlier findings regarding age and the nonattendance of White and Hispanic students. More specifically, the chi-square analysis of the seven race/ethnicity categories in the NPSAS:08 database found that persons who identified as Hispanic, White, or Other did not attend summer session at the same rate as other students. On the other hand, persons who identified their race as Black were 1.4 times as likely as other students to attend in summer. Hispanic students were only 72% as likely as other students to attend in summer. The full results for the chi-square analysis of race and gender are displayed in Table 9.

As for age, prior research found that older students were more likely to be enrolled in summer (Patterson et al., 1981; Harris & Fallows, 2002). Analysis of three age groups, displayed in Table 10, found similar, significant results. Students who were 15 to 23 (traditional college age) were only 63% as likely as students who were older to enroll in summer session. In contrast, students who were 24 to 29 were 1.3 times as likely as other students to enroll in summer session, and students 30 and older were 1.7 times as likely as other students to enroll in summer.

Table 9: Chi-Square Tests of Social/Cultural/Physical Characteristics: Race and Gender

Variable	*N*	Percent enrolled Yes	No	χ^2	*OR*
American Indian					
Yes	860	7.7	92.3	0.02	*ns*
No	38,170	7.6	92.4		
Asian					
Yes	2,580	7.5	92.5	0.00	*ns*
No	36,440	7.6	92.4		
Black					
Yes	5,400	9.9	90.1	49.98*	1.42
No	33,630	7.2	92.8		
Hispanic					
Yes	4,530	5.7	94.3	25.00*	0.72
No	34,500	7.8	92.2		
Alaskan/Pacific Islander					
Yes	480	8.8	91.2	1.10	*ns*
No	38,550	7.6	92.4		

Variable	N	Percent enrolled		χ²	OR
		Yes	No		
Other					
Yes	1,030	5.4	94.6	6.86*	0.70
No	37,990	7.6	92.4		
White					
Yes	29,930	7.2	92.8	21.52*	0.82
No	9,090	8.7	91.3		
Gender					
Male	17,800	7.2	92.8	5.36	*ns*
Female	21,220	7.9	92.1		

Note: N rounded to nearest 10. χ² = computed value of chi-square test. OR = odds ratio. ns = not significant. *p ≤ .01.

Table 10: Chi-Square Tests of Social/Cultural/Physical Characteristics: Age Group

Variable	N	Percent enrolled		χ²	OR
		Yes	No		
Age 15–23					
Yes	28,560	6.6	93.4	137.22*	0.63
No	10,470	10.2	89.8		
Age 24–29					
Yes	5,340	9.0	91.0	17.94*	1.25
No	33,680	7.3	92.7		
Age 30 and above					
Yes	5,120	11.4	88.6	122.37*	1.71
No	33,900	7.0	93.0		

Note: N rounded to nearest 10. χ² = computed value of chi-square test. OR = odds ratio. *ns* = not significant. *p ≤ .01.

Implications for Practice

This study has implications for summer session administrators and other enrollment managers. First, practitioners must understand that students who attend in summer differ in significant ways from the larger fall/spring populations. An earlier study of faculty perceptions at a single institution found that most faculty members thought summer-enrolled students did not differ

significantly from students enrolled in fall and spring (Tracey, Sedlacek, & Patterson, 1980). This study provides evidence that this perception is not correct, and summer session administrators should use the findings of this study to help faculty and student advisers understand the differences and to shape courses and other support services to better meet the needs of students likely to attend in summer.

Financial issues for summer session students are one significant area of difference from the larger student population. This study confirmed earlier findings about the characteristics of financial aid and work. Students who attend in summer have higher annual costs and lower family income, and they rely more on loans to help them cover the cost of education. Maximizing available aid to support summer attendance and choosing to borrow more to support summer attendance are complex decisions in which students may need assistance navigating and coming to the best conclusion for their particular situations. Universities that promote or in some cases require summer attendance by students should provide adequate financial aid counseling resources to help students make wise choices, particularly around the decision to borrow more to attend in summer.

Not surprisingly, students who are working full-time or part-time are likely to use summer to manage their time and extend their opportunity to attend across the calendar year. Summer session administrators should make an effort to identify these students in their populations and structure summer courses and support programs that help them with personal schedules that may differ from those of the typical fall/spring student.

Where a student lives also matters. This study confirmed that proximity of a student's permanent home to the campus is related to summer attendance. Summer session marketing has traditionally targeted students whose local address is off campus and who may have 12-month leases. Students whose permanent address is within normal commuting distance of the institution are a similar target group for encouragement to enroll in summer.

This study confirmed the generally accepted enrollment behavior differences between upper- and lower-division students. Specifically, this study found third-year students were likely to enroll while first-year students (those between their freshman and sophomore years) were unlikely to enroll in summer. This pattern is both a challenge and an opportunity for institutions. Courses that meet the curricular needs of third-year students who may be trying to catch up on course work so they can graduate on time are a staple of summer offerings that should result in enrollments. On the other hand, students who attend in summer at any point during their academic career are more likely to complete their degree (Adelman, 2006). Therefore, institutions should continue to create opportunities and reasons for students at all class levels to attend in summer.

The findings of this study in regard to race/ethnicity are another important implication for summer practitioners. Two racial/ethnic groups in particular are at risk for degree attainment. These are Blacks and Hispanics (Perna, 2000, 2007). This study confirmed earlier findings from the North Carolina system study that found Hispanics are less likely to attend than other students (Jenkins et al., 2007). In contrast, the national data indicate that Black students are more likely to attend in summer. Given Adelman's (2006) findings regarding the importance of summer attendance to degree completion, it is important for summer administrators to know whether this pattern holds true at their institution. If it does, then the institution should make efforts to strengthen Black

enrollment and to understand better the perceptions of Hispanic students, to see if barriers to enrollment can be overcome.

Lastly, this study confirmed earlier findings that older students are more likely to enroll in summer, while traditional college-age students are less likely to enroll in summer. In fact, of the variables reviewed in this study, a student being age 30 or older had the strongest predictive value. Those students were 1.7 times more likely to enroll in summer than younger students. On the other hand, a student 15 to 23 was only 0.6 times as likely to enroll as an older student. Institutions that serve a large population of older students have more opportunity to operate programs on a year-round basis than institutions that serve traditional college-age students. All institutions should understand the dominant age groups in their population and the implications of these findings about age. With an understanding of the opportunities and challenges they pre sent, institutions can target programming specifically to various age groups to increase summer enrollment among both younger and older students.

Successful summer session administrators and enrollment managers will know which students at their campus are likely or not likely to attend in summer and will shape their marketing and outreach efforts accordingly. Their ideas will be based on both quantitative and qualitative analysis of their own student populations and may also be based on patterns of enrollment reported by other institutions. Since every institution is different in its student population, it is important to understand how assumptions that might apply at one institution are likely to apply at their home institution. This study of nationally representative patterns of student enrollment provides another reference in the form of a common background against which individual institutional experiences and opportunities can be understood, to support more informed decisions for curriculum development, marketing, and student support services.

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