Linking Student Precollege Characteristics to College Development Outcomes: The Search for a Meaningful Way to Inform Institutional Practice and Policy

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Abstract

Using a typological schema derived from freshman survey data and other empirical measures, this study examines the link between students' traits upon entry to college and their college academic performance and skill development in various areas as measured at the exit point. The findings indicate the typological schema is predictive of student outcomes in terms of self-reported gains and future plans, validating the definitions of student types to a significant extent. Also, the findings help institutional leaders reflect upon questions of alignment between institutional mission focus on the one hand and student interests and aptitudes on the other: How well do various aspects of our programs meet the distinctive needs of diverse students? Whom do we serve well, and whom less well, and in what ways?

Introduction

In trying to gain a better understanding of student attitudes, values, and expectations of college and develop stronger service programs to maximize student college experiences, a growing number of student typologies have been developed in the past decades (Astin, 1993; Clark & Trow, 1966; Hackman & Tabor, 1976; Horowitz, 1987; Katchadourian & Boli, 1985; Keniston, 1965; Kuh, Hu, & Vesper, 2000; Newcomb, Koenig, Flacks, & Warwick, 1967). As noted by Astin (1993), however, earlier research-based typologies, although occasionally discussed in the literature, have seldom been used to guide institutional practice or decision-making.

In order to render their studies more applicable in educational research and practice, higher education researchers have recently begun to use longitudinal, multi-institution data sets and apply private marketing methodologies to illuminate student interests and aptitudes. For example, using data from the Cooperative Institutional Research Program (CIRP)'s annual survey of entering first-year students, Astin (1993) developed via factor analysis an empirical typology based on a national sample of 2,595 students in the 1971 entering cohort who responded to 60 questions on the CIRP Freshman Survey that provided information on students' values, self-concept, behaviors, attitudes, and expectations. In a more recent study, Kuh et al. (2000) used a sample of 51,155 full-time undergraduate students from 128 institutions who responded to the College Student Experiences Questionnaire (CSEQ) between 1990 and 1997 and developed a typology based on student patterns of engagement in college activities.

While contributing to our understanding of college student characteristics, these studies, as with other typologies and educational research, do have some limitations. In his study, Astin (1993) relied on factor analysis for his typology. As a result, he left 39 percent of students unclassified in his sample. Also, the "uncommitted" type in Astin's study was created with student expectations for college rather than actual student behaviors during college. Although Kuh et al. (2000) used cluster analysis for their typology of college students according to the patterns of engagement in college activities and associated student types with college outcomes, their study did not examine students' traits upon entering college and thus missed an important link in predicting student achievement at college. In addition, these two studies both failed to examine factors that might have influenced students' decision to go to college in the first place. As students' beliefs and attitudes tend to affect student behaviors (Pascarella & Terenzini, 1991), we believe that linking student precollege characteristics to college outcomes may shed light on the nature of student achievement.

The purpose of this study is to explore the link between

students' traits upon entering college and their college development outcomes in various areas as measured at the exit point. Using a typological schema and other empirical measures, this study seeks to examine relationships between how students may appear on their admissions applications and how they have achieved in, and contributed to, their college experience. Two broad questions guide this study: (a) What typological characteristics do students have at college entry? and (b) How do students' typological profiles relate to their choice of college, patterns of engagement in college activities, academic achievement, educational satisfaction, career aspirations, and life goals?

Review of Related Student Typologies

Since 1960, three lines of inquiry have examined student attitudes, values, and experiences for a better understanding of personal and social factors that are likely to affect student behaviors (see Table 1). Guided by conceptual models of student subcultures, the first line of research chiefly examines the "fit" between the characteristics of students and the characteristics of an institution. Three studies along this line were notable: Clark and Trow (1966), Newcomb et al. (1967), and Katchadourian and Boli (1987). Using data collected in the late 1950s and early 1960s from students at the University of California, Berkeley, Clark and Trow (1966) categorized students on a two-dimensional scheme: identification with the college and involvement with ideas. As a result, they identified four distinctive student subcultures: (a) Collegiate, (b) Vocational, (c) Academic, and (d) Nonconformist. Students in the collegiate group showed high identification with the college and low involvement with ideas. Students in the vocational group displayed low identification with the college and low involvement with ideas, while students in the academic group scored high on both dimensions. Although ranking low in institutional identification, the nonconformists were highly interested in intellectual matters and issues related to art, literature, and politics.

Similarly, in their study of enrolled students at Bennington College, Vermont, Newcomb et al. (1967) used two clusters of norms (i.e., individualism and intellectualism) to guide their typology, which led to their identification of six dominant student groups: (a) Creative Individualists, (b) Wild Ones, (c) Scholars, (d) the Social Group, (e) Leaders, and (f) Political Activists. With strong beliefs in principles and commitment to creative pursuits, Creative Individualists ranked high on both individualism and intellectuality. Students in the Wild group displayed high individualism but low intellectuality. They loved wild parties but cared little about academic work. In contrast to the Wild group, Scholars focused on their academic work but ignored other things in life. With sole interest in social life and having fun, the Social group ranked low on both dimensions. Leaders participated actively in the student government and were popular among major student groups, while Political Activists were interested in public affairs, civil rights, campus politics, and social conditions.

With the apparent increase of student interest in mere preparation for a career rather than in the intrinsic and intellectual benefits derived from the learning process, Katchadourian and Boli (1985) examined one cohort of Stanford students from their freshman year to graduation and classified them on a two-dimensional scheme of intellectualism and careerism. The interplay of the two dimensions resulted in four types of students: (a) Careerists, (b) Intellectuals, (c) Strivers, and (d) Unconnected. By definition, Careerists viewed higher education mainly as getting training for a career, while Intellectuals aspired to extend their knowledge and enjoy the learning process. Strivers attempted to excel in their studies and at the same time get prepared for a successful career of their choice, whereas the Unconnected scored low on both dimensions and failed to engage in college.

The second line of research on student typologies

Table 1 - Major Student Typologies Published Since 1960

Clark & Trow (1966)	Newcomb, Koenig, Flacks, & Warwick (1967)	Keniston (1973)	Hackman & Tabor (1976)	Katchadourian & Boli (1985)	Horowitz (1987)	Astin (1993)	Kuh, Hu, & Vesper (2000)
Academic	Scholars	Professionalist	Scholars Grinds Extreme grinds	Intellectual Striver	Outsider	Scholar	Intellectual Grind Scientist
Collegiate	Social group Leaders	Gentleman-in-waiting Big man on campus	Leaders Athletes Socializers		College man	Leader Hedonist	Collegiate Socializer Conventional
Vocational		Apprentice Underachiever	Careerists Unqualified	Careerist	New outsider	Status striver	
Non-Conformist	Creative individualists Wild ones Political activists	Activist Disaffiliate	Artists Alienated Directionless Disliked	Unconnected	Rebel	Social activist Artist Uncommitted	Artist Individualist Disengaged Recreator
Note. Adapted with permission from Kuh, Hu, and Vesper (2000).							

examines student characteristics through the functions of colleges and the purposes of higher education at particular points in time. Representative of this line of research were Keniston's (1973) and Horowitz's (1987) historic typologies of college students. In his examination of the functions and missions of colleges and universities, Keniston (1973) identified seven types of students: (a) Gentleman-in-waiting, (b) Apprentice, (c) Big man on campus, (d) Professionalists, (e) Underachievers, (f) Activists, and (g) Disaffiliate. According to Keniston, colleges in early times were largely charged to educate the children from the privileged class. Students at the time were actually gentlemen-in-waiting, for they went to college mainly to refine and prepare themselves for the upper-class life which they were entitled to live by birth. With the spread of democratic ideals and consciousness through American society in the first half of the nineteenth century, education became a prerequisite for higher status, upward mobility, and success in life. Thus, students of this era became apprentices in the journey of their lives, learning new virtues and skills that would likely lead them to a different and better world. With more economic development and expansion of government services in American society in the early twentieth century, the function of education changed from vocational training to "teaching the ability to be likable and persuasive and to get along with all kinds of people" (Keniston, 1973, p. 325). Thus a student with especially strong social skills began to emerge as the Big Man on Campus. Later, the development of modern technology gave rise to a new type of students, namely, the professionalists, who had high professional expertise and were capable of handling technical problems. With the emergence of the professionalist came three new types of "deviant" students: the Activist, the Disaffiliate, and the Underachiever. Engaging in student demonstration, the Activists protested against segments of the university or society to press for reform or improvement. The Disaffiliate were politically inactive "but culturally alienated students who rejected totally the offerings and values" of their society. In contrast, the Underachievers were students who accepted the values of the university and the society as well as their own inadequacy.

Examining undergraduate cultures from the end of the eighteenth century to the late 1980s, Horowitz (1987) classified students into four major groups: (a) College Men, (b) Outsiders, (c) Rebels, and (d) New Outsiders. Coming from affluent families, college men in the nineteenth century fought for position on the playing field and in the newsroom. Outsiders at the time were hardworking students and cherished the belief that today's work would be rewarded with tomorrow's accomplishments. Rebels emerged in the early twentieth century and challenged traditional college life, including football, fraternities, and by 1960 the curriculum as well. In the 1970s new outsiders began to emerge as prosperous collegians, striving to return to the privileged world in which their affluent parents had been living.

The third line of research on student typologies empirically examines college student performance, attitudes, and engagement patterns in college activities. Based on ratings of student performance on a wide range of dimensions in their study of Yale matriculants, Hackman and Taber (1976) identified 12 distinctive patterns of student performance that were classified into two groups: (a) success types and (b) nonsuccess types. The success types included Leaders, Scholars, Careerists, Grinds, Artists, Athletes, and Socializers, while the nonsuccess types consisted of Extreme Grinds and the Disliked, Alienated, Unqualified, and Directionless students. The Leaders ranked highest in organizational participation and played leading roles in student organizations and activities, while the Scholars ranked highest in intellectual performance. Noted for their remarkable mathematical proficiency, the Grinds attached great emphasis to academic performance. The Artists were characterized by their exceptionally high levels of artistic performance, and the Athletes by their extraordinary athletic performance. Finally, the Socializers were rated relatively high on interpersonal sociability but low on academic dimensions. Among the nonsuccess types of students, the Extreme Grinds failed to balance academic work with nonacademic aspects of college life, while the Disliked students scored low on all personal and interpersonal behaviors. The Alienated students had high ratings on artistic performance, but they had not yet developed career plans and were low in self-direction. Isolated from the college and from many other people, the Alienated students were extremely unhappy with their college experience. With poor academic performance, the Unqualified students were viewed as unlikely candidates for any advanced study. The Directionless students, chiefly interested in socializing, were least identified with their college.

More recently, Astin (1993) used factor analysis to examine student characteristics at the time of entry to college and empirically identified seven types of students: (a) Scholar, (b) Leader, (c) Hedonist, (d) Status Striver, (e) Social Activist, (f) Artist, and (g) Uncommitted. Astin's scholarly type showed a high degree of academic and intellectual self-esteem and high aspirations for academic success and advanced degree. The Social Activists displayed a high degree of activity, assertiveness, and social involvement. The Artists scored high on self-ratings of artistic ability and values, while the Hedonists were chiefly defined by their party behaviors. The Leaders had high self-ratings on popularity, social self-confidence, leadership and public speaking ability, viewing themselves as popular, sociable, and outgoing. While the Status Strivers were committed to career and financial success, the Uncommitted anticipated disengagement in higher education, such as changing major field or career choice,

dropping out of college, or transferring to another college before graduating.

At the turn of the twenty-first century, Kuh et al. (2000) identified 10 types of students based on their engagement patterns in college activities: (a) Disengaged, (b) Recreator, (c) Socializer, (d) Collegiate, (e) Scientist, (f) Individualist, (g) Artist, (h) Grind, (i) Intellectuals, and (j) Conventionals. Students in the Disengaged group scored below average on all college activities, while the Recreators devoted a considerable amount of effort to sports and exercise but scored below average in most other activities. The Socializers had substantial social interaction with their peers, while the Collegiates distinguished themselves by active involvement in cocurricular activities. The Scientists scored markedly high on science and quantitative activities, while the Individualists interacted frequently with peers and participated in artistic activities. The Artists scored strikingly high on artistic activities and faculty interaction, and the Grinds distinguished themselves by a high level of academic effort. While the Intellectuals were engaged in all types of college activities, the Conventionals displayed a mixed pattern of involvement.

Although different approaches were used to generate these different typologies, the student types identified by the aforementioned studies showed considerable stability over time (Astin, 1993; Kuh et al., 2000). Of earlier typologies, most notable is Clark and Trow's typology: A considerable body of applied research has examined its construct validity and has generally demonstrated its merit for conceptualizing student subcultures and its consistency in predicting personality differences among student types (e.g., Maw, 1981; Pascarella & Terenzini, 1977; Sloan & Brown, 1978; Terenzini & Pascarella, 1977; Wilder, McKeegan, & Midkiff, 2000). Because of their less heuristic applications, other earlier typologies have received little or no attention from applied research. Nevertheless, these studies help us understand the evolving nature of college student characteristics and certain student types in a particular historical context, such as political activists during the 1960s, when student demonstrations were prevalent on many U.S. campuses. While recent studies have built on the strengths of earlier typologies and utilized multi-institutional datasets and advanced analytical procedures, they have either left students' actual behaviors during their collegiate years unexamined or failed to take students' precollege characteristics into account. Hence, we assume linking students' precollege characteristics with their college behaviors and outcomes, and examining the underlying motives for college are likely to produce interesting findings.

Data and Methodology

Data Source

The data source for this study is the CIRP's annual survey of incoming students of an entering class, conducted jointly by the American Council on Education and the University of California at Los Angeles. For the purpose of this study, we selected a medium-sized, private research university (i.e., our institution) and 14 highly selective private peer institutions as a convenience sample, which consisted of seven universities and eight colleges. We defined these institutions as highly selective institutions because the mean SAT composite score of their entering students was more than 1370. Students at our institution come from all 50 states and more than 50 countries. They take courses in five areas of knowledge (i.e., arts, literatures, and performance; civilizations; natural sciences; quantitative studies; and social sciences) and six modes of inquiry (i.e., cross-cultural inquiry; ethnical inquiry; science, technology, and society; foreign language; research; and writing). They earn bachelor of arts or bachelor of science degrees with majors, minors, and certificates in their choice of more than 50 academic departments and programs. We chose our peer institutions based on separate analyses of admissions "reply card" data indicating students were roughly equally likely to attend our institution or the other if admitted to both. Despite variations in location and size, all our peer institutions are coeducational and residential and offer similar undergraduate academic programs. To examine student characteristics at these institutions, we used specifically the longitudinal CIRP Freshman Survey data from 1994 to 2002 for our typology. We characterized our institution in the context of its peers because we intended to examine student characteristics at college entry in general and college development outcomes based on exit survey data that were available for our institution, but not available for our peer institutions.

Analytical Procedures

For this study, we used two sets of statistical procedures, "factor" and "cluster" analyses, to define a categorical typology of students according to their freshman survey responses. Because of the annual changes made to the CIRP Freshman Survey instrument, we identified 59 most relevant questions, common to all the survey instruments administered during the years, as providing information on students' values, self-concept, behaviors, attitudes, and expectations. Based on 23,893 student responses to the 59 common questions, we performed an exploratory factor analysis with principal components factoring and varimax rotation methods in order to reduce the number of measured variables for analyses and to determine statistically significant correlations between questions, which resulted in eight student traits (see Table 2). We then standardized each of the trait factor scores with mean of zero and standard deviation of one. As we had a considerably large number of cases, we subsequently conducted *k*-means cluster analysis to

Table 2 - Final Cluster Centers on Standardized Scores of Eight Student Traits by Student Type

	Hedonists	Success Strivers	Artists	Uncommitted Individualists	Scholars
Political Interest	-.990	.802	.445	-.237	-.684
Self-Confidence	-.855	.752	-.126	-.727	.197
Artistic Ability	-.079	.122	.846	-.552	-.460
Academic Achievement	-1.259	.534	.157	-.821	.479
Career Success	-.561	.876	-.598	-.240	.124
Hedonism	.474	-.304	.394	-.193	-.148
Social Concern	-1.261	.598	.257	.298	-.663
Non-Commitment	-.479	-.215	.578	.410	-.531

Note. Altogether 71 survey items common to all the CIRP Freshman Survey instruments from 1994 to 2002 were identified. Twelve items [i.e., 1) "Felt depressed," 2) "Was a guest in teacher's home," 3) "Tutored another student," 4) "Racial discrimination is no longer a major problem," 5) "Attended religious services," 6) "The death penalty should be abolished," 7) "There is too much concern in the courts for the rights of criminals," 8) "Studied with another student," 9) "Raise a family," 10) "Wealthy people should pay more taxes," 11) "Prohibit homosexual relations," and 12) "Drop out permanently"] were dropped from factor analysis due to their very low correlations or loadings on initial rotated solutions. The remaining 59 items were used for factor analysis, which resulted in eight factors. A brief description of each trait follows:

1) "Political Interest" (*Cronbach's* a = .79) consists of 9 items that display interest in being involved in politics and influencing political decisions and social values from a position of leadership.

2) "Self-Confidence" (*Cronbach's* a = .79) includes 9 items that demonstrate social confidence, highly rated public speaking and leadership abilities, emotional and physical health.

3) "Artistic Ability" (*Cronbach's* a = .73) includes 6 items describing self-concept, expectation, and behaviors related to artistic interests and abilities.

4) "Academic Achievement" (*Cronbach's* a = .62) contains 9 items that depict highly rated academic and mathematical abilities, intellectual self-confidence, drive to achieve, and high aspirations for advanced degrees.

5) "Career Success" *(Cronbach's* a = .69) contains 7 items that show interest in career-related status and success.

6) "Hedonism" (*Cronbach's* a = .64) includes 6 items that depict partying behaviors, academic disengagement, values and attitudes of near term gratification.

7) "Social Concern" (*Cronbach's* a = .64) contains 8 items that depict values, attitudes, and expectations that illustrate interest in social problems as well as participation in volunteer work and community service.

8) "Non-Commitment" (*Cronbach's* a = .50) includes 5 items that indicate expectations of not being fully committed to or engaged in higher education.

The eight factors had eigenvalues ranging from 6.4 to 1.6 and explained variance ranging from 10.8% to 2.7% with 41.6% total explained variance. The specific items and loadings for each factor are available upon request.

identify relatively homogeneous groups of cases based on students' scores across the entire range of traits considered. As cluster analysis is basically an interactive, best fitting analysis, we tried 4-12 cluster solutions in light of the number of student types reported in the literature we reviewed in an attempt to obtain a set of clusters that were mutually exclusive and exhaustive (Bailey, 1994). Adopting the procedures proposed by Punj and Stewart (1983), we examined the cluster centers of the factor scores, the statistical significance and stability of each cluster solution, as well as their usefulness before ultimately accepting one for use. As a result, we identified five distinctive and meaningful student types, in no particular order: (a) Hedonists, (b) Success Strivers, (c) Artists, (d) Uncommitted Individualists, and (e) Scholars. When appropriate, we used Astin's (1993) terms to depict the student types identified in this study.

To learn more about the distinctive characteristics of the various groups, we examined each type's precollege backgrounds, including high school grades, time use, SAT scores, and reasons for college. Also, to explore college outcomes by student type, we selected 4371 entering students who completed the CIRP Freshman Survey between 1994 and 1997 at our institution and linked these respondents with their responses to an exit survey administered to them between 1998 and 2001 via student IDs volunteered on both surveys. As a result, we identified 417 respondents as participants in both surveys. We then examined their college activities, skill development, career expectations, life goals, and other issues of interest.

The statistical computer software SPSS was used in data analysis. Descriptive statistics, including mean and/or frequency, were calculated. One-way ANOVAs were used for mean comparisons, followed by the Dunnett T3 post hoc tests. Before conducting the ANOVAs, we used Levene's test to examine whether the group variances were approximately equal. The results showed that in most cases, the Levene Test p value was less than .05. Hence, we assumed unequal variances and used the Dunnett T3 for our multiple group comparisons.

As the sample for our typological study was relatively large, we set the alpha level at $p < .001$ to control for the number of tests conducted and reported only substantial differences that were at least equal to or greater than 0.1. Because the sample for our examination of college outcomes was relatively small, we used the alpha level $p < .05$ to determine significant differences. Finally, as student precollege characteristics might have confounding effects on college outcomes, regression analysis was performed in an attempt to control for factors such as SAT, SES, gender, and race/ethnicity.

Limitations

This study used a large sample drawn from multi-institutions for its typology, but the sample it could use to examine college outcomes was relatively small. Additionally, because of its focus on student characteristics at elite private institutions, the findings of this study are not equally generalizable to students at all institutions nationally. As student entering characteristics and educational experiences may vary with types of institutions, the typological profiles and student collegiate experiences at other types of institutions may be somewhat different. Another limitation, and one that applies to much of the previously discussed literature, is that the data were collected only on traditional matriculating freshmen. Because of this, the findings of this study do not inform the discussions about the nontraditional student who may enter as a transfer and/or an older student. Nevertheless, the methodology we used for this study may be worth noting. Other institutions, no matter whether they are private or public, may use our approaches to find out the specific profile of their students and identify their unique characteristics and needs so that appropriate changes can be made to better serve them.

Results

In what follows, we present the major findings on the chief characteristics of the five types of students this study identified in two parts: (a) student characteristics at college entry and (b) college outcomes by student type. In the first part, we report findings regarding students' general characteristics based on the dataset of responses from all institutions in the study, such as defining features, family and academic backgrounds, high school behaviors and activities, and reasons for college. Distribution of student types by institution type is also briefly discussed in this section. In the second part, we present findings concerning college activities, academic success and satisfaction, career aspirations and future lifestyle for each group based on responses to the linked exit surveys from students at one private research university.

Student Characteristics at College Entry

Defining Features

Table 2 displays the defining features of the five student types we identified. As indicated in the table, Hedonists were defined by their affinity for stereotypical party behaviors such as drinking and smoking as well as academic disengagement indicated by boredom. They scored below average on every trait scale except Hedonism.

In contrast to Hedonists, Success Strivers scored above average on every trait scale except Hedonism and Non-Commitment. With high self-confidence, Success Strivers displayed a strong desire for career success and solid interest in political and social issues. In addition, they aspired to engage in artistic activities and pursue academic success during college.

Table 3
Selected Student Characteristics by Student Type at Highly Selective Private Institutions (*N* = 23,893)

	Hedonists	Success Strivers	Artists	Uncommitted Individualists	Scholars
Gender					
Male	9.8%	24.8%	18.3%	13.9%	33.3%
Female	5.5%	24.4%	27.9%	26.7%	15.5%
Race or Ethnicity					
Caucasian	8.1%	20.1%	27.0%	18.5%	26.4%
African American	4.2%	43.8%	11.0%	25.8%	15.3%
Asian	6.9%	30.3%	15.5%	24.9%	22.4%
Hispanic	7.5%	32.9%	16.6%	25.7%	17.3%
Other	9.8%	28.4%	24.5%	21.5%	15.9%
Probable Major					
Arts & Humanities	26.1%	10.7%	33.4%	14.1%	10.4%
Natural Sciences	16.8%	21.3%	16.4%	23.8%	25.1%
Business & Professional	10.5%	19.7%	5.0%	13.7%	16.0%
Engineering	13.1%	12.7%	3.9%	10.3%	19.1%
Social Sciences	17.6%	26.2%	21.9%	21.0%	18.8%
Other Fields	4.4%	2.8%	2.1%	2.5%	3.9%
Undecided	11.4%	6.6%	17.3%	14.6%	6.8%
Degree Aspirations					
Bachelor's	13.9%	1.7%	3.9%	6.1%	3.3%
Master's	43.8%	23.4%	31.8%	38.3%	30.6%
Doctorate	26.5%	31.5%	43.0%	28.7%	32.1%
Medical	9.3%	26.2%	11.8%	18.9%	22.2%
Law	5.8%	16.8%	9.0%	7.6%	11.5%
Other	0.7%	0.4%	0.4%	0.3%	0.2%
Average High School Grades					
C+ or below	1.0%	0.1%	0.2%	0.2%	0.1%
B-	2.1%	0.4%	0.3%	0.6%	0.3%
B	9.0%	2.4%	2.6%	4.2%	2.0%
B+	15.9%	6.2%	8.8%	10.4%	6.4%
A-	32.2%	22.4%	28.9%	30.4%	23.7%
A or A+	39.8%	68.4%	59.3%	54.2%	67.5%
Mean	4.95^{abcd}	5.56^{aef}	5.44^{behi}	5.33^{cfhj}	5.56^{dij}
Weekly Hours Spent on Activities in High School					
Studying or homework	8.1^{abcd}	11.9^{aefg}	10.9^{bei}	10.9^{cfj}	10.1^{dgij}
Socializing with friends	11.7^{c}	11.7^{f}	11.6^{h}	10.7^{chij}	11.4^{j}
Talking with teachers	1.7^{a}	2.2^{aefg}	2.0^{ei}	1.8^{fj}	1.5^{gij}
Exercising or sports	7.5^{ad}	9.4^{aef}	6.9^{ehi}	7.6^{hj}	9.5^{dij}
Partying	4.5^{abcd}	3.6^{aef}	3.1^{be}	2.8^{cj}	3.4^{dj}
Working for pay	3.8	3.8^{g}	3.9^{i}	4.0^{j}	3.3^{gij}
Volunteer work	1.3^{abc}	3.4^{aefg}	2.3^{bei}	2.5^{cj}	1.6^{gij}
Student clubs	3.3^{abc}	5.4^{aefg}	4.7^{behi}	3.8^{cfh}	3.6^{gij}
Watching TV	4.8^{abc}	3.9^{aeg}	3.1^{behi}	4.2^{chj}	4.6^{gij}
Household or childcare duties	1.3^{abc}	1.7^{ag}	1.6^{bi}	1.7^{cj}	1.1^{gij}
Reading for pleasure	2.9^{cd}	2.6^{ef}	3.2^{ehi}	2.3^{dg}	2.4^{di}
Verbal SAT Score	684^{bd}	685^{eg}	720^{behi}	685^{fij}	700^{dgij}
Math SAT Score	698^{d}	705^{fg}	705^{h}	697^{fhj}	729^{dgij}
SAT Composite Score	1,382^{bd}	1,390^{eg}	1,425^{beh}	1,382^{fij}	1,429^{dgij}
Parent Education	6.61^{bcd}	6.60^{efg}	6.92^{behi}	6.44^{cfhj}	6.79^{dgij}
Parent Income	$124,521^{cd}	$122,316^{fg}	$119,762^{hi}	$110,922^{cfhj}	$137,464^{dgij}
% of N	7.6%	24.6%	23.2%	20.4%	24.2%
N	1819	5871	5541	4885	5777

Note. The mean for high school grade was derived from a 6-point scale where 1 = C+ or below, 2 = B-, 3 = B, 4 = B+, 5 = A-, and 6 = A or A+. Average weekly hours spent on high school activities and parent income were derived from the mid-point of the time and income ranges reported, respectively. The mean of parent education was derived from an 8-point scale where 1 = grammar school or less, 2 = some high school, 3 = high school graduate, 4 = postsecondary school other than college, 5 = some college, 6 = college degree, 7 = some graduate school, and 8 = graduate degree.

One-way ANOVAs were used for mean comparisons. Post hoc Dunnett T3 results: a, b, c, d, e, f, g, h, i, and j indicate the pairs of groups significantly different at p < .001 and the mean differences at least equal to or greater than 0.1, with a = Hedonists vs. Success Strivers, b = Hedonists vs. Artists, c = Hedonists vs. Uncommitted Individualists, d = Hedonists vs. Scholars, e = Success Strivers vs. Artists, f = Success Strivers vs. Uncommitted Individualists, g = Success Strivers vs. Scholars, h = Artists vs. Uncommitted Individualists, i = Artists vs. Scholars, and j = Uncommitted Individualists vs. Scholars.

Artists were distinctively characterized by their high self-assessment of artistic ability. Although disinterested in career success, Artists showed high interest in political and social issues in addition to academic success. They were relatively uncommitted to higher education and had strong affinity for stereotypical party behaviors, second only to Hedonists in the latter respect. As shown in Table 2, Artists scored high above average on Artistic Ability, Political Interest, Academic Achievement, Social Concern, Hedonism, and Non-Commitment but below average on Self-Confidence and Career Success.

Uncommitted Individualists were defined by their high degree of non-commitment to higher education. They scored above average on Non-Commitment and Social Concern but below average on any other trait scale.

Scholars were characterized by their self-perception of having outstanding academic abilities and high aspirations for college success and advanced degrees. They scored above average on Academic Achievement, Self-Confidence, and Career Success, while below average on Political Interest, Artistic Ability, Hedonism, Social Concern, and Non-Commitment.

General Characteristics

Table 3 presents selected student characteristics by student type. As indicated in the table, Hedonists comprised approximately 8% of the freshman survey respondents in our sample. They were more likely to be men and Caucasian, Hispanic, and Asian students than was the overall sample, but they were especially less likely to be African American students than was the overall sample, a finding consistent with a 24-year trend study of African American students by Astin (1990) as well as his typology of college students and Bowen and Bok's (1998) description of African American students in elite private universities. As noted by Bowen and Bok, African American students not only worked hard in high school to gain admission to highly selective institutions but also felt intense pressure in college to live up to the standards they and their parents had set for themselves. Academically, Hedonists had significantly lower high school grades than any other student type and lower SAT composite scores than Artists and Scholars. Their parental income was significantly higher than that of

Uncommitted Individualists but lower than that of scholars.

Success Strivers comprised about 25% of the freshman survey respondents in our sample, making up the largest group of the five student types. Approximately equal proportions of each gender fell in this category. Compared to Caucasian students, minority students were more likely to be represented in this group. They had on average higher high school grades than Hedonists, Artists, and Uncommitted Individualists, but significantly lower SAT composite scores than Artists and Scholars. Success Strivers tended to come from families whose income was about the sample average. Their parents received more formal education and earned higher income than those of Uncommitted Individualists, but they were less comparable to Scholars in these regards.

Artists represented about 23% of the freshman survey respondents in our sample. They had a larger proportion of women than expected. Of all the student types, Artists had the largest percentage of Caucasian students, whereas they had the lowest percentage of African American students. Artists reported significantly higher average high school grades than Hedonists and Uncommitted Individualists. Their average verbal SAT score was higher than that of any other student type, but their math SAT score was lower than that of Scholars by a margin of 24 points. Artists were especially likely to come from families whose income was below the sample average. Their parents appeared to have had more formal education than those of other students. In addition, Artists were more likely than other student types to characterize their political views as liberal (Artists 62%, Uncommitted Individualists 45%, Success Strivers 43%, Hedonists 42%, and Scholars 34%). Note that because of the breadth of this research, not all data could be presented in this report. The additional tables are available upon request from the first author.

Uncommitted Individualists comprised 20% of the freshman survey respondents in our sample. They were more likely to be women and minority students. Academically, Uncommitted Individualists were more likely than Hedonists but less likely than other student types to get an A or A$^+$ in high school. Also, they had significantly lower SAT composite scores than Artists and Scholars. In comparison to other student types, Uncommitted Individualists had less educated parents with lower income.

Scholars represented about 24% of the freshman survey respondents, making up the second largest group of the five student types. They had a larger than expected percentage of men, and of Caucasian and Asian students. Judging by their average high school grade, Scholars had better academic performances than other students except Success Strivers. They had the highest SAT composite scores and also reported the highest parental income.

High School Activities

As indicated in Table 3, Hedonists were most likely to attend parties but least likely to spend time studying in high school, doing volunteer work, participating in student clubs, or assuming household or childcare duties. They watched TV more frequently than Success Strivers, Artists, and Scholars.

Success Strivers spent generally more time studying, talking to teachers, doing volunteer work, and participating in student clubs than any other student type. In addition, they participated in sports more frequently than all other student types except Scholars.

In comparison to Hedonists and Scholars, Artists spent more time studying, performing volunteer work, and assuming housework or childcare duties. Of all student groups, Artists were the most likely to read for pleasure, but the least likely to watch TV or exercise.

Uncommitted Individualists devoted more time to studying, doing volunteer work, or assuming housework or childcare duties than Hedonists and Scholars, but were less likely than Success Strivers and Artists to read for pleasure or participate in clubs. Of all student types, Uncommitted Individualists were the least likely to socialize with friends. Also, they were less likely than all other student types except Artists to attend parties.

Compared with all other student types except Hedonists, Scholars were less likely to interact with teachers, to do volunteer work, to work for pay, or to assume household or childcare duties, but they were more likely to watch TV on a frequent basis. Also, they spent more time on sports than did all other student types except Success Strivers.

Reasons for College

Table 4 displays students' reasons for college. In deciding to go to college, Hedonists were more likely than Artists to consider making more money to be one of the important, influential factors, but they were less likely than any other student type to regard gaining a general education, improving study skills, or becoming more cultured as vital to their decision. In deciding to attend a particular institution of their choice, Hedonists were similar to other students in many ways: They valued its good academic and social reputation and emphasized its special programs and size. Of all student types, they were, however, the least likely to consider these factors to be highly important.

Of all student types, Success Strivers were the most likely to cite improving study skills and encouragement from role models as important, influential factors in deciding to attend college. Also, parents' wishes and the importance of becoming more cultured and being able to make more money played a significant role in their decision-making process. In deciding to attend a particular institution of their choice, Success Strivers especially valued its good social reputation and the availability of special programs.

Artists were more likely than any other student type except Success Strivers to stress the importance of

Table 4 - Reasons for College by Student Type

	Hedonists		Success Strivers		Artists		Uncommitted Individualists		Scholars	
	M	%	*M*	%	*M*	%	*M*	%	*M*	%
Reasons for College in General										
Parents wanted me to go	1.91[ac]	25.4	2.05[aeg]	34.0	1.94[e]	26.2	2.04[c]	30.5	1.94[g]	27.7
Couldn't find a job	1.08	2.3	1.07	2.1	1.05	1.3	1.09	2.7	1.04	1.3
Wanted to get away from home	1.86[b]	21.0	1.81[e]	18.9	1.97[behi]	24.1	1.84[h]	18.9	1.77[i]	16.6
To be able to get a better job	2.32[acd]	51.3	2.56[ae]	68.3	2.34[ehi]	50.0	2.50[ch]	62.2	2.52[di]	64.8
To gain a general education	2.59[abcd]	65.4	2.89[ag]	89.7	2.93[bhi]	93.5	2.81[ch]	82.1	2.77[dgi]	79.5
To improve study skills	2.02[abcd]	27.2	2.43[aefg]	53.5	2.26[bei]	40.4	2.32[cfj]	43.9	2.12[dgij]	33.3
To become a more cultured person	2.29[abcd]	44.2	2.74[afg]	76.8	2.72[bhi]	74.9	2.54[cfhj]	59.8	2.43[dgij]	51.9
To be able to make more money	2.33[abd]	48.8	2.58[aef]	65.1	2.14[behi]	34.4	2.40[fhj]	50.0	2.55[dij]	62.4
Role model or mentor encouraged me to go	1.35[abc]	5.9	1.62[aefg]	15.0	1.49[be]	9.4	1.48[cf]	9.4	1.40[g]	7.2
Reasons for Attending a Particular College										
Relative's wish	1.39	6.8	1.44	7.7	1.35	4.5	1.42	7.2	1.38	5.1
Advice of teacher	1.35[a]	4.0	1.46[ag]	5.9	1.41	4.7	1.41	4.2	1.33[g]	3.0
Good academic reputation	2.71[abcd]	73.9	2.93[a]	93.6	2.85[b]	85.0	2.85[c]	85.4	2.91[d]	91.8
Good social reputation	2.00[abcd]	26.4	2.33[aefg]	45.6	2.23[beh]	39.1	2.11[cfh]	30.8	2.15[dg]	35.5
Offered financial aid	1.57[abc]	21.5	1.76[ag]	32.8	1.70[bi]	28.6	1.78[cj]	32.7	1.55[gij]	22.4
Offers special programs	1.49[abcd]	10.3	1.96[aefg]	30.6	1.74[bei]	19.6	1.70[cf]	16.5	1.60[dgi]	15.8
Low tuition	1.07	1.4	1.07	1.6	1.06	0.9	1.09	1.9	1.03	0.5
Advice of HS guidance counselor	1.36[a]	4.8	1.51[ag]	9.3	1.42	6.4	1.45	6.6	1.38[g]	5.4
Advice of private guidance counselor	1.13	2.4	1.19	4.2	1.13	2.4	1.14	2.3	1.11	1.7
Wanted to live near home	1.24	4.2	1.24	5.1	1.20	2.8	1.29	5.5	1.21	3.4
Religious affiliation or orientation	1.10	1.6	1.19	3.1	1.10	1.3	1.13	1.8	1.09	1.1
Size of college	2.06[abcd]	29.7	2.31[ag]	45.8	2.38[bfi]	48.5	2.28[cf]	42.3	2.19[dgi]	36.2

Note. Respondents to the freshman survey were asked to mark one answer for each possible reason from three response categories: 1 = "Not Important," 2 = "Somewhat Important," and 3 = "Very Important." Presented in the table were the mean that was derived from the 3-point scale and the percentage of student responses to the "Very Important" category for comparison.

One-way ANOVAs were used for mean comparisons. Post hoc Dunnett T3 results: a, b, c, d, e, f, g, h, i, and j indicate the pairs of groups significantly different at $p < .001$ and the mean differences at least equal to or greater than 0.1, with a = Hedonists vs. Success Strivers, b = Hedonists vs. Artists, c = Hedonists vs. Uncommitted Individualists, d = Hedonists vs. Scholars, e = Success Strivers vs. Artists, f = Success Strivers vs. Uncommitted Individualists, g = Success Strivers vs. Scholars, h = Artists vs. Uncommitted Individualists, i = Artists vs. Scholars, and j = Uncommitted Individualists vs. Scholars.

gaining a general education, but less likely than all other student types except Hedonists to stress the importance of getting better jobs in their decision-making process. Of all student types, Artists were the most likely to cite getting away from home but the least likely to cite making more money as influential, motivating factors. In deciding to attend a particular institution, Artists were more likely than Hedonists and Scholars to emphasize the availability of financial aid and special educational programs. Most notably, Artists were more likely than all other student types except Success Strivers to attach high importance to the size of an institution.

Uncommitted Individualists were more likely than Hedonists to emphasize the importance of gaining a general education, improving study skills, becoming more cultured, and encouragement from role models. Also, they were more likely than Artists to emphasize the importance of making more money. In deciding to attend a particular institution of their choice, Uncommitted Individualists were more likely than Hedonists to emphasize the importance

of good academic and social reputation and the availability of special programs and financial aid, which might be closely related to their lower family income.

Scholars were more likely than Hedonists and Artists to cite making more money and getting better jobs as important, influential factors, but less likely than Success Strivers and Artists to stress the importance of gaining a general education and becoming more cultured. In deciding to attend a particular institution, Scholars were more likely than Hedonists to emphasize its size, special educational programs, and academic and social reputation. As they came from wealthy families, the availability of financial aid appeared to have played a less significant role in their decision.

Distribution of Student Types by Institution Type

As we noted earlier, our sample included students from 15 highly selective private colleges and universities. Even within this narrow sample, we observed some significant trends in the distribution of the student types across the institutions. In general, the colleges differed from the universities in our sample in being far more significantly populated by Artists (36%), Uncommitted Individualists (23%), and Hedonists (11%), who together represented more than two-thirds of the students in the smaller institutions in our sample. In contrast, more than half of university students in our sample were Success Strivers (29%) or Scholars (28%), with fewer Artists (19%), Uncommitted Individualists (19%), and Hedonists (6%).

College Outcomes by Student Type

In this part, we focus on the issue of college outcomes by student type. Because of the lack of comparison college outcome data from our peer institutions, we discuss only the college outcomes of a sample of 417 students at our own institution whose freshman survey responses were linked to their exit survey responses we possessed. For this sample, the percentages of student types are: Hedonists (6%), Success Strivers (34%), Artists (12%), Uncommitted Individualists (19%), and Scholars (29%).

College Activities

During college, Hedonists tended to continue to watch TV and attend parties more frequently than other students, but they spent a comparable amount of time studying. They participated in fraternity or sorority activities and intercollegiate athletics more often than in political, artistic, or religious activities (see Table 5). They were more likely than other students to assume leadership roles in a social fraternity or sorority, student government, and student newspapers. In view of the small number for this group in our sample and the relative paucity of student leadership positions as a possible college experience, this finding should be interpreted with caution.

In comparison to other student types, Success Strivers were more likely to use computers for academic work on a frequent basis. They were especially likely to participate in independent study or research for credit and noncredit faculty research. In extra-curricular activities, Success Strivers tended to participate frequently in volunteer services and religious groups (see Table 5). Also, they tended to assume leadership roles in a variety of activities, such as music or theater groups, student government, political groups, or religious groups.

During the course of their undergraduate study, Artists were especially active in music or theater groups. During the first year at college, they also participated actively in political groups and honor societies. Compared with other students, Artists were generally more likely to assume leadership roles in music or theater groups (see Table 5). In addition, Artists were more likely than students of any other type to participate in the study-abroad programs

Table 5
Participation and Leadership Role in College Activities by Student Type

	Hedonists	Success Strivers	Artists	Uncommitted Individualists	Scholars
Music or theater group					
Active participation	25.0%	35.7%	57.6%	23.2%	18.6%
Leadership role	0.0%	13.6%	27.3%	8.4%	6.4%
Student government					
Active participation	25.0%	16.4%	21.2%	11.6%	15.0%
Leadership role	16.7%	9.3%	9.1%	4.2%	7.1%
Political group					
Active participation	16.7%	19.3%	21.2%	16.8%	7.9%
Leadership role	0.0%	7.1%	3.0%	5.3%	1.4%
Honor society					
Active participation	41.7%	39.3%	45.5%	31.6%	38.6%
Leadership role	8.3%	2.9%	0.0%	0.0%	4.3%
Student newspaper					
Active participation	25.0%	7.9%	15.2%	13.7%	10.0%
Leadership role	16.7%	0.7%	0.0%	5.3%	2.9%
Literary or other magazine					
Active participation	16.7%	8.6%	15.2%	9.5%	11.4%
Leadership role	8.3%	1.4%	6.1%	2.1%	1.4%
Volunteer service					
Active participation	58.3%	79.3%	63.6%	81.1%	68.6%
Leadership role	16.7%	15.0%	21.2%	23.2%	10.7%
Religious group					
Active participation	25.0%	47.1%	39.4%	35.8%	35.0%
Leadership role	0.0%	14.3%	9.1%	10.5%	10.0%
Fraternity or sorority					
Active participation	58.3%	42.9%	48.5%	43.2%	37.9%
Leadership role	50.0%	27.9%	33.3%	18.9%	24.3%
Intercollegiate athletics					
Active participation	66.7%	25.7%	33.3%	20.0%	36.4%
Leadership role	8.3%	6.4%	0.0%	4.2%	11.4%

Note. In the exit survey, students were asked to indicate in which years, if at all, they participated actively in 10 listed college activities and also indicate in which activities they had a leadership role from 6 response categories: 1) No participation, 2) Participated-1st year, 3) Participated-2nd year, 4) Participated-3rd year, 5) Participated-4th year, and 6) Leadership role. Due to space constraint, only the percentages of student responses to the general participation and leadership role categories were presented in the table.

Table 6 - Standardized Coefficients of Regression Analysis on the Impact of SAT, SES, Gender, Race/Ethnicity, and Student Type on College Outcomes

	Overall Satisfaction	Likelihood of Recommendation	Overall Average Grade[a]	Average Grade in Major[a]	Skill Development[b]					
					Intellectual Capacity	General Education	Personal Development	Understanding Science	Leadership Skills	Total Gain
SAT	-.161**	-.091	.252***	.215***	-.135*	.000	-.063	.003	-.038	-.080
SES	.181***	.135*	.137**	.027	.017	.045	.095	.005	-.004	.049
Gender	.051	-.005	.086	.076	.061	.170**	.077	-.085	.069	.086
Asian	-.041	-.035	-.029	-.081	-.121*	-.088	-.093	.036	-.055	-.101
African American	-.099	-.079	-.204***	-.278***	-.090	-.071	-.096	.011	-.068	-.081
Hispanic	-.070	.050	.011	-.031	-.113*	-.045	-.040	-.028	-.111*	-.073
Other	-.036	-.013	.037	.022	-.066	-.098	-.085	.016	-.063	-.085
Success Strivers	-.061	-.080	.292*	.318*	.238	.258	.310*	.292*	.219	.404**
Artists	-.085	-.117	.152	.208*	-.012	.081	.119	.011	-.023	.090
Uncommitted Individualists	-.120	-.145	.254	.216	.064	.039	.124	.185	.043	.162
Scholars	-.064	-.051	.320*	.320*	.141	-.034	.103	.220	.001	.172
Adj. R²	.040	.021	.167	.161	.041	.082	.044	.012	.030	.056

Note. SAT referred to the average combined score of verbal and math. SES denoted the sum of parent education (where 1 = grammar school or less, 2 = some high school, 3 = high school graduate, 4 = postsecondary school other than college, 5 = some college, 6 = college degree, 7 = some graduate school, and 8 = graduate degree) plus the estimated amount of parent income (where 1 = under $25,000 to 9 = $200,000 or more). For race/ethnicity, Caucasian = 0, Asian, African American, Hispanic, and Other = 1. For gender, male = 0, and female = 1. For student type, Hedonists = 0, Success Strivers, Artists, Uncommitted Individualists, and Scholars = 1. Overall satisfaction and likelihood of recommendation were both measured on a 5-point scale where 1 = very dissatisfied or definitely not, 2 = generally dissatisfied or probably not, 3 = ambivalent or maybe, 4 = generally satisfied or probably would, and 5 = very satisfied or definitely would. [a] These are scores on a six-point scale, with 1 = C or below, 2 = B- or C+, 3 = B, 4 = B+, 5 = A-, and 6 = A. [b] In the exit survey, a set of questions asked students to assess how their abilities in 25 areas were enhanced by their undergraduate experiences on a 4-point scale where 1 = not at all, 2 = a little, 3 = moderately, and 4 = greatly. The 25 "gains" questions were classified via factor analysis for simplicity of presentation into five categories. A brief description of each factor follows:

1) "Intellectual Capacity" (*Cronbach's a* = .83) consists of 8 items that depict critical thinking, communication skills, and independent learning abilities. 2) "General Education" (*Cronbach's a* = .77) contains 6 items that describe abilities to place current problems in perspectives, identify moral and ethical issues, awareness of social problems, arts appreciation, and foreign language abilities. 3) "Personal Development" (*Cronbach's a* = .82) includes 5 items that describe development of self-esteem, self understanding, and abilities to function independently and establish a course of action to accomplish goals. 4) "Understanding Science" (*Cronbach's a* = .78) is made up of three items that display abilities to understand the process of science, evaluate the role of science and technology in society, and use quantitative tools. 5) "Leadership Skills" (*Cronbach's a* = .71) consists of three items showing abilities to function effectively as a team member, lead and supervise tasks and people, and relate well to people of different races, nations, and religions.

The five factors had eigenvalues ranging from 8 to 1 and explained variance ranging from 33.4% to 4.2% with 57% total explained variance. The specific items and loadings for each factor are available upon request.
* *p* ≤ .05. ** *p* ≤ .01. *** *p* ≤ .001.

(Artists 70%, Success Strivers 45%, Uncommitted Individualists 45%, Scholars 38%, and Hedonists 33%).

In comparison to their college peers, Uncommitted Individualists tended to spend less time studying or using computers for academic work. Like Artists, however, they tended to assume leadership roles in volunteer work (see Table 5).

Similar to Success Strivers, Scholars were more likely than any other student type to participate in faculty research and publish or present papers off campus during their undergraduate years. Like other student types, they were also more interested in U.S. internships than Hedonists (Scholars 61%, Success Strivers 61%, Artists 67%, Uncommitted Individualists 59%, compared to Hedonists 33%).

Academic Success and Satisfaction

Table 6 presents standardized coefficients of regression analyses to look at the relevance of student type in explaining college outcomes while adjusting for factors such as SAT, SES, gender, race or ethnicity, and student type. The results showed that students who had higher SAT scores tended to have higher overall grade than those with lower SAT scores but relatively lower overall satisfaction and less perceived development of intellectual capacity. Student socioeconomic status was positively associated with overall satisfaction, likelihood of recommendation, and average grade after all other factors such as SAT were considered, while gender and race or ethnicity had a mixed impact on student academic performance and skill development after considering the other factors.

As indicated in Table 6, at the end of their undergraduate study, if students were Success Strivers, then they would be expected to report relatively higher scores for college development across the board. In comparison to Hedonists, Success Strivers would be expected to report significantly higher scores for personal development, understanding science, and total gains if all other characteristics were similar. Judging by the average grades they reported, Success Strivers, Artists, and Scholars indicated higher levels of academic performance than Hedonists, either overall or in the major field if they had the same characteristics of the Hedonist.

Despite variations in academic performance and skill development, student types showed no significant

differences in overall satisfaction or likelihood of recommendation. It is interesting to note, however, that of all student types, Hedonists indicated the highest satisfaction and greatest likelihood of recommendation, well beyond their expectations of satisfaction upon entering college. In addition, our examination of student satisfaction with specific aspects of college life revealed findings worth noting.

With regard to specific aspects of college life (available upon request), Hedonists indicated significantly higher levels of satisfaction with psychological counseling services than any other students. They reported notably high levels of satisfaction with social science courses, academic advising and courses in their major fields, but relatively low levels of satisfaction with natural sciences and math courses and computer services and facilities. As Hedonists tended to major chiefly in social sciences and to spend time entertaining themselves, it is quite possible that they might not have taken advantage of natural sciences and math courses or made much use of computer services and facilities. In the case of Success Strivers, they were particularly highly satisfied with opportunities for internships or study off-campus or abroad, food services, the administration's responsiveness to student concerns, extracurricular events and activities, and sense of campus community. However, they were relatively dissatisfied with engineering courses, foreign language facilities, and advising before declaring a major. Of all student types, Artists were the most satisfied with class size, but the least satisfied with a range of issues related to academics, student services, and campus life, including the availability of courses in the major field, independent studies, science facilities, career counseling, psychological counseling services, financial aid office, and sense of community. Judging from these results, Artists' dissatisfaction with their college experiences appeared to be more widespread than that of other students, which suggests that Artists might have held a more critical attitude toward their experiences. As for Uncommitted Individualists, they indicated high levels of satisfaction with student employment programs, but relatively low levels of satisfaction with academic advising in their major. In the case of Scholars, they indicated high levels of satisfaction with natural sciences and math courses, independent study, foreign language abilities, financial aid office, and financial aid awards, but relatively low levels of satisfaction with humanities and arts courses as well as interdisciplinary courses.

Career Aspirations and Future Lifestyle

Hedonists tended to indicate arts and humanities, engineering, and social sciences as their probable major upon entering college and aspire to be artists, engineers, doctors, and business executives or owners. During the course of their undergraduate study, Hedonists tended to congregate mainly in social sciences. They were especially likely to earn graduate degrees in arts and sciences and business. Of all student types, they were the least likely to aspire to obtain their Ph.D. or law degrees (available upon request). When thinking about future lifestyle, Hedonists were significantly less likely than Success Strivers to consider it important to encounter a variety of people (see Table 7). They were also less likely than Artists to attach importance to engaging in creative activities or being stimulated intellectually, but they were more likely than Artists to aspire to pursue financial success and assume administrative responsibilities for others, although the differences in these regards failed to reach a statistical significance.

Upon entering college, Success Strivers, like Scholars, appeared to be relatively certain of their major and career choices compared to other students. They were especially likely to aspire to be doctors, lawyers, and business executives or owners. During their undergraduate years, Success Strivers tended to major in social and natural sciences and aspire to earn their terminal degrees in medicine, business, and law. When thinking about future lifestyle, Success Strivers were more likely than Scholars to emphasize the importance of working for social change, helping others in difficulty, influencing significant political decisions, and leaving the world a better place. Also, they were more likely than Uncommitted Individuals to stress the importance of assuming responsibilities for others and obtaining recognition from others in their own fields, but less likely than Artists to stress the importance of doing creative or expressive work (see Table 7). Compared with other students, Success Strivers were more determined in their pursuit of career success.

Artists tended to major in humanities and social sciences. They were especially likely to be artists and aspire to earn their highest degrees in fine and performing arts. Although especially uncertain of their choice of a major at the time of entry to college, Artists were less likely than other students to cite parents as valuable sources for their long-term career aspirations. When thinking about career or future lifestyle at the exit point, Artists were the most likely to aspire to engage in creative or expressive work (see Table 7). They were also more likely than Scholars to work for social change, which reflected the values and attitudes Artists had upon entering college: They scored well above average on Artistic Ability, Political Interest, and Social Concern.

Upon entering college, Uncommitted Individualists tended to be uncertain of their choice of a major, second only to Artists in this regard. During the course of their undergraduate study, Uncommitted Individualists tended to concentrate in social and natural sciences, and aspire to earn their terminal degrees in business. When thinking about career or future lifestyle at the exit point, Uncommitted Individualists were more likely than Scholars

to aspire to work for social change (see Table 7). They were less likely than Success Strivers to emphasize the importance of having administrative responsibilities for others or obtaining recognition from others in their own fields, and also less likely than Artists to regard doing creative or expressive work as important.

Upon entering college, Scholars aspired to be doctors, engineers, and business executives or owners and were the least likely to be writers or artists. During the course of their undergraduate study, they were especially likely to major in engineering and natural sciences and aspire to earn their terminal degrees in medicine, business, and law.

When thinking about future lifestyle, Scholars were not as enthusiastic as Success Strivers, Artists, or Uncommitted Individualists about working for social change (see Table 7). This finding appeared to be consistent with the values and attitudes Scholars had upon entering college: They scored below average on Political Interest and Social Concern. However, Scholars attached more importance to leaving the world a better place and being stimulated intellectually than Hedonists, although the differences in these regards failed to reach a statistical significance.

Table 7 - Career Aspirations and Future Lifestyle by Student Type

	Hedonists		Success Strivers		Artists		Uncommitted Individualists		Scholars	
	M	%	*M*	%	*M*	%	*M*	%	*M*	%
Working closely with other people	3.00	75.0	3.33	85.5	3.00	66.7	3.26	80.0	3.16	74.3
Secure and stable future	3.25	91.6	3.32	82.6	2.88	69.7	3.28	85.3	3.31	84.3
Working for social change	2.08	16.6	2.68[g]	54.3	2.67[f]	57.6	2.52[j]	47.3	2.11[gij]	27.9
Administrative responsibility	2.42	50.0	2.40[f]	47.1	2.03	24.3	2.06[f]	28.0	2.14	33.6
Work schedule with time for other activities	3.00	58.4	3.40	89.1	3.42	90.9	3.35	86.3	3.33	85.7
Encountering variety of people	2.33[a]	33.3	3.18[a]	79.7	3.06	72.8	3.08	79.0	2.91	67.9
Raising a family	2.92	66.6	3.44	85.4	3.18	66.6	3.32	82.1	3.27	78.6
Helping others in difficulty	2.75	66.7	3.50[g]	89.9	3.18	81.9	3.21	79.0	3.00[g]	67.1
Being well-off financially	2.83	66.7	2.87	64.5	2.55	51.5	2.62	51.0	2.79	63.6
Recognition from others in own field	2.58	50.0	2.61[f]	55.8	2.55	48.5	2.26[f]	32.7	2.51	50.7
Influence significant political decisions	1.92	25.0	2.05[g]	29.7	1.67	15.2	1.76	14.7	1.69[g]	18.6
Doing creative or expressive work	2.25	33.3	2.52[e]	49.3	3.09[ehi]	81.8	2.32[h]	38.9	2.31[i]	40.7
Freedom to schedule own day	2.58	58.3	2.57	50.8	2.45	39.4	2.37	43.1	2.41	45.0
Leave the world a better place	2.33	41.6	3.17[g]	77.4	3.12	75.8	2.87	61.0	2.82[g]	58.6
Being stimulated intellectually	3.00	91.7	3.57	95.7	3.61	94.0	3.47	92.6	3.57	95.0
Successful in own business	2.58	58.3	2.65	54.8	2.30	39.4	2.31	42.1	2.58	53.3
Variety of work experiences and challenges	3.00	66.6	3.28	86.9	3.06	81.8	3.29	85.3	3.18	81.4

Note. Student responses to the future lifestyle questions on the exit survey were measured on a four-point scale, with 1 = "Not Important," 2 = "Somewhat Important, 3 = "Very Important," and 4 = "Essential." Displayed in the table were the mean that was derived from the 4-point scale and the percentage of student responses to the "Very Important" and "Essential" categories for comparison.

Post hoc Dunnett T3 results: a, b, c, d, e, f, g, h, i, and j indicate the pairs of groups significantly different at $p < .05$, with a = Hedonists vs. Success Strivers, b = Hedonists vs. Artists, c = Hedonists vs. Uncommitted Individualists, d = Hedonists vs. Scholars, e = Success Strivers vs. Artists, f = Success Strivers vs. Uncommitted Individualists, g = Success Strivers vs. Scholars, h = Artists vs. Uncommitted Individualists, i = Artists vs. Scholars, and j = Uncommitted Individualists vs. Scholars.

Discussion

In this study, we classified students at highly selective private institutions into meaningful groups based on their traits upon entering college and identified five different, distinctive student types. We then examined each type's background characteristics and college development during the course of their undergraduate study, correlating the college outcomes at one of the institutions with group types to identify trends. As a result, this study generated a number of findings worth noting.

First, during the course of their undergraduate study, students displayed distinctively differing interests in college activities, and these interests corresponded very well to their interests at college entry, which provides some degree of "common sense" validation of the typological schema. Second, although students of all types were comparable to each other in overall satisfaction and likelihood of recommendation, they reported significant differences in skill development and academic performance. While Success Strivers reported the highest total gain score, Hedonists reported the lowest total gain score and compared less favorably with Success Strivers in personal development and understanding science. Also, Hedonists were less comparable to other students in academic performance. Taken as a whole, student college performance was closely related to their academic background. Namely, students with higher SAT scores tended to have significantly higher final average grades. Third, students of all types tended to change their career expectations away from medicine and engineering as they progressed through college. While Success Strivers were especially likely to be doctors or lawyers, the other groups tended to drift toward other fields, with Artists tending to hope to engage in an expressive or creative field. Finally, and perhaps most important, this study facilitates a discussion of the alignment between institutional programs, on the one hand, and the distinctive needs and concerns of the various kinds of students who attend our institutions on the other. Artists (and Uncommitted Individualists as well) were the least satisfied with their college experience and displayed dissatisfaction in a variety of areas; we also observed these types of students were significantly less likely to attend our institution in the first place, compared to other highly selective institutions in our sample. On the other hand, other student types that attend our institution proportionately more often also reported higher levels of satisfaction and personal and academic gains. Hence we believe that a variety of student types contribute to the sense of intellectual ferment and excitement on our campus, but we need to consider how best to support all types of students we attract, and this study provides some helpful context for such discussions.

Viewed historically, the student types identified in this study showed great similarity to the student types identified by other studies. For instance, the defining features of "Hedonists" were consistent with Astin's (1993) study: drinking, smoking, and advocating the legalization of marijuana. Hedonists identified in this study also resembled the Wild Ones identified by Newcomb et al. (1967) in their tendencies for parties. Also, they bore some similarity to the Socializers portrayed by Hackman and Tabor (1976) and by Kuh et al. (2000). Success Strivers identified in this study resembled in large part Katchadourian and Boli's (1985) Strivers, determined to pursue career success and academic achievement. Artists in this study showed some similarity to the Nonconformists described by Clark and Trow (1966) and had a lot in common with the Creative Individualists portrayed by Newcomb et al. (1967) and the Artists identified by Hackman and Tabor (1976), Astin (1993), and Kuh et al. (2000). They had intense interest and engaged frequently in artistic activities. Uncommitted Individualists in some respects corresponded to Katchadourian and Boli's (1985) Unconnected, Astin's (1993) Uncommitted, and Kuh et al.'s (2000) Disengaged. With average high school academic performance, Uncommitted Individualists stood, however, in sharp contrast to the Unconnected, who had the strongest high school academic backgrounds. Scholars in this study were similar to Clark and Trow's (1966) Academics, Newcomb et al.'s (1967) Scholars, Katchadourian and Boli's (1985) Intellectuals, Astin's (1993) Scholars, and Kuh et al.'s (2000) Intellectuals, Grinds, and Scientists.

Although this study drew its analytical model from Astin's (1993) study and the student types identified in this study shared major characteristics with student types Astin portrayed, this study differed from Astin's study in approaches and in the sample and the number of specific items used to classify students. This study focused on students from highly selective private institutions, whereas Astin's study used a sample that included students from all types of colleges and universities. These differences may in part explain why this study failed to identify a distinctive group of students as Leaders. Judging by their behavior patterns, Astin's type of Leaders might have been included in the Success Strivers and the Artists identified in this study, respectively. An alternative explanation for the absence of a distinctive group of Leaders might be that the leadership trait was simply too widespread in the comparatively high achieving sample compared to Astin's more normally-distributed national sample. Another possible explanation is that the reduced variance in this sample limited the degree to which specific factors emerged from the factor analysis. Moreover, the "Success Striver" group identified in this study, although similar to Astin's "Status Striver" type in the emphasis on career success, appeared far more well-rounded and academically oriented. This category of students probably comes closest to the stereotype of the "preprofessional" students, but their positive attitudes towards politics and art and below average position with respect to hedonism and non-commitment

clash with the simplistic preprofessional stereotype. One thinks of a bright pre-med student who is driven to succeed academically, but takes a genuine interest in Art History classes and plays in the Wind Symphony in addition to taking science courses.

Implications

The findings of this study have several practical implications. First, to the extent the findings contribute toward a better understanding of how academic inputs (test scores and grades) relate to achievement outcomes such as gains in abilities, they may assist an institution in defining and identifying the most desirable applicants in a more nuanced way.

As conceptualized by Hansmann (1999), higher education is basically "an associative good." Clearly, an important part of the college experience an institution offers is the "associative good" of other enrolled students. Doubtlessly, the quality of students' educational and social experience relies in large part on the quality of their fellow students. Thus, in order to provide a challenging and enriching college experience for all students, an institution needs to mind the diversity of students' intellectual aptitude and to create via admissions and foster via campus life the "associative good" that plays a vital role in their residential education. If an institution decides to modify its current student profile to this end, no matter whether it hopes to include or exclude more of the type of students from its admit pool, the findings of this study can help an institution in identifying admissions application correlates for the attributes it is looking for. For instance, with the lowest high school grade and SAT composite score, Hedonists tended to be underachievers in high school. In contrast to Hedonists whose main interest was to seek fun, Success Strivers had wide-ranging interests and aspired to strive for career success and social improvement. Artists had the highest verbal SAT score and most likely to cite gaining a general education as a motivating factor for going to college, while Scholars had the highest SAT composite score and Uncommitted Individualists were uncertain about what they should do in college. Moreover, in order to elicit the kind of information it would need to make more nuanced evaluations of applicants, an institution may also add questions to the general applications that are particularly designed to request applicants to indicate the degree of their commitment to certain types of educational activities. For example, asking potential artists to be more specific in indicating the degree of their commitment to artistic activities would be helpful if attracting such students is seen as a desirable goal.

Second, the variations between different student types in terms of academic backgrounds, reasons for college, career plans, and life goals may help an institution focus its marketing strategies to attract such students and assist its student affairs professionals in identifying appropriate approaches to better serve students.

The findings of this study showed that all student groups benefited from their college experience to some degree and appeared to be generally connected with the educational mission of the university, though perhaps Hedonists least so in all cases. As they cared about political issues and were determined to work for social change, Success Strivers and Artists might become future community leaders. Scholars might value learning more than political issues, but they, like Success Strivers, might use a college degree as a means of gaining career success and financial benefits later in life. Judging from their likeness for parties and TV in both high school and college, Hedonists appeared to need special attention and challenges to divert their tendencies for parties and TV toward greater commitment to educational activities that would help them achieve their academic potential. Less certain about their academic and career goals than other student types, Uncommitted Individualists seemed to need special guidance in setting goals for their academic endeavors as well as career planning. Judging from their tendency to spend a large amount of time for leisurely reading in high school as well as the high importance they attached to gaining a general education and the size of an institution when deciding to attend college, Artists were clearly more likely than other student types to expect to be involved with ideas and to aspire for personalized instruction. Also, while they contributed a distinctively critical perspective toward the institution and at the same time achieved beyond their experiences, Artists—reflecting their relatively high "non-commitment" scores—may need special challenges and support to help them fully develop their artistic and creative capacities. Success Strivers and Scholars, on the other hand, may need challenges of a different kind, to the extent they may have prematurely committed themselves to paths in life before fully appreciating the range of options that are open to them. With such nuanced understanding of student expectations and needs, an institution can be more efficient in communicating its institutional message to the range of students it wants to recruit, and its student affairs professionals can be more effective in designing service programs that should help students succeed in college.

Third, in addition to the recruitment and selection processes, the findings of this study have implications for an institution's academic and cocurricular programs, in that they suggest areas in which its recruitment and educational goals could be better aligned with the distinctive needs and characteristics of different student groups.

Based on studies on college students grounded in Holland's (Holland, 1997) theory of vocational personalities and work environment, college students are active seekers of educational settings that encourage them to develop further their dominant characteristic interests and abilities and to enter and succeed in their chosen academic majors (Smart, Feldman, & Ethington, 2000). A key part

of student recruitment is the atmosphere on campus, which students are pretty good at figuring out on campus visits when they are deciding what school to attend. Once students are on campus, an institution needs to determine what appears encouraging or unsupportive to each type of students in comparison to the environment such students would encounter at other institutions. If an institution then wishes to attract particular types of students, it needs to adapt its programs, facilities, and community life to meet their expectations and needs more effectively than it is currently doing. Doing so will naturally tend to make an institution more the kind of place those types of students would want to apply, and if admitted, to attend.

A case in point is that while examining students' satisfaction with specific aspects of their undergraduate education in this study, we found Artists (and Uncommitted Individualists as well) at our institution were among the least satisfied with their undergraduate education. They tended to express reservations in a wide range of areas, such as the availability of courses in their major fields, independent studies, science facilities, a range of student services, and campus life issues. On the one hand, the relatively widespread dissatisfaction with their college experiences on the part of Artists suggests that Artists might have a more critical attitude toward their experience, but on the other hand it suggests that Artists might have found the environment not so congruent with their dominant abilities and interests. Of all their expectations and needs, Artists seemed most concerned with the availability of courses in their major fields, which stands out as an academic program improvement that needs to be made in order to make an institution more attractive to such students prior to their arrival, as well as more welcoming once they are on campus. Offering more courses in the major fields and providing such students with the particular visual or performance media that they find wanting will certainly reinforce and reward Artists' abilities and interests and enhance their educational experience. Efforts in this respect will also make the campus environment more congruent and appealing to not only enrolled students but also prospective students, including potential artists, scholars, and success strivers.

Finally, for both admissions and campus life, an institution needs to monitor progress toward its goals on a regular basis. In areas of campus life or student learning in which it decides to make significant changes, an institution should certainly monitor, through surveys, whether the changes are having the desired effects for the relevant groups. Accordingly, the survey instruments should be adapted to allow an institution to distinguish student respondent types and track their distinctive needs, concerns, and interests to a greater degree than they have in the past. Also, in areas in which an institution has made programmatic changes, it needs to track the evolving presence on campus of desired student traits. The presence of these desirable traits is, of course, a function of application, selection, and yield. As an institution succeeds in making the campus more attractive to the kinds of students it most wants to matriculate, and adapts its recruiting materials accordingly, an institution should monitor the number of applications and yield from such students to see whether they are improving in ways it hopes and expects.

Conclusion

This study uses typological schema derived from freshman survey data and other empirical measures to examine the link between students' traits upon entry to college and their college academic performance and skill development in various areas as measured at the exit point. The findings indicate the typological schema is predictive of student outcomes in terms of self-reported gains and future plans, validating the definitions of student types to a significant extent. Also, the findings help institutional leaders reflect upon questions of alignment between institutional mission focus on the one hand and student interests and aptitudes on the other. In order to assess institutional effectiveness or the long-term impact of admissions policies and practices upon student development; however, an institution needs to examine student characteristics at the time of entry to college, and to track how students of various types progress toward their academic objectives during college and after graduation. Doing so will enable an institution to track student changes over time more systematically and identify what admissions and other institutional policies and practices are more likely to support the alignment of student interests and efforts with the achievement of institutional strategic goals.

Editor's Notes

This article contributes to our knowledge in several areas. It looks at some of the types of students enrolled in our colleges and it looks at a multivariate methodology by which we can research the relevance of student types.

In some ways it should have been titled "Options" because of the decisions the authors had to make. First, there was the decision of how to frame the conceptual model of students engaged in learning. With the three lenses, we are aware of the concepts that have helped shape our thinking about the student in the context of the institution. The use of "types" helps the discussion by giving names to the characteristics. The other option would have been to go directly to the analysis of the relationship of the factor scores and the student engagement activities. This is the ongoing methodological discussion of understanding of traits versus the description of typologies. There are some analytical issues of the advantage of typologies and these have to do with the degree to which the typology acts as a moderator on the

relationship between inputs, processes, and outputs. This difference notwithstanding, Table 1 provides a very thorough look at the main themes of research on the traditional students. It should be noted that these typologies have not been considered as extensively for the non traditional student where that research has tended to take the more direct route of looking at the relationship between aspects of the student and outcomes such as program completion.

The elements of the methodology were also based on choices. The Factor Scoring is obtained from item groupings on the simple structure of the Varimax (orthogonal) rotation. They could have been obtained by regression estimates. As an alternative to K-Means Clustering they could have used Hieratical Clustering which forms a tree of associative groups. Their methodology creates associations based on measures of relationships such as correlations and regressions. Their major alternative here would be some data mining methodologies such as CHAID that are becoming increasingly popular for looking at patterns and relationships.

It should be noted that the strength of the methodology used here is its ease of implementation with desktop software such as SPSS and SAS. It is also a bit easier to explain than some of the alternatives. Finally, with these data it produces interesting and informative data.

The bottom line that one is left with is that the outcomes for many of our student engagement and transformative learning intentions seem to be greatly influenced by the type of student we enroll. This is not to say that we can't purposefully influence student learning outcomes. It means that just as we have discovered that completion rate is not a criterion that can be uniformly applied to all institutions and all types of students neither are the types of experiences measured by instruments such as the NSSE. Hopefully also more of this type of research will be applied to various groups beyond the traditional matriculated student. It is hopeful to see that those who tend to have certain characteristics have the opportunity to search out experiences associated with their interest.

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