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ASQ® and ASQ PLUS™

Sourcebook

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ADMITTED STUDENT QUESTIONNAIRE® SOURCEBOOK

What you are holding is a compilation of more than 10 years' worth of material relating to the Admitted Student Questionnaire® and the Admitted Student Questionnaire Plus™. Most of it has been presented in one form or another at various ASQ® user meetings and workshops; some of it is in the form of research papers whose authors have been kind enough to allow their work to be shared with others who are interested in the ASQ; some of it has been adapted from internal institutional reports, whose authors have shared it on condition that the institution be unidentified.

The purpose of this sourcebook is to give you some ideas on where to go with the results of your ASQ or ASQ PLUS™ study once your reports have arrived and you have realized just how much information on your admitted students is available in the reports, and just how much more you could do with the raw data. This is not a "cookbook," in that there are no templates here with blanks you could fill in with your own data. However, feel free to adapt the displays and formats you see here for your own purposes.

This is a work in progress—and will remain so. As new analyses are brought to our attention, or new research information, they will be eagerly incorporated. We hope that your work will also be represented here someday.

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The Busy Administrator's Guide to Understanding ASQ®/ASQ PLUS™

ADMITTED STUDENT QUESTIONNAIRE PLUS™ EXECUTIVE SUMMARY

In the spring of 2002, Sample College surveyed 1,449 students admitted to the college for the fall of 2002. A total of 867 students responded, for an excellent overall response rate of 60 percent (78 percent for enrolling students, 50 percent for non-enrolling).

Three of the four college characteristics of most importance to admitted students concerned academic aspects of the college:

Academic reputation	(83% Very Important)
Personal attention to students	(78%)
Availability of majors	(74%)
Environment of academic excellence	(73%)

Academic reputation was somewhat more important to our admitted students than it was to students at liberal arts colleges in general (79 percent Very Important), while Personal attention was slightly less important to our students (80 percent Very Important to students admitted to private liberal arts colleges).

Among characteristics considered Very Important by a majority of students, yield was greatest for students rating Personal attention Very Important (yield of 39 percent, compared to 35 percent overall). Yield was lowest (28 percent) for students rating Access to off-campus activities Very Important.

Three of the college characteristics of most importance to our admitted students were among those rated most positively:

Academic reputation	(98% Very Good or Excellent)
Personal attention	(97%)
Environment of academic excellence	(97%)
Special academic programs	(94%)

These ratings compare favorably to those given to private liberal arts colleges in general:

Academic reputation	(88% overall vs. 98% for Sample College)
Personal attention	(95% vs. 97%)
Environment of academic excellence	(92% vs. 97%)
Special academic programs	(88% vs. 94%)

Enrolling students gave significantly higher ratings to our college than did non-enrolling students for the following characteristics:

Surroundings	(90% Very Good/Excellent for enrolling vs. 53% for non-enrolling)
Access to off-campus activities	(68% to 46%)
Student diversity	(77% vs. 69%)
Quality of social life	(81% vs. 62%0

The following characteristics represent our greatest strengths; that is, these characteristics are very important to more than half the students, and Sample College is rated better than all other colleges combined, on average:

Personal attention
Academic reputation
Quality of faculty
Environment of academic excellence

On the other hand, the following represent areas which are very important to admitted students but for which Sample College is rated lower than all other colleges combined:

Student diversity
Availability of majors
Quality of academic facilities

For at least 50 percent of our enrolling and non-enrolling admitted students, Sample College is perceived to be:

Challenging	(marked by 79% of all admitted students)
Selective	(78%)
Intellectual	(78%)
Prestigious	(66%)
Isolated	(64%)
Friendly	(57%)

Among these, yield is greatest (41 percent versus 35 percent overall) for students who perceive Sample College to be Prestigious, and least (29 percent) among those who consider the college to be Isolated.

More than two-thirds of admitted students had some contact with or exposure to the following sources of information about our college:

College publications
Post-admission communication
College Web site
Campus visit

In contrast, less than one-third had contact with:

High school visits by admissions staff
Contact with coaches
College-sponsored meetings in home area
College videos

The sources of information about our college that were rated most positively included:

Campus visit	(81% Very Good or Excellent)
On-campus interview	(79%)
College publications	(79%)
Contact with graduates	(75%)

Those rated negatively included:

High school visits by admissions staff	(40% Poor/Fair or Good)
College-sponsored meetings in home area	(42%)
Financial aid communications	(46%)
College videos	(58%)

Nevertheless, ratings of High school visits and College-sponsored meetings compare favorably to normative data for private liberal arts colleges, for which these two information sources received overall Poor/Fair or Good ratings by 45 percent and 52 percent, respectively, of admitted students. Financial aid communications and College videos were rated lower for Sample College than overall (41 percent and 39 percent Poor/Fair or Good, respectively).

For the following sources of information, enrolling students gave Sample College a rating significantly higher than did non-enrolling students:

Campus visit	(93% Very Good/Excellent for enrolling, 74% for non-enrolling)
Post-admission communication	(88% vs. 65%)
On-campus interview	(87% vs. 73%)
Contact with students	(79% vs. 67%)

Somewhat more than half (57 percent) of our admitted students applied for financial aid. Of those, 70 percent reported that they were awarded need-based aid. Eleven percent of all students were awarded no-need aid of some type. This figure is much lower than the 36 percent of all students offered no-need aid at private liberal arts colleges in general.

Comparisons with Danube University

Our college tends to be rated higher than Danube University on social characteristics and lower on academic factors:

Sample College is rated higher on:	Student diversity
	Personal attention
	Campus attractiveness
	Extracurricular activities
and is considered more:	Isolated
	Open-minded
	Challenging
	Comfortable
Danube University is rated higher on:	Quality of social life
	Academic reputation
	Recreational facilities
	Academic facilities
and is considered more:	Prestigious
	Selective
and given higher marks on:	Partying
	Athletics

Students comparing sources of information about Sample College and Danube University gave higher marks to Sample College for Contact with coaches, Contact with graduates, and High school visits, while Danube University was rated higher on Post-admission communication and On-campus interview.

Comparisons with Volga State University

Our college tends to be rated higher than Volga State University on academic quality and lower on factors which can be considered assets of a large public institution.

Sample College is rated higher on:	Quality of faculty
	Environment of academic excellence
	Personal attention
	Access to off-campus activities
and is considered more:	Challenging
	Isolated
	Intellectual
	Selective
Volga State University is rated higher on:	Quality of social life
	Student diversity
	Availability of majors
	Cost of attendance
and is considered more:	Fun
and given higher marks on:	Academic pressure
	Back-up school
	Athletics

Students comparing sources of information about Sample College and Volga State University gave higher marks to Sample College for Contact with coaches, Financial aid communications, and Contact with faculty, while Volga State University was rated higher on On-campus interview, College videos, and Campus visit.

ADMITTED STUDENT QUESTIONNAIRE EXECUTIVE SUMMARY

	ALL ADMITTED STUDENTS	ENROLLING STUDENTS	NON-ENROLLING STUDENTS
Five Characteristics Most Often Rated. Very Important			
Quality of majors of interest	91%	89%	93%
Quality of faculty	77%	78%	77%
Variety of courses	67%	68%	67%
Quality of academic facilities	67%	65%	67%
Cost of attendance	66%	69%	65%
Five Characteristics Most Often Rated. Better or Best			
Cost of attendance	57%	65%	53%
Ease of getting home	39%	57%	30%
Part of the country	25%	34%	21%
Access to off-campus activities	24%	32%	21%
Access to faculty	22%	33%	18%
Four Information Sources with Greatest Exposure			
College publications	85%	87%	83%
Financial aid communications	78%	83%	75%
Post-admission communication	68%	79%	63%
Visit to campus	68%	79%	63%
Four Information Sources Most Often Rated. Better or Best			
Post-admission communication	34%	51%	25%
Contact with coaches	34%	46%	26%
Contact with students	34%	53%	20%
Visit to campus	31%	55%	17%
Six Images Marked Most Frequently			
Comfortable	48%	69%	38%
Friendly	46%	66%	36%
Average	44%	41%	46%
Social	43%	59%	34%
Relaxed	40%	61%	29%
Career-oriented	37%	47%	32%
Five Top Enrollment Planning Service Markets			
Bergen Co	485	249	236
Fitchburg & N Worcester Co	133	57	76
Manhattan	93	27	66
Browrd, Martn, Palm Bc Co	87	21	66
Norfolk & Bristol Co	71	14	57

	ALL ADMITTED STUDENTS	ENROLLING STUDENTS	NON-ENROLLING STUDENTS
Five Colleges with Greatest Number of Cross-Applications			
U Mass Amherst	300	73	227
Cal SU San Bernardino	216	56	160
Elon College	209	39	170
Grand Valley State U	178	55	123
U Nevada Reno	175	33	143
Five Colleges with Greatest Number of Cross-Admissions			
U Mass Amherst	232	34	198
Pomona C	192	50	142
U Nevada Reno	150	19	131
Grand Valley State U	163	50	113
Rowan U	159	27	132
Five Colleges Attended Most Frequently by Non-Enrolling Students			
U Mass Amherst	85	--	85
Elon C	76	--	76
Cal SU San Bernardino	57	--	57
Grand Valley SU	47	--	47
U Denver	47	--	47

SUMMARY OF ASQ PLUS™ CHARACTERISTIC RATINGS

College Characteristics Rated "Very Important" by Students

	SAMPLE COLLEGE DOES BETTER	COMPETITOR DOES BETTER
All Competitors	Personal attention	Student diversity
	Quality of faculty	Availability of majors
	Academic reputation	Quality of academic facilities
	Envir. of academic excellence	
	Extracurricular activities	
vs. Danube Univ.	Personal attention	Envir. of academic excellence
	Extracurricular activities	Academic reputation
	Quality of faculty	Availability of majors
		Quality of social life
		Quality of academic facilities
vs. Volga State Univ.	Quality of faculty	Student diversity
	Envir. of academic excellence	Availability of majors
	Personal attention	Quality of academic facilities
	Academic reputation	
	Extracurricular activities	
vs. Zambezi College	Personal attention	Availability of majors
	Academic reputation	Quality of academic facilities
	Envir. of academic excellence	Student diversity
	Quality of faculty	Surroundings
	Extracurricular activities	
vs. College of the Amazon	Personal attention	Surroundings
	Quality of faculty	Availability of majors
	Quality of academic facilities	Academic reputation
	Envir. of academic excellence	
vs. Frasier College	Personal attention	Student diversity
	Academic reputation	Availability of majors
	Envir. of academic excellence	Quality of academic facilities

In this display, "Characteristics rated very important" were those rated Very Important by at least 50 percent of the respondents. Characteristics for which our college "does better" were those for which the mean rating of our college was higher than the mean for the other college. Within each box characteristics are listed in decreasing order of the difference between the rating of our college and the rating of the competitor.

College Characteristics Rated "Less Important" by Students

	SAMPLE COLLEGE DOES BETTER	COMPETITOR DOES BETTER
All Competitors	Attractiveness of campus	Access to off-campus activities
	Quality of on-campus housing	Cost of attendance
	Special academic programs	Quality of social life
		Avail. of recreational facilities
		Surroundings
vs. Danube Univ.	Student diversity	Avail. of recreational facilities
	Attractiveness of campus	Quality of on-campus housing
	Access to off-campus activities	Special academic programs
	Cost of attendance	Surroundings
vs. Volga State Univ.	Special academic programs	Quality of social life
	Surroundings	Cost of attendance
		Access to off-campus activities
		Attractiveness of campus
		Quality of on-campus housing
vs. Zambezi College	Attractiveness of campus	Access to off-campus activities
	Quality of on-campus housing	Quality of social life
	Special academic programs	Cost of attendance
		Avail. of recreational facilities
vs. College of the Amazon	Cost of attendance	Quality of social life
	Student diversity	Access to off-campus activities
		Avail. of recreational facilities
		Quality of on-campus housing
		Special academic programs
vs. Frasier College	Quality of faculty	Cost of attendance
	Surroundings	Quality of social life
	Attractiveness of campus	Avail. of recreational facilities
	Access to off-campus activities	Special academic programs

Source: Sample College Admitted Student Questionnaire PLUS Competitor Analysis Report, 2002. Tables H-4, I-4, J-4, K-4, L-4.

SUMMARY OF ASQ PLUS COMPETITOR IMAGES

	VS. DANUBE UNIVERSITY	VS. VOLGA STATE UNIVERSITY	VS. ZAMBEZI COLLEGE	VS. COLLEGE OF THE AMAZON	VS. FRASIER COLLEGE
Number of students applying	292	231	238	277	162
Number of students admitted	203	164	150	181	31
Number of rating competitor in top 3	137	109	97	119	61
Number of enrolling at competitor	30	37	34	38	18
Number of rating competitor	116	94	90	102	56
Challenging					
Us	90%	87%	88%	76%	72%
Them	81%	74%	81%	76%	64%
Difference	9%	13%	7%	0%	8%
Selective					
Us	74%	86%	95%	79%	85%
Them	87%	79%	81%	81%	56%
Difference	-13%	7%	14%	-2%	29%
Intellectual					
Us	78%	82%	79%	78%	79%
Them	74%	71%	72%	66%	72%
Difference	4%	11%	7%	12%	7%
Prestigious					
Us	53%	66%	68%	72%	82%
Them	67%	67%	64%	63%	64%
Difference	-14%	-1%	4%	+9%	18%
Isolated					
Us	63%	66%	58%	66%	58%
Them	44%	54%	23%	21%	42%
Difference	19%	12%	35%	45%	16%
Friendly					
Us	50%	58%	63%	52%	72%
Them	44%	55%	45%	61%	67%
Difference	6%	3%	18%	-9%	5%
Open-minded					
Us	42%	41%	48%	41%	30%
Them	30%	41%	35%	42%	66%
Difference	12%	0%	13%	-1%	-36%

Source: Sample College Admitted Student Questionnaire PLUS Competitor Analysis Report, 2002. Tables H-4, I-4, J-4, K-4, L-4.

MAGNITUDE AND DIRECTION OF ASQ PLUS RATINGS DIFFERENCES WITH COMPETITORS

	VS. DANUBE UNIVERSITY	VS. VOLGA STATE UNIVERSITY	VS. ZAMBEZI COLLEGE	VS. COLLEGE OF THE AMAZON	VS. FRASIER COLLEGE
Academic reputation					
N	113	93	90	101	54
Us better by > 1 point	0%	0%	0%	3%	0%
Us better	5%	22%	22%	23%	28%
Both rated the same	78%	65%	71%	53%	63%
Competitor better	17%	13%	7%	24%	8%
Comp. better by > 1 point	0%	0%	0%	4%	0%
Personal attention					
N	107	90	87	96	44
Us better by > 1 point	1%	0%	16%	1%	3%
Us better	19%	26%	32%	28%	38%
Both rated the same	78%	62%	65%	66%	56%
Competitor better	3%	12%	3%	6%	6%
Comp. better by > 1 point	2%	0%	0%	4%	0%
Availability of majors					
N	105	91	87	98	53
Us better by > 1 point	1%	0%	0%	1%	3%
Us better	6%	5%	9%	11%	16%
Both rated the same	77%	78%	66%	62%	52%
Competitor better	17%	17%	26%	18%	32%
Comp. better by > 1 point	0%	2%	3%	4%	5%
Envir. of academic excellence					
N	90	77	74	88	43
Us better by > 1 point	0%	6%	0%	4%	0%
Us better	2%	30%	17%	17%	17%
Both rated the same	85%	63%	77%	70%	70%
Competitor better	13%	7%	6%	13%	14%
Comp. better by > 1 point	3%	0%	0%	3%	0%
Quality of academic facilities					
N	88	81	78	86	50
Us better by > 1 point	0%	3%	0%	4%	0%
Us better	7%	20%	16%	19%	11%
Both rated the same	76%	58%	62%	69%	69%
Competitor better	17%	22%	22%	11%	20%
Comp. better by > 1 point	0%	7%	4%	1%	6%

The characteristics in this table were those of most importance to all admitted students. For each characteristic, shaded boxes within a column sum to 100 percent.

SUMMARY OF MAJOR FINDINGS

- Sample College's competitor set is local as opposed to regional or national, and includes as many private as public institutions.
- Availability of majors, career preparation, quality of faculty, and cost of attendance are the most important factors for Sample College's admitted students.
- Cost of attendance is a competitive advantage Sample College has over most of its private competitors.
- Sample College's admitted and enrolling populations come disproportionately from lower- and middle-income families, compared to other colleges.
- Overall, Sample College compares favorably to competing institutions in terms of class size, surroundings, quality of faculty, personal attention, and cost. However, Sample College does not compare favorably to its top three competitors on many important characteristics, such as reputation. As a result, the college has considerable competitive disadvantages compared to these institutions.

ACTION ITEMS/FURTHER DISCUSSION

Several issues deserve more discussion and/or closer monitoring:

Continue to monitor cost factors: Is Sample College's growing support of financial aid having an impact? Are students being won away by institutions which offer more aid (or no-need aid)? As public institutions begin to develop financial incentive programs to attract top-quality students, will we begin to see changes in overall or win/loss rates? Other studies have shown a dramatic increase in the percentage of students who choose a private liberal arts college over a public institution.

Target high-yield or "enrolling/non-enrolling perception gap" areas: In some high-yield areas, Sample College traditionally does well, and there is little room for improvement. Some items, such as the negative perception of the location and surroundings, are very difficult to change. More attention can be devoted to areas that the college can influence. Making opportunities for personal contacts with faculty, coaches, students, and alumni more available to more applicants may help. Opportunities for faculty-student interaction could be reinforced using examples of thesis and joint research opportunities, or by reference to class-size statistics.

Monitor core competitors: ASQ PLUS detailed competitor reports are available for Gray College, Lemon College, Orange University, and Beige University from 1992–2002. Discussions could help focus more closely on the reasons why we win or lose against these schools and how the competitive relationship is changing. ASQ responses for applicants who rate various key competitors vary greatly from competitor to competitor and from overall survey responses.

Dig deeper into the ASQ: The ASQ is an incredibly rich instrument, and so far, we have only been able to examine the "pre-packaged" reports. The standard ASQ reports do not make exploration of gender or multicultural issues easy. "Diversity" is an issue where Sample College is not highly rated, but where the institution clearly wishes to make an impact. The most recent entering class is predominantly female, and it is the most gender imbalanced class in 20 years. How do gender perceptions of social, athletic, and campus environment issues differ by gender among enrolling and non-enrolling students? The number of women enrolled full-time in college is expected to rise at double the rate of increase for men in the next 10 years. Time and staff resources are the key limiting factors to more in-depth use of the raw ASQ data.

Incorporate other institutional studies in marketing the college: Since applicants are expressing more concerns about post-college outcomes, sharing information from alumni studies or post-college careers may help. Reports of graduate and professional activities of recent graduates will be shared with Admissions. Satisfaction evaluations are very high for the types of academic issues most often cited as "important" by applicants. Findings from the recent all-student survey may also be of interest to applicants.

Questions, Questions, Questions

(and how to find the answers)

WHO IS OUR COMPETITION?

- Was the list as expected?
- Is the list of cross-app colleges the same as the list of cross-admit colleges?
- Interpreting the "win percent"—the real competition?
- Which colleges show up most as the students' first choice? (ASQ+ only)

Resources in the report:

- Top 12 colleges in cross-applications ("cross-apps")
- Top 12 colleges in cross-admits
- Win percentage
- Colleges attended (ASQ+)
- Appearance in top three choices (ASQ+)

Potential graphic displays from reports:

- Number cross-apps versus number cross-admits, selected colleges
- Number cross-admits versus win percentage

Potential graphic displays from data file:

Map win percent versus percent in top three/first choice

- Classify colleges by type, location, selectivity, etc.
- Identify college groups, e.g., out-of-reach, moving up, vulnerable
- ASQ: look at subgroups who applied/were admitted to particular sets of colleges
- Implications of selecting particular competitors (ASQ+): in what important ways are they similar/different (size, control, location, selectivity)? What's the pecking order? If competitor is a group, how homogeneous is the group?
- Ranking versus rating (ASQ+)

CLASSIFYING COLLEGES WITH HIGH CROSS-ADMITS					
	Public	In-State	Highly Selective	Lower Tuition*	Offer Merit Schol.*
Bucknell U		X	X		X
Dickinson C		X	X		
Lehigh U		X	X		X
Colgate U			X		
Penn State	X	X		X	X
Lafayette C		X	X		X
Gettysburg C		X	X		
Rutgers U	X		X	X	X
U Penn		X	X		X
U Rochester			X		
Boston U			X		X
Muhlenberg C		X			X

*These columns use fictitious data.

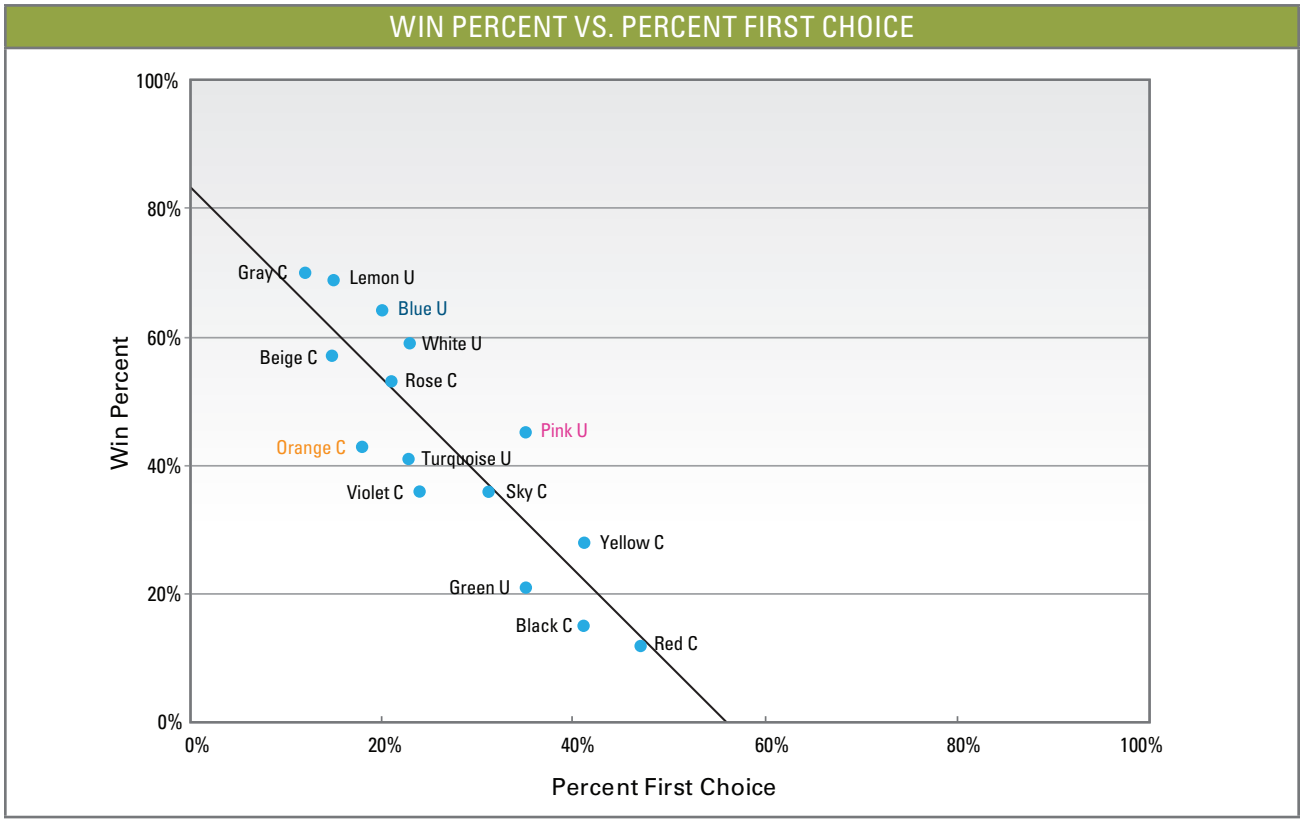
CALCULATING "WIN PERCENTAGE"						
	No. of Cross-Applic.	No. of Cross-Admits	Our College	Listed College	Other College	Win Percentage
Brown U	321	183	22	71	90	22/(22 + 71) = 23%
Harvard U	261	85	3	60	23	3/(3 + 60) = 4%
Wesleyan U	243	193	33	21	139	33/(33 + 21) = 61%
Bowdoin C	156	111	36	3	71	36/(36 + 3) = 91%
Bates C	85	81	36	6	39	36/(36 + 6) = 85%

Take into account the percentage of cross-admits not attending EITHER your college or the given competitor: win percentage is more meaningful if there isn't another college taking students from both of you.

TOP TEN COLLEGES ADMITTED TO, BY RESIDENCE					
Resident	N	%	Nonresident	N	%
UC Davis	399	23%	Santa Clara U	78	22%
Santa Clara U	305	18%	Gonzaga U	53	15%
UC Santa Barbara	286	17%	U Oregon	44	13%
U San Diego	243	14%	U Puget Sound	44	13%
U San Francisco	226	13%	U San Diego	41	11%
Cal Poly SLO	190	11%	Pepperdine U	35	10%
UC San Diego	185	11%	U San Francisco	31	9%
Loyola Marymount U	167	10%	U Portland	29	8%
UC Santa Cruz	163	10%	Willamette U	27	8%
Calif SU Chico	126	7%	U Washington	23	7%

How many are public? Private? Are there any public schools in our state among the top 10 admitted to by out-of-state students? Are there any public schools in other states among the top 10 for in-state students?

Consider selecting different sets of competitors when requesting subgroup reports.



Here the outliers are those competitors against which your win percentage is higher or lower than would be expected, given the frequency with which they appear as the respondents' first choice.

TOP 50 INSTITUTIONS IN CROSS-APPLICATIONS				
	Sample College Win Percentage			
Number of Cross-Applications	0%–25%	26%–50%	51%–75%	76%–100%
200+	Gray C Beige Orange	Lemon U		
101–200	Violet White Rose Green	Blue		Turquoise Sky
51–100	Black Sage Gold Canary Ivory	Yellow Lavender Brown	Red	Burnt Sienna Pink Cream
26–50	Ebony Chartreuse Eggplant Cranberry Forest Ruby Amethyst Dove Amber	Peach Mauve	Fuschia Hunter Purple Tan Parchment Aquamarine	Puce Royal Eggshell Magenta Teal Emerald Pearl Citrine Navy

Some of the colleges with the greatest number of cross-applicants are among those with the lowest win percentage for Sample College. That is, of the large number of students who apply to both Sample College and one of those competitors, very few enroll at Sample College. What will happen if one or more of those colleges begins to admit more of Sample College's admitted students? Conversely, Sample College's admitted students don't apply with great frequency to the colleges where their win percentage is high.

This type of chart could also be prepared using the percentage of cross-applicants admitted as the column variable.

ASQ/ASQ+ ISSUES

- Who is our competition?
- What do they have that we don't (and vice versa)?

PROFILING OUR COLLEGE: STRENGTHS AND WEAKNESSES

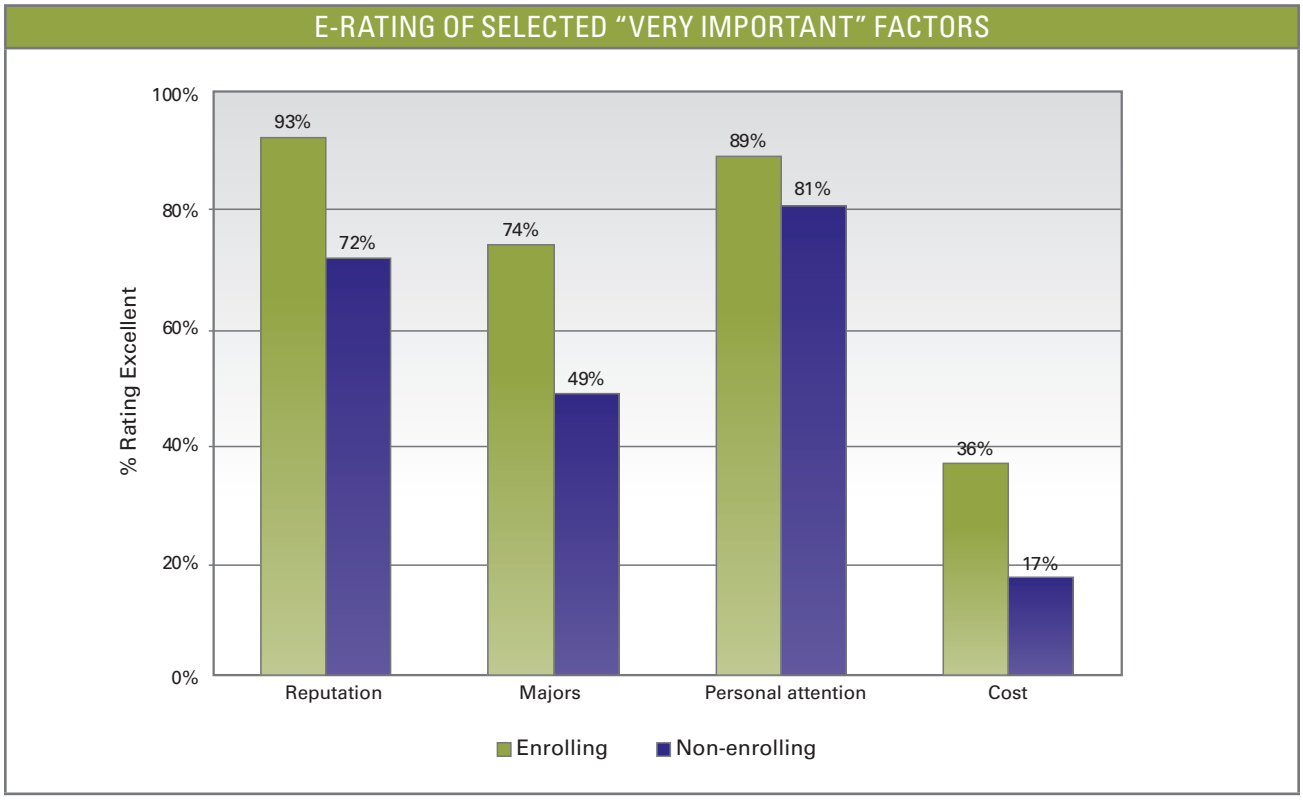
- Which college characteristics are important to admitted students?
- For which characteristics are we rated better/worse than other colleges? (ASQ)
- For which characteristics are we rated high/low? (ASQ+)

Resources in the report:

Importance of characteristics
Comparative rating of characteristics (ASQ)
Ratings of characteristics for our college (ASQ+)
Importance and rating of our college (ASQ+)
Comparison between our college and specific others (ASQ+)
Norms Report

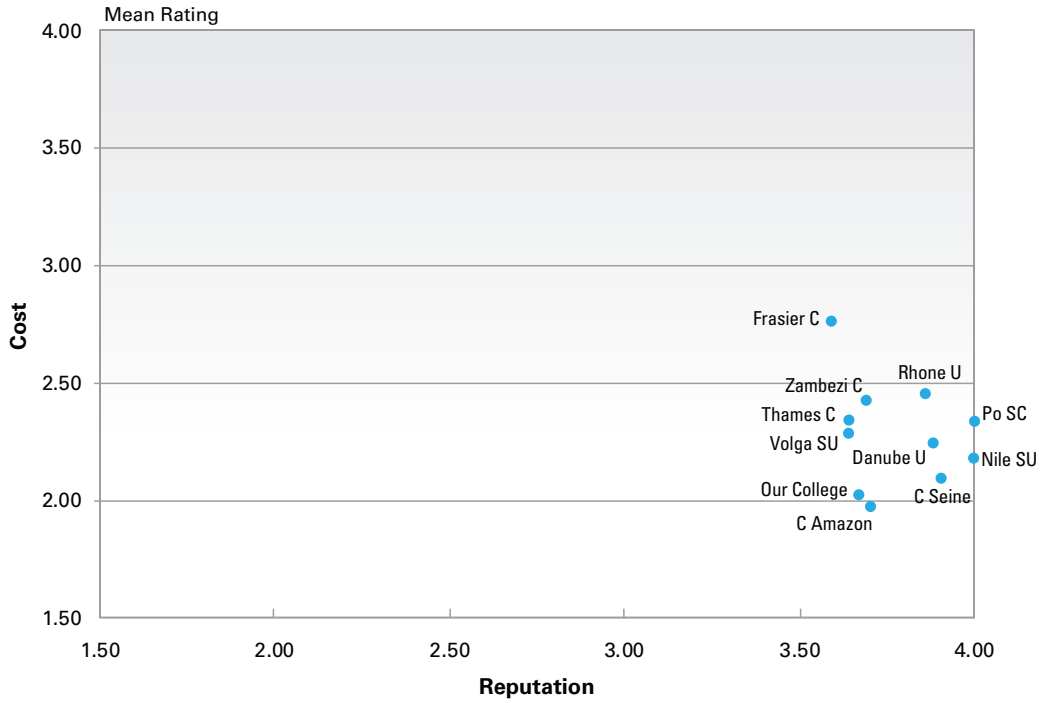
Graphic displays in the report:

Our college versus set of others (ASQ) or specific others (ASQ+)



Of those students who considered selected factors "very important," what percentage rated our college "Excellent"? Here, the gap between enrolling and non-enrolling "excellent" percentages is greatest for Availability of Majors and Cost of Attendance.

RATING OF COST VS. RATING OF REPUTATION



Colleges in addition to the five original competitors can be plotted using the data file. This type of graph looks at whether relative position on one variable is similar to relative position on another.

ASQ/ASQ+ ISSUES

- Who is our competition?
- What do they have that we don't (and vice versa)?
- What kind of image do we project?

PROFILING OUR COLLEGE: IMAGES

- What is the general profile of our college?
- What is the profile of our college compared to other colleges? (ASQ+)
- How do different subsets of students see our college?

Resources in the report:

Percent marking images, enrolling and non-enrolling
Percent marking images, our college and selected others (ASQ+)
Norms Report

Graphic comparisons:

Enrolling vs. non-enrolling (ASQ+)
Our college vs. set of others (ASQ) or specific others (ASQ+)

MOST FREQUENTLY MARKED IMAGES, BY NUMBER OF UC BRANCHES ADMITTED TO					
NONE (N = 1,258)		ONE OR TWO (N = 671)		THREE OR MORE (N = 264)	
Image	%	Image	%	Image	%
Friendly	62%	Personal	61%	Friendly	62%
Personal	57%	Friendly	57%	Personal	60%
Comfortable	56%	Comfortable	56%	Comfortable	59%
Challenging	**53%**	Isolated	47%	Close-knit	52%
Isolated	43%	Close-knit	44%	Isolated	43%
Close-knit	40%	Conservative	43%	Conservative	40%
Intellectual	40%	**Challenging**	**42%**	Not well-known	31%
Prestigious	**39%**	Intellectual	36%	Intellectual	31%
Fun	**38%**	**Prestigious**	**34%**	Social	30%
Relaxed	37%	Career-oriented	31%	Relaxed	30%
Conservative	37%	**Fun**	**29%**	Career-oriented	27%
Career-oriented	36%	Relaxed	28%	**Challenging**	**27%**
Social	32%	Social	26%	Snobbish	24%
Exciting	22%	Not well-known	23%	**Prestigious**	**23%**

ASQ competitor data can be used, but not in as much detail as with the ASQ+.
Students frequently make an implicit comparison when marking images

MOST FREQUENTLY MARKED IMAGES, BY SAT® V+M					
NONE (N = 1,258)		ONE OR TWO (N = 671)		THREE OR MORE (N = 264)	
Image	%	Image	%	Image	%
Challenging	67%	Personal	68%	Personal	59%
Personal	65%	Friendly	59%	Friendly	57%
Friendly	60%	Comfortable	48%	Liberal	55%
Liberal	59%	Liberal	48%	Intellectual	54%
Comfortable	48%	Challenging	45%	Challenging	53%
Intellectual	47%	Intellectual	41%	**Not well-known**	**45%**
Relaxed	**46%**	**Relaxed**	**40%**	Comfortable	45%
Career-oriented	**40%**	**Not well-known**	**36%**	Social	37%
Fun	36%	**Career-oriented**	**35%**	Fun	35%
Not well-known	**35%**	Social	34%	Close-knit	32%
Social	33%	Fun	34%	**Relaxed**	**31%**
Isolated	32%	Isolated	32%	Isolated	27%

Which images of our college are common to different student subgroups? Which are different? Do the students perceive us primarily in affective or "educational" terms?

MOST FREQUENTLY MARKED IMAGES, BY STATE RESIDENCE			
	In-state	Out-of-state	Difference
Prestigious	58%	45%	13%
Career-oriented	62%	49%	13%
Highly-respected	73%	61%	12%
Intellectual	67%	56%	11%
Selective	48%	39%	9%
Challenging	68%	59%	9%
Comfortable	43%	38%	5%
Supportive	43%	40%	3%
Athletics	11%	9%	2%
Large	19%	19%	0%
Isolated	3%	4%	–1%
Fun	35%	36%	–1%
Friendly	59%	60%	–1%
Partying	6%	7%	–1%
Average	12%	13%	–1%
Personal	31%	33%	–2%
Back-up school	12%	15%	–3%
Diverse	56%	63%	–7%
Not well-known	2%	11%	–9%

What images seem to be affected by proximity? Our academic image is stronger within the state. Perception of size and friendliness differs very little, but our college is perceived as more diverse out-of-state.

SAMPLE COLLEGE AND HIGH PROFILE UNIVERSITY	
Images of Sample College	Images of High Profile University
• Not well-known • Back-up school • Average • Non-traditional	• Prestigious • Highly respected • Challenging • Selective • Intellectual • Career-oriented • Fun • Excitingly different • Partying • Diverse • Comfortable

SAMPLE COLLEGE AND MYLOCAL UNIVERSITY	
Images of Sample College	Images of High Profile University
• Not well-known • Highly respected • Prestigious	• Prestigious • Diverse • Athletics • Intellectual • Fun • Challenging • Partying • Selective • Excitingly different • Average • Career-oriented

These two tables present the same information shown in the graph in Exhibit 10 of each section of the Competitor Analysis Report. Note that the profile of Sample College is very different, depending on who else is in the lineup.

ASQ/ASQ+ ISSUES

- Who is our competition?
- What do they have that we don't (and vice versa)?
- What kind of image do we project?
- Why are we losing the students we're losing?
- What could we do to get them back?

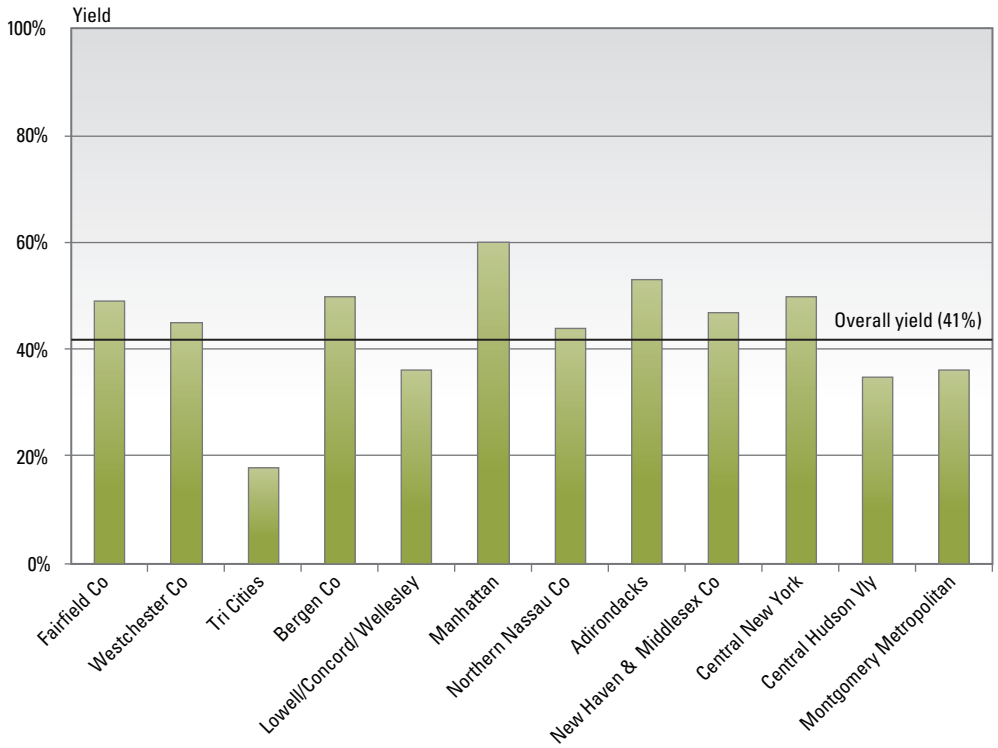
PROFILING OUR COLLEGE: INFLUENCES ON YIELD

- Which ratings particularly affect yield?
- How does the combination of importance and rating affect yield? (ASQ)
- Which college images are most related to a high yield?

Resources in the report:

"Yield" column on all tables in Highlights Report
College characteristics associated with yield (ASQ)
Opinions associated with yield (ASQ)
Ratings of cost and aid in relation to yield (ASQ)

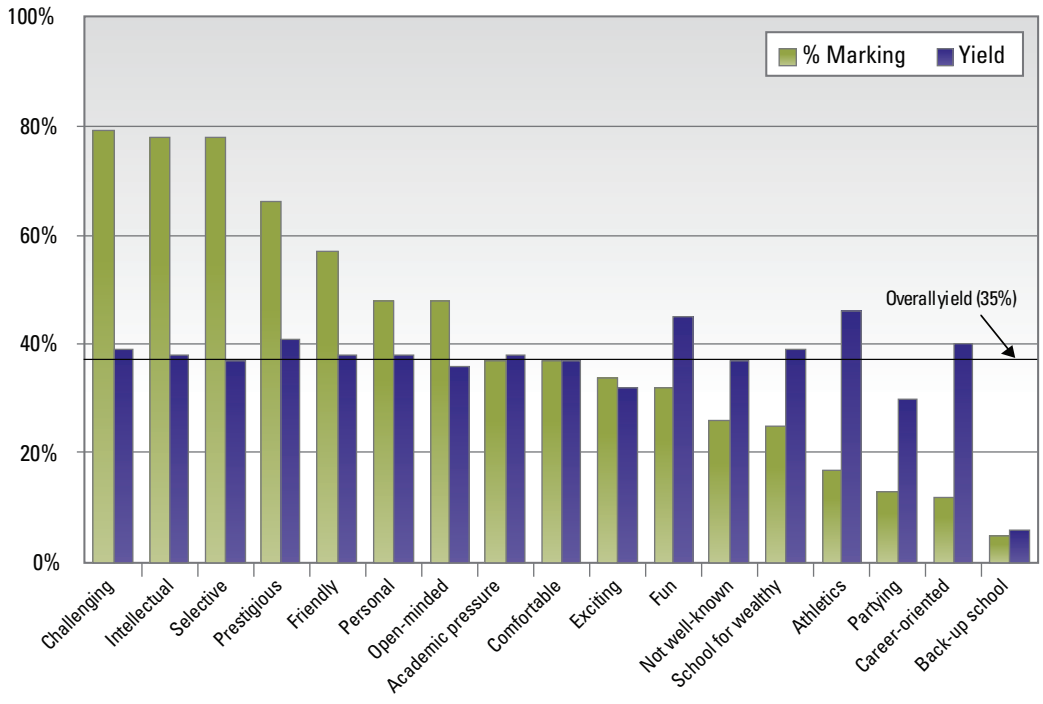
YIELD FOR TOP TWELVE EPS MARKETS



Yield for any given response or item must be taken in the context of overall yield, rather than being considered high or low on its own.

This graph shows yield for each of the 12 Enrollment Planning Service (EPS®) markets showing the greatest numbers of admitted students.

IMAGE FREQUENCY AND ASSOCIATED YIELD



This graph shows the percentage of students marking each image, and the admissions yield among the respondents marking them. Again, look for outliers and compare the yield for each image to the overall yield. Also consider whether students who tend to consider your college in academic terms have different characteristics (e.g., have a different college choice set) than those who perceive you as fun or athletic.

ASQ/ASQ+ ISSUES

- Who is our competition?
- What do they have that we don't (and vice versa)?
- What kind of image do we project?
- Why are we losing the students we're losing?
- What could we do to get them back?
- What is the role of cost and/or financial aid?

THE ROLE OF COST AND FINANCIAL AID

- What is the relationship between aid and income?
- What is the relationship between aid and attending first choice? (ASQ+)
- For what type of students is aid or cost a significant factor?

Resources in the report:

Importance and rating of net cost (college characteristic)
Significance of cost or aid in college choice
Percent applying for aid, our college and others
Comparative ratings of cost and aid (ASQ)
Components of aid package (ASQ+)
Rating of cost level, our college and others (ASQ+)

FIRST CHOICE COLLEGE, SIGNIFICANCE OR COST OR AID NON-ENROLLING ONLY			
Cost or aid significant factor		Cost or aid not a significant factor	
Our college	15%	State university	12%
State university	8%	Similar in-state private univ.	10%
Similar in-state private univ	6%	Prestigious private univ. #1	8%
Similar out-of-state private	6%	Our college	5%
Prestigious private univ. #2	4%	Similar out-of-state private	5%
N = 1,457		N = 399	

If the net cost of attending your college is less than that of your major competitors, can you determine why students for whom you are the first-choice school do not attend?

PERCENT INDICATING COST OR AID WAS A SIGNIFICANT FACTOR, BY INCOME				
	N	Enrolling	Non-enrolling	Total
Up to $39,999	209	85%	81%	82%
$40,000–$99,999	532	50%	61%	58%
$100,000 and higher	438	6%	14%	11%

If the net cost of attending your college is less than that of your major competitors, can you determine why students for whom you are the first-choice school do not attend?

PERCENT ATTENDING FIRST-CHOICE COLLEGE BY SIGNIFICANCE OF COST OR AID			
	Enrolling	Non-enrolling	Total
Aid/cost a significant factor	86%	70%	76%
Aid/cost not a significant factor	93%	93%	93%

Most students plan to attend their first-choice college (among those admitted to), regardless of aid/cost issue. Is cost more of a factor at application stage?

COST/AID INFORMATION COMPARISON WITH NORMS GROUPS			
	Enrolled at Sample College versus All Students Admitted to Four-Year Privates		
	Sample College	All Private Comprehensive	All Private Liberal Arts
Aid/cost significant in choice	77%	59%	66%
Applied for need-based aid	83%	69%	72%
Received need-based aid	63%	50%	53%
Rating of Cost			
Very High	14%	45%	31%
Moderately High	41%	33%	44%
Moderately Low	28%	15%	18%
Very Low	16%	7%	8%

This table compares students who enrolled at Sample College with those who were admitted to either or both of the two norms groups. Comparing Sample College's enrolling students to enrolling students in the norms groups would require a certain amount of manipulation of the Norms Report.

IMPORTANCE AND RATING OF COST/AID FOR VARIOUS STUDENT SUBGROUPS			
	Net cost rate "Very Important"	Net cost rated "Better" or "Best"	Cost/aid a significant factor in college choice
Male	70%	21%	65%
Female	77%	13%	72%
SAT 800–1050	78%	17%	70%
SAT 1060–1600	74%	13%	72%
African American	87%	18%	77%
Asian American	84%	19%	79%
Hispanic	90%	15%	88%
White	70%	14%	64%
State resident	78%	14%	73%
Non-state resident	71%	20%	58%
Income < $30,000	94%	26%	89%
$30,000–$79,999	88%	14%	86%
$80,000 or more	65%	13%	59%

ASQ/ASQ+ ISSUES

- Who is our competition?
- What do they have that we don't (and vice versa)?
- What kind of image do we project?
- Why are we losing the students we're losing?
- What could we do to get them back?
- What is the role of cost and/or financial aid?
- What is the impact of our recruitment activities (information sources)?

IMPACT OF RECRUITMENT ACTIVITIES

- What percentage of admitted students have contact with each source of information about our college?
- On which sources of information are we rated better/worse than other colleges? (ASQ)
- On which sources of information are we rated high/low? (ASQ+)
- How does contact with various sources of information affect the ratings of our college?
- How does contact with various sources of information affect the images of our college?

Resources in report:

Exposure to sources of information

Rating of sources of information

Potential displays from data file:

Ratings of characteristics by exposure to information sources

Ratings of characteristics by rating of information sources

Images by exposure to information sources

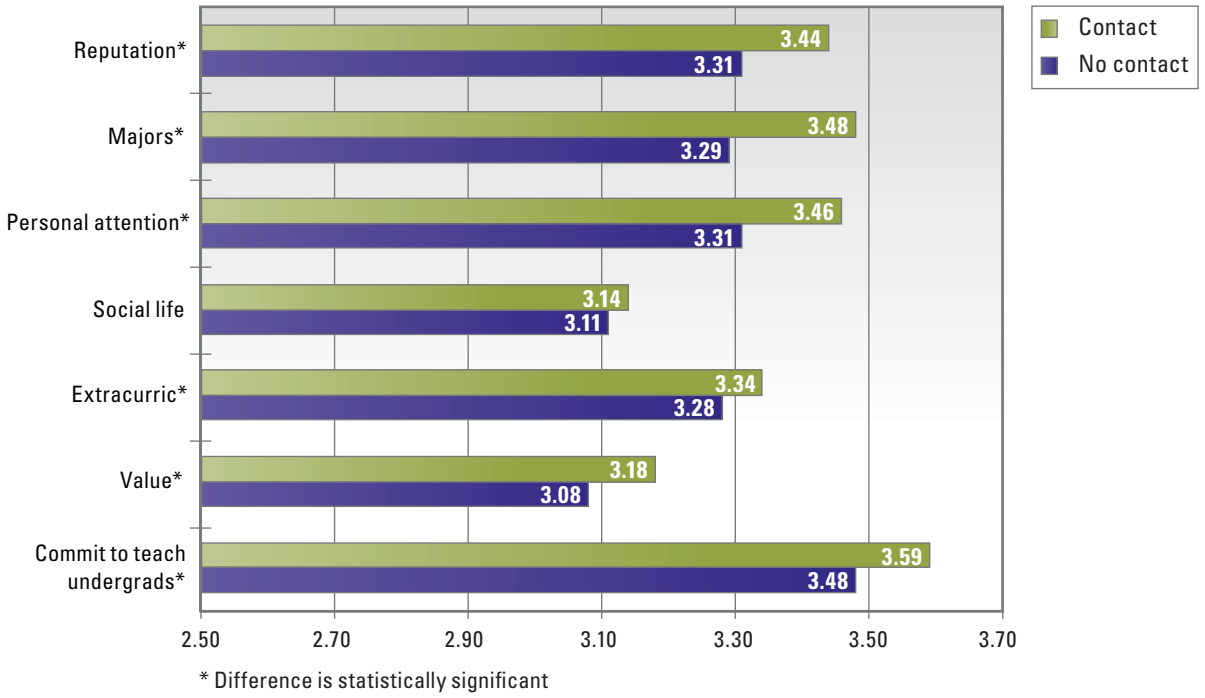
Images by rating of information sources

MOST FREQUENTLY MARKED IMAGES, BY CAMPUS VISIT AND STUDENT CONTACT

	Visited campus	Did not visit campus	Diff	Student Contact	No contact	Diff
Highly-respected	70%	65%	5%	70%	67%	3%
Challenging	69%	57%	12%	68%	61%	7%
Intellectual	64%	61%	3%	63%	63%	0%
Friendly	61%	54%	7%	62%	54%	8%
Diverse	58%	58%	0%	57%	60%	–3%
Career-oriented	59%	53%	6%	58%	57%	1%
Prestigious	53%	53%	0%	53%	53%	0%
Selective	47%	39%	8%	46%	43%	3%
Supportive	45%	34%	11%	44%	39%	5%
Comfortable	44%	35%	9%	45%	33%	12%
Fun	39%	28%	11%	41%	26%	15%
Personal	35%	24%	11%	35%	25%	10%

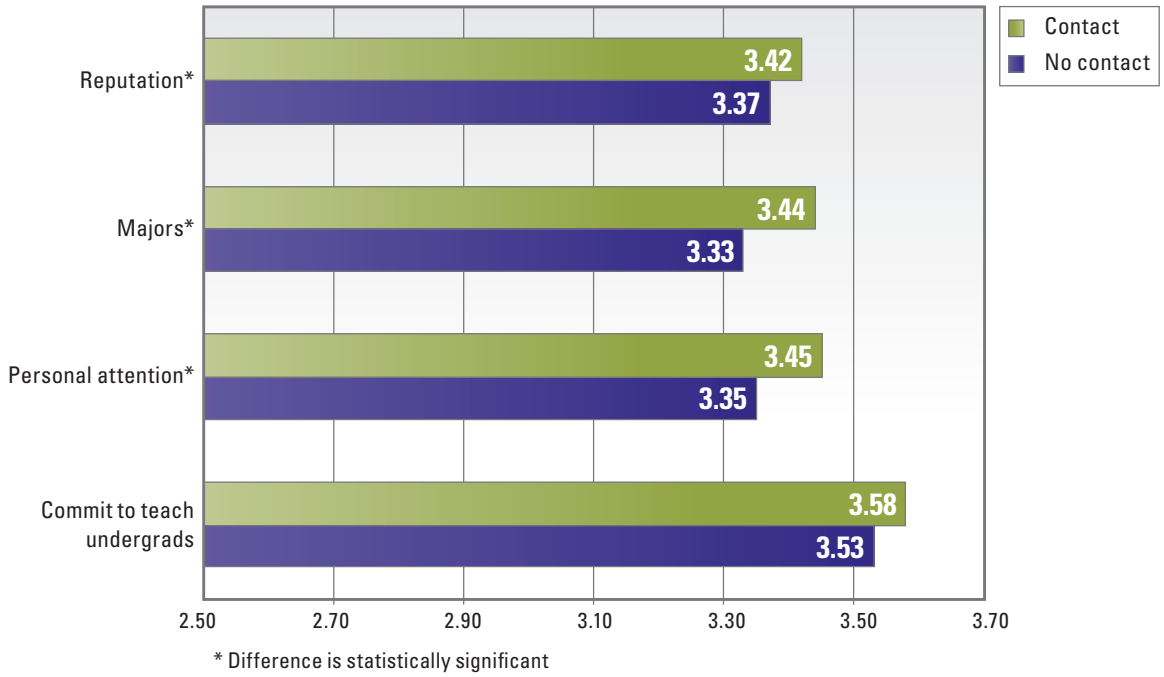
What effect do you expect your recruitment activities/publications/etc. to have on prospective students?

RATING OF SELECTED FACTORS, BY CONTACT WITH STUDENTS



Which factors are likely to be related to admitted students' impressions of enrolled students? Would you expect student contact to result in higher or lower ratings? Here the enrolled students did not particularly influence the students' impressions of the social life on campus, but significantly improved the respondents' perceptions of the personal attention paid to students.

RATING OF SELECTED FACTORS, BY CONTACT WITH FACULTY



Which factors are likely to be related to admitted students' impressions of faculty? Would you expect faculty contact to result in higher or lower ratings?

Here the differences are not as dramatic as for contact with students, but faculty do leave students with a better impression of our college than students have who did not speak with faculty.

How Long Have I Been Doing This?

Interpreting Trends in ASQ/ASQ PLUS Data

TRENDS IN COLLEGE IMAGES

Percent Marking Images

RESPONSE PERCENTAGES FOR ALL ADMITTED STUDENTS							
	1995	1996	1997	1998	1999	2000	Change 1995–2000
COLLEGE IMAGES N(%)	**1,923 (100%)**	**1,800 (100%)**	**1,800 (100%)**	**1,871 (100%)**	**1,842 (100%)**	**1,964 (100%)**	
Career-oriented	30%	32%	33%	36%	31%	32%	+ 3%
Personal	53%	58%	54%	48%	49%	52%	- 1%
Conservative	42%	48%	50%	49%	49%	52%	+10%
Social	44%	42%	39%	39%	31%	38%	- 6%
Intense	27%	30%	28%	35%	29%	26%	- 1%
Isolated	13%	12%	14%	22%	20%	16%	+ 2%
Relaxed	16%	16%	16%	11%	15%	14%	- 1%
Snobbish	14%	12%	12%	14%	13%	14%	+ 0%
Fun	42%	40%	38%	39%	34%	36%	- 6%
Impersonal	1%	1%	2%	2%	2%	1%	+ 0%
Prestigious	64%	66%	57%	59%	55%	51%	-13%
Back-up school	3%	5%	6%	5%	6%	8%	+ 4%
Liberal	18%	16%	12%	19%	13%	14%	- 5%
Challenging	78%	75%	72%	72%	72%	71%	- 7%
Not well known	9%	7%	7%	13%	13%	10%	+ 1%
Friendly	57%	57%	53%	53%	56%	56%	- 1%
Average	3%	3%	4%	3%	5%	5%	+ 3%
Close-knit	45%	47%	41%	42%	44%	41%	- 4%
Partying	22%	18%	17%	24%	13%	16%	- 6%
Intellectual	58%	61%	54%	55%	53%	52%	- 5%
Athletics	33%	32%	24%	23%	21%	21%	-12%
Comfortable	43%	45%	49%	43%	44%	45%	+ 2%
Exciting	24%	25%	18%	19%	17%	16%	- 8%

Yield

RESPONSE PERCENTAGES FOR ALL ADMITTED STUDENTS						
	1995	1996	1997	1998	1999	2000
COLLEGE IMAGES N(%)	**40%**	**44%**	**39%**	**39%**	**37%**	**34%**
Career-oriented	38%	53%	41%	46%	48%	42%
Personal	47%	52%	44%	47%	47%	40%
Conservative	33%	36%	32%	33%	33%	30%
Social	48%	54%	50%	51%	52%	43%
Intense	51%	52%	51%	53%	46%	47%
Isolated	19%	14%	14%	36%	15%	12%
Relaxed	44%	53%	51%	52%	41%	33%
Snobbish	21%	26%	25%	35%	22%	25%
Fun	49%	58%	53%	54%	51%	50%
Impersonal	14%	[0%]	5%	25%	10%	[5%]
Prestigious	46%	53%	50%	48%	46%	42%
Back-up school	15%	6%	4%	18%	11%	8%
Liberal	57%	56%	54%	60%	47%	43%
Challenging	44%	53%	45%	45%	43%	41%
Not well known	33%	34%	38%	46%	30%	32%
Friendly	48%	51%	45%	47%	43%	40%
Average	14%	11%	9%	14%	6%	6%
Close-knit	48%	52%	50%	47%	45%	41%
Partying	45%	49%	43%	59%	56%	36%
Intellectual	45%	52%	48%	44%	46%	43%
Athletics	45%	53%	47%	45%	43%	45%
Comfortable	48%	52%	47%	49%	46%	40%
Exciting	61%	70%	72%	67%	69%	66%

TRENDS IN WIN-LOSS

GRAY COLLEGE						
	1992	1994	1996	1998	2000	2002
Admitted to Both Schools						
Matriculated at Sample College	34	38	56	57	58	51
Matriculated at Gray College	3	5	6	12	12	8
Matriculated Elsewhere	23	60	44	49	36	72
Did not Matriculate	0	0	0	0	3	0
Total	60	103	106	118	109	131
Not Admitted by Gray College						
Matriculated at Sample College	2	0	10	15	19	27
Matriculated Elsewhere	0	5	8	9	6	16
Total Cross-Applicants	62	108	124	142	134	174
Sample College Winning	92%	88%	90%	83%	83%	86%
Gray College Denied	3%	5%	15%	17%	19%	25%
Yield from Denied	100%	0%	56%	63%	76%	63%

The number of students applying to both Sample College and Gray College has almost tripled over the past 10 years, and the number admitted to both has more than doubled*. At the same time, the win ratio (number of students attending Sample College divided by the total attending *either* Sample College or Gray College) has declined somewhat. While the percentage of students admitted to Sample College and denied at Gray College has also risen, Sample College's yield from this group (versus any other college), while inconsistent, is still above 50 percent.

Does the increasing number and percentage of cross-applicants denied by Gray College make that institution more selective than Sample College? What do we know about Gray College or about our cross-applicants that would explain this trend?

*Note that the number of students *applying* to both and *denied* at both is not available in ASQ PLUS data.

LEMON COLLEGE						
	1992	1994	1996	1998	2000	2002
Admitted to Both Schools						
Matriculated at Sample College	5	17	17	7	16	7
Matriculated at Lemon College	15	17	11	19	23	5
Matriculated Elsewhere	35	45	58	46	30	36
Did not Matriculate	0	5	0	3	2	0
Total	55	84	86	75	71	48
Not Admitted by Lemon College						
Matriculated at Sample College	28	30	31	49	33	36
Matriculated Elsewhere	48	27	50	63	67	59
Total Cross-Applicants	131	141	167	187	171	143
Sample College Winning	25%	40%	49%	60%	58%	66%
Gray College Denied	58%	40%	49%	60%	58%	66%
Yield from Denied	37%	53%	38%	44%	43%	38%

The number of students applying to both Sample College and Lemon College reached a peak in 1998. The number admitted to both peaked in 1996 and was lower in 2002 than at any point since the ASQ PLUS was first administered here*. The win ratio (number of students attending Sample College divided by the total attending either Sample College or Lemon College) shows no perceptible trend. After 1996 more than half the students applying to both Sample College and Lemon College were denied at Lemon College, and less than half of those denied chose to attend Sample College.

This table shows a very different win-loss pattern than the table for Gray College. What has changed since 1996 at Sample College—and at Lemon College—to account for the steady decline in cross-applications and cross-admits? Has there been any change in the colleges enrolling these cross-admits who did not choose either Sample or Lemon?

*Note that the number of students *applying* to both and *denied* at both is not available in ASQ PLUS data.

WHERE ADMITTED STUDENTS APPLIED

	1992	1994	1996	1998	2000	2002
Women's College	621	534	641	693	631	615
Ivy University	1,619	2,032	2,085	2,039	1,908	2,047
Non-Ivy University	836	1,061	955	1,072	997	1,105
California	344	366	434	504	531	526
Other Massachusetts	412	451	489	533	624	718
Other	2,473	2,404	2,415	2,474	2,507	2,616
Average applications	**5.48**	**5.66**	**5.93**	**5.84**	**6.15**	**6.45**

Students admitted to Sample College are submitting more college applications than they did 10 years ago. The only consistent trends are an increase in applications to California institutions and to other colleges in Massachusetts. Among the female students, interest in women's colleges seems to be on the decline.

WHERE ADMITTED STUDENTS ENROLLED

	1992	1994	1996	1998	2000	2002
Sample College	621	572	598	592	603	578
Women's College	78	62	66	96	49	44
Ivy University	240	324	268	270	200	246
Non-Ivy University	88	137	108	131	167	142
California	20	20	39	30	16	26
Other Massachusetts	35	20	30	30	44	62
Other	144	135	147	158	146	134
Total admits	**1,227**	**1,271**	**1,256**	**1,308**	**1,226**	**1,232**

Admissions yield at Sample College has been hovering just below 50 percent since 1994. Students who will not matriculate at Sample College are more likely to enroll at a university (rather than a college) than they were 10 years ago, more likely to enroll in an institution in Massachusetts, but less likely to enroll in a women's college.

SUMMARY OF MAJOR TRENDS

Ten years of Admitted Student Questionnaire analysis have provided the College with valuable insights into a rapidly changing and ever more competitive admissions market. Students are applying to more schools than ever before, and this has an impact on win/loss rates. Academic factors remain key to influencing choice, but "campus life," "costs," and post-college "outcomes" factors are becoming ever more important.

Although Sample College continues to rate very high on critical ASQ variables, some decreases in win rates and perceptions of the College this year are rather disappointing. The reasons for the changes are multidimensional, and some are beyond the College's ability to influence. Falling "win" rates can mean that our competitors are becoming more adept at marketing techniques, or that the reputation—of either Sample College or the competitor—is changing. The fact that several of Sample College's more selective competitors are admitting a greater percentage of our common applicants may indicate that there has been a qualitative improvement in our applicant pool. If this is the case, Sample College may find itself sharing more applicants with institutions against which we seldom win.

Research Papers

Developing Consistency Data for the ASQ PLUS

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The Admitted Student Questionnaire (ASQ) program was developed by the College Board in 1988 to offer colleges the opportunity to conduct college choice research on their admitted freshmen without having to do most of the work themselves. The ASQ itself offers the client college (the college mailing out the questionnaires) a good view of the broad context within which its admitted students are making a college choice, by asking the respondents to indicate both the importance of various factors in their enrollment decision and the quality of the client college on those factors, relative to the set of other colleges they considered seriously. In addition, the ASQ asks students to list up to six other colleges to which they applied, providing the client college with valuable information on application and admission overlap.

Many colleges wished to take these analyses a step further in order to understand the processes by which students choose between them and specific other colleges. In 1992 the College Board added to the ASQ program the Admitted Student Questionnaire PLUS (PLUS) to try to meet this need. The PLUS covers the same topics, but instead of asking for comparative ratings (from Worst to Best) of the client college, it asks that students rate the client college and up to two other colleges, specified by the respondent, on an absolute scale (from Poor/Fair to Excellent).

Because it is always clear on the PLUS which colleges the student is rating, this instrument offers a unique opportunity to examine the consistency of student ratings across questionnaires, that is, when a student completes a questionnaire from two or more client colleges and rates the same college or colleges on each survey. This paper describes the methods used to identify 1992, 1993, or 1994 students who completed more than one questionnaire, to build the data file, to choose appropriate comparisons, and to analyze the data, considering the following questions:

1) Do ASQ PLUS respondents who return questionnaires from two colleges ascribe the same level of importance to college characteristics listed on the questionnaire?
2) In general, do PLUS respondents provide the same ratings of the quality of the college characteristics at one or more colleges, rated on two different questionnaires?
3) Is there a difference between the students' ratings of a college when it has mailed them the survey and their ratings of the same college when they choose to write it in and rate it on a second questionnaire?

Description of the ASQ PLUS instrument

The ASQ PLUS is comprised of seven sections: respondents are asked to 1) mark how important each of 16 college characteristics was in their college choice; 2) provide information on the

colleges to which they applied, including the names of their first, second, and third choice colleges; 3) rate the client college (CC; called "Our College" on the questionnaire) and up to two other colleges, which they name as college A and college B, on the same 16 characteristics; 4) circle, from a list of 20, the words or phrases they believe to be widely held images of CC and colleges A and B; 5) rate CC and colleges A and B on the quality of information about the college provided by 12 different sources; 6) indicate their financial aid status at and rate the cost of attending CC and colleges A and B; and 7) provide descriptive information about themselves (gender, test scores, income, etc.). A sample questionnaire is provided as an appendix.

For sections three through six, described above, the respondents are asked to provide three ratings—of CC and colleges A and B. They are also asked to supply, for each section, the name of the college being rated therein, and are specifically instructed to "Please continue to rate the same colleges as A and B throughout the questionnaire." Almost all students do follow the latter instruction, but every year there are a few who switch colleges A and B for one or more sections, or who leave one or more sections blank for either or both colleges. A handful of students also rate completely different colleges in one or more sections. Nevertheless, because the college being rated in each section is specifically keyed along with the ratings, it is almost always possible to use all the data even when the student has failed to follow directions.

Methodology

This study was originally conducted using 1992 PLUS data only. The small number of cases available, however (q.v.), resulted in the inclusion of 1993 and 1994 PLUS data, as well. The project described here encompasses four major steps: 1) identifying the students who rated the same college(s) on more than one questionnaire; 2) creating a single data file from the multiple questionnaires; 3) setting up comparisons that were appropriate to the nature and structure of the data; and 4) analyzing the data.

I. Identifying the sample

Colleges participating in the ASQ service have the option of placing some kind of identification code on their surveys before they are mailed out. Doing so facilitates follow-up procedures targeted at nonrespondents only and allows colleges to match ASQ/PLUS data to institutional data for additional analyses. Questionnaires can only be matched across colleges if the same IDs are used by each college, or if the colleges are able to provide conversions of their unique IDs to some common form. Social Security Number (SSN) seemed to offer the best possibilities as a common ID, and questionnaires from the 1992, 1993, and 1994 PLUS studies were searched for nine-digit numbers that could be assumed to be SSNs.[5]

In a way it was not surprising that the number of duplicates was small, because the 26 different colleges in the combined file (several colleges participated more than one year) represented the entire spectrum of American higher education, including both public and private colleges, large and small, highly selective and less selective, two year and four year, liberal arts and business. Duplicate ratings are most likely to occur for pairs of colleges that have similar characteristics. In fact, 30 percent of all the pairs in the combined three year file were accounted for by just three colleges in combination with each other.

5 In 1993 two participating colleges provided lists showing the SSNs that corresponded to the identification numbers actually used on the questionnaires.

TABLE 1. SAMPLE SIZES			
	1992	1993	1994
Total number PLUS colleges (U.S. only)	82	70	94
Total respondents	62,729	59,476	63,727
Colleges using IDs	54	52	67
Respondents with IDs (approx.)	43,000	47,000	45,000
Colleges using SSN	14	15	17
Respondents with SSN (approx.)	15,000	14,000	14,000
Duplicate records	393	679	544
Respondents rating two or more colleges	135	334	138

2. Creating the data file

The methods used to create the data file were fairly primitive and cumbersome! The original PLUS data file of 59–64,000 cases for each year was first reduced to 14–15,000 by selecting only those colleges using a nine-digit ID [all procedures were carried out using SPSS for Windows®]. Frequency counts of the alphanumeric ID field revealed the ID numbers that had a frequency greater than 1, but the files also had to be examined visually for additional matches because some of the nine-digit numbers had been entered left-justified into the 10-byte field, instead of right-justified.

A SELECT IF command extracted the desired cases, and then one matched file was created by treating the second questionnaire as the second record for each case. (The designation of "first" and "second" referred strictly to the order in which the records appeared in the file, and had no reference at all to the identity of the college mailing either survey.) Elimination of duplicate questionnaires for a single student from the same college[6], of questionnaires from more than two colleges for a given student (of which there were only a handful each year), and of questionnaires that had no colleges rated in common, reduced the final matched sample to 566 students.

The variables saved in the resulting data file included:

- importance and quality ratings of 13 college characteristics[7]
- a marked/not marked flag for each of 14 college images
- quality ratings of 12 sources of information about the college
- a 1–8 rating of the cost of attending the college

The quality ratings and image flags are available both for the CC on each questionnaire and for the one or two other colleges named and rated by the respondent.

6 Participating colleges are presumed to have cleaned up their data and eliminated duplicate questionnaires before transmitting everything for processing. Applied Educational Research, Inc. does not search for and eliminate duplicate records unless requested to do so by the participating college. In 1994 one college alone had 28 duplicates out of 850 questionnaires processed.

7 The first 13 characteristics and the first 14 images shown on the survey instrument are common to all PLUS questionnaires. Characteristics 14–16 and the 15th–19th images are chosen by each college and are not analyzed here.

3. Establishing comparison sets

Identifying the comparisons that could be made from this dataset was one of the most difficult parts of this study, because of the different combinations of data available. For each case (each student), there were as many as six possible sets of ratings: each questionnaire contained ratings of "Our College" (the CC that had mailed the survey) and of the two other colleges named by the student (colleges A and B). The college named and rated as college A was frequently the college to be attended by a student who would not matriculate at CC, or the second choice of a matriculating student. The basic task was to derive a streamlined set of matched ratings from all the possible combinations.

Since the college that mailed the first questionnaire (CC1) was always different from the college mailing the second questionnaire (CC2), the two records never contained data for the same three colleges located in exactly the same fields. Some of the possible location combinations are described below.

a) CC1 was rated as College A or College B on the second questionnaire (CollA2 or CollB2, respectively). For cases falling into this category, the study would compare the ratings of CC1 to a new set of ratings consisting of those of either CollA2 or CollB2, whichever represented the same college. The original layout would appear as follows. (This and subsequent examples use fictitious college codes.)

Case 1:	CC1: **2222**	CollA1:	xxxx	CollB1: xxxx
	CC2: xxxx	CollA2:	**2222**	CollB2: xxxx
Case 2:	CC1: **2222**	CollA1:	xxxx	CollB1: xxxx
	CC2: xxxx	CollA2:	xxxx	CollB2: **2222**

For this category, the identity of the colleges in the other positions was irrelevant, as they would be analyzed subsequently in another category. The question of interest here was, "With which ratings on the second questionnaire should CC1 be compared?"

b) CC2 was rated as College A or B on the first questionnaire (CollA1 or CollB1). As in the first situation, the CC on one of the questionnaires was rated as College A or B on the other, but the two categories did not always occur together. For example:

Case 1:	CC1: **2222**	CollA1:	**3333**	CollB1: xxxx
	CC2: **3333**	CollA2:	xxxx	CollB2: **2222**
Case 2:	CC1: xxxx	CollA1:	xxxx	CollB1: **3333**
	CC2: **3333**	CollA2:	xxxx	CollB2: xxxx

Both (a) and (b) represent the same type of comparison. Because they could both exist for the same respondent, however, the ratings described in (b) were used to supplement, but not substitute for, those used in (a).

c) Colleges A and/or B were rated on both questionnaires (independent of which colleges were rated as CCs). For example: 7

Case 1:	CC1: xxxx	CollA1:	**2222**	CollB1:	**3333**
	CC2: xxxx	CollA2:	**2222**	CollB2:	**3333**
Case 2:	CC1: xxxx	CollAl:	**2222**	CollB1:	**3333**
	CC2: xxxx	CollA2:	**3333**	CollB2:	**2222**
Case 3:	CC1: xxxx	CollA1:	xxxx	CollB1:	**2222**
	CC2: xxxx	CollA2:	**2222**	CollB2:	xxxx

For 141 of the cases (25 percent), all three colleges appeared on both questionnaires. Another 175 (31 percent) rated colleges A and/or B on both questionnaires, but neither of the CCs. The largest group (214 or 38 percent) rated one of the CCs and a different A or B. The remainder (6 percent) had one or both CCs in common, but no other colleges. The following frequency counts illustrate the amount of overlap among the categories, and hence the difficulties involved in matching the ratings correctly.

a)	CC1 = Coll2A	173	31%
b)	CC1 = Coll2B	120	21%
c)	CC2 = Coll1A	156	28%
d)	CC2 = Coll1B	106	19%
e)	Coll1A = Coll1A	140	25%
f)	Coll1B = Coll2B	215	38%
g)	Coll1A = Coll2B	62	11%
h)	Coll1B = Coll2A	85	15%

Groups (g) and (h) were relatively small because most of the matches involving college A occurred in groups (a), (c), and (e).

For each section of the questionnaire, eight sets of ratings were created. (For the importance ratings, which were only given once on each questionnaire, only two variable sets were created.) The eight sets consisted of:

(1) ratings of the college listed as CC on the first questionnaire
(2) ratings of the same college when it was either college A or college B on the second survey
(3) ratings of the college listed as CC on the second questionnaire
(4) ratings of that college when it was either college A or college B on the first survey
(5) the first questionnaire's ratings of a college A that appeared as A or B on the second survey
(6) ratings of the same college from the second questionnaire
(7) the first set of ratings of a college B that also appeared on the second survey
(8) the second set of ratings of that same college

Ratings of types (1) and (2) apply to comparisons (a) and (b), described above. Similarly, ratings (3) and (4) apply to (c) and (d). Ratings (5) and (6) represent categories (e) and (g), while ratings (7) and (8) refer to (f) and (h).

Because most respondents appeared in more than one set of categories, another data file was created that contained one record for each of the four possible pairs, for example, (a) and (b). Specifically:

Record 1 contained ratings of a college appearing as both CC1 and Coll2A/Coll2B
Record 2 contained ratings of any college appearing as both CC2 and Coll1A/Coll1B
Record 3 contained ratings for a college appearing as Coll1A and Coll2A/Coll2B
Record 4 contained ratings for colleges appearing as Coll1B and Coll2A/Coll2B

Any given respondent would have data for at most three of these sets, since no more than three colleges were rated per questionnaire. In addition, one subfile was created for analyses dealing only with CCs (i.e., records 1 and 2 only), and another for comparisons dealing only with colleges A and B (records 3 and 4).

Results

Once the myriad data transformations had been completed, it was finally possible to conduct some analyses. The first question was whether the importance ascribed to the college characteristics was the same on both questionnaires[8]. Table 2 compares the two importance ratings of the 13 college characteristics, which are listed in the order given on the questionnaire. None of the differences are statistically significant at .05 or better, but the ratings of all characteristics are significantly correlated. The highest correlation appears for Cost of Attendance. Note that all 13 characteristics are considered at least somewhat important (mean rating > 2.0) on the average.

TABLE 2. COMPARISON OF IMPORTANCE RATINGS

Characteristic	Mean 1	Mean 2	Difference		Correlations	
Academic reputation	2.84	2.85	-.0071		.562	**
Availability of majors	2.71	2.71	-.0018		.612	**
Special academic programs	2.25	2.24	.0160		.558	**
Personal attention	2.67	2.68	-.0053		.651	**
Academic facilities	2.64	2.63	.0125		.512	**
Recreational facilities	2.32	2.33	-.0107		.551	**
Quality of campus housing	2.34	2.38	-.0374		.549	**
Surroundings	2.45	2.41	.0428	(*)	.439	**
Campus attractiveness	2.36	2.34	.0196		.577	**
Cost of attendance	2.17	2.15	.0213		.745	**
Quality of social life	2.45	2.44	.0107		.531	**
Off-campus opportunities	2.24	2.26	-.0179		.554	**
Extracurricular activities	2.54	2.49	.0463	(*)	.495	**

Maximum N = 563. Scale: 1 = Not Important; 2 = Somewhat Important; 3 = Very Important
(*) $p < .10$ ** $p < .01$

8 It is assumed here that the importance of the characteristics in the college choice decision is independent of which college is asking the question, but it is possible to construct circumstances under which that would not be true. If, for example, a student were admitted to 10 colleges, Part of the Country might be important in eliminating five of the choices. Cost or Academic Reputation might then become more important in deciding between the remaining five.

Table 3 displays the mean quality ratings for all comparisons (i.e., regardless of whether or not the college being rated was the CC). Once again, none of the differences but all of the correlations were statistically significant. The larger number of comparisons and the extra point on the rating scale undoubtedly contributed to the generally higher correlation coefficients, compared to Table 2. On the average, all characteristics were rated at least Very Good, with the exception of Surroundings and Cost of Attendance.

TABLE 3. COMPARISON OF QUALITY RATINGS, ALL COLLEGES

Characteristic	Mean 1	Mean 2	Difference		Correlations	
Academic reputation	3.58	3.58	.0010		.778	**
Availability of majors	3.48	3.50	-.0180		.664	**
Special academic programs	3.48	3.47	.0013		.513	**
Personal attention	3.26	3.26	.0011		.761	**
Academic facilities	3.53	3.53	.0066		.616	**
Recreational facilities	3.35	3.35	.0047		.607	**
Quality of campus housing	3.08	3.07	.0035		.663	**
Surroundings	3.93	2.96	-.0256		.683	**
Campus attractiveness	3.42	3.41	.0053		.710	**
Cost of attendance	3.46	2.51	-.0498	(*)	.751	**
Quality of social life	3.15	3.14	.0095		.699	**
Off-campus opportunities	3.12	3.09	.0391		.741	**
Extracurricular activities	3.49	3.49	.0000		.631	**

Maximum N = 1,033. Scale: 1 = Not Important; 2 = Somewhat Important; 3 = Very Important
(*) $p < .10$ ** $p < .01$

Table 4 refers to the question of whether the ratings of a given college tend to be higher when that college is rated as CC. In other words, is there any tendency for respondents to inflate the ratings of the college asking the questions? In this table, the column labeled Mean1 shows the mean ratings of the college when it was CC (that is, when it was the college asking the question), and the Mean 2 column shows the ratings given the college when it was written in as college A or college B. While 10 of the 13 differences are positive, none are statistically significant (at .05 or better)

TABLE 4. COMPARISON OF QUALITY RATINGS, CC ONLY

Characteristic	Mean 1	Mean 2	Difference		Correlations	
Academic reputation	3.62	3.59	.0312	(*)	.772	**
Availability of majors	3.44	3.48	-.0345		.630	**
Special academic programs	3.52	3.51	0.0025		.455	**
Personal attention	3.33	3.3	0.0336		.743	**
Academic facilities	3.55	3.55	0.0042		.482	**
Recreational facilities	3.39	3.37	0.0205		.486	**
Quality of campus housing	3.13	3.12	0.0045		.620	**
Surroundings	2.86	2.85	0.002		.841	**
Campus attractiveness	3.48	3.45	0.0273		.641	**
Cost of attendance	2.41	2.47	-.0607		.720	**
Quality of social life	3.19	3.2	-.0070		.635	**
Off-campus opportunities	3.16	3.1	.0638	(*)	.747	**
Extracurricular activities	3.55	3.54	0.0153		.527	**

Maximum N = 545. Scale: 1 = Poor/Fair; 2 = Good; 3 = Very Good; 4 = Excellent (*) $p < .10$
** $p < .01$

Table 5 examines the frequency with which specific images were associated with the college when it was rated as CC and as A or B. Since each field contains a "1" if the image is marked and a "0" if it is not, the means represent the percentage of respondents marking each image. Once again, the correlations are all high. Only three of the differences are statistically significant; two of those occur with images that might be perceived as "negative" (Back-up School and Average), which were marked less often when the college rated was asking the question.

TABLE 5. COMPARISON OF IMAGES MARKED, CC ONLY

College Image	Mean 1	Mean 2	Difference		Correlations
Isolated	0.276	0.689	0.0072		.764**
Prestigious	0.69	0.685	0.0054		.677**
Fun	0.568	0.524	.0432	*	.501**
Intellectual	0.618	0.638	-.0198		.557**
Career-oriented	0.396	0.416	-.0198		.549**
Not well-known	0.151	0.151	0		.607**
Comfortable	0.387	0.398	-.0108		.517**
Back-up school	0.094	0.115	-.0216	*	.658**
Selective	0.721	0.712	0.009		.606**
Athletics	0.425	0.451	-.0252		.642**
Friendly	0.589	0.586	0.0036		.502**
Partying	0.339	0.368	-.0288		.599**
Average	0.043	0.079	-.0360	**	.495**
Challenging	0.748	0.721	0.027		.582**

Maximum N=555. Scale: 1=Marked; 0 = Not Marked * $p < .05$ ** $p < .01$

Table 6 compares the mean ratings of the quality of information about the college provided by each information source. Even though these differences were relatively large, for the most part, none was statistically significant. Note the discrepancies in the number of ratings pairs for each information source. In some cases (e.g., College videos), the college might not have provided information through that source, while in others (e.g., Contact with coaches), the respondents may not have received information that way.

TABLE 6. COMPARISON OF QUALITY RATINGS, CC ONLY, BY SOURCES OF INFORMATION

Information Source	Mean 1	Mean 2	Difference	Correlations	N
High school visits	3.04	3.09	-.0576	.541**	191
College-sponsored meetings	3.01	3.01	0	.567**	134
College publications	3.25	3.27	-.0136	.504**	513
College videos	3.2	3.09	0.1067	.559**	150
Financial aid communications	2.82	2.83	-.0143	.571**	279
Campus visit	3.4	3.38	0.0263	.635**	418
On-campus interview	3.36	3.32	0.0391	.604**	128
Post-admission contact	3.12	3.17	-.0499	.600**	481
Contact with faculty	2.91	3.01	-.0958	.690**	167
Contact with coaches	3.02	3.05	-.0288	.690**	104
Contact with graduates	3.13	3.14	-.0053	.483**	187
Contact with students	3.2	3.24	-.0457	.348**	328

Maximum N = 513. Scale: 1 = Poor/Fair; 2 = Good; 3 = Very Good; 4 = Excellent ** $p < .01$

Table 7 displays the quality ratings for colleges that were written in by the respondents as college A or B only. These ratings should be free of any bias that might influence a respondent who was rating a CC. Once again, none of the differences is statistically significant at the .05 level, but the correlation coefficients as a set are higher than any other set examined.

TABLE 7. COMPARISON OF QUALITY RATINGS, COLLEGES A AND B ONLY

Characteristic	Mean 1	Mean 2	Difference		Correlations	
Academic reputation	3.53	3.57	-.0328	(*)	0.789	**
Availability of majors	3.53	3.53	0		0.705	**
Special academic programs	3.43	3.43	0		0.564	**
Personal attention	3.17	3.21	-.0388		0.778	**
Academic facilities	3.51	3.5	0.0093		0.748	**
Recreational facilities	3.32	3.33	-.0121		0.728	**
Quality of campus housing	3.02	3.02	0.0025		0.706	**
Surroundings	3.02	3.08	-.0559		0.672	**
Campus attractiveness	3.35	3.37	-.0205		0.776	**
Cost of attendance	2.52	2.56	-.0384		0.782	**
Quality of social life	3.11	3.09	0.0266		0.758	**
Off-campus opportunities	3.09	3.07	0.0127		0.735	**
Extracurricular activities	3.43	3.44	-.0164		0.723	**

Maximum N = 488. Scale: 1 = Poor/Fair; 2= Good; 3= Very Good; 4= Excellent * $p < .10$ ** $p < .01$

Table 8 compares the two mean ratings of the net cost of attending the given college, shown separately for CC and college A/B. For both comparisons the correlation between the two ratings was very high. There was no significant difference between the two different ratings of colleges A and B, but the cost of attending CC was definitely rated higher when CC was asking the question.

TABLE 8. COMPARISON OF NET COST OF ATTENDING COLLEGE

	Mean 1	Mean 2	Difference	Correlations
Net cost of attending CC (N=431)	5.92	5.75	.1694**	.860**
Net cost of attending A or B (N=388)	5.52	5.54	-.0232	.880**

Scale: 1 = Very Low; 8 = Very High. ** $p < .01$

Discussion

The most severe limitation of this study is the relatively small number of matched pairs available for analysis: 566 out of more than 90,000 possible pairs. While there are many legitimate reasons for such a small percentage of matches (colleges that don't use any identification on their surveys; colleges that don't use SSNs as the ID; colleges that did not wish to provide ID conversion lists; colleges whose admitted student pools don't overlap very much or at all; students who did not respond to all the PLUS surveys they received), it may certainly be argued that the data analyzed here cannot be reliably generalized to all PLUS surveys. Nevertheless, the number of cases available is large enough in and of itself to provide consistent results.

There is also the point that the larger the number of cases involved, the more likely it will be that small numeric differences will be statistically significant. Since it would seem to be desirable in this case to find small differences, or even none at all, the distinction between differences that are statistically significant and those that are large enough to be important is critical. It is somewhat reassuring that the number of differences showing statistical significance based on 566 respondents is actually smaller than the number of significant differences appearing in the original 1992 study of 135 cases.

Another point to bear in mind here is restriction of range. On the one hand, the range of values on the ratings scales used is narrow: importance is a three-point scale, quality ratings use a four-point scale, and the images are dichotomous. Table 9 shows the results of the cross-tabulation of the ratings of Academic Reputation for colleges rated as CC and as A or B. The response patterns are quite similar.

On the other hand, the range of values is likely to be even more restricted because the respondents generally rate as A and B colleges that are among their top choices. The students just don't give very many low ratings to colleges they would like to attend. The fact that non-enrolling respondents are forced to rate CC (if they return the questionnaire at all) might explain any ratings of CC that were lower than the ratings of the same college when it was A or B. Nevertheless, as Table 10 shows, even non-matriculants rated CC Very Good or Excellent three-quarters of the time.

TABLE 9. ACADEMIC REPUTATION, RATED AS **CC** AND AS COLLEGE **A** OR **B**					
	Rating as College A or B				
Rating as CC	Poor/Fair	Good	Very Good	Excellent	N
Poor/Fair		1			1
Good	3	20	7	1	31
Very Good		15	100	25	140
Excellent	1	2	27	343	373
N	4	38	134	369	545

92% of those rating CC Excellent (343/373) also rated it Excellent as A or B
93% of those rating the college Excellent as A or B (343/369) also rated it Excellent as CC

71% of those rating CC Very Good (100/140) also rated it Very Good as A or B
75% of those rating the college Very Good as A/B (100/134) also rated it Very Good as CC

65% of those rating CC Good (20/31) also rated it Good as A or B
53% of those rating the college Good as A or B (20/38) also rated it Good as CC

18% of those rating CC Very Good (25/140) rated it Excellent as A or B
20% of those rating the college Very Good as A or B (27/134) rated it Excellent as CC

TABLE 10. DISTRIBUTION OF RATINGS OF COLLEGE CHARACTERISTICS					
	Poor/Fair	Good	Very Good	Excellent	Number or Ratings
Colleges A and B	4.40%	13.50%	33.40%	48.60%	25,646
CC	5.60%	16.70%	34.50%	43.20%	12,734
CC - Matriculants	4.70%	14.20%	33.50%	47.60%	2,919
CC - Non-Matrics	5.80%	17.40%	34.80%	41.90%	9,815

The fact that the respondents are forced to rate CC is the reason that the analysis should deal with ratings involving CC separately from ratings of colleges that only appear as college A or college B. The sign of the difference between mean ratings is only interpretable when CC is involved, although the results reported here show no clear trend toward lower—or higher—ratings for CC.

In summary, the logistical complexities of comparisons such as those described here are mind-boggling. Nevertheless, the attraction of asking students to name and rate specific other colleges that are strong competitors of one's own has made the ASQ PLUS a very popular survey instrument, and it is therefore worthwhile to try to determine whether the respondents' ratings are consistent from one questionnaire to another. To the extent that the results described here can be generalized to the much larger PLUS population, the degree of consistency in ASQ PLUS ratings is quite high.

Parental Income and Students' College Choice Process: Research Findings to Guide Recruitment Strategies

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Introduction

Purpose. The purpose of this paper is to present the design and results from a research study that examined the relationship between parental income and students' college choice process. Major research questions addressed in the study include the following: How does the importance of college characteristics to students' choice vary by parental income? Do students' images of the college they choose to attend vary by income? What other factors influence the enrollment decisions of students from different income levels? What model would best predict the college choice of students in different income levels?

A primary rationale underlying this study is that successful recruitment of any student segment requires an understanding of what factors influence these students' college choice. Further, with increasingly limited financial aid budgets, many institutions need information to enhance their ability to recruit students able to pay their own college costs. Results from this study have been used to inform recruitment processes both for students eligible for financial aid and for students whose families are able to assume the full financial responsibility for their college education.

Review of the Literature. Research conducted over the last several decades provides both a conceptual framework and an empirical basis for identifying individual and institutional factors that influence students' college choice. Offering a relevant conceptual framework, Hossler and Gallagher (1987) propose a three-stage model of college choice: the first, predisposition stage is one in which familial, societal, and economic factors generate interest and attitudes conducive to college enrollment; the second, search phase occurs when college-bound students proactively explore potential institutional options or choice sets and evaluate their academic and financial capabilities in relation to these potential choices; and the third and final stage is one in which students make their final selection from available options. The present study focuses on the third stage and concentrates primarily on the effect of parental income on students' final college choice.

Socioeconomic variables—parental education levels, parental occupations, and family income—have been found to be strongly related to college choice (Hearn, 1984, 1988). Research from the 1960s to the present documents the effect of family income on students' college choice. An early study, based on a comparative socioeconomic analysis of 18,378 prospective college students, found that students from higher-income homes were more likely to have given major consideration to the social opportunities available, and they were also relatively more concerned with developing their intellect while students from less affluent homes were more concerned

with vocational and professional training (Baird, 1967). Later, based on statistical analyses of the collegiate options considered by more than one half million high school seniors in the eastern third of the nation, Zemsky and Oedel (1983) concluded that, "... the patterns of college choice are stitched deeply into the social and economic fabric of the nation" (p. 44). Further, Flint (1992) reported that, "Of the background characteristics, father's education and family income exhibit the strongest effects, such that higher levels of education or family income are associated with higher levels of selectivity, degree offerings, and greater distance from home" (pp. 702–703).

Data Source. Results presented in this paper are based on responses to the Admitted Student Questionnaire, administered to 1,065 students accepted for the Fall 1996 Entering Freshman Class at a selective, private college in the northeast. Some 54 percent of the accepted student population, 83 percent of the enrolling and 38 percent of the nonenrolling students, responded to the survey. Based on 1995 parental or guardian income before taxes, students are classified in two income categories. Those who reported parental incomes of $100,000 or higher are classified in the higher-income category and those who reported parental incomes less than $100,000 are classified in the lower-income category.

Limitations of the Data. It is important to recognize the inherent limitations of the data on which this study is based. First, the source of data for this research is based only on the responses from one institution's accepted freshman class. Further, substantially different response rates, 83 and 38 percent respectively, were obtained for the enrolling and nonenrolling students. Although weighting was used to adjust for the differential response rates, differences of this magnitude increase the possibility that some statistics may not approximate the true figures.

Second, the income categories on the Admitted Student Questionnaire provided for limited variation at the higher-income levels; all incomes of $100,000 or higher were included in one category. Future studies might specify more differentiation at the higher-income levels, increase the response rates for nonenrolling students, and include other variables that offer additional explanatory power in predicting students' enrollment decision. This study might be viewed as the first in a series of studies to be replicated with a larger sample of institutions.

Analytical Techniques. Both bivariate and multivariate statistical techniques, including chi square and correlation analyses, analysis of variance, and discriminant analysis were employed in the analyses of the data. Analyses were conducted with individual questionnaire items and computed scales. These scales were created to simplify the data and to establish reliable, summary measures of students' responses, specifically regarding their ratings of college characteristics and college images.

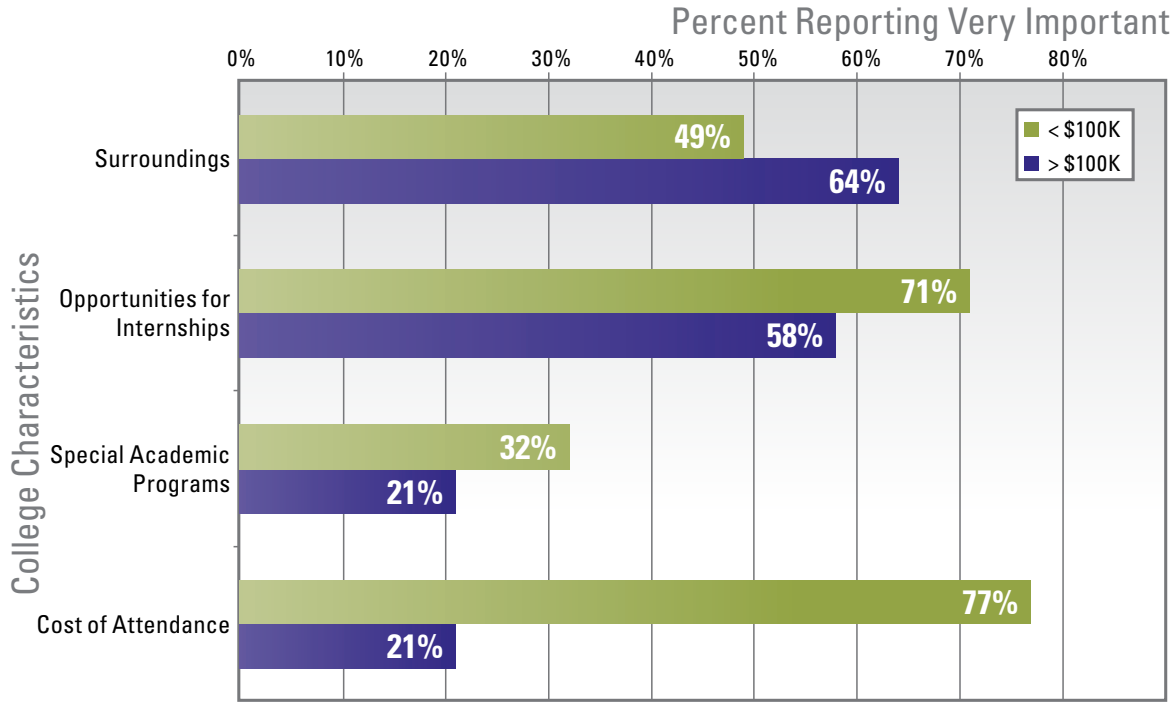
Results

Income Variation in the Importance of College Characteristics

Analyses, comparing higher- and lower-income students' perceptions regarding the importance of various college characteristics were conducted for 16 specified college characteristics. These characteristics relate to academic, social, lifestyle, and financial aspects of a college that students might consider. Statistically significant differences were found for four of the 16 characteristics. Results are graphically displayed in **Figure 1**.

As shown in **Figure 1**, compared with students from lower-income families, students from higher-income families attribute significantly more importance to the college's surroundings, i.e., the neighborhood, town, or city in which the institution is located (X= 20.92, p= .001). Some 64 percent of the higher-income students, compared with only 49 percent of the students in the lower-income category, identified surroundings as very important to their college choice. In contrast, students from the lower-income families attribute more importance to opportunities for internships (X2 = 24.21, p= .001); 71 percent of these students, compared with 58 percent of the students in the higher-income category, identified opportunities for internships as very important to their college choice.

FIGURE 1. THE IMPORTANCE OF COLLEGE CHARACTERISTICS BY PARENTAL INCOME



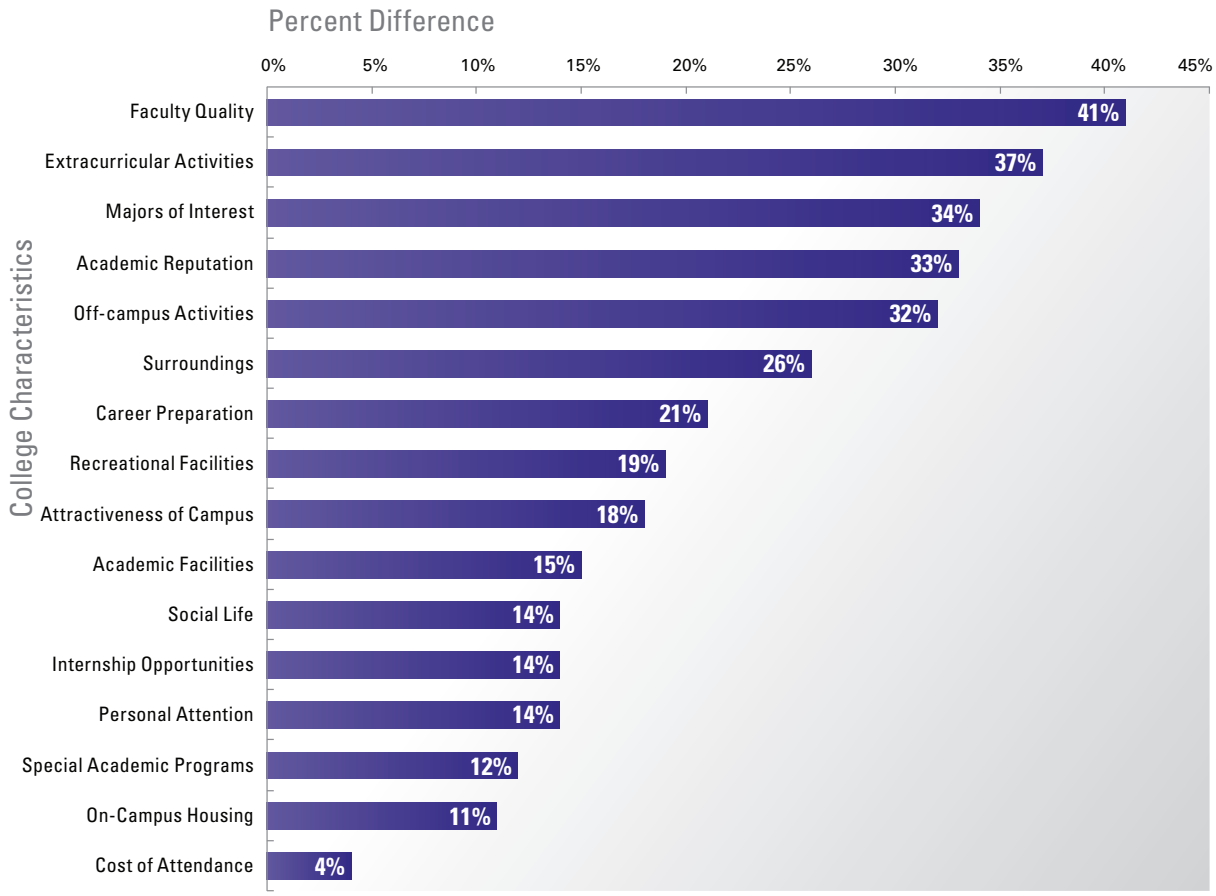
Students in the lower-income category also attribute somewhat more importance to the academic programs available to them at a given college (X2= 12.14, p= .01). Some 32 percent of the students in the lower-income category, compared with only 21 percent of those in the higher-income category, identified special academic programs as very important to their college choice. Finally, as expected, students from families in the lower-income category express significantly greater concern about the cost of attendance at a particular college (X2 = 271.64, p= .001); 77 percent of the students in the lower-income category, compared with only 21 percent of those in the higher-income category, identified cost of attendance as very important to their college choice.

Differences in Ratings of College Characteristics

Since students' perspective on the characteristics of a given college also exert a potentially significant effect on their college choice, this study included a comparative analysis of the differences in "Excellent" ratings between higher and lower-income, enrolling and non enrolling students on specific college characteristics.

Higher-Income Students. **Figure 2** presents a distribution of percent differences between higher-income, enrolling, and non enrolling students. These data identify aspects of the college that might be strengthened or featured more prominently to recruit more higher-income students. As shown, characteristics with the largest percent differences between higher-income, enrolling, and non enrolling students relate both to the academic prestige of the college and the campus social life. For example, compared with higher-income non-enrolling students, 41 percent more of the enrolling students rate the college "Excellent" for the quality of faculty and 31 percent more rate the college "Excellent" on academic reputation. Some 37 and 32 percent more respectively of the enrolling students rate the college "Excellent" on extracurricular activities and off-campus activities, and 34 percent more of the enrolling students also rate the college "Excellent" on majors of interest. These data support a strategy to focus more intensively on favorably influencing higher-income students' perception of the college's academic reputation, the quality of the faculty, majors of interest, and opportunities for extracurricular and off-campus activities.

FIGURE 2. PERCENT DIFFERENCES BETWEEN HIGHER INCOME, ENROLLING, AND NON-ENROLLING STUDENTS ON EXCELLENT RATINGS FOR COLLEGE CHARACTERISTICS

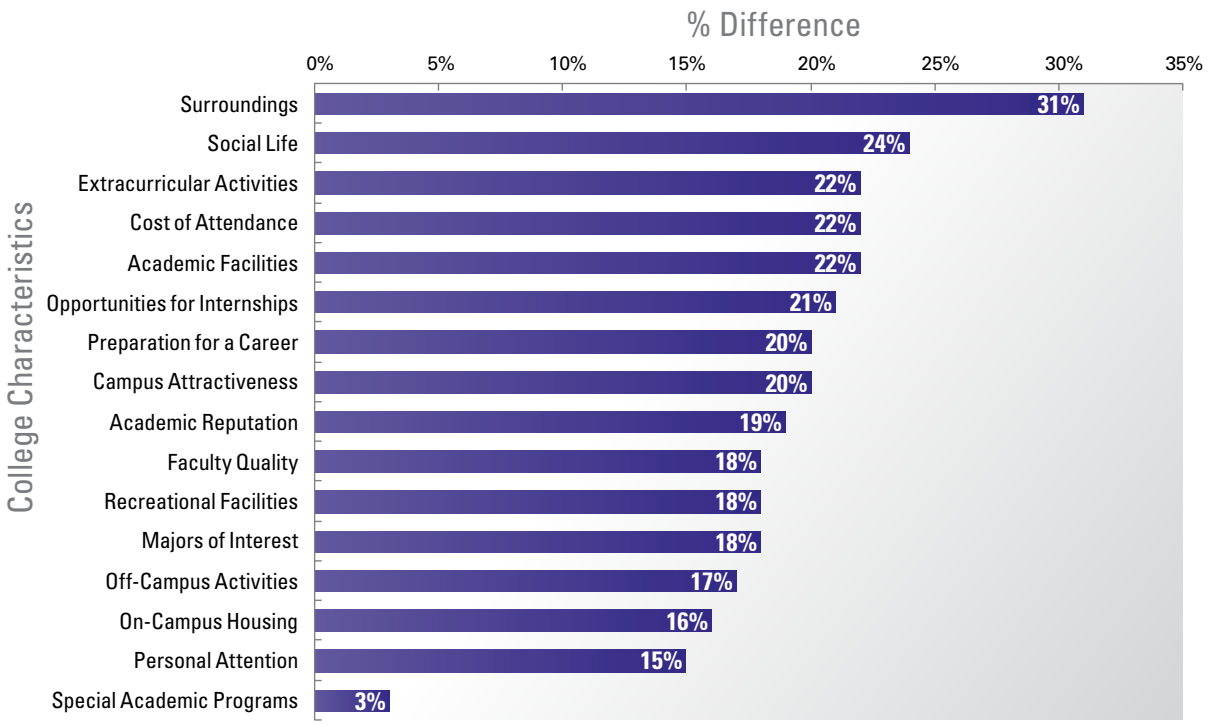


Lower-Income Students. **Figure 3** displays the college characteristics with the largest percent differences in "Excellent" ratings for the lower-income students. As shown, these include the college's surroundings (31 percent), the quality of social life (24 percent), the opportunity for extracurricular activities (22 percent), cost of attendance (22 percent), and academic facilities (22

percent). Compared with lower-income, non enrolling students, the enrolling students perceive the college more positively on these dimensions.

Comparative analysis of the data presented in **Figures 2** and **3** reveals that higher- and lower-income students differ with respect to the most differentiating characteristics between enrolling and non enrolling students. Among higher-income students, faculty quality, majors of interest, and academic reputation are the most differentiating characteristics. In contrast, among lower-income accepted students, college surroundings, social life, and the cost of attendance are the most differentiating characteristics. These findings provide a basis for developing unique recruitment strategies for students in different income categories.

FIGURE 3. PERCENT DIFFERENCES BETWEEN LOWER INCOME, ENROLLING AND NON-ENROLLING STUDENTS ON EXCELLENT RATINGS FOR COLLEGE CHARACTERISTICS



Income Variation on the College Characteristics Rating Scale

As noted in the introduction, in addition to item level analyses, statistical tests were also conducted using computed scales. The College Characteristic Rating scales employed in this study represent students' average ratings on two different dimensions of the college, the academic and social life. The Campus Environment and Social Life scale, with a reliability of .83, represents students' mean ratings on the college's surroundings, academic and recreational facilities, on campus housing, attractiveness of the campus, opportunities to participate in extracurricular activities, quality of social life, and access to off-campus cultural and recreational opportunities. The Quality of Education and Professional Preparation scale, with a reliability of .81, represents students' mean ratings on several items including academic reputation, quality of the faculty, personal attention, availability of special academic programs, opportunities for internships, and preparation for a career.

Table 1 displays higher- and lower-income, enrolling and non enrolling students' mean scores on the college characteristic rating scales. As shown, analysis of variance identified significant differences by income and enrollment status in students' ratings on these scales. On the Quality of Education and Professional Preparation scale, the mean scores for enrolled students in both income categories are very close, 3.74 for the lower-income category and 3.72 for the higher-income group, while the mean scores of the non enrolled students are somewhat lower, 3.51 for the lower-income category and 3.42 for the higher-income category. Mean scores on the Campus Environment and Social Life scale are also positive ranging from 3.52 reported by enrolling students in the lower-income category to 3.10 reported by non enrolling students in the higher-income category.

TABLE 1. VARIATION BY INCOME AND ENROLLMENT STATUS IN STUDENTS' MEAN SCORES ON THE COLLEGE CHARACTERISTICS RATINGS SCALES

A. Quality of Education and Professional Preparation Scale			
Income Level	Enrolled Students	Non-Enrolled Students	F-Ratio
$100,000 or Higher	3.72	3.42	24.22***
	(.32)	(.44)	
Less than $100,000	3.74	3.51	
	(.31)	(.48)	
(N = 818)			
B. Campus Environment and Social Life Scale			
Income Level	Enrolled Students	Non-Enrolled Students	F-Ratio
$100,000 or Higher	3.48	3.10	36.53***
	(.40)	(.51)	
Less than $100,000	3.52	3.18	
	(.36)	(.53)	
(N = 811)			

***p⦸.001 Note: The number in parenthesis is the standard deviation.

Differences Between Enrolling and Non Enrolling Students' Images of the College

Higher-Income Students. Statistical analysis identified significant differences between higher-income, enrolling, and non enrolling students with respect to eight of 19 specified college images. Compared with non enrolling students, 27 percent more of the enrolling students think the college is regarded as challenging, and 24 percent more of the enrolling students think the college is considered to be prestigious. In contrast, compared with the enrolling students, 16 percent more of the non enrolling students think the college is perceived as isolated, and 11 percent more think the college is not well known.

Lower-Income Students. Similar to the pattern found among higher-income students, compared with the non enrolling students, 16, 25, and 12 percent more, respectively, of the lower-income, enrolling students perceived the college as a challenging, prestigious, and highly respected institution. In contrast with the data for higher-income students, 26 percent more of the lower-income enrolling students, compared with the non enrolling students, perceived the college as a friendly place.

Variation by Income on the College Images Scales

Two scales were created to reflect students' images of the college. The first scale, Academic Prestige, represents the extent to which students think the college is challenging, prestigious, intellectual, selective, highly respected, well known, national, not average, and not a backup school. The reliability for this scale is moderately strong, .73. The second, Social Image scale represents the extent to which students perceive the college as a friendly, comfortable, athletic, fun, partying, and a spirit school. The reliability for this scale is only moderate, .64. Table 2 presents mean scores on both image scales for enrolling and non enrolling students in the higher and lower-income categories. These means are based on a scale from 0 to 1.

As shown in **Table 2**, all of the means on the Academic Prestige scale are .50 or higher, indicating that students in all groups generally have a positive perception of the college's academic image. However, analysis of variance did reveal statistically significant differences among these student groups. Enrolling students in the lower-income category report the highest mean of .74 while non enrolling students in the higher-income category report the lowest mean of .56. Compared with the means on the Academic Prestige scale, those on the Social Image scale are substantially lower. All of these means are below .5, indicating that students generally have a less than positive perception of the college's social image. Enrolling students in the lower-income category report the highest mean of .34 while non enrolling students in the higher-income category report the lowest mean of 18.

TABLE 2. VARIATION BY INCOME AND ENROLLMENT STATUS IN STUDENTS' IMAGES OF THE COLLEGE

A. Academic Prestige Scale			
Income Level	Enrolled Students	Non-Enrolled Students	F-Ratio
$100,000 or Higher	.68	.56	18.17***
	(.20)	(.23)	
Less than $100,000	.74	.64	
	(.20)	(.26)	
(N = 868)			
B. Social Image Scale			
Income Level	Enrolled Students	Non-Enrolled Students	F-Ratio
$100,000 or Higher	.28	.18	30.43***
	(.24)	(.18)	
Less than $100,000	.34	.16	
	(.27)	(.21)	
(N = 861)			

***p⦸.001 Note: The number in parenthesis is the standard deviation.

Predicting Accepted Students' Enrollment Decision

Higher-Income Students. Based on results from bivariate analyses, the following five variables were selected as potential predictors in a discriminant analysis for high-income students: the College Campus Environment and Social Life Rating Scale; the Quality of Education and Professional Preparation Rating Scale, Students' Average High School Grades; SAT Verbal Scores; and Ratings of the College on Majors of Interest.

Table 3 identifies those variables that proved to be significant predictors of higher-income students' enrollment status. The discriminant function coefficients reflect the relative weight of the predictors on students' enrollment decision. As shown, results from the discriminant analysis revealed that higher-income students were significantly more likely to enroll if they rated the college more positively on the Campus Environment and Social Life Rating Scale; reported relatively lower high school grades; attained relatively lower SAT Verbal scores; and rated the college more positively on majors of interest. Students' ratings on the Campus Environment and Social Life scale clearly had the strongest effect on enrollment status. The discriminant function, including these four variables, accurately predicted the enrollment decision of 80 percent of the respondents. The canonical correlation of .63 indicates that this function explains 40 percent of the variance in higher-income, accepted students' enrollment decision.

TABLE 3. DISCRIMINANT ANALYSIS RESULTS:
PREDICTING HIGHER-INCOME ACCEPTED STUDENTS' ENROLLMENT DECISION

Predictors	Standardized Discriminant Function Coefficients	Percent Correctly Classified
Campus Environment and Social Life	.59	80%
Average High School Grades	-.51	
SAT Verbal Scores	-.32	
Rating on Majors of Interest	.45	
Canonical Correlation	.64	X2=132.90;df=4;p⦸.001

Lower-Income Students. **Table 4** identifies those variables that proved to be significant predictors of lower-income students' enrollment status. In contrast with the model for high-income students, cost of attendance emerges as the strongest predictor of enrollment status among lower-income students. Three additional variables, significant predictors for both groups, include students' average high school grades, SAT verbal scores, and rating of the campus environment and social life. As shown in Table 4, the four-variable model accurately predicts the enrollment decision of 79 percent of the lower-income accepted students. The canonical correlation of .55 indicates that this model explains 30 percent of the variance in lower-income, accepted students' college choice. Students in the lower-income category were much more likely to enroll if they rated the college positively on cost and on the campus environment and social life.

TABLE 4. DISCRIMINANT ANALYSIS RESULTS: PREDICTING LOWER-INCOME ACCEPTED STUDENTS' ENROLLMENT DECISION

Predictors	Standardized Discriminant Function Coefficients	Percent Correctly Classified
Cost of attendance	.78	79%
Campus Environment and Social Life	.59	
SAT Verbal Scores	-.28	
Average High School Grades	-.27	
Canonical Correlation	.55	X2=258.05;df=4;p⦸.001

Discussion

Importance of College Characteristics. Results from this research indicate that students from higher-income families are relatively more concerned about the lifestyle they will enjoy during their college experience. For example, compared with students from the lower-income families, students from higher-income families attribute more importance to the college's surroundings, i.e., the neighborhood, town, or city in which the institution is located. In contrast, students from the lower-income families attribute significantly more importance to the cost of attendance and to opportunities for internships.

Ratings of College Characteristics. Comparative analyses revealed some significant differences between higher-income, enrolling and non enrolling students' ratings on characteristics of the specific college to which they were accepted. The data showed that higher-income students considered academic as well as social factors when rating the specific college. Compared with higher-income non-enrolling students, at least 30 percent more of the enrolling students rated the college "Excellent" for the quality of faculty, the academic reputation, extracurricular activities, off-campus activities, and majors of interest. Among lower-income students, a substantially higher percent of the enrolling students, compared with the non enrolling students, rated the college more positively on the college's surroundings and social life. These differences suggest the potential value of designing unique recruitment efforts to influence both higher and lower-income, accepted students' perception of these college characteristics.

Differences in Images of the College. Comparative analyses also revealed some differences between enrolling and non enrolling students' images of the college. Among higher-income students, the most discriminating variables were challenging and prestigious; more of the enrolling students perceived the college in terms of these images. However, among lower-income students, the most discriminating variable was "friendly," with substantially more of the enrolling students perceiving the college as a friendly place.

Findings from this study confirm results from previous research documenting a significant relationship between parental income and students' college choice (Zemsky and Oedel, 1983; Flint, 1992). The results support Baird's (1967) earlier finding that students from higher-income homes are more likely to give major consideration to the social opportunities available while lower-income students are more concerned about how the college will prepare them for a career. Further, this study demonstrates how institutional research can be used to expand institutional horizons by informing the development of unique recruitment strategies for special student segments. Recommendations emanating from this study encouraged administrators to improve the vibrancy of the college's actual and perceived social life; to develop collaborative programs with other colleges to intensify efforts to promote the image of the college as prestigious and selective, and to build on the college's strength by increasing contact between prospective students and faculty members as well as graduates.

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Non Enrolling Students and Major Competitors

Preliminary Report

The following analysis is the result of questions raised from the initial Admitted Student Questionnaire (ASQ) highlights report that has been provided. Specifically, we sought to find out more about those students who chose not to enroll at U this year. At the same time, we wanted to see if there would be differences between students who enrolled at other private schools and those who chose public schools instead. Here is an overview of our findings thus far.

1. The first criterion for analysis is non enrolling students' parent-income levels.

Public Competitors	**Private Competitors**
Parents' Income	Parents' Income
53.4% have ◓ $60,000	57.5% have ◓ $60,000
16% have > $100,000	24.8% have > $100,000

2. The next criterion we examined was whether cost or financial aid was a significant factor in the students' decision to enroll in the college they planned to attend.

Public Competitors	**Private Competitors**
Was cost a factor?	Was cost a factor?
71% said "yes"	63% said "yes"

3. Our final criteria cover issues of financial aid. There seem to be slight differences in the way students attending other private universities rate U's grants/scholarships, talent awards, and total aid awards versus those attending public institutions. The following percentages represent the frequency of cases when students rated U's awards as 'highest" and 'higher than most" when compared with their ultimate school of choice.

Public Competitors	**Private Competitors**
Total Award	Total Award
42.8%	17.9%
Grant/Scholarship Portion	**Grant/Scholarship Portion**
46.2%	216.8%
Talent Award	Talent Award
48%	24.2%

Having established these figures as norms (in the aggregate) for each type of school chosen we used the criteria to look for inconsistencies in each of the top 10 public and private schools to whom we lost the greatest number of students.

TOP 10 PUBLIC SCHOOLS TO WHOM WE LOST THE GREATEST NUMBER OF STUDENTS			
School	Number of Students	Percent Income > 60,000	"Yes" Cost/FA is a factor
Univ. #1	101	67.50%	53%
Univ. #2	72	66.60%	68%
Univ. #3	50	47.00%	70%
Univ. #4	44	55.60%	80%
Univ. #5	44	21.10%	85%
Univ. #6	31	77.00%	64%
Univ. #7	22	25.00%	50%
Univ. #8	20	62.50%	78%
Univ. #9	20	25.00%	67%
Univ. #10	18	50.00%	100%

TOP 10 PRIVATE SCHOOLS TO WHOM WE LOST THE GREATEST NUMBER OF STUDENTS			
School	Number of Students	Percent Income > 60,000	"Yes" Cost/FA is a factor
Univ. #11	50	76.20%	45%
Univ. #12	42	70.70%	42%
Univ. #13	26	45.50%	83%
Univ. #14	22	75.00%	50%
Univ. #15	15	50.10%	71%
Univ. #16	13	50.00%	100%
Univ. #17	11	80.00%	60%
Univ. #18	9	50.00%	100%
Univ. #19	7	50.00%	100%
Univ. #20	7	33.30%	0% (only 2 responses)

PUBLIC SCHOOLS

1. Frequency of parents income of $60,000 or higher = 53.4 percent

Public Competitors who deviate from this figure include:

Univ. #6	77.0%
Univ. #1	67.5%
Univ. #3	47.0%
Univ. #7	25.0% (0% above $100,000)
Univ. #9	25.0%
Univ. #5	21.1%

Comment: The big surprise here is not so much Univ. #1 as it is Univ. #6. Are we perceived as "worth our price" to the people looking at us with these higher-incomes? What is the academic quality of the students whose parents have these higher-incomes? Conversely, are we doing everything we can to support the students who come from less substantial means? The answers to these questions exist in the ASQ data and will be examined in the near future.

2. Frequency of cost or financial aid as a significant factor in students' decision to enroll at their school of choice = 71 percent

Public Competitors who deviate from this figure include:

Univ. #1	53%
Univ. #4	80%
Univ. #5	85%
Univ. #10	100%

Comment: Cost and financial aid are obviously a major concern to the people we lost to Univ. #4, Univ. #5, and Univ. #10. We can further examine attitudes of these people toward financial aid (next section). But what to do with #1? We didn't have to "sell" as many people on affordability here. Is it likely that there are characteristics of #1 which U does not offer (i.e., panhellenic groups)? Again, the information is in the ASQ, and we will locate it in our continuing research.

3. Frequency of "highest" and "higher than most" (highest/higher) ratings on U financial aid awards compared with choice schools.

Total Award = 42.8% - - - Grant/Scholarship = 46.2%- - - Talent Award = 48.0%

Students who rated us highest/higher with more or less frequency were found in a number of cases. For instance, only 28 percent of those choosing #3 rated our grants/scholarships as higher/highest, and only 16.7 percent gave that rating to our talent awards.

Students electing Univ. #5 rated their total aid awards highest/higher 71.4 percent of the time. This group also rated U grants/scholarships and talent awards high with slightly more frequency than the norm.

Our grant/scholarship and talent award ratings were also highest/higher with more frequency from students choosing #1, #6, and #7 instead of U. Students opting for #8 and #10 rated their total awards and talent awards from U as highest/higher with more frequency than the norm, but the # 8 group was less than favorable toward grants/scholarships. Those who elected to attend Univ. #9 rated U at the norm frequency in these two areas, BUT only rated their total awards as high with a frequency of 25 percent.

Comment: It would appear as though students opting for Univ. #5 may fit an assumption that financial aid has little or no impact in students' decision to enroll at U. This may in fact be true for this "yet to be identified" market segment. What we can see for sure now is that financial aid receives different perceptions among non enrolling students. This will be further illustrated as we analyze the private competitors in the next section.

PRIVATE SCHOOLS

1. Frequency of parents income of $60,000 or higher = 57.5 percent

Private Competitors who deviate from this figure include:

Univ. #17	80.0%
Univ. # 11	76.2% (52.4% > 100,000)
Univ. #12	70.7%
Univ. # 14	75.0%
Univ. #13	45.5%
Univ. #20	33.3%

Comment: We raise the same questions here as we did for the public competitors. Are we perceived as worth our price to students from higher-income level families? And for those students with lower incomes, are we offering the best possible options?

2. Frequency of cost or financial aid as a significant factor in the students' decision to enroll at their school of choice = 63 percent.

Private Competitors who deviate from this figure include:

Univ. #12	42%
Univ. #11	45%
Univ. #14	50%
Univ. #13	83%
Univ. #15	71%
Univ. #16	100%
Univ. #18	100%
Univ. # 19	100%

Comment: This practically repeats the original list of the top 10 competitors! The only school which came close to the 66 percent norm was Univ. #17 at 60 percent. Univ. #10 was left out because a very small number of students answered the question. Must we consider different messages of affordability to students not only on the basis of income, but also on the basis of the other schools to which they are applying?

3. Frequency of "highest" or "higher than most" (highest/higher) ratings on U financial aid awards compared with choice schools.

Total Award = 17.9% - - - Grant/Scholarship = 26.8% - - - Talent Award = 24.2%

Students electing to attend #3, #4, and #6 never rated any of the three types of U awards as highest/higher. Univ. #8 followed suit with low ratings for grant/scholarship and talent awards, while ratings for the total award were more consistent with the norm.

Conversely, students choosing Univ. #9, Univ. #7, and Univ. #1 rated their awards highest/higher with more frequency than the norm in every category. Those who chose #10 rated U highest/

higher in grant/scholarship and talent awards and those who elected Univ. #2 rated us higher than the norm in terms of their total award.

Final Comment: More investigation is needed in this complex category. One thing can certainly be determined from the work thus far; perceptions of financial aid are different among certain groups of students. Much of this depends on levels of income, academic quality, and schools of choice. We are likely to uncover other interesting attributes as we proceed with our ASQ data analysis, and we are prepared to segment, or isolate, markets in order to determine if we can afford them or if they may not be worth the cost of pursuing.

Admitted Student Questionnaire Highlight Report

by Associate Provost for Enrollment Management

MOST WIDELY HELD IMAGES OF U		
Images	Response Rate	Yield
Friendly	73%	55%
Social	65%	55%
Comfortable	64%	56%
Fun	58%	58%
Personal	54%	56%
Challenging	50%	60%
Relaxed	46%	54%
Career Oriented	44%	58%
Partying	41%	52%

Comment

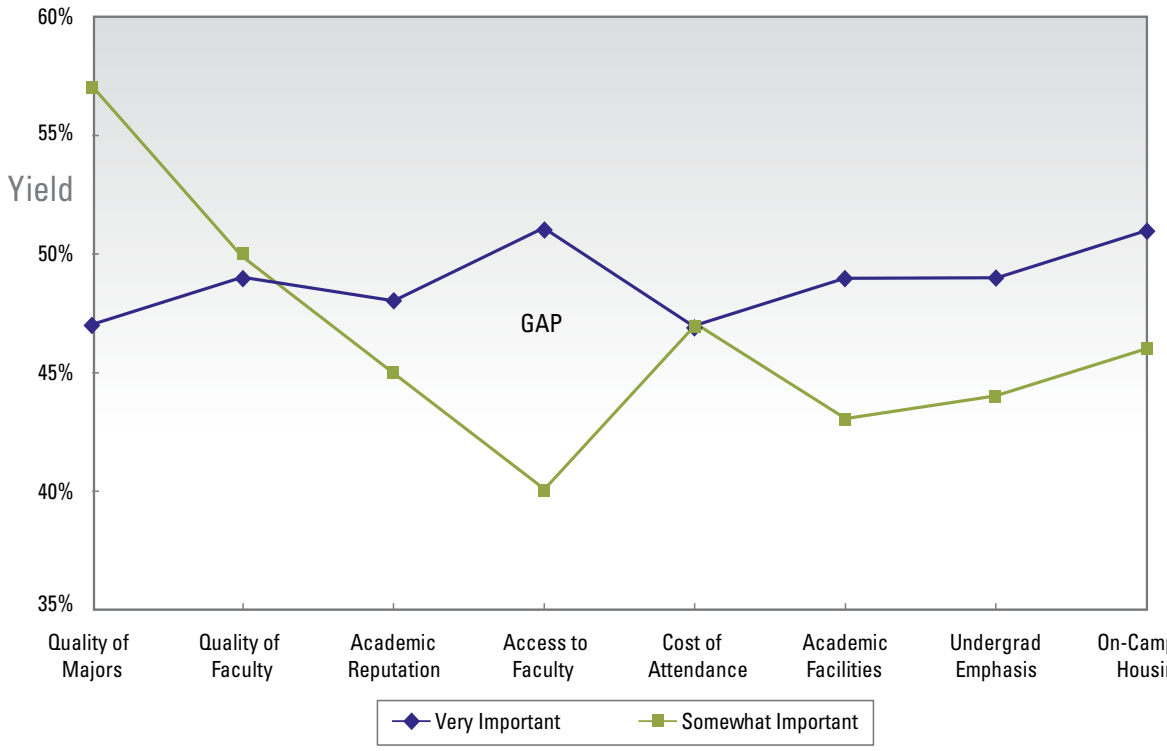
Listed above are the most widely held images of U. Given our tradition and values, the above images are not surprising. These images suggest that a friendly and comfortable style in our publications is appropriate. Note the image of Challenging: could we cultivate and improve the frequency? This image produces the largest yield. Conversely, when viewed as Partying, the lowest yield is attained. For Partying, the national norm among private comprehensive and private research doctoral universities are 14% and 15%, respectively. In a market research report on prospective students conducted in 1990 by Maguire Associates, they observed that Partying was a negative image widely held by a number of the 500 prospects they interviewed in the summer of 1990.

COLLEGE CHARACTERISTICS RATED VERY IMPORTANT				
	Very Important		Somewhat Important	
Characteristics	Response Rate	Yield	Response Rate	Yield
Quality of Majors	90%	47%	9%	57%
Quality of Faculty	79%	49%	20%	40%
Academic Reputation	73%	48%	27%	45%
Access to Faculty	67%	51%	32%	40%
Cost of Attendance	66%	47%	27%	47%
Academic Facilities	65%	49%	31%	43%
Undergraduate Emphasis	63%	49%	33%	44%
On-Campus Housing	61%	51%	35%	46%

These data measure the collegiate characteristics that our admitted students rate as "Very Important" along with their yield rates. Quality of Faculty and Accessibility to Faculty produce significantly higher yields than admitted students who rate these same characteristics as "Somewhat Important." We must identify those prospective students who value these specific

characteristics. It is essential that we deliver on these expectations once they enroll. Again, the Maguire report observed, "Both men and women find highly desirable the scenario that promotes a college atmosphere where students have a faculty and/or staff that interacts with students." We need to investigate why the difference in yield rate for Quality of Majors when rated "Very Important" and "Somewhat Important." This may not be statistically significant. However, it merits more analysis. The Maguire report observed the more positively prospects evaluated their first-choice schools on the quality of major, the less likely they were to apply to the *U*.

FIGURE 1: YIELD OF COLLEGE CHARACTERISTICS RATED ON IMPORTANCE



College Characteristics Quality Ratings and Yields

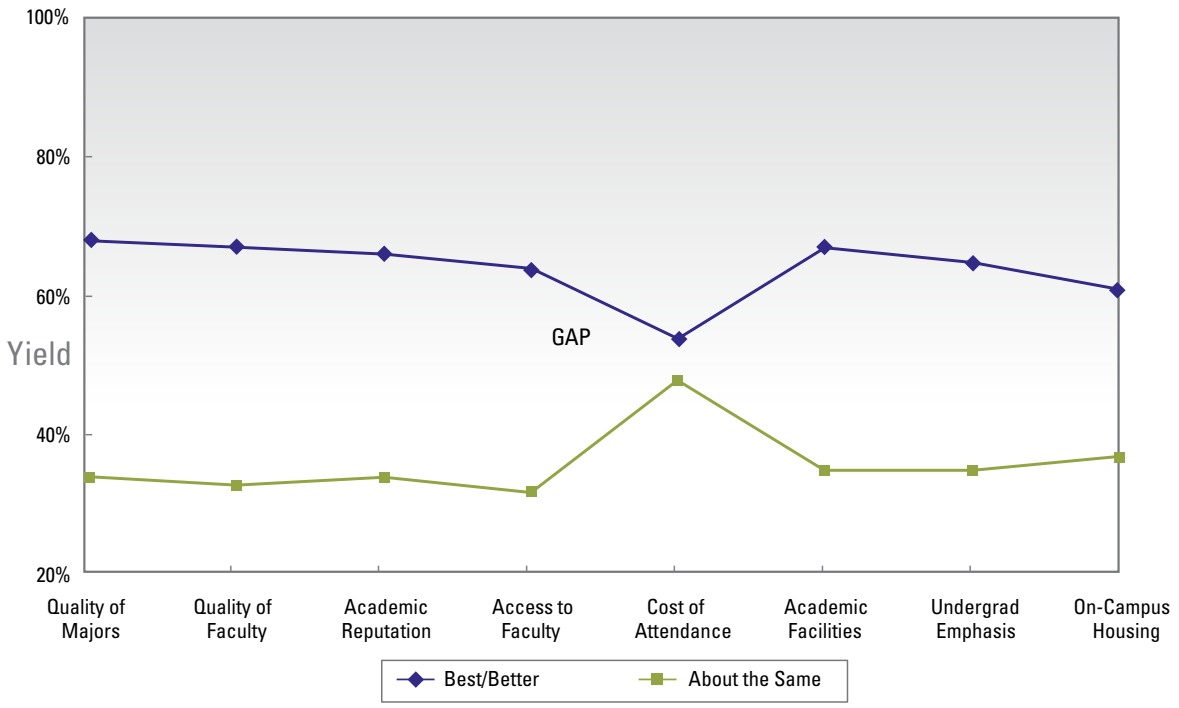
CHARACTERISTICS	BEST/BETTER	YIELD	ABOUT SAME	YIELD
Quality of Majors	43%	68%	49%	34%
Quality of Faculty	48%	67%	49%	33%
Academic Reputation	47%	66%	42%	34%
Access to Faculty	53%	64%	42%	32%
Cost of Attendance	24%	54%	42%	48%
Academic Facilities	42%	67%	52%	35%
Undergrad. Emphasis	44%	65%	53%	35%
On-Campus Housing	53%	61%	40%	37%

Comment

This analysis is intended to measure how quality ratings affect yield. Except for Cost of Attendance, yields are similar for all characteristics when admitted students rate U "Best/Better" compared to ratings of "About the Same." Ratings of "Poorer/Worst" were negligible or nonexistent and consequently not illustrated above.

Cost of Attendance yields for ratings of "Best/Better" is the lowest among all the characteristics listed. This offers support to **s contention (which I share) that there are other characteristics more or equally important to prospective students than cost when making a decision to enroll at U. You will also note that when rated "About the Same," Cost of Attendance produced the highest yield among all characteristics with similar ratings.

FIGURE 2: YIELD OF QUALITY RATINGS
U VS. OTHER UNIVERSITIES



Important Note: 34 percent of respondents rated our Cost of Attendance as Poorer/Worst with a yield of 38 percent. This suggests if we can improve the frequency of some of our admitted students to view us as "About the Same," we ought to significantly improve our overall yield. It is just a matter of improving aid at the right places and the right amount. Our financial aid leverage analysis ought to help us here.

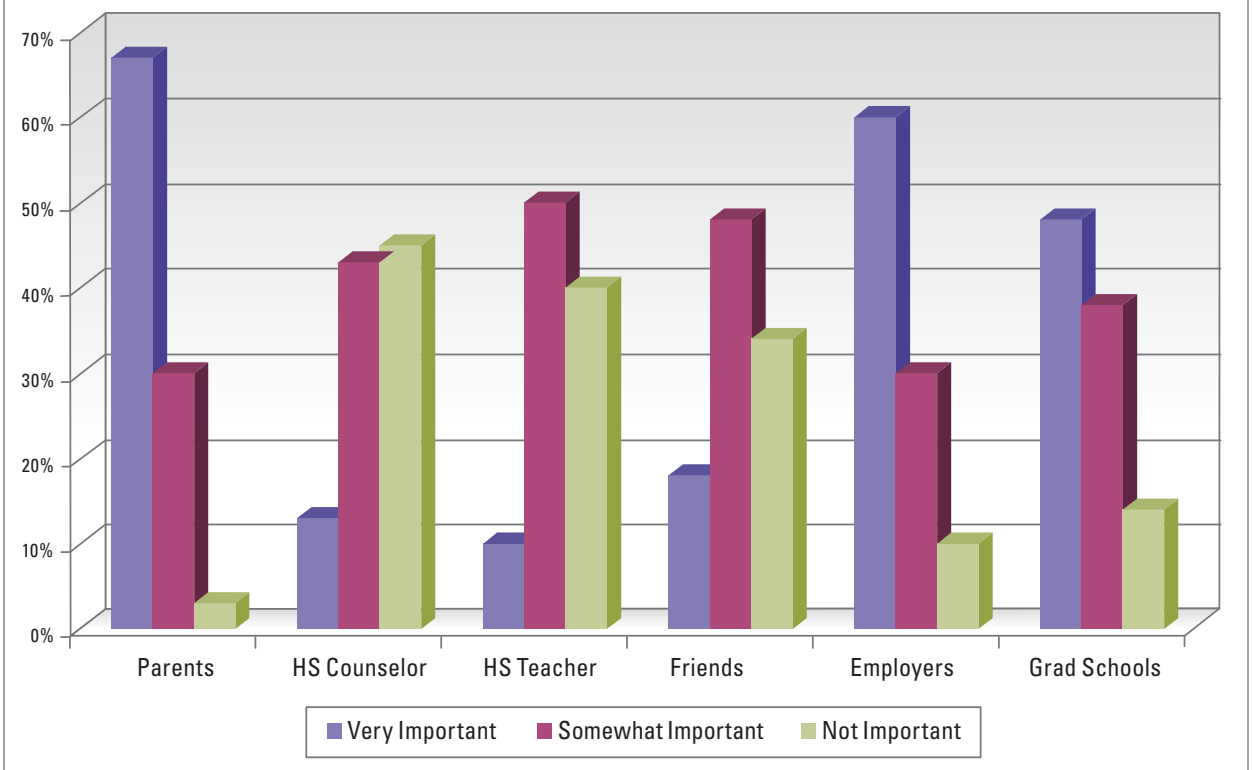
Ratings of Opinions

	RESPONSE RATE	YIELD	RESPONSE RATE	YIELD	RESPONSE RATE	YIELD
Parents	66%	47%	30%	47%	4%	47%
HS Counselor	13%	55%	43%	47%	45%	44%
HS Teacher	10%	52%	50%	49%	40%	45%
Friends	18%	50%	48%	47%	34%	46%
Employers	60%	51%	30%	41%	11%	43%
Grad Schools	47%	47%	39%	49%	14%	48%

Comment

These ratings indicate who is most influential in the college selection process. Parents, Employers, and Graduate Schools are the most frequently reported. Therefore, many messages must be targeted to parents, and we must prominently mention the success of U graduates in obtaining job placement or admission to graduate/professional schools. A similar recommendation was made by the Maguire report.

FIGURE 3: IMPORTANCE OF OPINIONS BY FREQUENCY



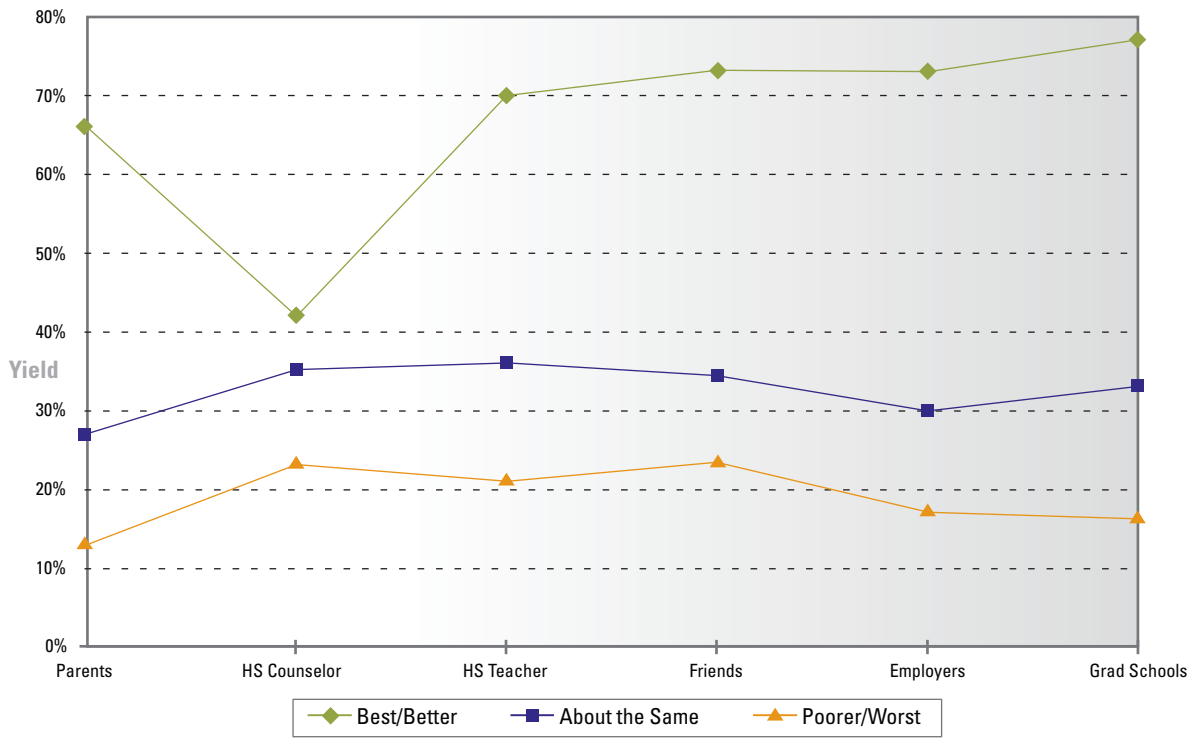
Opinions, Quality Ratings, and Yields

OPINIONS	BEST/ BETTER	YIELD	ABOUT SAME	YIELD	POORER/ WORST	YIELD
Parents	56%	66%	33%	27%	11%	13%
HS Counselor	45%	42%	49%	35%	6%	24%
HS Teacher	41%	70%	52%	36%	7%	21%
Friends	37%	74%	50%	34%	12%	23%
Employers	46%	74%	43%	30%	9%	16%
Grad Schools	43%	76%	47%	33%	10%	15%

Comment

Figure 4 reinforces the earlier findings that significant attention must be given to sway parents' opinions of U and that admitted students are greatly influenced by perceived opinions of Employers and Graduate Schools. Note how the quality rating of "Best/Better" of HS Counselors produces the lowest yield among all opinions rated "Best/Better." This indicates that resources used to court HS Counselors will need to be carefully evaluated to determine if the expense is worth the measured outcome.

FIGURE 4: YIELD OF QUALITY RATINGS OF OPINIONS
U VS.OTHER UNIVERSITIES



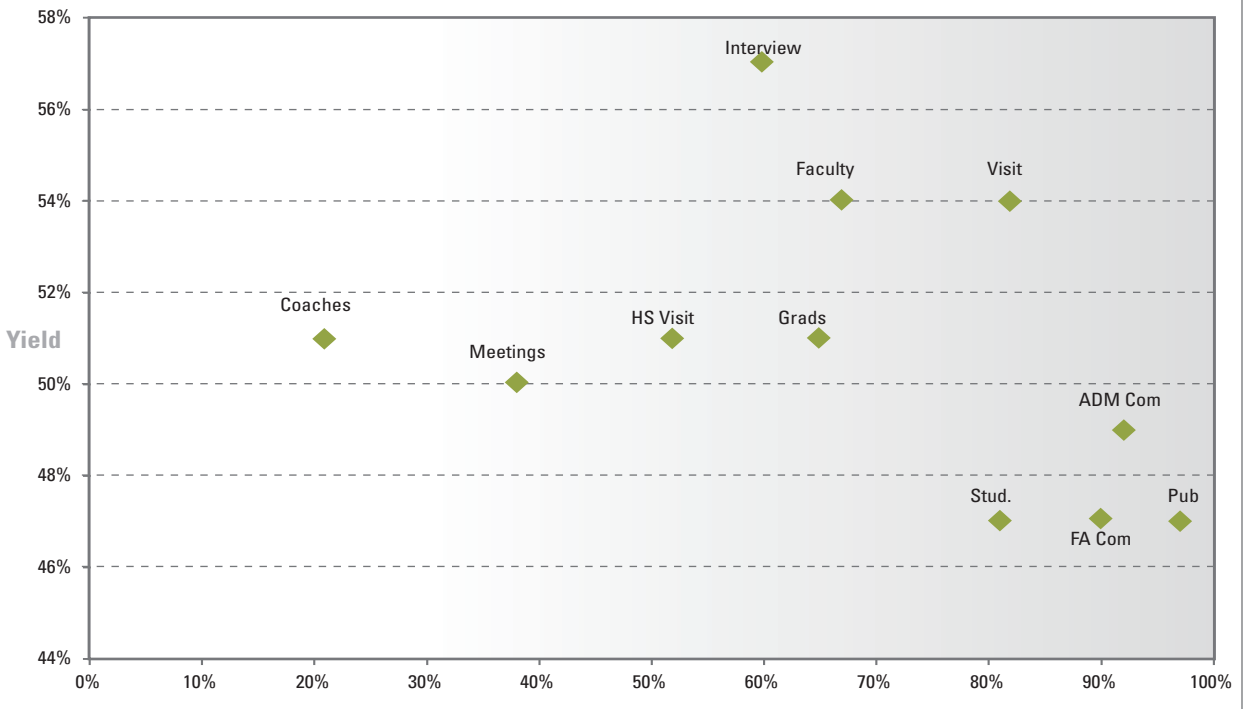
Exposure to Information Sources and Yield

INFORMATION SOURCES	USE	YIELD
High School Visits	51%	51%
College-Sponsored Meetings	37%	50%
College Publications	97%	47%
Financial Aid Communications	90%	47%
Visit to U	80%	54%
On-Campus Interview	59%	57%
Post-Admission Communication	91%	49%
Contact with Faculty	67%	54%
Contact with Coaches	21%	51%
Contact with Graduates	64%	51%
Contact with Students	81%	47%

Comment

This analysis suggests that increased exposure to U faculty and increasing the number of On-Campus Interviews will likely increase overall yield. Note that 80 percent of admitted students from this study visited the U campus, but only 59 percent reported having an On-Campus Interview. Our goal will be to close this gap.

FIGURE 5: EXPOSURE TO INFORMATION SOURCES



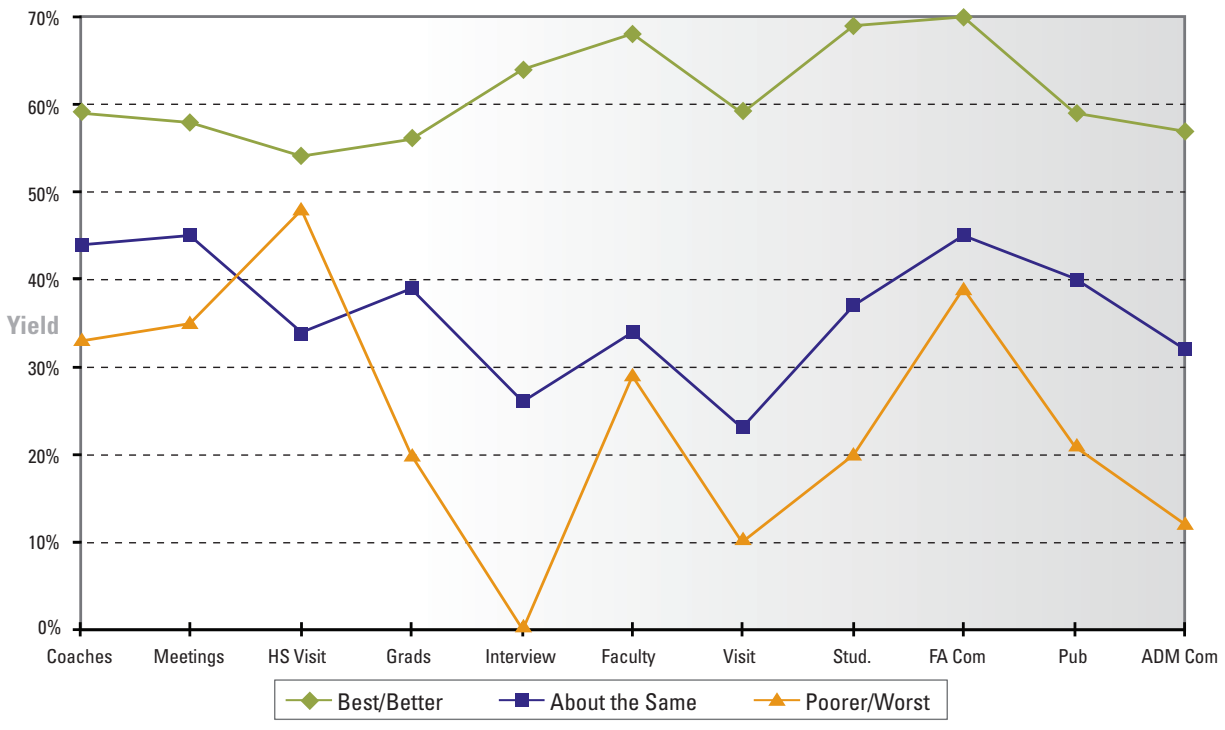
Information Sources, Quality Ratings, and Yield

SOURCES	BEST/ BETTER	YIELD	SAME	YIELD	POORER/ WORST	YIELD
HS Visits	48%	59%	48%	44%	3%	33%
Meetings	4%	58%	45%	45%	10%	35%
Publications	67%	54%	33%	34%	1%	48%
FA Communications	53%	56%	40%	39%	7%	20%
Visit to U	74%	64%	23%	26%	3%	0%
Campus Interview	72%	67%	25%	34%	2%	29%
Post-Admission Com.	70%	59%	26%	23%	5%	10%
Faculty Contact	56%	69%	36%	37%	8%	20%
Coaches Contact	32%	70%	41%	45%	27%	39%
U Grad Contact	62%	59%	34%	40%	5%	21%
U St. Contact	62%	57%	34%	32%	4%	12%

Comment

Those informational sources rated "Best/Better" that produce highest yields are Visit to Campus, Campus Interview, Contact with Faculty, and Contact with Coaches. College Meeting in Hometown and Contact with Coaches received the most frequent "Poorer/Worst" ratings. We will investigate further Contact with Faculty and College Meeting in Hometown to determine if there exist specific instances where improvement can be made.

FIGURE 6: YIELD OF QUALITY RATINGS OF INFORMATION SOURCES U VS. OTHER UNIVERSITIES



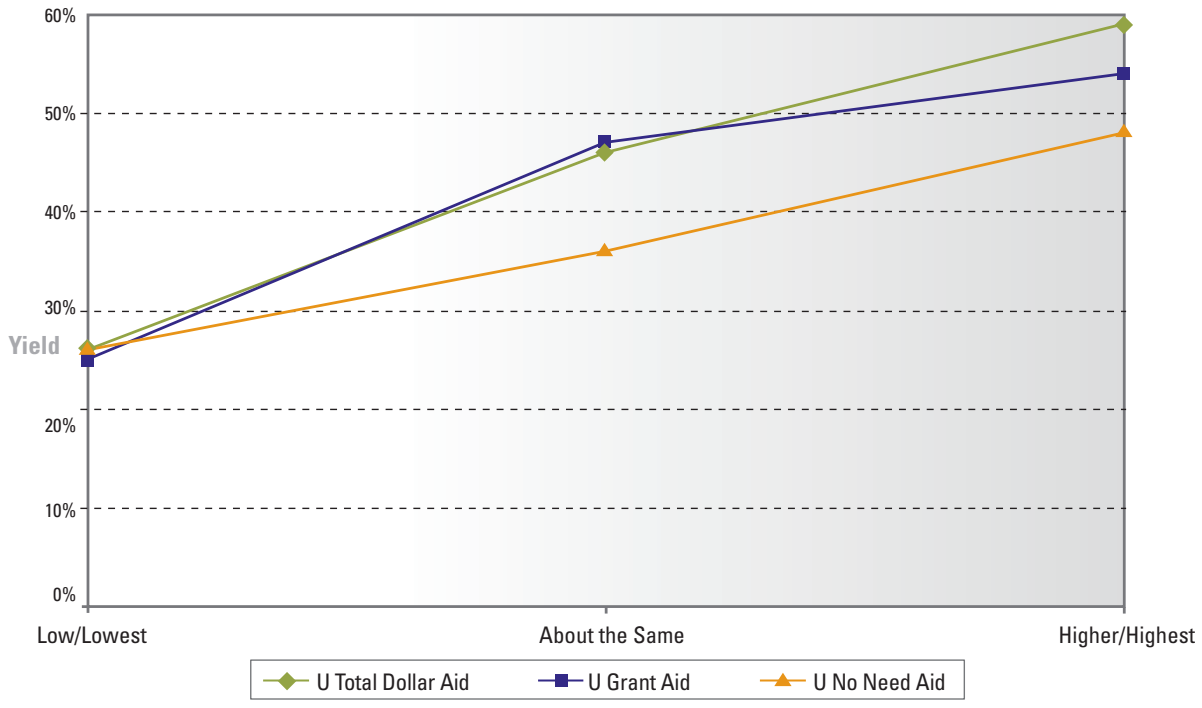
Quality Ratings of Financial Aid

	HIGHER/HIGHEST YIELD		SAME YIELD		LOW/LOWEST YIELD	
U Total Dollar Aid	41%	59%	30%	46%	29%	27%
U Grant Aid	45%	54%	26%	48%	29%	26%
U No-Need Aid	45%	48%	25%	36%	30%	27%

Comment

These data suggest that approximately 30 percent of all financial aid applicants rate LA "Low/ Lowest" in Dollar Amount of Aid, *U* Grant Aid, and amount of *U* No Need Aid. For *U* Total Dollar Aid and *U* Grant Aid, these ratings approximate national norms for Private Research and Comprehensive Universities. *U* No Need Aid "Higher/ Highest" rating is above the national norm. This suggests that higher dollar amounts for *U* No Need Scholarships should not be increased. Additional investigation is required to ascertain family income levels, competing universities, and academic quality of those who rated *U* "Low/Lowest" in their quality rating of financial aid.

FIGURE 7: YIELD OF QUALITY RATINGS OF FINANCIAL AID
U VS. OTHER UNIVERSITIES



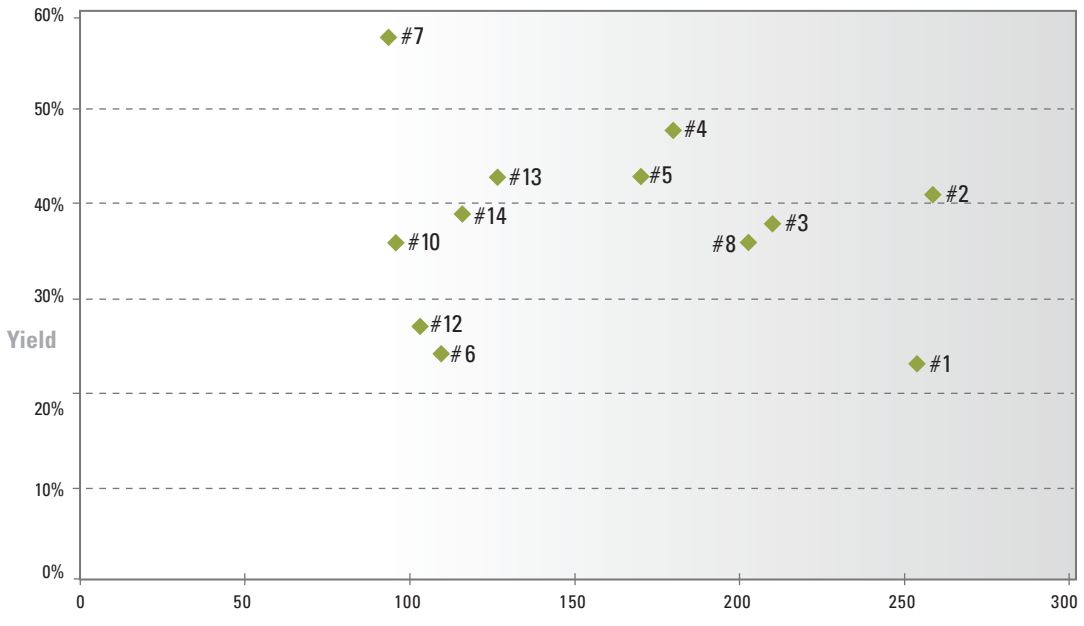
Competition Analysis

UNIVERSITIES	NUMBER OF CROSS-ADMITS	U YIELD
Univ. #2	259	41%
Univ. #1	254	23%
Univ. #3	210	38%
Univ. #8	203	36%
Univ. #4	180	48%
Univ. #5	170	43%
Univ. #13	127	43%
Univ. #14	116	39%
Univ. #6	110	24%
Univ. #12	103	27%
Univ. #10	96	36%
Univ. #7	94	58%

Comment

David Davis VanAtta of Barton Gillette says that yield is a function of overlap and market position of the university. Our goal is to increase our overlap with those universities against which we "win" more often. We need to know more information about our competition, their academic programs, location, pricing, and financial aid policy.

FIGURE 8: COMPETITION ANALYSIS
WIN/LOSS CHART VS. OTHER UNIVERSITIES



USING ADMITTED STUDENT QUESTIONNAIRE TO DETERMINE COGNITIVE FIT BETWEEN INCOMING STUDENTS AND COLLEGE AND PREDICTING FUTURE ENROLLMENT BEHAVIOR

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ABSTRACT

In recent years, the shrinking applicant pool combined with skyrocketing tuition and fees forced many small liberal arts colleges to think critically about their overall enrollment management. The college fit theory and cognitive consistency and dissonance theories suggest "fit" between students and college for the optimum student retention. This study used three years of Admitted Student Questionnaire data to develop college image types and to learn which pre-enrollment image type is most likely to predict the future enrollment behavior. The results showed that students who did not demonstrate a strong pre-enrollment college image dropped out at a higher rate.

INTRODUCTION

Traditionally, many small liberal arts colleges enjoyed constant streams of high school graduates coming from their feeder schools, which helped to maintain a healthy and stable enrollment. However, in recent years, the shrinking applicant pool, combined with skyrocketing tuition and fees, forced these colleges to think critically about their overall enrollment management. In order to maintain a relatively healthy enrollment, these colleges have to compete aggressively with larger private universities, as well as nearby public institutions. The initial action taken by many of these colleges was to engage in recruitment campaigns (or recruitment marketing). After a decade or so of aggressive recruitment campaigns, the market seems to have reached its saturation point. Slowly, many administrators and faculty are turning their focus on retention of the students who are already enrolled in their respective colleges. Historically, these colleges held an elitist view on attrition of their students: "Those students shouldn't be attending our college anyway. The college is better off without them!" The unspoken implication of this attitude was that the majority (if not all) of student attritions were due to students' academic deficiencies. Any individual who acquaints him/herself with the findings from numerous retention studies will learn that academic difficulty is only one of many reasons for leaving college before earning a degree. Tinto (1989)

cited five "causes" for student departure: academic difficulty, adjustment, goals, uncertainty, and commitments. A national survey on undergraduate retention cited financial difficulties, students' accomplishing their goals, other personal reasons, and poor academic progress as the four major reasons for student attrition (Chaney and Farris, 1991). Current reality is that most of small liberal arts colleges can no longer operate with an elitist attitude toward student attrition, if they hope to maintain academically and fiscally healthy enrollment stability.

Chaney and Farris (1991) found that, in the past five years, 81 percent of institutions surveyed had developed programs aimed at increasing retention. Probably all of us who are attending this conference are currently engaged in some sort of retention study and/or programs. Conventionally used tools such as exit survey and interview, nonreturning student survey, informal/formal interview, and focus group are all based on an assumption that students are leaving college due to "problems" encountered while attending that institution. This ask and fix model reduces multidimensional relationships between students and an institution to one or two concrete problems. For example, if 60 percent of nonreturning students said tuition was too high, this model would suggest more money for financial aid as a retention strategy. Although financial difficulty is the second most frequently cited reason for departure, after controlling for academic ability and motivation, there is almost no relationship between income and attrition (Ramist, 1981). The ask and fix model completely undermines what Tinto observed (and later supported by numerous researchers) as "a longitudinal process of interactions between the individual and the academic and social systems of the college" (1975, p. 94). This author agrees that the ask and fix model has served many colleges well and it will continue to provide data on why students leave college before actualizing their educational goals. However, development of effective campuswide retention strategies require proactive decision-making models. The college-fit theory and cognitive consistency and dissonance theories offer us additional tools for understanding the complexity behind why students leave college without earning a degree.

The college-fit theory suggests that the greater the congruence between the values, goals, and attitudes of the students and those of the college, the more likely the students are to remain at that school (Taylor and Whetstone, 1983; Kalsbeek, D., 1989). Taylor and Whetstone (1983) found that the personal characteristics (i.e., values and attitudes) of academically successful men engineering students were significantly different from unsuccessful men engineering students. These researchers suggested that identifiable personal characteristics of successful students can be described, and it can be used to assist students in selecting the college setting where they would best "fit." Cognitive consistency and dissonance theories help us to understand the causes of this observed correlation. These theories explain that, in general, two cognitions that are inconsistent with one another will produce discomfort that motivates the person to remove (drop out) the inconsistency to bring the cognition into harmony (Atkinson, Atkinson et al, 1987).

Attracting an incoming class with perfect cognitive fit is nearly an impossible task; however, understanding the level of "fit" between the students and the college will provide valuable data for total enrollment management and preserving educational integrity of small liberal arts colleges. In order to determine the level of fit, first we must know students' attitudes about our college before their initial enrollment. Admitted Student Questionnaire, a survey instrument designed by the College Board, tries to measure what kind of "attitudes" (or images)

the accepted applicants have a particular college. In this study, the author investigated a possible link between incoming students' pre-enrollment college images with their college enrollment behavior. In other words, by knowing one's pre-enrollment college images (attitudes about an institution), could we predict his/her enrollment persistence. This study attempted to answer two questions:

1. Does an incoming student hold and express identifiable college images before his/her initial enrollment?
2. Is one image type "better" than other image types in terms of a student's enrollment behavior?

METHODOLOGY

Data from college image section of the 1990, 1991, and 1992 Admitted Student Questionnaire (ASQ) from a small liberal arts college located in the mid-Atlantic region were used for this study. College image section contains 19 words/phrases, five items of which are institutional-specific and change every year. Thus, the study is based on the 14 core words/phrases (see Table 1). The respondents (admitted applicants) were asked to circle all words or phrases which are the most widely held images of a particular college. Factor analysis was performed on the responses collected from 1,026 admitted freshman applicants (see Table 2). After the factor analysis, each individual was grouped into five image types. Students who are enrolled for fall 1993 are classified as active students; otherwise, they were classified as inactive. A chi-square test was performed to determine statistical significance of the relationship between the image type and the matriculated applicants' enrollment behavior.

RESULTS

Factor analysis on the 14 image descriptors identified four factors (see Table 3). The Rotated Factor Matrix, shown in Table 3, displays four image groupings: academic, environmental (atmosphere), social, and name recognition. Image grouping of the admitted applicants and the matriculants are displayed in Table 4. As expected, a larger proportion of the matriculants held favorable images of the College than their non enrolling counterparts. Over 80 percent of the matriculants used words like "friendly," "comfortable," "challenging," and "intellectual."

As of fall 1993, 313 (76.16 percent) of the matriculants are actively enrolled (see Table 5). Table 5 shows that the highest attrition (30.56 percent) has taken place with the group of students who did not demonstrate a strong College Image (Unknown Group). It was followed by the matriculants who held high academic image of the College, which showed an attrition rate of 28.35 percent, as a group. The matriculants who held a positive social image of the College and those who thought the College has low name recognition, demonstrated higher retention rates. This relationship can be observed in Table 6. It displays the chi-square expected values and the chi-square residual values. The top two losses occurred among the students who came in with a high academic image (residual = 1.9) and the students without a clear college image (residual = 2.4).

DISCUSSIONS AND LIMITATIONS

This study took a very simplistic approach to examining the interplay between the college image and enrollment behavior without considering one's academic preparation and abilities, gender, family income, ethnicity, etc. The researcher is aware of limitations in forcing students into a one-dimensional image type. It is a highly artificial way of understanding the relationship. Most often students of this college use adjectives like "friendly," "comfortable," "selective," "expensive," "challenging," and "not well known" to describe the College. These descriptors clearly overlap the factor 1 (Academic Reputation), factor 2 (Friendly Environment) and factor 3 (Name Recognition). Consequently, any conclusion must be made with a great deal of caution. Nevertheless, several plausible conclusions could be drawn from the results of this study.

The data suggests that incoming freshmen with somewhat "negative" college image (i.e., partying school) persisted at a higher rate than their peers who did not demonstrate a strong college image type. The formation of a strong college image could be an indicator of students' emotional preparedness for starting college. Under this assumption, one could conclude that incoming students with a strong image type, regardless of its positivity or negativity, are more sure about their educational journeys. And, they are constantly searching for an environment that provides a highest cognitive fit between their images and the campus community. On the other hand, students who do not demonstrate a strong image type could not look for that optimum cognitive fit, because they are unclear ("unknown") about their educational goals for attending a college. They are constantly dealing with cognitive dissolutions. Most of the time, this cognitive dissolution acts as a harmful agent rather than providing the students with creative solutions. A challenge for college faculty and administrators is to find out how many of their incoming students are in this gray area and establish a program to instill "appropriate" educational goals that would be consistent with their particular college. A general consensus among researchers is that freshman orientation can be an effective tool for teaching (or Indoctrinate) characteristics that are proven to be successful for a particular college (Tinto, 1975, 1987, and 1989; Ramist, 1981; Taylor and Whetstone, 1983; Kalsbeek, 1989; Chaney and Farris, 1991).

One interesting result of this study is the enrollment behaviors observed among the 16 students who held highly social college image. This researcher was expecting to see the greatest attrition among these students. During the last five years, on-campus social life has been rated extremely low in annually conducted campus environment survey. This College's students often use the word "dead" to describe the social life in general. Is it possible to assume that once a student formulates values and images, he/she will search the environment to validate his/her cognitive beliefs, thus maintaining the cognitive consonance. An alternative view is that perhaps students' college images are made up of primary, secondary, and even tertiary images. Furthermore, students are willing to live (i.e., stay enrolled) with cognitive dissonances created by secondary and tertiary images, but cognitive dissonances created by a misfit between students' primary images and a college is much more difficult to overlook. In extreme cases, these cognitive imbalances result in the eventual departure of a student.

The college-fit theory and cognitive consistency and dissonance theories suggest that student retention starts from the moment initial contact between the college and the prospective students was made. Therefore, college personnel who regularly come in contact with the prospective students must

"sell" the college in the most realistic way and seek out students who could be best served by that institution. Attracting an ever-increasing freshman class might not be the most healthy thing for the institution nor for the students who must interrupt their educational journeys for their mismatched college choice. After the initial enrollment, students must be given an opportunity to learn about the organizational culture of an institution. This "cultivation" takes on many forms—freshman orientation, First-Year Experience, credit-bearing college orientation classes, academic advising, and counseling are all developed to pass on the knowledge which could help the students to be successful in a given college environment. Thomas (1990) identified three common features of successful retention efforts. According to Thomas, effective retention programs are both comprehensive and coordinated. These programs almost always address several areas of students' involvement with the academic and social systems of the institution, which requires a broad range of college personnel to work cooperatively. Second, successful retention programs involve faculty and administrators who consistently establish and maintain contact with students—particularly conscious in reaching out to freshmen. Third, effective programs usually use a wide range of data (grades, SAT scores, demographics, career interests, satisfaction, etc.) and information extensively that helps faculty and administrative staff understand more about the students and attrition at their college.

Each student departure, in a minimal sense, represents interruption in the student's educational progress, loss of fiscal investment made by the college, and lost opportunity for any type of future relationship between the student and the college. Therefore, understanding the complexity of student retention/attrition is critical to preserving educational integrity of many small liberal arts colleges.

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TABLE 1

WORD/PHRASE LIST	
Isolated	Back-up school
Prestigious	Selective
Fun	Athletics
Intellectual	Friendly
Career-oriented	Partying
Not well known	Average
Comfortable	Challenging

TABLE 2

NUMBER OF ADMITS AND MATRICULANTS WHO PARTICIPATED IN ASQ				
	All Admitted Frequency	Percent	Matriculates Frequency	Percent
Fall 1990	262	25.5	80	19.40
Fall 1991	332	32.4	153	37.40
Fall 1992	432	42.1	178	43.20
Total	1,026	100.00	411	100.00

TABLE 3

FACTOR ANALYSIS (ROTATED FACTOR MATRIX)				
	Factor 1	Factor 2	Factor 3	Factor 4
Challenging	0.72378			
Intellectual	0.69217			
Selective	0.65718			
Prestigious	0.62479			
Average	0.50652			
Friendly		0.78766		
Comfortable		0.70361		
Fun		0.54306		
Partying			0.67935	
Athletics				
Isolated				0.79116
Not Well Known				0.59656

TABLE 4

FACTOR DISTRIBUTION				
Image Type	All Admitted Frequency	Percent	Matriculates Frequency	Percent
Academic Reputation (Factor 1)	270	26.3	122	29.7
Friendly Environment (Factor 2)	419	40.8	217	52.8
Social Reputation (Factor 3)	143	13.9	16	3.9
Name Recognition (Factor 4)	78	7.6	20	4.9
Unknown	116	11.3	36	8.8
Total	1,026		411	

TABLE 5

NUMBER OF ACTIVELY ENROLLED STUDENTS				
Image Type	All Admitted Frequency	Percent	Matriculates Frequency	Percent
Academic Reputation (Factor 1)	270	26.3	122	29.7
Friendly Environment (Factor 2)	419	40.8	217	52.8
Social Reputation (Factor 3)	143	13.9	16	3.9
Name Recognition (Factor 4)	78	7.6	20	4.9
Unknown	116	11.3	36	8.8
Total	1,026		411	

TABLE 6

ENROLLMENT STATUS BY IMAGE TYPE			
Count Chi-Sq. Exp. Value Chi-Sq. Residual	Active Student	Inactive Student	Raw Total
Academic Reputation	91	31	122
	92.9	29.1	
	-1.9	1.9	
Friendly Environment	166	51	217
	165.3	51.7	
	-0.7	0.7	
Social Reputation	13	3	16
	12.2	3.8	
	-0.8	0.8	
Name Recognition	18	2	20
	15.2	4.8	
	2.8	2.8	
Unknown	25	11	36
	27.4	8.6	
	-2.4	2.4	
	313	98	411
	-76.20%	-23.80%	-100%

CHI-SQUARE	D.F.	SIGNIFICANCE
3.41123	4	0.4915

Missing observations = 36

FIVE YEAR TRENDS IN DATA FROM THE ADMITTED STUDENT QUESTIONNAIRE

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33rd Annual Forum
Chicago, Illinois
May 18, 1993

FIVE YEAR TRENDS IN DATA FROM THE ADMITTED STUDENT QUESTIONNAIRE

Data from the College Board's Admitted Student Questionnaire (ASQ) were analyzed for the years 1988 through 1992. A gross analysis of all available data and an analysis of aggregated data for colleges participating in at least four of the five years produced similar results. Perceived academic quality—especially pertaining to faculty remains the most important factor in students' college choices. The importance of cost increased significantly over the five-year period; 60 percent of the 1992 respondents indicated that cost of attendance was very important. The incidence of need-based financial aid applications and awards, as well as merit-based awards, increased significantly at both the ASQ participating colleges and other colleges applied to.

FIVE YEAR TRENDS IN DATA FROM THE ADMITTED STUDENT QUESTIONNAIRE

The Admitted Student Questionnaire (ASQ) program was developed by the College Board in recognition of the fact that while market research is desirable for most colleges, not all of them have the expertise, time, or resources to conduct market research studies (College Board, 1992b). After two years of pilot studies, the ASQ program was formally begun in 1988. It offers colleges the use of a proven questionnaire, and provides comprehensive reports describing both their own data and norms for all participating colleges.

The ASQ collects information on the importance of 20 college characteristics to students in choosing which college they will attend; how the participating college (the one that mailed them the survey) compares on those factors other colleges considered by the student; the degree of exposure to and comparative ratings of various sources of information about the college; widely held images of the college; other colleges applied to and application status there; financial aid applications and awards; and students' background characteristics. There is insufficient space here to discuss trends in all of these areas, so this paper will focus on changes in importance ratings and in cost and financial aid issues.

Introduction

Market research for colleges is a hot topic. As the number of 18-year-olds has continued to decline, colleges are scrambling to identify and target students so that they can maintain their enrollments in the style to which they've become accustomed. The College Board's Enrollment Planning Service, based on work begun by the University of Pennsylvania (Zemsky and Oedel, 1983), divides the country into 304 markets and describes each market in terms of PSAT/NMSQT® and SAT test-takers, feeder high schools, student characteristics, and colleges competing with one's own college for the market's students (College Board, 1990b). Litten, Sullivan, and Brodigan (1983) described a comprehensive approach to understanding not only the composition of various student markets, but also the reasons students prefer one college to another and choose (i.e., enroll in) one college over another.

It seems obvious that any study of students' reasons for enrolling in a particular college should take into account what attributes and characteristics of colleges are very important to them[5]. Some attributes are particularly important at the time the student begins the search process. For example, students may immediately eliminate colleges whose costs are perceived to be completely beyond their means, or whose students have perceived ability levels either much higher or much lower than the applicants' own (e.g., Fuller, Manski, and Wise, 1982). Other college characteristics gain importance as the actual decision approaches. Amount of financial aid, distance from home, type, quality, or amount of post-admission contact with the college—any of these might tip the scale.

5 Litten et al. (1983) distinguish between "attributes," generic or defining properties of an institution, and "characteristics," an institution's specific quality or value on a particular attribute.

When students are asked to rate the importance of various decision factors, issues of academic quality predominate, although in a meta study of the 1988 ASQ data, Chapman (forthcoming) found that "Many things—indeed almost everything mentioned—are, on average, at least 'somewhat Important."' Yearly data from the Cooperative Institutional Research Program (CIRP) have consistently shown "College has a good academic reputation" to be the most important reason for selecting a college (Dey, Astin, and Korn, 1991). Academic quality seems to rise to the top regardless of the principal focus of the research. For example, Maguire and Lay (1981) identified Academics/Religion and Reputation as the top two components of Boston College's image, and Murphy (1981) found academic reputation to be most important in a study of the roles of parents and students in the choice process. Terkla and Wright (1986) found that location appeared most often as one of the top three factors, but prestige was most frequently listed as the most important factor.

The fact that students consider most factors to be important in their decision may result in interpretations of self-reported importance weights that are essentially meaningless. True importance weights can be derived statistically, however, from the relationship between the ratings of the colleges on the factors and the students' actual enrollment behavior. Chapman (1992) applied a multinomial logit model to the 1988 ASQ data and identified the following characteristics (from the ASQ) as the top five drivers of college choice: "Quality of Majors of Interest to You," "Cost of Attendance," "Overall Academic Reputation," "Access to Faculty," and "Quality of Social Life."

While academic quality seems to be paramount in the student choice process, the role of college costs should not be underestimated. The two principal components of net college cost are the tuition/fees/room and board that the college charges and the financial aid (need based and so called merit) that the student uses to offset those charges. In an analysis of data from the National Longitudinal Study of the Class of 1972, Manski and Wise (1983) found that the negative effect on probability of enrollment due to increases in tuition or room and board was offset by increases in financial aid. Leslie and Brinkman's (1987) meta-analysis of 25 student demand studies confirmed this, noting, however, that the early studies "seemed clearly to show that students are more sensitive to tuition than to equivalent per student aid changes."

In current dollars the cost of college attendance (exclusive of financial aid) has risen dramatically for all except public two-year colleges (Table 1); even in constant 1991 dollars the cost of a private university is 47 percent higher than in 1982. Except for public two-year colleges, the cost of attending college has outstripped the increase in disposable per capita income during the same period.

TABLE 1. CHANGES IN THE COST OF ATTENDING COLLEGE (CURRENT DOLLARS)

	Cost 1991-92 (current dollars)	Increase 1982–1991	Increase 1987–1991
Private University	$17,631	107%	35%
Private Four Year	13,061	97%	33%
Public University	6,043	78%	31%
Public Four Year	5,400	78%	27%
Public Two Year	3,728	56%	22%
Disposable Per Capita Income	16,318	68%	25%

Source: College Board (1992a). *Trends in Student Aid*: 1982 to 1992

In terms of aid, Leslie and Brinkman (1987) conclude that "most research indicates some superiority of grants over other forms of student aid in encouraging enrollments." In a study of high-ability students Chapman and Jackson (1987) found that "Other things being equal, total college costs detract from a college's attractiveness, while scholarship aid adds to its desirability. Other non-grant components of financial aid ... appear to have no influence on college choice behavior." No need aid, based on academic, athletic, or artistic talent, has been a source of controversy for years: does such aid represent a reward or a bribe? The benefits of attracting students who would not have enrolled without such grants must be compared to the costs of providing grants to students who would have enrolled anyway, without the awards. Most recently the question has arisen whether merit scholarships targeted at underrepresented minority students do more to increase access or discrimination.

Nationally, total aid awarded increased 88 percent from 1982-83 to 1991-92, lagging behind increases in the cost of attending a private institution (Table 2).[6] Most of the increase is attributable to the 206 percent increase in institutional awards, defined as "awards from the institution's own funds, scholarships, fellowships, and trainee stipends from government and private programs that allow the institution to select the recipient" (College Board, 1992a).

TABLE 2. CHANGES IN AID AWARDED TO POSTSECONDARY STUDENTS (CURRENT DOLLARS)

	Cost 1991-92 (current dollars)	Increase 1982–1991	Increase 1987–1991
Total Aid Awarded (millions)	$30,771	88%	29%
Federal, Generally Available	21,055	96%	23%
Institutional and Other Grants	5,991	206%	57%
State Grant Programs	1,931	92%	28%
Federal, Specially Directed	1,794	32%	19%

Source: College Board (1992a). *Trends in Student Aid*: 1982 to 1992

6 It also appears that private institutions (and students at private institutions) received a much smaller share of federal aid in 1990 than in 1982. In the guaranteed loan programs, for example, the percentage of private students receiving Stafford aid dropped from 39 percent to 36 percent, the private PLUS percentage dropped from 66 percent to 34 percent, and the SLS program dropped from 80 percent to 36 percent (College Board, 1992a).

Thus it is not surprising that cost and financial aid have risen in their importance in the college selection process. In the CIRP studies the percentage of students indicating that "College has low tuition" is a very important reason for selecting their freshman college has risen from a low of 16.8 percent in 1978, to 21.4 percent in 1988, to 30.0 percent in 1992 (Dey et al., 1991; Dey, Astin, Korn, and Riggs, 1992). "College offered financial assistance" was marked very important by a low of 13.6 percent of the 1976 respondents, rising to 21.4 percent in 1988 and 28.3 percent in 1992.

Methodology

The purpose of this study was to examine ASQ data from 1988 through 1992 to determine whether any trends could be identified, specifically with regard to the degree of importance ascribed to the 20 college characteristics listed on the questionnaire and to patterns in financial aid applications and awards. The data are examined at two levels. First, all responses are used to compare the values of the variables over the five-year period. The second part of the study examines only those colleges that participated in at least four of the five years.

The data for this study consisted of the responses to the Admitted Student Questionnaire for 1988, 1989, 1990, 1991, and 1992. Table 3 shows, for each year, the number of colleges participating and the total number of responses.

TABLE 3. ASQ PARTICIPATING COLLEGES AND RESPONSES, 1988-92

	Colleges	Responses[7]
1988	83	55,909
1989	129	89,676
1990	135	89,678
1991	126	80,061
1992	72	52,805

The Statistical Package for the Social Sciences (SPSS/PC+) was used to calculate means and frequencies for the variables of interest. Because the large Ns involved could easily result in differences that were statistically significant but numerically small, tests of significance were not conducted for this part of the study. Instead, the discussion focuses on variables for which the mean 1992 frequency of a given response was at least 3 percent higher or lower than the 1988 value (chosen arbitrarily).

Despite the large number of colleges participating, there were some important year-to-year differences among the five college cohorts. In particular, the five sets of colleges differed in their distribution by geographic region and by control. Table 4 describes the sets of colleges according to some of the demographic characteristics of the institutions.

7 In 1990 the College Board developed an alternate version of the ASQ called the Admitted Student Questionnaire *Plus*™ (ASQ PLUS™). This study does not include the seven colleges that participated in the 1990 field test, the 12 that participated in the 1991 field test, nor the 82 that used the ASQ *Plus* in 1992.

TABLE 4. YEAR TO YEAR DIFFERENCES BETWEEN ASQ PARTICIPANT COLLEGES

	1988	1989	1990	1991	1992
N of colleges	83	129	135	126	72
Public	18%	12%	7%	5%	12%
University	38%	32%	27%	28%	29%
Midwest	17%	14%	12%	12%	9%
Middle States	21%	28%	25%	28%	25%
New England	25%	21%	22%	22%	15%
West	11%	12%	10%	10%	18%
South	19%	17%	22%	22%	27%
Southwest	7%	8%	8%	6%	7%

The second part of the study was intended to remove any uncertainties due to differences in the composition of the five cohorts by analyzing only the set of institutions that participated in each of the five years. The introduction of the ASQ PLUS in 1992 made this difficult, however, as many of the colleges that had used the ASQ regularly decided to try the other version. Eight colleges and universities remained that participated for all five years, and four more that had participated in 1988, 1992, and two of the three intervening years. Thirteen institutions participated from 1988 to 1991 (with one college skipping 1990); 11 more participated from 1989 to 1992 (two colleges skipped one year).

SPSS/PC+ was used to aggregate weighted cases by college for each year, thus making college the unit of analysis, rather than individual students. Aggregation permits values on a given variable for one year to be paired with values for the same variable for a different year. The aggregated variables included the following (among others): percent marking each of 20 college characteristics very important; mean number of colleges applied to and admitted to; percent applying for and awarded need-based financial aid; and the percent offered merit-based aid at the participating college and/or at some other institution.

Results

All 1988-92 respondents

Table 5 displays the characteristics showing at least a 3 percent difference between 1988 and 1992. The percentages shown represent the respondents indicating that the characteristics were "very important" in their college choice.

TABLE 5. PERCENT MARKING CHARACTERISTICS "VERY IMPORTANT," 1988-92

	1988	1989	1990	1991	1992
Academic facilities	59.2%	60.7%	60.8%	61.3%	63.1%
Undergraduate emphasis	60.9%	60.2%	61.4%	63.0%	64.0%
Cost of attendance	51.7%	55.0%	56.9%	59.4%	64.3%
Quality of social life	57.0%	54.6%	53.7%	53.9%	53.5%

Quality of social life was less important to the 1992 respondents than to the 1988 group, but the other three characteristics gained in importance. Cost of attendance was very important to almost 13 percent more respondents in 1992 than in 1988. When the mean importance is calculated for each characteristic (1 = Very Important, 2 = Somewhat Important, 3 = Not Important), the same six characteristics appear in the same order every year as the most important: Quality of majors of interest to you; Quality of faculty; Overall academic reputation; Access to faculty; Variety of courses; and Quality of academic facilities. Cost of attendance was the twelfth most important factor in 1988 (mean importance rating of 1.67), moving up to eighth place for the 1992 cohort (1.47).

All of the financial aid questions showed large changes over the five-year period. Table 6 displays the percentage of students indicating that they had applied for or were offered aid at the participating college ("our college") or any other college, and the percent indicating that either financial aid or college costs was a significant factor in their college choice.

Respondents in all five cohorts were more likely to have applied for need-based financial aid from "our college," but were more likely to have been offered aid, need based or merit, by some other college. Of course, the larger the number of colleges to which the respondents applied for aid, the greater the chances that at least one college would offer aid. Nevertheless, the difference between the percentages awarded merit aid by "our college" and by any other college is particularly striking.

In fact, the number of college options available to students did rise over the period: both the mean number of colleges applied to and the mean number admitted to rose between 1988 and 1992. Concomitantly, the colleges' admissions yield (matriculating students as a proportion of all admitted students) declined, as colleges had to work harder (admit more students) to enroll the same number of freshmen (Table 7).

TABLE 6. CHANGES IN FINANCIAL AID APPLICATIONS AND AWARDS, 1988-92

	1988	1989	1990	1991	1992
Applied—our college	53.6%	58.6%	59.3%	63.1%	64.0%
Applied—any other	49.6%	54.1%	56.9%	60.2%	62.4%
Awarded—our college	40.5%	45.0%	43.8%	48.4%	48.5%
Awarded—any other	41.6%	46.6%	48.3%	51.8%	54.1%
Merit—our college	17.0%	18.9%	20.5%	24.7%	23.5%
Merit—any other	29.4%	32.4%	35.7%	40.0%	40.7%
Cost/aid significant	48.1%	52.0%	53.9%	57.3%	62.5%

TABLE 7. MEAN APPLICATIONS, ADMISSIONS, AND YIELD, 1988-92

	1988	1989	1990	1991	1992
Colleges applied to	5.0	5.2	5.3	5.4	5.5
Colleges admitted to	3.7	4.0	4.2	4.4	4.5
Matriculants surveyed8	575	576	528	496	560
Nonmatriculants surveyed	785	850	897	898	1,021
Admissions yield	42.3%	40.4%	37.1%	35.6%	35.4%

The final observation of note is that the demographic character of the admitted students changed somewhat over the period. Compared to 1988, the 1992 participating colleges enrolled more out of state students, more minority students, fewer low and middle income students, and more students with family incomes of at least $60,000 (Table 8).

TABLE 8. SELECTED DEMOGRAPHIC DESCRIPTORS, 1988-92

	1988	1989	1990	1991	1992
Percent minority	14.5%	15.8%	17.3%	18.8%	18.1%
Percent state resident	50.1%	46.2%	47.4%	44.1%	47.3%
Percent income <$30,000	19.4%	18.6%	16.5%	16.7%	16.9%
Percent $30,000–$59,999	38.1%	37.2%	35.2%	32.9%	35.8%
Percent $60,000+	42.5%	44.2%	48.3%	50.4%	47.2%

Data Aggregated by College

The purpose of the second part of the study was to minimize as much as possible any effects due to the different composition of the colleges participating each year. Since there were only 12 colleges in the 1989-92 group, a one-way analysis of variance was conducted on the four-year results of all three groups described above. If the group differences were insignificant the remainder of the study would use all 36 colleges and focus on the mean differences between the values of the fourth year (whether it be 1991 or 1992) and the values of the first year (1988 or 1989).

As it transpired, the groups were very similar in the difference between the fourth and first year percents "very important." The actual values of those percentages were quite dissimilar, however, making it impossible to combine the groups.[9] Table 9 displays a few examples.

8 Normal ASQ procedure (College Board, 1990b) is to weight enrolling and nonenrolling respondents separately, using the inverse of the response rate for each group, so that total ratings are not inflated due to overrepresentation of enrolling students. The balance of this analysis uses weighted N's. Those wishing data on all 20 characteristics should contact the author. Virtually all colleges participating in the ASQ do survey all admitted students. The remainder survey a random sample or a stratified random sample.

9 As Table 9 indicates, the 1989-92 group was more like the 1988-91 group than like the 1989-92 group. That is, for group 1 (1988-92), the 1988-91 results resembled those of group 2 (1988-91) more than group 1's 1989-92 results resembled those of group 3 (1989-92).

Because of such differences there was no justification for combining the four-year results of groups 2 and 3. Similarly, while group 1's results resembled those of group 2 more than those of group 3, there was no justification either for combining group 1's 1988-91 results with those of group 2, or for combining group 1's 1989-92 results with group 3. Therefore, the remainder of this report will discuss group 1's five-year results only. It is important to note, however, that the same patterns of increase or decrease occurred in all three groups. Specifically, for all three groups the cost of attendance was rated very important significantly more often ($p < .01$ using paired t tests) in the most recent ASQ study than in the earliest ASQ study. In addition, financial aid applications and awards were made significantly more often ($p < .01$) in the most recent ASQ study than in the earliest study.

TABLE 9. COMPARISON OF SELECTED RESULTS FOR THREE COHORT GROUPS

	1988	1989	1990	1991	1991–1992	1988	1992–1989
Percent cost very important							
Group 1 (1988-92)	50.90%	51.70%	55.70%	55.90%	62.80%	5.00%	11.10%
Group 2 (1988-91)	50.70%	51.50%	54.20%	57.50%		6.80%	
Group 3 (1989-92)		54.40%	57.40%	60.20%	63.90%		9.50%
Offered merit aid—any other college							
Group 1	28.00%	29.60%	30.70%	35.90%	38.90%	7.90%	9.30%
Group 2	27.90%	29.80%	31.20%	35.50%		7.60%	
Group 3		34.30%	36.30%	40.60%	43.50%		9.20%
Admissions yield							
Group 1	41.20%	44.70%	36.30%	38.10%	35.60%	-3.1%	-9.10%
Group 2	41.60%	41.10%	36.10%	37.20%		-4.4%	
Group 3		46.40%	38.40%	40.40%	37.90%		-8.5

For the 1988-92 participants (N = 12) six of the 20 college characteristics listed on the ASQ were rated very important significantly more often ($p < .05$) in 1992: Quality of faculty (84.9 percent versus 81.3 percent); Quality of academic facilities (62.5 percent versus 57.0 percent); Access to faculty (71.8 percent versus 69.3 percent); Emphasis on undergraduate education (64.9 percent versus 60.8 percent); Cost of attendance (62.8 percent versus 50.9 percent); and Ease of getting home (36.6 percent versus 33.2 percent). Each of these six showed a significant four-year difference for at least one of the other two groups.

Two of the factors showing significant increases in importance concerned faculty. In the same vein, the percentage of admitted students who had some contact with faculty as a source of information about the participating college also increased, from 55.0 percent in 1988 to 63.4 percent in 1992. Did the students seek out faculty contact more as college faculty became more important to them? Or did the colleges make faculty more available during the admissions process because their ASQ reports indicated that faculty quality and access to faculty were very important to students? Unfortunately, the ASQ itself cannot answer these questions.

For the 1988-92 group, all the financial aid application and award questions showed significant increases (Table 10: $p < .01$), with the exception of the financial aid applicants at "our college" who were awarded aid there. Increases in financial aid applications to and awards from any other college were larger than those for "our college," once again reflecting, perhaps, the increase in the mean number of colleges admitted to (4.5 in 1992 compared to 3.9 in 1988 ($p < .01$); the number of colleges applied to only increased from 5.4 to 5.6, however).

TABLE 10. FINANCIAL AID APPLICATIONS AND AWARDS, 1988-92 PARTICIPANTS

	1988	1989	1990	1991	1992
Applied—our college	58.00%	58.60%	58.80%	62.10%	66.30%
Applied—any other	53.80%	53.10%	57.60%	58.10%	63.10%
Awarded—our college	45.80%	47.30%	49.80%	51.60%	54.00%
Awarded—any other	44.30%	45.60%	50.70%	50.10%	56.10%
Awarded—ours (of applicants)	69.80%	72.80%	75.50%	75.50%	74.20%
Awarded—other (of applicants)	70.50%	73.80%	77.70%	76.70%	80.10%
Offered merit—our college	17.00%	17.80%	17.20%	29.00%	26.70%
Offered merit—any other	28.00%	29.60%	30.70%	35.90%	38.90%
Cost/aid significant	49.30%	48.60%	51.40%	54.60%	60.80%

Like the total group, these 12 colleges also experienced an increase in minority students, from 11.8 percent of all 1988 admitted students to 16.7 percent in 1992 ($p < .05$). The small difference in the income distribution between 1992 and 1988 disguises the 1988 91 increase in higher income students, which then fell back 5 percent in 1992 (Table 11). There were no other significant demographic differences between the 1988 and 1992 cohorts in this group.

TABLE 11. DEMOGRAPHIC DESCRIPTORS, 1988-92 PARTICIPANTS

	1988	1989	1990	1991	1992
Percent minority	11.8%	12.5%	13.3%	16.3%	16.7%
Percent income < $30,000	19.0%	17.3%	17.7%	18.7%	18.8%
Percent $30,000–$59,999	38.2%	35.1%	33.8%	32.0%	37.0%
Percent $60,000+	42.8%	47.6%	48.5%	49.3%	44.2%

Table 12 displays the year-to-year changes for matriculating and non matriculating students separately. The five-year differences are all statistically significant for matriculants. As would be expected, matriculating students were more likely to have applied for and been awarded aid by "our college," although they were more likely to have been offered merit aid by some other college. Non matriculants were more likely to have applied for aid from and to have been awarded need based or merit aid by some other college, although the increase in financial aid applications was not significant. The difference in the percent offered merit awards by some other college and by "our college" was at least three times greater for non matriculants.

TABLE 12. FINANCIAL AID APPLICATIONS AND AWARDS

	1988	1989	1990	1991	1992
Matriculants					
Applied—our college	62.30%	62.30%	66.70%	70.00%	71.5%*
Applied—any other	45.00%	46.70%	51.10%	53.20%	55.9%*
Awarded—our college	52.30%	52.10%	59.00%	61.60%	62.4%*
Awarded—any other**	38.00%	40.50%	45.90%	46.40%	50.60%
Offered merit—our college	18.70%	19.40%	18.60%	30.40%	28.6%*
Offered merit—any other**	21.50%	23.30%	23.80%	27.10%	30.10%
Cost/aid significant**	47.60%	46.80%	53.10%	57.00%	60.10%
Nonmatriculants					
Applied—our college	55.10%	56.00%	54.20%	57.00%	62.60%
Applied—any other	60.10%	58.20%	61.30%	61.60%	67.20%
Awarded—our college	41.30%	43.00%	44.70%	45.80%	49.30%
Awarded—any other	48.80%	49.50%	53.60%	53.00%	59.4%*
Offered merit—our college	16.10%	15.90%	16.30%	28.30%	25.5%*
Offered merit—any other	32.50%	34.40%	34.50%	41.40%	44.1%*
Cost/aid significant**	50.80%	49.30%	50.30%	53.50%	61.40%

Difference between 1992 and 1988: * $p < .05$ ** $< .01$

Discussion

Analysis of five years of ASQ data confirms the importance of academic quality in the college choice process. In particular, students are concerned about faculty—quality and access. The cost of attending a given college is also important, however, and its importance continues to rise. Over 60 percent of the 1992 ASQ respondents indicated that Cost of attendance was a very important factor in their college choice.

Further evidence of the importance of cost is the increase in the percentage of students applying for and awarded financial aid. While the increase in the incidence of merit awards was especially striking, it should be noted that students may be able to increase their likelihood of being offered a merit award by making better (or at least different) application decisions. In other words, the increase in the number of colleges admitted to may be as much a function of a better applicant college fit as it is of colleges scrounging for students. It was the author's experience as a 1988 ASQ participant that quite a number of students complained about not receiving a merit award from the participating college when they had received it from some other (named) college, said college almost always being less selective than the participating college and apparently having comparatively lower standards for merit eligibility.

There is much more information to be gleaned from an analysis of ASQ data. The sheer volume of data and the time and effort involved in aggregating it precluded a more extensive analysis for the purposes of this paper. However, given that the analyses of the total ASQ population and the data aggregated by college tended to support each other, future investigations could reasonably be confined to the total set, greatly simplifying the task.

One topic for further exploration would be an extensive analysis of yield for particular variables. For example, how did the yield change for students who were offered need-based aid by "our college," compared to those offered aid by some other college? This question will become even more important if the number of colleges admitted to continues to rise, because of the corresponding increasingly compounded probability of at least one other college also offering aid. Given the increasing importance of cost, what happened to the yield for colleges considered "best" or "better than most" on this question? One could also examine the five-year data on financial aid applications and awards for respondents classified by income, SAT/ACT scores, etc., or for different types of colleges.

The ASQ also contains rich data on application and admission to other colleges. The students' application sets could be analyzed in order to determine, for example, whether rising costs have increased the number of public colleges or universities applied to, or whether the incidence of merit awards is tied to the inclusion of particular types of colleges in the admission set. The size of the yearly cohorts would also make it feasible to match respondents on the basis of certain demographic variables, such as gender or standardized test scores.

In summary, the amount of data available from the ASQ is formidable. This paper has only dealt with a small portion of it, albeit the portion touching on a topic of continuing concern: the influence of college cost and financial aid on students' enrollment decisions. It will be interesting to see what new information can be gained from further analyses of the 1988 92 data, as well as from the inclusion of additional yearly cohorts.

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A COMPARISON OF PAPER AND WEB RESPONSE RATES FOR A SURVEY OF ADMITTED STUDENTS

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Introduction

The College Board's Admitted Student Questionnaire service is a college-choice questionnaire designed to elicit students' reasons for attending or not attending a particular college. The service began in 1988 with 80 participant colleges and has grown to almost three times that number. Unlike the original ASQ, which asks students to rate the participating college (the institution that sent them the survey) in comparison to the set of other colleges they considered seriously, the ASQ PLUS asks students to name and rate up to two specific colleges in addition to the participating college.

The College Board recommends the basic ASQ for colleges that have never done this type of research before, so that they can get a feel for their institution's place in the general competitive framework. If the college already has an idea who its principal competitors are, whether through the ASQ or its own research, the ASQ PLUS can then provide information on specific competitors of interest: Why did so-and-so decide to enroll at Big State University instead of us? This approach to the question of college choice has become very popular in the past 10 years, and currently represents about 75 percent of all ASQ studies.

The Web version of the ASQ PLUS was tested in 2000, with three participating institutions. In 2001 it was made available to ASQ customers from previous years, though not heavily marketed; 16 colleges participated that year. In 2002 the "Web option" was described in the marketing brochure, and the 42 institutions that signed on form the basis for this study. The purpose of this paper is to describe the experiences (in particular, the response rates) of the colleges participating in the ASQ Web option, and to attempt to identify any factors that contribute to relatively high rates of response to the ASQ PLUS.

The Web version of the ASQ PLUS was designed to resemble the paper version of the survey as closely as possible. There were three reasons for this: First, the colleges didn't want to

give up any of the information that they were currently providing in the reports based on studies using paper surveys only. That meant that the Web version had to collect the same data. Second, collecting the Web data in the same format and layout as the paper data greatly simplified the analysis process, thereby keeping costs down. Finally, it was desirable to have Web respondents confronting the same questions in the same format as those completing the paper survey, so as to maximize comparability of data.

Table 1 displays some characteristics of the 42 institutions using the ASQ PLUS on the Web in 2002.

TABLE 1

	N	%
Web + paper	41	98%
Used Web as follow-up only	2	5%
Women's college	2	5%
Public Master's	2	5%
Doctoral/research (private)	13	31%
Master's (private)	11	26%
Baccalaureate (private)	15	36%
Specialized	1	2%
Never used ASQ or ASQ PLUS before	5	12%
Only used ASQ before	3	7%
Used ASQ PLUS in 2001	23	55%
Mean SAT V + M 1401 or more	3	7%
Mean SAT V + M 1301–1400	9	21%
Mean SAT V + M 1201–1300	9	21%
Mean SAT V + M 1101–1200	12	29%
Mean SAT V + M 1100 or less	9	21%

For most of this analysis, the college that used only the Web version of the ASQ PLUS to survey its admitted students was omitted, as were the two colleges that had fewer than 25 Web responses.

Response Rates

Overall response rates for these schools' ASQ PLUS studies ranged from poor (12 percent) to excellent (76 percent), and for the 34 colleges that had participated in an ASQ or ASQ PLUS study prior to 2002, the changes in response rate from the prior study to 2002 ranged from 31 percent lower to 36 percent higher. Overall response rates for the five colleges that had never done an ASQ study before ranged from 29 percent to 42 percent.

TABLE 2		
Overall Response Rate	2002 (N = 39)	Prior Survey (N = 34)
70% or higher	5%	3%
60–69%	10%	12%
50–59%	13%	12%
40–49%	21%	26%
30–39%	15%	9%
20–29%	28%	29%
Less than 20%	8%	9%
Enrolling Response Rate	2002 (N = 39)	Prior Survey (N = 34)
70% or higher	36%	44%
60–69%	23%	6%
50–59%	23%	9%
40–49%	8%	24%
30–39%	8%	9%
20–29%	3%	9%
Less than 20%	0%	0%
Non-Enrolling Response Rate	2002 (N = 39)	Prior Survey (N = 34)
70% or higher	0%	0%
60–69%	3%	3%
50–59%	8%	9%
40–49%	10%	15%
30–39%	10%	15%
20–29%	33%	18%
Less than 20%	36%	41%

Table 3 displays the change in response rates for the 34 institutions that had conducted an ASQ or ASQ PLUS study prior to 2002. One-sixth of the colleges experienced response rates that were within 3 percent of their previous study. Beyond that, more colleges showed higher response rates in 2002 than showed decreases. However, the table also appears to document a certain amount of regression toward the mean: The largest 2002 increases came from colleges with lower response rates to begin with, and the largest decreases came from colleges with relatively high rates in their earlier study.

TABLE 3					
	Change in 2002				
Prior Overall Response Rate	> 10 percent lower	4–10 percent lower	3 percent lower–3 percent higher	4–10 percent higher	> 10 percent higher
Less than 25%			3	2	3
25–40%	2	2	1	3	2
41–55%	3		3	2	1
Over 55%	1	3		2	1
Total	**6**	**5**	**7**	**9**	**7**

Table 4 shows the same information for enrolling and non-enrolling students separately: not only did enrolling students respond at a higher rate overall compared to non-enrolling students, but their response rate was increased in 2002 more often than it decreased. Nineteen colleges showed an enrolling response rate that was at least 4 percent higher in 2002 (the rate for 9 was at least 4 percent lower), compared to 12 non-enrolling response rates (with 13 showing a non-enrolling rate at least 4 percent lower).

TABLE 4					
Change in 2002	Change in 2002				
Prior Response Rate	> 10 percent lower	4–10 percent lower	3 percent lower–3 percent higher	4–10 percent higher	> 10 percent higher
Enrolling Students					
Less than 25%					1
25–40%			1	1	4
41–55%	1		1	1	4
Over 55%	7	1	4	4	4
Total	**8**	**1**	**6**	**6**	**13**
Non-Enrolling Students					
Less than 25%	1	2	6	6	1
25–40%	2	2	3	1	1
41–55%	3	1		2	1
Over 55%		2			
Total	**6**	**7**	**9**	**9**	**3**

Demographic Characteristics of Respondents

It is almost always impossible to determine precise response rates for different subgroups of the enrolling and non-enrolling student populations surveyed, such as males or students from public high schools, since colleges don't usually provide separate counts of the students surveyed in each of those categories. Nevertheless, if we assume that the distribution of subgroups within the population did not change drastically in 2002, compared with one or two years earlier, we can determine whether the distributions among the ASQ PLUS respondents changed enough that the addition of the Web response option might have been a contributing factor. In addition, we can compare the subgroup distribution of earlier paper-only studies to the 2002 paper and Web responses separately.

The chart below (Figure 1) answers the question, "What percentage of the participating colleges experienced a substantial change in certain demographic characteristics of their ASQ PLUS respondents from earlier studies to 2002?" For the purposes of this discussion, "substantial change" is defined as a difference of at least 5 percent (higher or lower) in the percentage of respondents with the given characteristic.

Compared to earlier ASQ PLUS studies, the percentage of female respondents in 2002 was about the same for almost all participating colleges. In contrast, 40 percent of the colleges had at least 5 percent more students from non-public high schools among their respondents in 2002, and 36 percent saw more respondents reporting A grades.

FIGURE 1. SELECTED CHARACTERISTICS OF RESPONDENTS 2002 VS. PRIOR ASQ PLUS STUDY

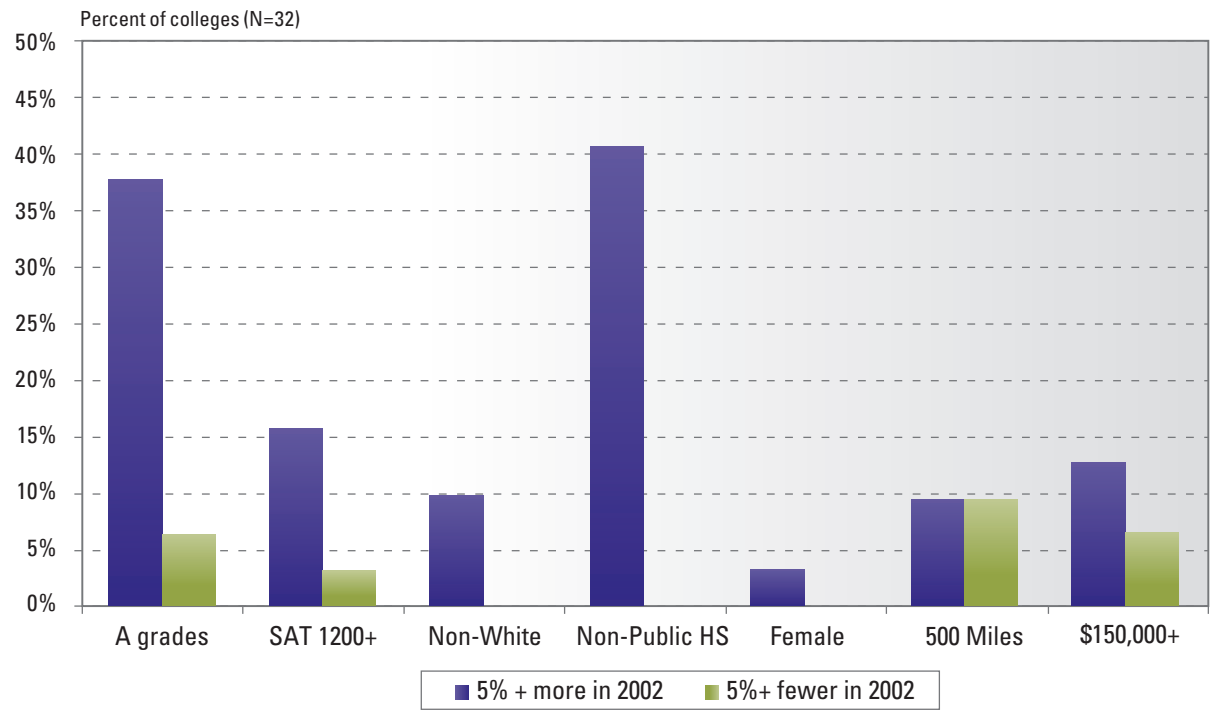
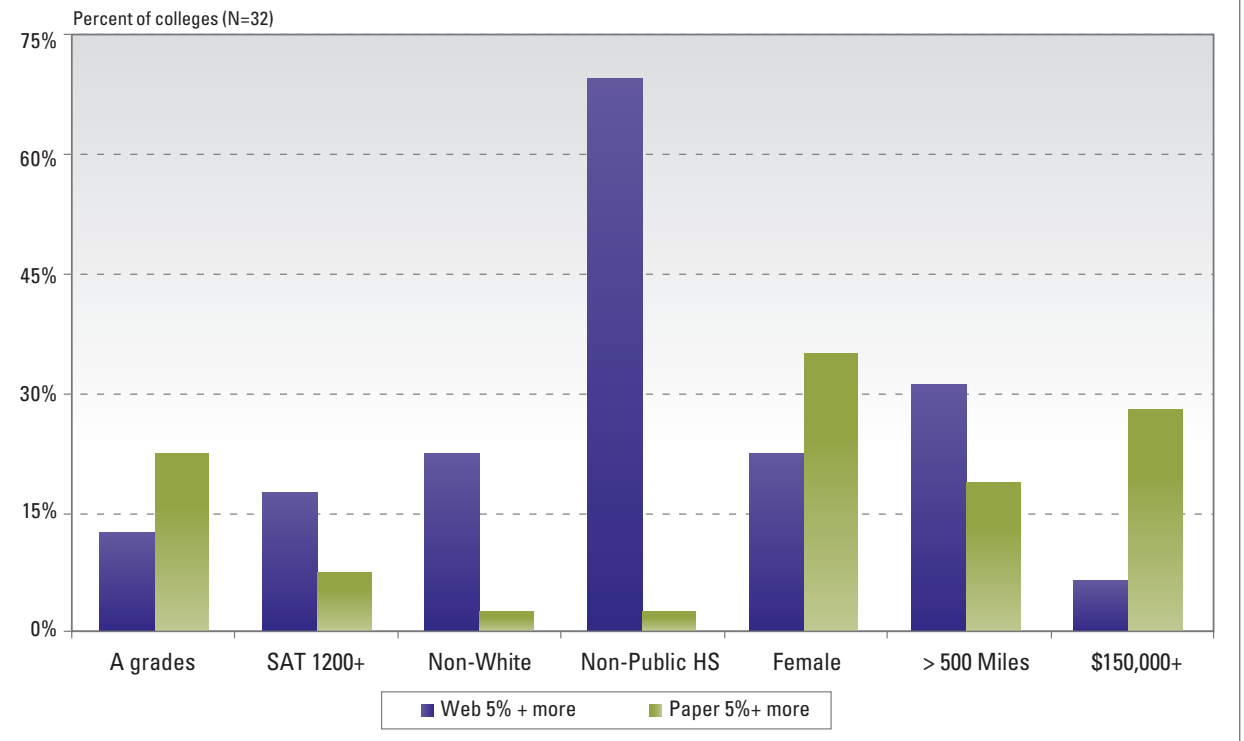


Figure 2 compares the 2002 demographic characteristics of the students who responded using the paper survey to those of the Web respondents. The most dramatic difference is in the percentage of respondents attending a nonpublic high school: Three-fourths of the 33 participating colleges had at least 5 percent more students from nonpublic high schools among their Web respondents than among their paper respondents. Web respondents were also somewhat more likely to be nonwhite and to live more than 500 miles from the college, while paper respondents were somewhat more likely to have come from high-income families and to be female.

FIGURE 2. SELECTED CHARACTERISTICS OF RESPONDENTS 2002 WEB VS. PAPER



One possible explanation for the high representation of non-public school students among Web respondents is that students attending boarding schools would be able to respond to the Web ASQ PLUS right away, while they were in residence at the school, whereas paper surveys sent home might have to wait until the student returned, perhaps getting lost in the meantime. The ASQ PLUS distinguishes between independent schools that are Catholic, affiliated with other religions, or have no religious affiliation, but does not collect information on boarding Versus day school attendance.

Finally, **Figures 3A** and **3B** compare the Web respondents and the paper respondents among enrolling and non-enrolling students separately. Colleges included in these figures had at least 25 respondents in each of the four categories (Web and paper, enrolling and non-enrolling). In general, non-enrolling students evinced more Web-paper differences (comparing the percentage of colleges where the difference was at least 5 percent in either direction) than did enrolling students, and more of their differences favored Web respondents (that is, differences of at least 5 percent more Web respondents occurred at more colleges than did differences of at least 5 percent more paper respondents). Compared to non-enrolling paper respondents, at least 5 percent more

non-enrolling Web respondents reported A grades and SAT V+M of 1200 or better, were non-white, attended a non-public high school, and lived more than 500 miles from the college.

FIGURE 3A. WEB VS. PAPER RESPONDENTS, NON-ENROLLING STUDENTS

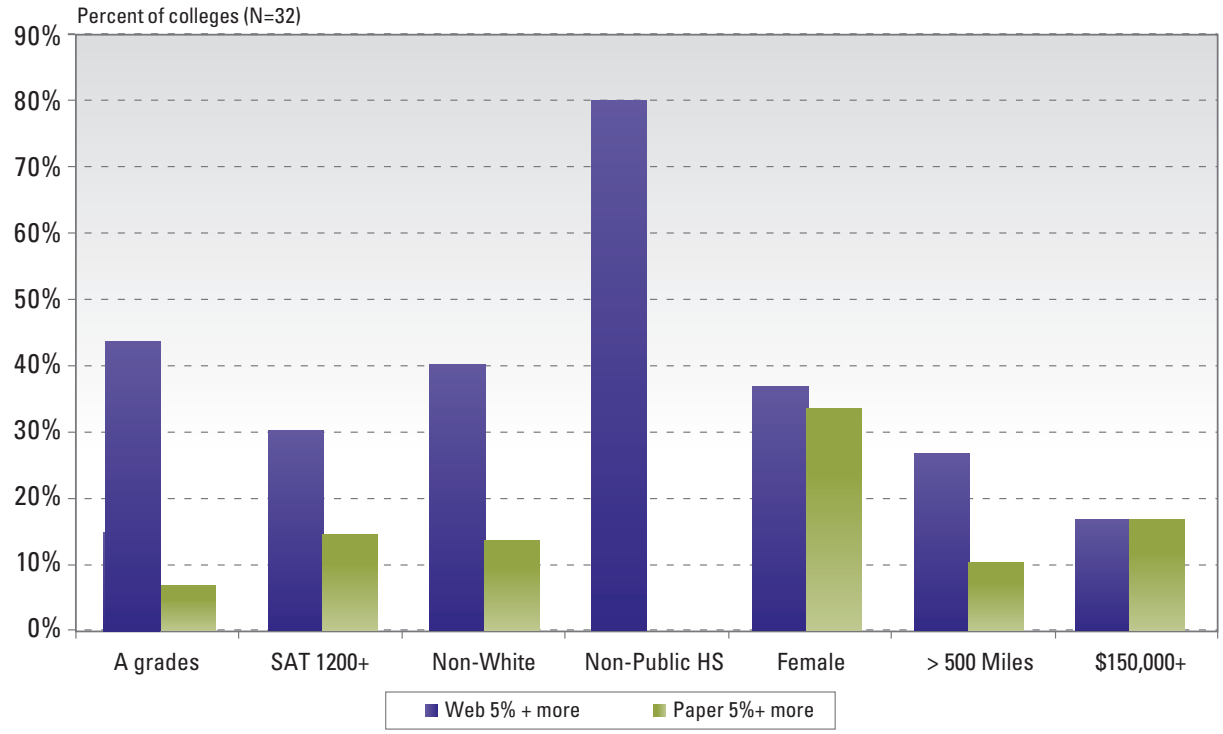
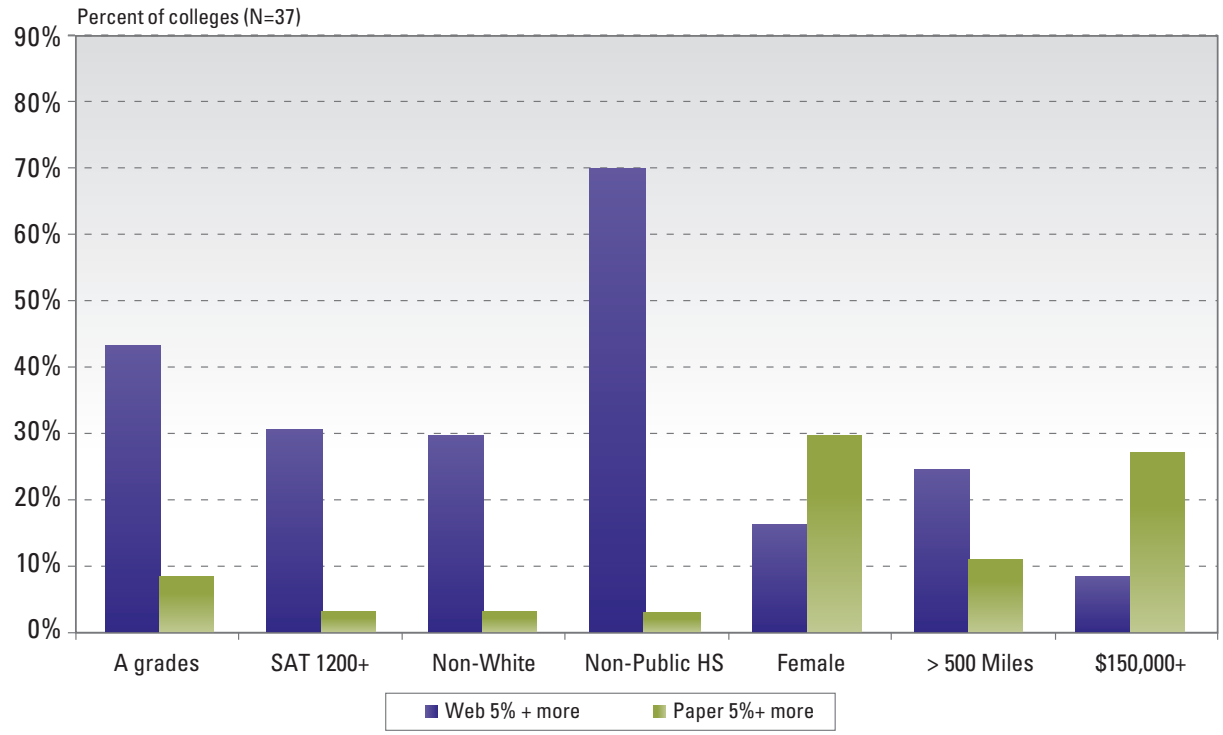


FIGURE 3B. WEB VS. PAPER RESPONDENTS, ENROLLING STUDENTS



Differences among enrolling student characteristics were somewhat more likely to favor paper respondents for two types of students: more colleges experienced differences of at least five percent more paper respondents who were female or had family incomes of $150,000 or higher. For both groups of students, Web respondents were much more likely to be attending a non-public school. (Note also that non-enrolling students in general were more likely to have high academic credentials, be non-white, be attending a non-public school, live more than 500 miles from the college, and have a family income of $150,000 or more.)

Survey Administration

Participating colleges provided some information about the way the Web and paper surveys were administered on the Final Transmittal Form that accompanied their last shipment of paper questionnaires for processing, and also as part of a survey evaluating their experience with the Web option. The colleges were urged to notify the students about the survey Web site with an e-mail message containing a clickable link. It was suggested that sending the notification e-mail a week or so in advance of the mailing of the paper survey would maximize the likelihood that the survey would be completed on the Web. In addition, the paper mailing (which would also mention the Web site) would then serve as the first follow-up. Subsequent e-mail follow-ups were highly recommended.

Table 5 displays the percentage of participating colleges that indicated particular actions notifying students about the survey Web site to begin with, and then following up on the initial notification. Of the 31 colleges providing information on their initial contact with admitted students regarding the Web ASQ PLUS, almost all followed the recommendation to send an e-mail message that contained a clickable link, as well as including the URL as part of the regular paper mailing. More than half sent a follow-up reminder via e-mail, and 29 percent sent a follow-up postcard or letter. Those that sent both a reminder (either e-mail or paper) and a second mailed questionnaire had the highest mean response rate, 47 percent. Table 5 also indicates that April or May is the best time to approach students with the ASQ PLUS: the overall response rate was 7 percent higher for those colleges that first contacted their admitted students in April or May.

TABLE 5			
	Base Number (N) (Colleges providing information)	Percent that:	Response rate for those colleges
Sent e-mail with hot link to survey	31	90%	42%
Gave survey URL as part of paper mailing	31	94%	42%
Sent a follow-up e-mail reminder	38	61%	41%
Sent a follow-up paper reminder (postcard or letter)	38	29%	45%
Sent a second mailing that included a paper survey	38	42%	43%
Sent both a reminder and a second questionnaire	38	37%	47%
First surveyed in April or May	29	59%	45%
First surveyed in June	29	31%	38%

Unfortunately (from the point of view of this paper), the effects of the type of initial notification and follow-up cannot be disentangled from some of the other factors affecting response rate. In comparison to the 47 percent response rate for the 14 colleges that sent both a reminder and a second questionnaire, the response rate for the six colleges that did not send any reminder or follow-up mailing was 41 percent. However, three of the latter had response rates of 60 percent or higher, and the other three had rates below 25 percent. The first three colleges are of a type that have, throughout the history of the ASQ PLUS, tended to have high response rates on a single mailing: they admit very able, articulate students who have made themselves very familiar with several of the institutions to which they applied (including those they have chosen not to attend), and who are eager to participate in this research. In fact, however, this type of institution has also been the most likely to follow up the initial survey mailing with both a reminder and a second questionnaire. In contrast, over the 10-year history of the ASQ PLUS, institutions with a response rate below 25 percent have tended to be larger, to administer the survey late, to have somewhat less able students, and to use a single mailing only, primarily for reasons of cost.

Another issue for which there is incomplete information here is the question of timing. While it was suggested that sending admitted students an e-mail message with a hot link about a week before the paper mailing would maximize the likelihood of their responding on the Web, the actual timing of the two mailings for the participating colleges is unknown to the researcher. For those colleges that do conduct some type of follow-up, the timing of that seems to matter as well (though again there is only observational evidence). Most of the Web activity occurs within the first three days of an e-mail about the survey (usually beginning within 20 minutes of the message!) and drops to a trickle within five days or so, so a reminder e-mail could be productive if sent about a week after the initial message. Most of the paper surveys seem to be returned within a three-week period, but the "trickling" lasts much longer. A mailed reminder is only effective if

the student still has the survey, so that the later the reminder is sent, the less likely it is to produce results; 10 days is the recommended interval for a mailed postcard reminder. A mailed follow-up questionnaire is best done no later than four weeks after the initial mailing.

ASQ PLUS Results

Did Web participation affect the results of the ASQ PLUS itself? It is beyond the scope of this paper to analyze Web versus paper responses to the ASQ PLUS in great detail. Summarizing the survey data across colleges would conceal legitimate differences resulting from the nature and program of the institutions and from the characteristics of their admitted student pools, and there isn't space to examine all the colleges separately.

Table 6 displays data based on the seven colleges that received at least half of all their ASQ PLUS responses via the Web. It presents the characteristics (importance or quality rating) and images that show a statistically significant ($p < .01$) difference between students who sent in a paper survey and students who completed the survey on the Web.

TABLE 6

	Paper Results	Web Results	Difference (Paper–Web)
College 1 (70% Web)			
Academic reputation	3.52	3.34	0.17
Special academic programs	3.31	3.12	0.19
Recreational facilities	3.02	2.86	0.16
Surroundings	2.77	2.6	0.17
Off-campus opportunities	3.11	2.93	0.19
Value for the price	3.18	3	0.18
Prestigious	0.47	0.36	0.11
Intellectual	0.69	0.59	0.1
Career-oriented	0.65	0.53	0.13
Selective	0.51	0.36	0.15
Athletics	0.13	0.05	0.08
Challenging	0.77	0.63	0.14
Highly respected	0.65	0.48	0.17
Expensive	0.63	0.5	0.13
College 2 (69% Web)			
Selective	0.88	0.78	0.1
Challenging	0.83	0.73	0.1
College 3 (59% Web)			
Academic facilities	3.79	3.64	0.15
Surroundings	3.06	2.88	0.18
Isolated	0.77	0.68	0.09
Selective	0.86	0.78	0.07

TABLE 6			
	Paper Results	Web Results	Difference (Paper–Web)
Challenging	0.8	0.68	0.12
College 4 (58% Web)			
Academic reputation	3.49	3.4	0.09
Special academic programs	3.27	3.12	0.15
Quality of majors	3.46	3.34	0.12
Prestigious	0.6	0.5	0.1
Intellectual	0.76	0.66	0.1
Career-oriented	0.29	0.23	0.06
Selective	0.61	0.49	0.12
Challenging	0.66	0.55	0.11
Religious	0.69	0.62	0.07
Open-minded	0.53	0.43	0.1
College 5 (54% Web)			
Personal attention	3.84	3.91	-0.07
College 6 (52% Web)			
Highly respected	0.66	0.55	0.11
College 7 (51% Web)			
Surroundings–Importance	2.4	2.31	0.09
Availability of majors	3.64	3.55	0.09
Surroundings	2.64	2.49	0.15
Prestigious	0.87	0.81	0.06
Career-oriented	0.6	0.53	0.07
Selective	0.82	0.73	0.08
Challenging	0.83	0.77	0.07
Highly respected	0.86	0.8	0.06

Importance: 1 = Not important 2 = Somewhat important 3 = Very Important

Quality: 1 = Poor/Fair 2 = Good 3 = Very Good 4 = Excellent

Images: 1 = Marked 0 = Not marked

Apparently, the only generalization that can be made across these seven colleges is that where there is a statistically significant difference between the responses given on the paper survey and those given on the Web survey, the paper respondents rated the item higher (or marked it more frequently) than did the Web respondents. Taken as a set, the majority of the items in Table 5 concern some aspect of reputation (as opposed to facilities, social factors, etc.). Nevertheless, Table 5 most clearly demonstrates that differences in responses cannot be explained by the survey medium alone. Other factors to be taken into account should include the overall response rate, the enrolling/non-enrolling student breakdown among paper and Web

respondents, and student characteristics that may be confounded with response medium, such as attendance at a non-public high school or self-reported high school grades.

Participant Comments

Thirty-one of the 2002 Web ASQ participants responded to a survey evaluating their experiences with the Web option. Of the 17 surveys that included some written comments, seven mentioned that a late start had adversely affected response rates. Four of those seven first mailed their paper surveys in June, and one in July (the other two did not provide that information). Eight colleges (including two reporting a late start) attributed increased response rates (compared to a previous ASQ or ASQ PLUS study) to the Web option.

One of the participating colleges had offered an incentive in order to increase response rates and considered it $500 well spent. Another college thought that an incentive might have increased responses, but did not offer one. Thirty-one of the thirty-two respondents felt that their college would choose the Web option, that is, the Web version of the ASQ PLUS used in combination with the paper survey, for the foreseeable future (the other college preferred paper only).

Some representative comments:

"We prefer to try new things like the ASQ Web version to indicate that we are technologically advanced, but such a small number took us up on the offer, the impact was minimal."

"Everything about the process (timing, text in letters, follow-up) was the same as the previous year—except for the e-mail with a link to the Web-based survey. Would have to give the Web credit for most—if not all—of the response rate's 9-point bump."

"It's possible that an incentive would have helped the response rate some. But, as the comments we received indicate, a number of our prospects felt they were already being overwhelmed by the materials our office and the Admissions office were sending. We also tried a final mailing to non-respondents who viewed but did not complete the survey, but that netted only 10 out of 70 students. People are over-surveyed, and they know they are over-surveyed. However, for Web-savvy students, I think this option increased the likelihood of a response."

"Our Admissions staff already has a Web component to increase applications and deposits. Although this option may have increased our response rate, it is unlikely that it increased our net-presence in the eyes of our admitted students."

Summary and Conclusions

In general, it appears that the factors that contribute to high response rates for an ASQ PLUS study conducted on paper only are the same ones that contribute to a high response rate for a survey using the Web. While the group of Web participants in 2002 was small, the patterns observed there reflect the wider ASQ PLUS experience. Schools that experience a high survey response rate:

- Have a high percentage of students reporting A grades
- Have a high percentage of students reporting SAT V+M of at least 1200

- Have a higher percentage of students who live at least 500 miles from the surveying school
- Have a higher percentage of students with a family income of $150,000 or better
- Are more likely to follow up with nonrespondents, especially with a mailing that includes another questionnaire

Based on the experiences of 33 colleges that had used the ASQ PLUS prior to their 2002 study, use of the Web option appeared to effect some changes in the characteristics of the respondents. Compared to students who submitted the paper version of the ASQ PLUS, Web respondents:

- Were more likely to report A grades
- Were more likely to be attending a non-public school
- Were somewhat more likely to be non-white
- Were somewhat more likely to live more than 500 miles away
- Were somewhat more likely to be male

The colleges that used the Web were:

- More likely to have sent a reminder of some kind (82 percent to 52 percent),
- More likely to have sent a reminder by e-mail (of those who sent any reminder, 74 percent to 16 percent)
- Less likely to have sent a postcard or letter reminder (29 percent to 69 percent)
- Less likely to have sent a second mailing that included a paper questionnaire (42 percent to 59 percent)

Excluding the single college that used the Web version only, 17 percent (seven) of the colleges received at least half their total responses via the Web. Their respondents:

- Were more likely to report A grades
- Were much more likely to report SAT V+M of 1200 or better
- Were somewhat more likely to be nonwhite
- Were more likely to be male
- Were more likely to live more than 500 miles away
- Were somewhat more likely to have a family income of $150,000 or more

For six of these seven colleges, the response rate for both enrolling and non-enrolling students was at least 50 percent.

In contrast, 15 colleges received less than one-fourth of all their ASQ PLUS responses via the Web. Excluding the one member of this group that used the Web survey for follow-up purposes only, these colleges' respondents were

- Most likely to be female
- Least likely to live more than 500 miles from the college

This group also included two of the three colleges that did not send the students an e-mail message containing a link to the survey.

Based on comments and indications of future plans, the overall experience of the 42 colleges with the Web version of the ASQ was positive. Colleges felt that using the Web option was a convenience for their admitted students, an important consideration whether or not the college experienced reduced costs thereby. Some colleges felt that the Web option contributed to higher response rates, but not to the extent that they should eliminate the use of paper surveys, as well, at least for the next few years. There was enough variation in overall response rates and Web responses as a percentage of overall returns to make it difficult to predict what effect incorporating the Web option would have on another college's experience. However, offering the option of completing the survey on the Web, along with notifying the student of its availability in an e-mail message containing a clickable link, would seem to be an effective way to increase responses among students attending a nonpublic (especially boarding) high school.

In some respects, there appears to be very little difference between mailing paper questionnaires alone or in combination with a Web option. The same factors contribute to a high response rate either way: getting the survey into the hands of students as soon as is feasible, with a personalized and well-written cover message, following that up with a reminder mailing within a relatively short amount of time, and providing another copy of the survey as part of the follow-up all contribute to a higher response rate. In addition, high-achieving students are more likely to complete the survey using either medium, and the better the profile of the admitted student pool, the greater the college's chances of receiving a completed survey from them.