Report of the First-Year Follow-up of College Applicants at Twelve Universities

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EXECUTIVE SUMMARY

This report details the results of analyses of the responses of applicants to 12 different colleges and universities to a set of biodata scales, a situational judgment measure, and follow-up measures collected at the end of their first year of college. In addition, archival data (first year college grades and admissions data were collected from the institutions. While a large number of applicants provided usable data (N=7,885) on the biodata and SJT, a much smaller number (N=2,023)at enrolled at the institutions to which they applied, and only 844 responded to a follow-up survey and provided consent to obtain archival data from their institutions.

Relationships between the 13 biodata scales (measuring the original dimensions plus Awards and Jobs scales developed from the Common Application Blank) , the SJT and ten different student outcomes are reported. We also report regression analyses of these outcomes on HSGPA, SAT/ACT, and the noncognitive measures. The degree to which responses of various demographic groups differed and the degree to which there are differences between applicant responses and those of incumbent students were reported. The latter are taken as one indication that students are likely to inflate responses when the biodata and SJT are used to make actual admission decisions. Finally, we report results on the analyses of several experimental variables.

Reflecting similar conclusions in the Discussion and Summary section of our report, we feel that the following are the most important outcomes of our various data analyses.

1. Biodata and SJT measures do have adequate internal consistency reliability and they exhibit reasonable discriminant validity; that is, intercorrelations indicate that the measures are not redundant.

2. First-year college GPA is predicted significantly by several biodata scales, most notably Knowledge, Ethics, and Perseverance, but HSGPA and SAT/ACT scores are much more predictive of college GPA than are biodata and SJT. The latter do not add in a statistically significant sense to the prediction of college GPA beyond the two traditional measures of academic potential though the magnitude of incremental variance associated with biodata and SJT measures is similar to that of previous research on these measures.
3. Self ratings of performance (BARS), Organizational Citizenship Behavior (OCB), and student self-reports of Deviance were especially well predicted by the biodata measures and SJT while HSGPA and SAT/ACT were relatively uncorrelated with these outcomes.
4. Satisfaction, absenteeism and turnover intentions were less well predicted by all measures. The biodata scale Ethics was best related to these outcomes.
5. The two experimental outcome measures (Drug Use and Problem Drinking) were not related to most predictors with the exception of the Ethics measure. Drug Use and Problem Drinking were related quite highly to two additional outcomes: Class absenteeism and deviance.
6. Gender differences on the predictor measures were generally with women scoring higher in most instances. Exceptions included the SAT/ACT and the Health, Ethics, Adaptability, and Continuous Learning measures on which males slightly outperformed females.
7. Ethnic group differences generally favored Whites over Blacks, but there was a very small number of Black participants. White-Hispanic differences were small, some favoring Whites and others favoring Hispanics. Whites outperformed Hispanics by the largest amount (d=.65) on the SAT/ACT. The results for Asian-White comparisons were

also mixed, but Asian students' SAT/ACT scores were slightly larger (d=-.08) than those of Whites.

8. Differences between applicants and incumbent students revealed that applicants may have been inflating their responses to the biodata and SJT. Differences on Knowledge (d=.75) and Continuous Learning (d=.56) measures were largest; differences on most other scales ranged from .30 to .50 standard deviation units.
9. Time spent studying was related positively to grades though the correlation (r=.18) was low. There was a small and marginally significant negative relationship between the number of hours spent working and grades.
10. Standard measures of several dimensions of the Big Five personality constructs (especially Conscientiousness) were related to grades and various other outcomes, but in all these analyses, the biodata and SJT explained additional variance.
11. Investigation of the role significant events (shocks) might play in student decisions to remain involved in academic pursuits revealed that a number of these events (singly and in combination) were related to student absenteeism, intent to leave school and deliberations about leaving school. These analyses underscore the fact that occasionally unforeseen circumstances dictate whether a student can remain in school.
12. Analyses of relationships between admissions officers' ratings of student portfolios primarily from smaller liberal arts institutions revealed that these ratings were related to a number of important student outcomes as well as the objectively scored biodata. Correlations with what these schools called the Admissions Rating, a rating of extracurricular activities and a Performance rating were especially large across several biodata scales. Whether they are large enough to replace these ratings with the biodata

measures would be a matter of judgment on the part of admissions officers and possibly a function of the resources available to employ large numbers of admissions officers to rate student portfolios.

INTRODUCTION

Over the past several years we have engaged in a variety of efforts to develop noncognitive measures (i.e., biodata and situational judgment) of student potential. The outcomes of the initial effort in 2001-03 were described in reports to the College Board and an academic publication (Friede, Gillespie, Kim, Oswald, Ramsay, & Schmitt, 2002; Oswald, Schmitt, Kim, Gillespie, & Ramsay, 2004). A second effort was conducted to expand our item pool and to examine more closely the extent of subgroup differences in responses (Drzawkowski, Friede, Imus, Kim, Oswald, Schmitt, & Shivpuri, 2004). In the fall of 2004, a major multi-institutional and longitudinal effort was launched. Data were collected from ten institutions from over 2,800 participants for the first four years of their college careers. As was true for the earlier efforts, analyses of those data were summarized in both reports to College Board and in scientific publications (Schmitt, Oswald, Kim, Imus, Drzawkowski, Friede, & Shivpuri, 2007; Schmitt, Oswald, Friede, Imus, & Merritt, 2008; Schmitt, Billington, Keeney, Oswald, Pleskac, Sinha, & Zorzie, in press). In the case of all these reports, we reported that the biodata and situational judgment measures were correlated modestly, and incrementally so above HSGPA and SAT/ACT scores, with college GPA. They were correlated much better with self reports of performance and class attendance as well as measures of organizational citizenship behavior, withdrawal intentions, and deviance. In the case of these latter measures, SAT/ACT was not a very effective predictor. In all cases, subgroup differences (both racial/ethnic and gender) were small or nonexistent, meaning that larger proportions of minority subgroups would be admitted if these measures were used in combination with traditional indices of student potential such as HSGPA and SAT/ACT as opposed to relying only on HSGPA and SAT/ACT.

In all of these previous studies, the participants were completing the instruments for research purposes after they had been admitted to their universities. A relevant and important question as to whether responses and/or their validity would change when the instruments are used in a high-stakes real-world admissions situation remains unanswered. In the fall of 2007, College Board with the help of 12 universities started another data collection. In this effort, we used the instruments in a situation as close to an actual admissions context as is possible given the constraints placed on the research team by institutional review boards. When applicants applied to any of the participating institutions, they were invited to contact a College Board website to complete research instruments designed to assess their background, interests and judgment. It was explained that the data collection was for research purposes only and that it would not impact their admissions to the university to which they applied. However, at the time this request was made, none had been admitted to the university to which application had been made. Thirteen thousand seven hundred sixty-one contacted the web page and 7,885 provided sufficient responses for the computation of scale scores. Of these, 2023 actually enrolled at the universities to which they applied. These students were then contacted to seek permission to secure archival admissions and performance data from their home institutions and to request that they answer questions about some additional outcome variables.

The current report summarizes work on this last project to date including analyses of predictor and first-year outcome data for 844 students who replied to our request for follow-up data and for permission to access their university records. In the next chapter, we provide a description of the data collection procedure, the measures collected from each participant and the participating universities, and the sample characteristics. In the following chapter, we present the results of the data collection and address a series of questions. First, we provide basic

descriptive data on the experimental measures (i.e., biodata and SJT) and the various outcome measures we collected. Second, we provide the means and standard deviations of the respondents to the original survey that included biodata and SJT instruments, the students who actually enrolled, and the students who responded to our follow-up survey. These data are provided to assess any self selection related to responses to our various instruments. Third, we provide bivariate relationships between the various predictors (i.e., HSGPA, ACT/SAT scores, any available quantitative index of applicant profiles by university admissions staff, biodata and SJT) and the outcomes we measured (i.e., first year college GPA, self-rated performance, class attendance, drug and alcohol problems, organizational citizenship behaviors, satisfaction, intent to turnover, and deviance behaviors). In the fourth section, we provide the results of regression analyses of the major outcomes on the predictors. Fifth, we provide data on differences between gender and racial subgroups. Sixth, we compare the scores of applicants in this study with the scores of those from our previous work to ascertain if there was an inflation of scores on the current data collection that may have resulted from the high-stakes context of the data collection. Seventh, we describe relationships between several experimental measures (time spent on various activities, shocks, and Big Five personality measures) and the various predictors and outcomes. In the final chapter, we provide a discussion of the results and our view of the implications of those results for undergraduate admissions decisions.

METHOD

Sample Description

Of the 13,761 students who made an attempt at accessing our survey in fall of 2007, a total of 7,885 individuals provided sufficient data to be included in analyses. These students were

applicants at 12 institutions: Earlham College, Furman University, Johnson & Wales University at Providence, Kenyon College, Lafayette College, Meredith College, Michigan State University, Ohio State University, Purdue University, University of North Carolina at Chapel Hill, University of Southern California, and University of Washington. Of the 2,023 students who enrolled at these institutions and responded to the follow-up survey in 2009, 844 provided sufficient data for analyses. Demographic data (including gender, ethnicity, age, school, expected major, and parental education) for the applicants, enrolled students, and first year respondents is provided in Table 1. Overall, the three groups are demographically similar. However, the proportions of female students and Caucasian students are relatively higher among the enrollees and first year respondents than among the applicants. There were correspondingly fewer African American and Asian respondents among the first year respondents than among the applicants. There were only minor differences in the education level of the parents of the three groups of respondents.

Procedure

Students who applied to any of the twelve participating schools in 2007, were invited to access a College Board website in order to complete a survey consisting of questions pertaining to their background, interests and judgment. For the follow-up survey in 2009, we provided to the twelve schools a list of the applicants (N = 7,885) who had completed a sufficient portion of the 2007 survey. Each school then provided us with a list of the subset of these applicants who had enrolled at the institution, along with the individuals' email addresses. Emails were sent out to enrollees in three waves, requesting that they grant us permission to obtain their admissions and performance data, and that they fill out the web-based follow up survey. The incentive offered was a 20 dollar amazon.com gift certificate. For those who participated in the follow up

Table 1. *Demographic Statistics of Applicants, Enrollees, and First Year Respondents*

		7,885 Applicants		2,023 Enrollees		844 First-Year Respondents	
		N	%	N	%	N	%
Gender	Male	3125	39.2	786	38.9	287	34.0
	Female	4758	59.7	1236	61.1	557	66.0
Race/ Ethnicity	White	4854	62.2	1448	72.3	615	73.3
	Black	450	5.8	76	3.8	25	3.0
	Asian	1441	18.5	263	13.1	110	13.0
	Hispanic	500	6.4	101	5	43	5.1
	Native Hawaiian/ Pacific Islander	42	.5	12	.6	5	.6
	American Indian/ Alaskan Native	18	.2	7	.3	1	.1
	Multi-racial	314	4.0	66	3.3	28	3.3
	Other	187	2.4	31	1.5	12	1.4
Age at end of 2009	17 or less	5	0	2	0	1	.1
	18	117	1.5	24	1.2	13	1.5
	19	5218	66.2	1303	64.4	551	65.3
	20	2327	29.5	640	31.6	261	30.9
	21	127	1.6	29	1.4	9	1.1
	22	35	0	9	0	2	.2
	23 and above	56	0	16	0	7	.8
Institution	Furman U	312	4.0	68	3.4	36	4.3
	Meredith C	110	1.4	45	2.2	9	1.1
	Purdue U	2087	26.5	605	29.9	204	24.2
	Earlham C	128	1.6	28	1.4	14	1.7
	Ohio State U	350	4.4	175	8.7	66	7.8
	Michigan State U	807	10.2	274	13.5	144	17.1
	Kenyon C	509	6.5	45	2.2	14	1.7
	U of Southern CA	1887	23.9	227	11.2	91	10.8
	U of North Carolina-Chapel Hill	761	9.7	243	12.0	122	14.5
	Lafayette C	88	1.1	9	.4	4	.5
	U. of Washington	715	9.1	284	14.0	130	15.4
	Johnson & Wales U-Providence	87	1.1	20	1.0	10	1.2
Expected	Undecided	822	10.3	197	9.7	95	11.3

Major	Business	1065	13.4	246	12.2	91	10.8
	Engineering	1382	17.3	368	18.2	154	18.2
	Fine Arts/humanities	936	11.7	184	9.1	68	8.1
	Social Science	992	12.5	251	12.4	105	12.4
	Nature/physical science	1560	19.6	450	22.2	200	23.7
	Other	1077	13.5	316	15.6	128	15.2
Education Level-Father	Grade school or less	112	1.4	24	1.2	9	1.1
	Some high school	272	3.5	57	2.9	21	2.5
	High school diploma or equivalent	918	11.8	267	13.4	104	12.4
	Business or trade school	168	2.2	53	2.7	20	2.4
	Some college	757	9.8	205	10.3	98	11.7
	Associate or two-year degree	324	4.2	95	4.8	41	4.9
	Bachelors or four-year degree	2273	29.3	625	31.3	235	28.0
	Some graduate or professional school	303	3.9	71	3.6	43	5.1
	Graduate or professional degree	2627	33.9	599	30.0	268	31.9
Education Level-Mother	Grade school or less	109	1.4	18	.9	9	1.1
	Some high school	155	2.0	33	1.6	13	1.5
	High school diploma or equivalent	956	12.2	267	13.3	108	12.8
	Business or trade school	143	1.8	41	2.0	16	1.9
	Some college	938	12.0	236	11.7	91	10.8
	Associate or two-year degree	679	8.7	207	10.3	86	10.2
	Bachelors or four-year degree	2599	33.2	696	34.6	283	33.6
	Some graduate or professional school	370	4.7	81	4.0	44	5.2
	Graduate or professional degree	1873	23.9	430	21.4	192	22.8

survey and gave their permission, we requested and obtained their high school grade point average, ACT/SAT scores, and first year college grades from their institutions' registrar and admissions offices.

Sample.

In the following sections, we describe the three groups of measures: Predictor Variables, Outcome Variables, and Experimental Variables. We also collected basic demographic information including race/ethnic group status, gender, major, and parental education. All measures are contained in Appendices A and B.

Predictor Measures. As described in previous reports (see Drzakowski, Friede, Imus, Kim, Oswald, Schmitt, & Shivpuri, 2005), we collected *biodata* measures which reflect information about an individual's background and life history. Similar information is contained within college applications, but is often provided by students in an open-ended way and is used by admissions officers in an intuitive or implicit manner (e.g., the use of applicants' extracurricular activity lists and resumés). In contrast, biodata provides a systematic and quantitative assessment of the same information. This gives admissions officers a more efficient and consistent method of incorporating this information into their admissions decisions. Each of the biodata scales consisted of approximately 10 multiple choice items that were objectively scored.

The biodata measure was designed to predict the 12 outcome dimensions of college student success (see Table 2 for descriptions of the 12 dimensions). Similar to tests used in job selection processes, the biodata measure contains standard multiple-choice questions about one's previous experiences. The original biodata instrument consisted of 112 standard multiple-choice

questions covering 11 dimensions[1]. Along with these items, 14 new items were added to the biodata. These new items were generated to reflect content from the Common Application that was not already covered by our existing items. The 14 new items addressed awards received in high school and jobs that were held by students during high school or in summer breaks.

The SJT measure is a *situational judgment test* used as a predictor of the 12 dimensions of college student success (see Table 2). Each SJT item presents a scenario that a typical college student might face. Response options represent possible behavioral responses to the scenario presented. For each scenario, the participant selects the response option that represents his or her "most likely" response and the option that represents his or her "least likely" response. Each SJT item is scored from -2 to +2, with higher scores indicating situational judgment that is in line with scoring keys developed with the help of a set of students deemed to be experts (i.e., junior and senior college students who have successfully persevered through at least two years of college). A more detailed description of item scoring can be found in the *Merged Report* (see Friede, Gillespie, Kim, Oswald, Ramsay, & Schmitt, 2003, for more details).

In this data collection, we administered a 36-item version of the SJT (see Drzakowski et al., 2004 for a description of the selection of the 36 items from the 153-item bank). These items reflect the 12 dimensions of student performance found in Table 2. Each dimension is reflected in three items, but only a single composite score is calculated. Earlier work on this measure did not provide evidence for the discriminant or convergent validity of the individual sets of items designed to measure each of the 12 dimensions.

[1] Based on the results of previous testing, the Interpersonal scale was excluded from the revised BIODATA. This dimension was dropped due to poor item and scale statistics in addition to low criterion-related validity.

During the informed consent process, participants signed optional data release forms. For the participants who signed these forms, *high-school grade point average* data and *SAT and/or ACT scores* were obtained from college or university registrars. SAT and ACT composite scores were standardized on national norms within test, combined, and used as a single index of the participants' ability and/or preparation to do college work. No data were obtained for participants who did not sign the release forms.

We also asked that admissions personnel at the participating institutions provide any ratings they made of student profiles as part of the admissions process. We did receive ratings from several of the smaller schools in our sample. Since the rating dimensions and rating scales differed across schools, we describe them more fully in the section of our report that describes the results of the experimental variables below.

Demographic information was also collected in the 2007 survey, including items on age, gender, major, disability status, parental education, and ethnicity.

Outcome Measures. Conceptually, the measures in this section were considered outcomes or evidence of student performance and behavior. Ordinarily, admissions offices would use the predictors described in the previous section to predict one or more of the variables described as outcomes in this section.

Behaviorally-Anchored Rating Scales (BARS) were used to measure students' self-reported performance on 12 dimensions of college student success (Drzakowski, et. al., 2005; Oswald et al., 2004). The BARS provides descriptions of each dimension of success and example behaviors that reflect different levels of performance on that dimension. Respondents rate their performance on a 5-point scale ranging from 1 (very low) to 5 (very high).

Organizational Citizenship Behaviors (OCBs) refer to non-required behaviors that promote the welfare of the university (Organ, 1988). The measure of this construct consisted of 10 five-point frequency-based scales with response options ranging from "Very Infrequently/Never" to "Very Frequently/Always." Example items included "Gone out of your way to make new students feel welcome at school," "Defended your school when others tried to criticize it," and "Participated in student government or other clubs that try to make your school a better place."

Deviance refers to a measure of behaviors that are detrimental to the university or to society in general. This measure consisted of 13 items, all with five-point frequency-based response options ranging from "Very Infrequently/Never" to "Very Frequently/Always." Example items included "Made a derogatory ethnic, religious, or racial remark at school," "Let someone copy from your homework or cheat off of you in class," and "Illegally copied or downloaded computer software."

Students were asked to indicate "the extent to which you have missed regularly scheduled classes in the past 6 months." There were five response options ranging from "Missed less than 5 times" to "Missed more than 30 times." Participants were asked to self report *absenteeism* on two items. One item asked them to provide information on controllable absences (e.g., missed class to socialize with friends or because they found the class boring). The second question asked them to report uncontrollable absences (e.g., being sick, an emergency). All analyses reported in this paper are on the controlled absence measure only.

Students' intentions to drop out or transfer were assessed using three self-report items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). *The intent to*

turnover items were adapted from the intent to turnover scales described by Eaton and Bean (1995) and Griffeth and Hom (1988).

Student *academic satisfaction* was measured with five items with a five-option response scale ranging from "strongly disagree" to "strongly agree." Representative items included "I'm happy with what I learn in my classes" and "All in all, I'm satisfied with the education I get at this school."

Four items measured *social satisfaction* in college with the same response scale. Sample items include "I'm satisfied with the number of friends I have here" and "Overall I'm satisfied with my social life at this school."

In addition to the outcomes above, *first-year college GPA* was collected from the participating universities. College GPA was corrected by university based on SAT scores to account for differences in the admitted sample at each school.

Experimental Variables. We included several additional relatively short measures that relate to college students' experiences on an experimental basis and report the results of analyses involving these variables as well.

A *shock* scale consisted of 21 items, each representing a shocking event that could adversely affect an average college student' behavior and performance. This list was generated by the College Board team from team members' own experiences and observations of college life, from an interview with a university counselor, and from a focus group conducted with undergraduate students. For each shock, the students were asked to indicate simply whether the shock has happened to them in their first year of college.

The *Big 5 personality traits* were assessed using the scales available from the International Personality Item Pool (Goldberg, 1999). The 10-item scales were used to measure *emotional stability, agreeableness, openness to experience, extraversion, and conscientiousness*. Each item represented a phrase descriptive of a person, such as, "Make people feel at ease." Participants rated the extent to which they believed each phrase reflected their personalities on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate).

Problem Drinking and Drug Use Scales were developed to assess the extent to which students participated in problematic behaviors related to the consumption of alcohol and other drugs. Response scales for items on each of these scales differ; all are included in Appendix B. The drug use scale consists of three items assessing cigarette, marijuana, and other drug use.

Five items were developed to assess the amount of time students use on a variety of activities. Respondents indicated how much time they *spent on academics, extracurricular activities, caring for family, relaxing/socializing, and working outside of school* on a 5-item scale ranging from "Less than 5 hours" to "More than 30 hours." The problem drinking scale consisted of four items assessing drinking frequency, the amount typically drank, and the frequency of driving after drinking. The drug use scale consisted of three items that assessed cigarette, marijuana, and other drug use.

A *Turnover Deliberations* scale designed to measure early thoughts about withdrawing from school mirrored the items in the Turnover Intentions scale. These three items were "I am considering transferring to another school", "I am considering other job options instead of continuing in school" and "I'm thinking about quitting my extracurricular clubs or groups (e.g., sport clubs, social organizations, intramural teams)."

Table 2

Descriptions of 12 Dimensions of College Student Success

Knowledge and mastery of general principles (Knowledge)

Gaining knowledge and mastering facts, ideas and theories and how they interrelate, and the relevant contexts in which knowledge is developed and applied. Grades or GPA can indicate, but not guarantee, success on this dimension.

Continuous learning, intellectual interest and curiosity (Continuous Learning)

Being intellectually curious and interested in continuous learning. Actively seeking new ideas and new skills, both in core areas of study as well as in peripheral or novel areas.

Artistic and cultural appreciation (Artistic Appreciation)

Appreciating art and culture, either at an expert level or simply at the level of one who is interested.

Appreciation for diversity (Multicultural Appreciation)

Showing openness, tolerance, and interest in a diversity of individuals and groups (e.g., by culture, ethnicity, religion, or gender). Actively participating in, contributing to, and influencing a heterogeneous environment.

Leadership (Leadership)

Demonstrating skills in a group, such as motivating others, coordinating groups and tasks, serving as a representative for the group, or otherwise performing a managing role in a group.

Interpersonal skills (Interpersonal)

Communicating and dealing well with others, whether in informal social situations or more formal school-related situations. Being aware of the social dynamics of a situation and responding appropriately.

Social responsibility and citizenship (Social Responsibility)

Being responsible to society and the community, and demonstrating good citizenship. Being actively involved in the events in one's surrounding community, which can be at the neighborhood, town/city, state, national, or college/university level. Activities may include volunteer work for the community, attending city council meetings, and voting.

Physical and psychological health (Health)

Possessing the physical and psychological health required to engage actively in a scholastic environment. This would include participating in healthy behaviors, such as eating properly, exercising regularly, and maintaining healthy personal and academic relations with others, as well as avoiding unhealthy behaviors, such as alcohol/drug abuse, unprotected sex, and

ineffective or counterproductive coping behaviors.

Career orientation (Career Orientation)

Having a clear sense of career one aspires to enter into, which may happen before entry into college, or at any time while in college. Establishing, prioritizing, and following a set of general and specific career-related goals.

Adaptability and life skills (Adaptability)

Adapting to a changing environment (at school or home), dealing well with gradual or sudden and expected or unexpected changes. Being effective in planning one's everyday activities and dealing with novel problems and challenges in life.

Perseverance (Perseverance)

Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way. Goals range from long-term goals (e.g., graduating from college) to short-term goals (e.g., showing up for class every day even when the class isn't interesting).

Ethics and integrity (Ethics)

Having a well-developed set of values, and behaving in ways consistent with those values. In everyday life, this probably means being honest, not cheating (on exams or in committed relationships), and having respect for others.

RESULTS

The results of our analyses of participant responses are organized in several sections. In the first section we provide basic descriptive data for the study variables. This is followed by a section in which we report the same descriptive data for various sets of respondents and those for whom we were not able to collect all data to determine if there were any "selection" or "dropout" effects. In the next section, we report regressions of the outcome variables on our various predictor measures. We then address the degree to which there are gender and race differences in measured variables. The next section addresses the degree to which our respondents might have inflated their responses relative to respondents in earlier studies who were not responding to a high-stakes situation. Finally, we present several analyses addressing questions related to our experimental variables.

Means, Standard Deviations, Intercorrelations of Variables and Predictor-Outcome Correlations

Students' responses to the biodata scales and the SJT were analyzed to determine the reliability and intercorrelations among the variables as well as their correlations with outcome variables. These relationships as well as the variable means and standard deviations are presented in Table 3. Observed correlations are presented below the diagonal in this table; reliabilities (when available) are presented on the diagonal; and correlations corrected for the unreliability of the measures are presented above the diagonal. Due to missing responses on parts of the survey, the sample sizes associated with the correlations vary considerably from 425 to 725 individuals.

The thirteen biodata scales display reasonable discriminant validity. Consistent with previous findings based on applicants to Michigan State University in 2006, as well as earlier studies with research participants who were not college applicants, observed correlations between the scales ranged from low to moderate (-.04 to .64); intercorrelations corrected for unreliability of both measures involved ranged from -.05 to .79. Observed correlations between the biodata and the SJT ranged from .06 to .41, and from .08 to .58 when correlations were corrected for unreliability. The biodata and SJT measures were not highly correlated with high school GPA and the SAT/ACT composite, which are traditionally used as predictors of college students' academic success. This means that if the biodata and SJT are correlated with student outcome data, they are likely to be incrementally valid predictors.

Correlations with outcome variables indicate that a number of the biodata scales are statistically significant correlates of first year college GPA though these relationships are generally modest (i.e., .08 to .22). HSGPA and SAT/ACT are the best predictors of college

Table 3. Intercorrelations Between Study Variables

	Mean	**SD**	Knowledge	Continuous Learning	Artistic	Multicultural	Leadership	Responsibility	Health	Career	Adaptability	Perseverance	Ethics	Awards
Knowledge	3.50	0.48	*0.73*	0.65	0.25	0.29	0.41	0.22	0.35	0.40	0.55	0.79	0.65	0.41
Continuous Learning	3.43	0.61	**0.51**	*0.82*	0.52	0.67	0.43	0.29	0.19	0.42	0.41	0.51	0.31	0.30
Artistic	3.26	0.76	**0.20**	**0.43**	*0.85*	0.76	0.35	0.39	0.03	0.13	0.17	0.26	0.25	0.31
Multicultural	3.30	0.70	**0.23**	**0.56**	**0.64**	*0.84*	0.45	0.49	0.03	0.21	0.25	0.36	0.21	0.28
Leadership	3.31	0.77	**0.33**	**0.37**	**0.30**	**0.39**	*0.87*	0.59	0.23	0.43	0.43	0.57	0.18	0.47
Responsibility	3.70	0.74	**0.17**	**0.24**	**0.32**	**0.41**	**0.49**	*0.81*	0.18	0.30	0.25	0.38	0.21	0.32
Health	3.28	0.51	**0.25**	**0.15**	0.02	0.03	**0.18**	**0.14**	*0.71*	0.16	0.73	0.42	0.25	0.18
Career	3.40	0.63	**0.30**	**0.34**	**0.11**	**0.17**	**0.35**	**0.24**	**0.12**	*0.79*	0.42	0.47	0.16	0.28
Adaptability	3.49	0.43	**0.39**	**0.31**	**0.13**	**0.19**	**0.33**	**0.19**	**0.51**	**0.31**	*0.68*	0.74	0.37	0.30
Perseverance	3.90	0.47	**0.60**	**0.41**	**0.21**	**0.29**	**0.47**	**0.31**	**0.31**	**0.37**	**0.54**	*0.78*	0.49	0.36
Ethics	4.09	0.42	**0.46**	**0.23**	**0.19**	**0.15**	**0.14**	**0.15**	**0.17**	**0.11**	**0.25**	**0.35**	*0.66*	0.10
Awards	2.44	0.68	**0.30**	**0.23**	**0.25**	**0.22**	**0.37**	**0.25**	**0.13**	**0.21**	**0.21**	**0.27**	0.07	*0.72*
Jobs	2.67	1.06	-0.01	0.03	-0.02	0.02	**0.21**	**0.15**	0.05	**0.20**	**0.18**	**0.10**	-0.04	0.00
SJT	0.40	0.14	**0.36**	**0.21**	**0.19**	**0.25**	**0.24**	**0.32**	**0.17**	**0.24**	**0.17**	**0.34**	**0.41**	**0.11**
High School GPA	3.86	0.42	**0.21**	0.02	0.05	0.06	**0.15**	**0.10**	-0.01	-0.05	0.03	**0.12**	**0.12**	**0.34**
SAT/ACT Composite	-0.01	0.98	**0.22**	**0.13**	**0.14**	0.05	**0.10**	0.03	-0.02	**-0.12**	-0.04	0.02	**0.17**	**0.14**
BARS	3.74	0.46	**0.36**	**0.37**	**0.34**	**0.33**	**0.40**	**0.29**	**0.27**	**0.30**	**0.32**	**0.46**	**0.26**	**0.24**
First Year College GPA	3.49	0.62	**0.22**	**0.11**	**0.15**	**0.13**	**0.13**	**0.08**	0.02	**-0.13**	0.00	**0.15**	**0.17**	**0.20**

Absenteeism	2.74	1.09	**-0.08**	0.07	-0.04	0.04	-0.02	**-0.08**	**-0.08**	0.01	0.04	-0.08	**-0.15**	-0.04
OCB	4.38	0.94	**0.16**	**0.21**	**0.14**	**0.28**	**0.40**	**0.34**	**0.12**	**0.26**	**0.23**	**0.36**	**0.10**	**0.15**
Deviance	1.56	0.51	**-0.23**	-0.06	**-0.13**	**-0.09**	0.04	-0.07	0.02	-0.01	-0.04	**-0.11**	**-0.34**	-0.08
Academic Satisfaction	4.20	0.56	**0.15**	**0.12**	0.04	**0.07**	0.03	**0.09**	**0.13**	0.07	**0.13**	**0.14**	**0.18**	0.05
Social Satisfaction	3.89	0.87	0.04	0.06	0.02	**0.12**	**0.15**	**0.20**	**0.17**	**0.08**	**0.18**	**0.16**	0.06	0.05
Drug Use	1.31	0.70	**-0.08**	0.03	0.07	**0.11**	-0.03	-0.03	-0.02	-0.07	0.03	-0.06	**-0.19**	-0.06
Problem Drinking	7.65	3.45	**-0.13**	**-0.11**	-0.05	0.00	0.05	0.01	**0.09**	**-0.10**	**0.09**	-0.05	**-0.22**	**-0.13**
Turnover Intentions	1.24	0.58	**-0.11**	-0.04	-0.05	-0.05	-0.02	-0.06	-0.03	-0.01	-0.04	**-0.11**	**-0.13**	-0.02

Table 3 continued

	Jobs	SJT	High School GPA	SAT/ACT Composite	BARS	First Year College GPA	Absenteeism	OCB	Deviance	Academic Satisfaction	Social Satisfaction	Drug Use	Problem Drinking	Turnover Intentions
Knowledge	-0.01	0.49	0.24	0.26	0.49	0.26	-0.10	0.21	-0.31	0.19	0.05	-0.13	-0.19	-0.14
Continuous Learning	0.03	0.27	0.02	0.14	0.47	0.12	0.08	0.25	-0.08	0.14	0.07	0.05	-0.12	-0.05
Artistic	-0.03	0.24	0.05	0.15	0.44	0.17	-0.04	0.17	-0.16	0.05	0.02	0.10	-0.03	-0.06
Multicultural	0.02	0.32	0.07	0.06	0.43	0.14	0.04	0.33	-0.11	0.08	0.14	0.16	0.03	-0.05
Leadership	0.24	0.30	0.16	0.11	0.50	0.13	-0.02	0.47	0.05	0.03	0.17	-0.04	0.08	-0.02
Responsibility	0.17	0.41	0.11	0.03	0.38	0.09	-0.08	0.42	-0.09	0.11	0.24	-0.05	0.03	-0.07
Health	0.06	0.23	-0.01	-0.03	0.38	0.02	-0.09	0.16	0.03	0.17	0.21	-0.04	0.13	-0.04
Career	0.24	0.31	-0.06	-0.13	0.39	-0.15	0.01	0.32	-0.01	0.09	0.09	-0.10	-0.12	-0.01
Adaptability	0.23	0.24	0.04	-0.04	0.46	-0.01	0.04	0.31	-0.05	0.17	0.23	0.05	0.12	-0.05
Perseverance	0.12	0.45	0.14	0.02	0.61	0.16	-0.09	0.44	-0.14	0.17	0.19	-0.08	-0.07	-0.13
Ethics	-0.05	0.58	0.15	0.21	0.38	0.21	-0.19	0.13	-0.48	0.24	0.08	-0.30	-0.31	-0.18
Awards	0.01	0.15	0.40	0.17	0.34	0.24	-0.05	0.19	-0.11	0.06	0.06	-0.09	-0.18	-0.03
Jobs	*0.92*	0.08	-0.14	-0.14	0.12	-0.14	0.08	0.20	0.13	-0.01	0.11	0.21	0.29	-0.06
SJT	0.06	*0.73*	0.06	0.11	0.33	0.05	-0.16	0.20	-0.25	0.09	0.11	-0.03	-0.08	-0.19
High School GPA	**-0.14**	0.05	*1.00*	0.40	0.11	0.39	-0.07	0.07	-0.16	0.07	0.04	-0.13	-0.15	-0.07
SAT/ACT Composite	**-0.13**	**0.10**	**0.40**	*1.00*	0.10	0.52	0.06	-0.09	-0.08	0.08	0.00	0.01	-0.03	-0.06
BARS	**0.10**	**0.24**	**0.09**	**0.08**	*0.72*	0.28	-0.24	0.59	-0.35	0.38	0.42	-0.24	-0.29	-0.23

First Year College GPA	**-0.14**	0.05	**0.39**	**0.52**	**0.24**	*1.00*	-0.23	0.04	-0.21	0.17	-0.03	-0.08	-0.13	-0.07
Absenteeism	0.08	**-0.13**	-0.07	0.06	**-0.21**	**-0.23**	*1.00*	-0.02	0.31	-0.18	-0.03	0.31	0.26	0.13
OCB	**0.18**	**0.16**	0.06	**-0.08**	**0.46**	0.04	-0.02	*0.83*	0.05	0.32	0.59	-0.08	0.09	-0.20
Deviance	**0.11**	**-0.19**	**-0.14**	-0.07	**-0.26**	**-0.18**	**0.27**	0.04	*0.77*	-0.17	0.01	0.45	0.53	0.14
Academic Satisfaction	-0.01	0.07	0.07	0.07	**0.30**	**0.16**	**-0.17**	**0.26**	**-0.13**	*0.83*	0.35	-0.07	-0.02	-0.35
Social Satisfaction	**0.10**	**0.09**	0.04	0.00	**0.34**	-0.03	-0.03	**0.51**	0.00	**0.30**	*0.88*	-0.04	0.14	-0.25
Drug Use	**0.16**	-0.02	**-0.10**	0.01	**-0.16**	-0.07	**0.24**	-0.06	**0.31**	-0.05	-0.03	*0.61*	0.71	0.07
Problem Drinking	**0.24**	-0.08	**-0.12**	-0.02	**-0.21**	**-0.11**	**0.23**	0.05	**0.38**	-0.02	**0.09**	**0.44**	0.67	0.00
Turnover Intentions	-0.05	**-0.15**	-0.07	-0.05	**-0.17**	-0.07	**0.12**	**-0.17**	**0.11**	**-0.29**	**-0.22**	0.05	-0.01	*0.82*

Notes. SJT = Situational Judgment Test. OCB = Organizational Citizenship Behavior. Cronbach's alpha values are displayed along the diagonal. Correlations below the diagonal are observed values. Correlations in bold are significant at the p = .05 level or above. Correlations above the diagonal have been corrected for the reliability of both variables. No corrections were applied for high school GPA, SAT/ACT composite, first year college GPA, or absenteeism variables.

GPA. Inconsistent with previous studies, the SJT was not a significant correlate of first-year college GPA. The biodata and SJT were most highly correlated with student self ratings of performance (BARS) and with organizational citizenship behaviors (OCBs). These latter outcomes were not highly correlated with HSGPA and SAT/ACT. There were also some significant correlates of the absenteeism measure, satisfaction measures, and turnover intention as well as negative student outcomes such as deviance, drug use, and problem drinking. We will comment more on these predictor-outcome relationships in the context of regression analyses reported below.

Comparisons of Biodata and SJT Scores Across Different Groups of Respondents

In this section, the means and standard deviations on the biodata and SJT scales are compared across three groups; first, the group of applicants who applied to all the twelve schools (but did not enroll in any school); second, the group of students who enrolled in the twelve schools and third, the group of students who responded to the 2009 follow-up outcome survey. The purpose of comparing these groups is to assess if there are any meaningful differences between students in the three groups on the biodata and SJT scales. If there are relatively large differences, it would suggest that there is restriction of range in the sample available for analysis of predictor-outcome relationships and that the validity coefficients are being computed on a select group of students (a restricted sample) that differs from the general population of students who apply to undergraduate schools.

Group 1 in Table 4 below is the group of 5,862 students who responded to our measures as applicants but did not subsequently enroll in the institutions in our sample to which they applied. *Group 2* is a group of 1,179 applicants who enrolled in one of the twelve participating

schools but did not respond to the follow-up survey. *Group 3* is a group of 844 students who responded to the initial survey, enrolled in one of the participating schools, and who responded to our follow-up survey.

Comparison of the standardized mean differences (d) and tests of significance of the differences between means indicated that there were only two instances in which the d value was above .20 and the mean difference was statistically significant. In these two cases, the students who enrolled in the twelve schools had relatively lower scores on the artistic appreciation scale (Mean = 3.18; SD=.78) compared to the applicant group (Mean=3.35; SD=.80) who did not enroll in any one of the twelve schools and those students who responded to our follow-up outcome survey (Mean=3.30; SD=.70) had lower scores on the multicultural appreciation scale compared to those who applied but did not enroll (Mean= 3.44; SD=.67) in any one of the twelve schools in our sample. The results indicate that, for the most part, the sample of applicants, enrollees and respondents did not meaningfully differ on the predictor tools (i.e., biodata and SJT scales).

In Table 5, we present the ethnicity and age of the three groups of student respondents and in Table 6 we present parental education of the three groups. Sixty, 57.6, and 66 percent of the applicant, enrollee, and follow-up respondents were female respectively. These comparisons reveal that the final follow-up sample and the enrollee sample included more Caucasian and fewer African and Asian American students than the original applicant sample.

Table 4

Means, Standard Deviations, and Sample Sizes of Applicants, Enrollees and Respondents to the First-Year Follow-up Survey

	Group 1		Group 2		Group 3		Comparing	Comparing	Comparing
	Applicants		Enrollees		Respondent		Group 1-Group 2	Group 1-Group 3	Group 2-Group 3
Scales	Mean	N	Mean	N	Mean	N	d value	d value	d value
Knowledge	3.51 (.48)	4871	3.52 (.47)	994	3.50 (.48)	725	-.02	.02	.04
Continuous Learning	3.56 (.61)	4248	3.45 (.61)	881	3.43 (.61)	665	.17	.20	.03
Artistic	3.35 (.80)	4220	3.18 (.78)	877	3.26 (.76)	663	**.22**	.12	-.10
Multicultural	3.44 (.67)	5681	3.31 (.66)	1143	3.30 (.70)	821	.20	**.21**	.01
Leadership	3.41 (.79)	4257	3.34 (.82)	884	3.31 (.77)	666	.09	.13	.04
Responsibility	3.75 (.71)	4871	3.65 (.72)	993	3.70 (.74)	722	.15	.07	-.07
Health	3.31 (.55)	4881	3.36 (.53)	996	3.28 (.51)	725	-.10	.06	.16
Career	3.49 (.63)	4917	3.49 (.59)	1004	3.40 (.63)	729	.00	.15	.15
Adaptability	3.51 (.46)	4230	3.52 (.44)	881	3.49 (.43)	663	-.03	.04	.07
Perseverance	3.94 (.47)	4212	3.95 (.48)	867	3.90 (.47)	665	-.01	.09	.11
Ethics	4.10 (.44)	4844	4.15 (.41)	988	4.09 (.42)	723	-.10	.04	.15
Awards	2.39 (.76)	3506	2.37 (.74)	729	2.44 (.68)	571	.02	-.07	-.09
Jobs	2.62(1.07)	3512	2.68(1.09)	733	2.67 (1.06)	573	-.06	-.05	.01
SJT	.41 (.15)	3037	.41 (.15)	630	0.40 (.14)	507	-.03	.04	.07

Note: The standard deviations are in parentheses next to the means for each scale. A negative d value suggests that the second group in the comparison has a higher mean.

Table 5.

Differences between the Three Group of Students on Ethnicity and Age

Age	Applicants	Enrollees	Respondents
Mean Age (Standard Deviation)	17.40 (1.14)	17.37 (.78)	17.32 (.78)
Ethnicity	% Applicants	% Enrollees	% Respondents
Mexican American	3.2	2.3	3.0
Puerto Rican	0.7	.5	.4
Other Hispanic	2.9	2.1	1.8
American Indian or Alaskan Native	0.2	.5	.1
Asian	20.3	13.1	13.1
Black/African American	6.4	4.4	3.0
White/Caucasian/Not Hispanic	58.7	71.5	73.3
Native Hawaiian or other Pacific Islander	0.5	.6	.6
Multi-Racial	4.3	3.3	3.3
Other	2.7	1.6	1.4
Total Number of Students	5,862	1,179	844

Table 6

Differences between the Three Group of Students on Parent's Level of Education

	Father's Level of Education			Mother's Level of Education		
Level of Education	Applicants	Enrollees	Respondents	Applicants	Enrollees	Respondents
Grade school	1.5	1.2	1.2	1.6	.9	.8
Some high school	3.7	2.6	3.2	2.1	1.7	1.5
High school diploma or equivalent	11.3	13.9	12.7	11.9	13.1	13.6
Business or trade school	2.0	2.8	2.4	1.8	2.6	1.3
Some college	9.6	10.7	9.7	12.1	11.9	11.5
Associate or two-year degree	4.0	4.8	4.7	8.1	10.7	9.8
Bachelor's or four-year degree	28.6	32.2	30.1	32.7	34.2	35.2
Some graduate school	4.0	3.6	3.5	5.0	4.2	3.8
Graduate or professional degree	35.2	28.1	32.6	24.8	20.6	22.5
Total N	5,862	1,179	844	5,862	1,179	844

Note: The numbers indicate percentages

Regressions of Outcomes on Predictors

A series of hierarchical regressions were conducted in order to examine the incremental predictive validity of the biodata and SJT measures over the traditional cognitive predictors of college student success; that is, HSGPA and SAT/ACT scores. High school GPA and SAT/ACT scores were entered in the first step and the biodata and SJT scores were entered in the second step. This regression was repeated for each of ten outcomes: the Behaviorally Anchored Rating Scale (BARS), Organizational Citizenship Behavior (OCB), Deviance, Turnover Intentions, Academic Satisfaction, Social Satisfaction, First-Year College GPA, Controllable Absenteeism, Problem Drinking Behaviors, and Drug Use. The results of the regression analyses including standardized beta coefficients and percentage of variance explained (R^2) are provided in Table 7. Table 7 also contains the zero-order correlations (validity coefficients) between the various outcomes and the predictors. These correlations are slightly different from the same correlations presented in Table 3 since correlations in Table 7 are based on the sample available in the regression analyses which required data on all cases for all variables.

The overall squared multiple correlations of the regressions for all of the aforementioned outcomes were statistically significant. The change in R^2 resulting from the inclusion of the biodata and SJT was also significant for each outcome with the exception of first year college GPA. The regression using the BARS as the outcome yielded the strongest R^2 of all the outcomes. The overall squared multiple correlation was relatively large, though the Perseverance scale was the only statistically significant predictor. Because of relatively low sample sizes due to missing data, the modest predictor intercorrelation, and the number of predictors, individual predictors in these regressions were not often statistically significant. Zero order correlations for a number of these variables were statistically significant. For the OCBs, the SAT/ACT emerged

as a significant predictor though in an unexpected (negative) direction. The Multicultural Appreciation, Responsibility, and Perseverance scales positively predicted OCBs and contributed to a significant and strong overall R^2. Deviance was negatively predicted by the Knowledge and Ethics scales as well as the SJT as expected. Leadership was positively related to Deviance in the regression analysis but its correlation with Deviance was low (see both Tables 3 and 7). Similarly, Turnover Intentions were negatively predicted by the Ethics scale but positively predicted by the Leadership scale; most likely a suppressor effect resulting from the colinearity among predictors (see the correlation of Leadership and Turnover Intentions). Academic Satisfaction was positively predicted by Ethics and negatively predicted by Leadership (again, the reversal of the sign of the regression coefficient for Leadership relative to the correlation suggests a suppression effect), while the Citizenship and Health scales were the significant predictors of Social Satisfaction. First-year college GPA was predicted well by HSGPA and SAT/ACT scores but was negatively predicted by the Career scale. This was the only outcome for which the stepwise regression containing the biodata and SJT did not significantly add to the R^2 from the first step. Absenteeism was negatively predicted by Ethics and Knowledge but positively predicted by Adaptability. Problem Drinking was negatively predicted by HSGPA as well as the Career and Ethics scales, while it was positively predicted by the Jobs scale. Drug Use was positively predicted by the Artistic and Jobs scales but was negatively predicted by the Career and Ethics scales.

Table 7.

Incremental Validity of Biodata and Situational Judgment Measures: Hierarchical Regression Results

	BARs		OCB		Deviance		Turnover Intentions	
Step 1	r	b	r	b	r	b	r	b
HSGPA	.07	.03	.04	.09	-.08	-.06	-.09	-.07
ACT/SAT	.10	.09	-.11	-.14*	-.08	-.06	-.09	-.06
ΔR^2		.01		.02*		.01		.01
Step 2								
Knowledge	.42	.05	.15	-.12	-.22	-.19*	-.14	.02
Continuous Learning	.43	.09	.26	.07	-.07	.07	-.09	-.06
Artistic	.36	.12	.19	-.10	-.12	-.08	-.08	-.02
Multicultural	.40	.08	.36	.18*	-.10	-.09	-.09	.02
Leadership	.44	.09	.41	.12	.09	.21*	-.01	.15*
Responsibility	.33	.07	.40	.22*	-.02	.02	-.14	-.12
Health	.30	.11	.15	.01	-.03	.04	-.02	.03
Career	.36	.14	.28	.07	.04	.08	.00	.08
Adaptability	.36	.00	.25	.02	-.11	-.12	-.07	.03
Perseverance	.51	.22*	.37	.20*	-.09	.07	-.16	-.14
Ethics	.30	.07	.12	.00	-.27	-.17*	-.23	-.14*
Awards	.24	.01	.18	.01	-.05	-.03	-.02	.04
Jobs	.09	.02	.17	.07	.11	.08	-.07	-.08
SJT	.25	-.03	.17	-.03	-.19	-.13*	-.21	-.12
ΔR^2		.40*		.29*		.15*		.10*

Overall R^2	.41*	.30*	.16*	.11*
Adj. R^2	.38	.27	.12	.06
N	322	323	324	323

Table 7 cont'd. *Incremental Validity of Biodata and Situational Judgment Measures: Hierarchical Regression Results*

	Academic Satisfaction		Social Satisfaction		First-Year College GPA		Absenteeism	
Step 1	r	b	r	b	r	b	r	b
HSGPA	.05	.02	.03	.04	.39	.23*	.37	-.08
ACT/SAT	.08	.08	.00	-.01	.52	.43*	.02	.05
ΔR^2		.01		.00		.32*		.01
Step 2								
Knowledge	.24	.10	.07	-.11	.20	.13	-.14	-.18*
Learning	.12	-.01	.09	.01	.06	-.07	.06	-.12
Artistic	.05	-.07	.04	-.14	.08	-.03	-.02	-.02
Multicultural	.08	.06	.15	.16	.10	.14	.03	.09
Leadership	.04	-.15*	.13	-.09	.08	-.02	.02	.09
Citizenship	.14	.12	.22	.19*	.03	.04	-.12	-.12
Health	.16	.10	.22	.19*	-.05	-.04	-.07	-.11
Career	.13	.08	.11	.03	-.15	-.12*	-.06	-.04
Adaptability	.16	.01	.19	.05	-.01	-.07	.10	.28*
Perseverance	.17	-.00	.18	.08	.10	.08	-.06	-.06
Ethics	.30	.22*	.14	.09	.14	.04	-.17	-.14*
Awards	.09	.04	.08	.01	.19	.05	-.10	-.09

Jobs	.01	.01	.08	.05	-.10	-.03	.11	.09
SJT	.13	-.04	.08	-.06	.04	-.09	-.15	-.07
ΔR^2		.13*		.12*		.05		.15*
Overall R^2		.13*		.12*		.36*		.15*
Adj. R^2		.09		.08		.33		.11
N		325		325		325		323

Table 7 cont'd.

Incremental Validity of Biodata and Situational Judgment Measures: Hierarchical Regression Results

	Problem Drinking		Drug Use	
Step 1	r	b	r	b
HSGPA	-.13	-.14*	-.08	-.09
ACT/SAT	-.02	.03	-.02	.01
ΔR^2		.02		.01
Step 2				
Knowledge	-.09	.00	-.09	-.02
Learning	-.06	-.10	.02	.00
Artistic	.00	.03	.12	.14*
Multicultural	.02	.05	.10	.06
Leadership	.08	.12	-.01	-.04
Citizenship	.05	.07	.04	.03
Health	.06	.07	-.05	-.04
Career	-.13	-.19*	-.10	-.14*
Adaptability	.04	.06	.01	.10
Perseverance	.00	.06	-.06	-.04

Ethics	-.17	-.18*	-.14	-.17*
Awards	-.10	-.10	-.04	-.03
Jobs	.19	.18*	.19	.20*
SJT	-.12	-.08	.00	.06
ΔR^2		.13*		.11*
Overall R^2		.15*		.11*
Adj. R^2		.10		.07
N		319		322

*Indicates a significant beta, $p \leq .05$.

Subgroup Differences between Ethnic and Gender Subgroups

Means, standard deviations, and standardized mean difference (d) values were calculated to compare the performance of gender and racial subgroups on the predictor measures. Following Cohen's (1988) convention, d-values above .2 were considered meaningful. The first set of comparisons was between males and females (see Table 8). Females outperformed males by almost one half of a standard deviation on the SJT (d = -.45). Females also outperformed males on the biodata Artistic, Multicultural, Responsibility, Career, Perseverance, and Awards scales. Males outperformed females on the biodata Health scale (d = .35).

The second set of comparisons was between White and Black students (see Table 9). Black-White differences are based on analyses of a small sample of Black students (N=11 to 20); hence, these differences are not necessarily representative of the larger group of Black applicants to colleges/universities. Black students outperformed White students on the SJT by almost one half of a standard deviation (d = -.45). White students outperformed Black students on all of the biodata scales except for Multicultural, Career, and Awards. There was also no meaningful difference between White and Black students on high school GPA. White students outperformed Black students on the SAT/ACT composite, but the difference (.74) was actually slightly lower than the typical White-Black difference on cognitive ability measures (1.00).

The third set of comparisons was between White and Hispanic students (see Table 10). Hispanic students slightly outperformed Whites on the biodata Knowledge and Perseverance scales. White students outperformed Hispanic students on the biodata Jobs scale and the SAT/ACT composite. The Hispanic sample sizes are relatively small.

The fourth set of comparisons was between White and Asian students (see Table 11). Whites outperformed Asians on the SJT, the biodata Knowledge, Health, Adaptability,

Perseverance, and Jobs scales. Asians outperformed Whites on the biodata Multicultural and Responsibility scales. There was no meaningful difference between Whites and Asians on high school GPA or SAT/ACT.

In summary, although there were meaningful subgroup differences on many of the predictor variables, there were no systematic differences that indicate that the battery of measures may discriminate against a particular subgroup. In all cases, there were measures on which minority students outperformed majority students. For all comparisons involving ethnic minority groups, it was the case that the SAT/ACT score differences were larger than differences on the biodata or SJT. One caveat to interpreting these data is the relatively small number of Black and Hispanic students in the sample. It may be that the scores of students from those groups who did participate are not completely representative of the scores of the populations of interest.

Table 8
Subgroup differences between males and females

Measure	N (Male)	M (Male)	SD (Male)	N (Female)	M (Female)	SD (Female)	d (M-F)
SJT	172	0.36	0.15	335	0.42	0.14	-0.45
Knowledge	248	3.50	0.52	477	3.50	0.45	0.00
Continuous Learning	230	3.51	0.64	435	3.39	0.59	0.19
Artistic	230	3.05	0.81	433	3.36	0.72	-0.42
Multicultural	281	3.13	0.69	540	3.39	0.69	-0.37
Leadership	231	3.22	0.81	435	3.35	0.74	-0.17
Responsibility	246	3.51	0.77	476	3.80	0.70	-0.40
Health	248	3.39	0.52	477	3.22	0.49	0.35
Career	250	3.31	0.63	479	3.44	0.62	-0.21
Adaptability	230	3.54	0.46	433	3.46	0.41	0.19
Perseverance	230	3.82	0.52	435	3.93	0.44	-0.23
Ethics	246	4.05	0.45	477	4.11	0.40	-0.14
Awards	189	2.32	0.74	382	2.50	0.64	-0.27
Jobs	188	2.57	1.09	385	2.71	1.04	-0.14
HSGPA	223	3.79	0.44	436	3.81	0.40	-0.04
SAT/ACT	226	0.11	1.01	447	-0.08	0.96	0.19

Table 9
Subgroup differences between Whites and Blacks

Measure	N (White)	M (White)	SD (White)	N (Black)	M (Black)	SD (Black)	d (W-B)
SJT	382	0.41	0.14	11	0.47	0.15	-0.45
Knowledge	535	3.52	0.47	20	3.24	0.49	0.59
Continuous Learning	497	3.42	0.61	20	3.29	0.63	0.20
Artistic	496	3.24	0.75	20	2.90	0.79	0.46
Multicultural	602	3.24	0.69	24	3.32	0.85	-0.13
Leadership	498	3.32	0.74	20	2.98	0.96	0.46
Responsibility	533	3.67	0.74	19	3.52	0.68	0.20
Health	535	3.31	0.51	20	3.15	0.60	0.32
Career	538	3.39	0.62	20	3.36	0.60	0.04
Adaptability	496	3.51	0.43	20	3.35	0.44	0.36
Perseverance	497	3.91	0.47	20	3.77	0.64	0.30
Ethics	533	4.09	0.41	20	4.00	0.47	0.24
Awards	426	2.43	0.65	16	2.42	0.68	0.01
Jobs	428	2.74	1.03	16	2.16	1.02	0.57
HSGPA	502	3.86	0.42	19	3.85	0.52	0.04
SAT/ACT	511	0.03	0.95	20	-0.67	0.98	0.74

Table 10
Subgroup differences between Whites and Hispanics

Measure	N (White)	M (White)	SD (White)	N (Hispanic)	M (Hispanic)	SD (Hispanic)	d (W-H)
SJT	382	0.41	0.14	22	0.41	0.13	-0.05
Knowledge	535	3.52	0.47	35	3.65	0.42	-0.27
Continuous Learning	497	3.42	0.61	30	3.54	0.62	-0.19
Artistic	496	3.24	0.75	30	3.18	0.88	0.08
Multicultural	602	3.24	0.69	41	3.36	0.65	-0.17
Leadership	498	3.32	0.74	30	3.27	0.65	0.07
Responsibility	533	3.67	0.74	35	3.73	0.78	-0.09
Health	535	3.31	0.51	35	3.24	0.46	0.14
Career	538	3.39	0.62	35	3.43	0.74	-0.07
Adaptability	496	3.51	0.43	30	3.45	0.43	0.13
Perseverance	497	3.91	0.47	30	4.05	0.47	-0.29
Ethics	533	4.09	0.41	35	4.15	0.40	-0.14
Awards	426	2.43	0.65	27	2.46	0.53	-0.04
Jobs	428	2.74	1.03	27	2.50	1.12	0.23
HSGPA	502	3.86	0.42	31	3.89	0.47	-0.07
SAT/ACT	511	0.03	0.95	32	-0.59	0.93	0.65

Table 11
Subgroup differences between Whites and Asians

Measure	N (White)	M (White)	SD (White)	N (Asian)	M (Asian)	SD (Asian)	d (W-A)
SJT	382	0.41	0.14	67	0.36	0.16	0.29
Knowledge	535	3.52	0.47	92	3.42	0.47	0.21
Continuous Learning	497	3.42	0.61	84	3.49	0.57	-0.12
Artistic	496	3.24	0.75	84	3.34	0.77	-0.13
Multicultural	602	3.24	0.69	104	3.49	0.67	-0.36
Leadership	498	3.32	0.74	84	3.25	0.84	0.10
Responsibility	533	3.67	0.74	92	3.84	0.68	-0.24
Health	535	3.31	0.51	92	3.14	0.50	0.34
Career	538	3.39	0.62	93	3.39	0.61	0.00
Adaptability	496	3.51	0.43	84	3.38	0.37	0.30
Perseverance	497	3.91	0.47	84	3.79	0.45	0.26
Ethics	533	4.09	0.41	92	4.02	0.48	0.17
Awards	426	2.43	0.65	73	2.45	0.87	-0.03
Jobs	428	2.74	1.03	73	2.25	1.14	0.48
HSGPA	502	3.86	0.42	65	3.84	0.32	0.07
SAT/ACT	511	0.03	0.95	69	0.10	1.07	-0.08

Mean Differences of Applicants and Research-Only Participants

The alternative predictor scores of the applicants in the present data collection were compared to the scores of incumbent students obtained in an earlier data collection in 2004. Whereas the applicants completed the measures before they were admitted to their respective colleges and universities, the incumbent students complete the measures at the end of their first semester. The difference in scores may provide some indication as to whether students in an application context are more likely to inflate their scores. The average scores on the biodata and situational judgment test are presented for both samples in Table 12. In order to evaluate the magnitude of the differences a d-value was calculated for each pair of scores (i.e., across samples). As reported in Table 12, the d-values on the original eleven biodata scales ranged from .06 (Health) to .74 (Knowledge) and the d-value for the situational judgment test was .45. In the majority of cases, applicants received higher scores. An exception is the jobs biodata scale on which applicants scored slightly lower. The overall conclusion from these analyses is that students may inflate their responses to the biodata, especially the Knowledge and Continuous Learning items, when responding in a high-stakes situation. This inflation did not seem to impact their validity, however (see Tables 3 and 7).

Table 12.

Comparison of Applicants to Incumbent Students in Previous Data Collection

	Average score of applicants	*N*	Average score of incumbents	*N*	Difference (d-value)
Knowledge	3.50 (.48)	725	3.15 (.47)	2711	.74
Continuous Learning	3.43 (.61)	665	3.09 (.61)	2711	.56
Artistic	3.26 (.76)	663	2.91 (.82)	2711	.44
Multicultural	3.30 (.70)	821	2.98 (.66)	2711	.47
Leadership	3.31 (.77)	666	3.07 (.81)	2714	.30
Responsibility	3.70 (.74)	722	3.32 (.76)	2714	.51
Health	3.28 (.51)	725	3.25 (.51)	2714	.06
Career	3.40 (.63)	729	3.32 (.65)	2714	.12
Adaptability	3.49 (.43)	663	3.38 (.45)	2714	.25
Perseverance	3.90 (.47)	665	3.73 (.49)	2714	.35
Ethics	4.09 (.42)	723	3.86 (.54)	2714	.48
Awards Scale	2.44 (.68)	571	2.42 (.70)	2713	.03
Jobs Scale	2.67 (1.06)	573	2.80 (.58)	2709	-.15
SJT	.40 (.14)	507	.33 (.17)	2676	.45

Note. Standard deviations are in parentheses next to the means. SJT = Situational Judgment Test.

Results of Analyses Involving Experimental Variables

As indicated above, we also collected data on a number of experimental variables. We reported on the drug use and alcohol variables in the regression analyses above. In this section, we detail our examination of the shocks variable consisting of a number of events, that would likely have a significant impact on student performance and behavior in college if they occurred. The manner in which students reported spending their time in college and its correlates are examined.

*Students' Shocking Events and College Withdrawal. C*orrelations were computed between twenty-one potentially shocking events and the withdrawal outcomes of absenteeism, turnover deliberations, and turnover intentions, as presented in Table 13. It is important to note that these outcomes were interrelated: absenteeism was significantly albeit weakly related to the latter two outcomes which were highly correlated. Diagnosis of clinical depression was significantly related to all three withdrawal measures. Also notable is that students who were unable to enter their desired major, who lost their financial aid, whose friend left for another school, or who were recruited by another institution were more likely to report thinking about or intending to quit their current institution. Students who reported injury, illness, and substance addiction also reported attending class less often.

To examine whether the experience of shocks provided incremental prediction of withdrawal outcomes above and beyond that provided by measures of achievement and personality, a hierarchical regression was performed. In the first step, SAT/ACT was entered as a predictor. In the second step, the Big Five personality variables were entered. In the third and final step, each individual's sum of experienced shocks was entered. The results of this analysis, presented in Table 14, indicate that SAT/ACT scores are rather poor predictors of student

withdrawal. Students who were disagreeable, extraverted, or low on conscientiousness were more likely to report higher absences. Importantly, after controlling for both personality and SAT/ACT in the first two steps, the number of shocks significantly predicted all three withdrawal outcomes (absenteeism, turnover deliberations, and turnover intentions). This finding is qualified, however, by the relatively small percent of variance in these outcomes that was explained by shocks (around 1%).

Table 13.

Relationship of Experienced Shocks to Student Withdrawal

	Absenteeism	Turnover Deliberations	Turnover Intent
Withdrawal			
Absenteeism	1.00	.12**	.14**
Turnover Deliberations	.12**	1.00	.73**
Turnover Intent	.14**	.73**	1.00
Shocks			
Theft	-.03	-.02	.03
Assault	.05	.08*	.06
Pregnant	a	a	a
Recruited	.00	.12**	.10**
Bad Grade	.09*	-.03	.00
Roommate conflict	.05	.00	-.01
Lost financial aid	.07	.15**	.14**
Illness	.14**	-.02	.07*
Death or illness of family	.06	.06	.10**
Depressed	.13**	.11**	.15**
Friend left school	.01	.08*	.13**
Substance Addiction	.11**	.03	.01
Faculty conflict	.04	.02	.03
Money	.06	.01	.04
Family member lost job	.03	-.02	-.02

Lost job	.00	.00	-.01
Increased tuition	-.01	.05	.07
Injury	.09*	.03	.05
Engaged or married	.03	-.01	-.02
Job offer	.04	.01	-.01
Unable to enter major	-.02	.09**	.10**

Note. * $p < .05$. ** $p < .01$.

[a] Unable to compute correlation because of zero frequency

N = 806-829

Table 14.

Incremental Validity of Experienced Shocks: Hierarchical Regression Results

	Absenteeism		Turnover Deliberations		Turnover Intentions	
Step and measure	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1		.004		.001		.003
ACT/SAT composite	.09*		.00		-.05	
Step 2		.066**		.027**		.012
Extraversion	.09*		-.05		-.06	
Agreeableness	-.10*		-.05		-.03	
Conscientiousness	-.20*		-.02		-.04	
Emotional Stability	-.03		-.11**		-.05	
Openness	.02		.00		.04	
Step 3		.017**		.012**		.006*
Number of Shocks	.14**		.12**		.08*	
R^2		.088		.040		.021
Adjusted R^2		.077		.030		.010
N	644		645		644	

Note. * $p < .05$. ** $p < .01$.

Time Spent on Various Activities and Student Outcomes. Table 15 contains the zero-order correlations between First Year College Grade Point Average and hours allocated towards various activities per week (i.e., academic activities, extracurricular activities, care provision, relaxation, and working). Two of the five time allocation variables were significantly related to First Year College Grade Point Average: Hours Spent on Academic Activities (r = .183, p <.01) and Hours Spent Working (r = -.076, p<.05). First Year College Grade Point Average was then regressed on the five time allocation variables, resulting in a significant overall model (R^2 = .040. $SE_{ESTIMATE}$ = .609, F(5, 669) = 5.615, p < .01). As shown in Table 16, Hours Spent on Academic Activities was a significant predictor of First Year College Grade Point Average (b* = .184, p <.01); however, Hours Spent Working was no longer significantly related to First Year College Grade Point Average (b* = -.069, p> .05). These results indicate that the more hours students reported that they spent studying, the better their grades; hours spent working were slightly negatively related to college grades.

Personality and Student Outcomes. Table 17 contains results from multiple regression analyses where each of several positive college-related outcomes (First Year College Grade Point Average, the self-rated Behaviorally Anchored Rating Scales composite, Organizational Citizenship Behavior, Academic Satisfaction, and Social Satisfaction) was regressed on SAT/ACT and High School Grade Point Average (step 1), the Big Five (step 2) and the Biodata and SJT scales (step 3). These regressions were done to investigate whether biodata and situational judgment measures added significantly to the prediction of various outcomes above standard personality measures of the Big Five and traditional measures of student potential (i.e., HSGPA and SAT/ACT). Significant global models were obtained for each of the five positive outcome variables: First Year College Grade Point Average (R^2 = .406, $SE_{ESTIMATE}$ = .477, F(21,

294) = 9.574, p <.01), the Behaviorally Anchored Rating Scales (R^2 = .501, $SE_{ESTIMATE}$ = .330, F(21, 295) = 14.122, p <.01), Organizational Citizenship Behaviors (R^2 = .408, $SE_{ESTIMATE}$ = .766, F(21, 294) = 9.667, p <.01), Academic Satisfaction (R^2 = .170, $SE_{ESTIMATE}$ = .537, F(21, 295) = 2.880, p <.01), and Social Satisfaction (R^2 = .290, $SE_{ESTIMATE}$ = .764, F(21, 295) = 5.732, p <.01).

For First Year College Grade Point Average, significant predictors at step 3 included SAT/ACT (b^* = .421, p < .01), High School Grade Point Average (b^* = .195, p < .01), Conscientiousness (b^* = .201, p < .01), Openness (b^* = -.122, p < .05), and Career Orientation (b^* = -.150, p< .01). For the Behaviorally Anchored Rating Scales, significant predictors at step 3 included Agreeableness (b^* = .155, p<.01), Conscientiousness (b^* = .204, p <.01), Emotional Stability (b^* = .123, p < .01), Continuous Learning (b^* = .156, p< .05), and Perseverance (b^* = .158, p < .05). For Organizational Citizenship Behavior, significant predictors at step 3 included Extraversion (b^* = .263, p <.01), Agreeableness (b^* = .232, p <.01), Openness (b^* = -.118, p < .05), Continuous Learning (b^* = .151, p < .05), Responsibility (b^* = .140, p < .05), and Perseverance (b^* = .169, p < .05). For Academic Satisfaction, significant predictors at step 3 included Emotional Stability (b^* = .175, p < .01) and Ethics (b^* = .220, p< .01). Finally, for Social Satisfaction, significant predictors at step 3 included Extraversion (b^* = .409, p <.01), Emotional Stability (b^* = .199, p <.01), Leadership (b^* = -.186, p < .01), and Responsibility (b^* = .131, p < .05). The Biodata and SJT scales, entered at step 3, demonstrated significant incremental validity for four of the five positive outcomes, including: First Year College Grade Point Average (ΔR^2 = .056, ΔF(14, 294) = 1.974, p < .05), the Behaviorally Anchored Rating Scales (ΔR^2 = .138, ΔF(14, 295) = 5.831, p <.01), Organizational Citizenship Behavior (ΔR^2 =

.106, $\Delta F(14, 294) = 3.758$, $p < .01$), and Academic Satisfaction ($\Delta R^2 = .070$, $\Delta F(14, 295) = 1.781$, $p < .05$).

Table 18 contains results from multiple regression analyses where each of several negative college-related outcomes (Deviance, Turnover Intentions, Absenteeism, Drug Use, and Problem Drinking) was regressed on SAT/ACT and High School Grade Point Average (step 1), the Big Five (step 2) and the Biodata and SJT scales (step 3). Significant global models were obtained for each of the five negative outcome variables: Deviance ($R^2 = .250$, $SE_{ESTIMATE} = .423$, $F(21, 295) = 4.686$, $p < .01$), Turnover Intentions ($R^2 = .140$, $SE_{ESTIMATE} = .657$, $F(21, 294) = 2.288$, $p < .01$), Absenteeism ($R^2 = .181$, $SE_{ESTIMATE} = .984$, $F(21, 294) = 3.090$, $p < .01$), Drug Use ($R^2 = .127$, $SE_{ESTIMATE} = .687$, $F(21, 295) = 2.043$, $p < .01$), and Problem Drinking ($R^2 = .182$, $SE_{ESTIMATE} = 2.022$, $F(21, 295) = 3.129$, $p < .01$).

For Deviance, significant predictors at step 3 included Extraversion ($b^* = .161$, $p < .01$), Agreeableness ($b^* = -.162$, $p < .01$), Conscientiousness ($b^* = -.235$, $p < .001$), SJT ($b^* = -.127$, $p < .05$), and Ethics ($b^* = -.163$, $p < .01$). For Turnover Intentions, significant predictors at step 3 included Agreeableness ($b^* = .170$, $p < .01$), SJT ($b^* = -.147$, $p < .05$), Leadership ($b^* = .164$, $p < .05$), Perseverance ($b^* = -.179$, $p < .05$), and Ethics ($b^* = -.161$, $p < .05$). For Absenteeism, significant predictors at step 3 included Conscientiousness ($b^* = -.133$, $p < .05$), Knowledge ($b^* = -.163$, $p < .05$), Responsibility ($b^* = -.146$, $p = .039$), and Adaptability ($b^* = .309$, $p < .01$). For Drug Use, significant predictors at step 3 included Ethics ($b^* = -.170$, $p < .01$) and High School Job ($b^* = .199$, $p < .01$). Finally, for Problem Drinking, significant predictors at step 3 included Extraversion ($b^* = .248$, $p < .01$), Career ($b^* = -.128$, $p < .05$), Ethics ($b^* = -.129$, $p < .05$), and High School Job ($b^* = .132$, $p < .05$). The Biodata and SJT scales, entered at step 3, demonstrated significant incremental validity for each of the five negative outcomes, including:

Deviance (ΔR^2 = .091, $\Delta F(14, 295) = 2.547$, $p < .01$), Turnover Intentions (ΔR^2 = .123, $\Delta F(14, 294) = 3.013$, $p < .05$), Absenteeism (ΔR^2 = .132, $\Delta F(14, 294) = 3.392$, $p < .01$), Drug Use (ΔR^2 = .098, $\Delta F(14, 295) = 2.355$, $p < .01$), and Problem Drinking (ΔR^2 = .073, $\Delta F(14, 295) = 1.869$, $p < .05$).

Overall, these regressions indicate that Big Five personality measures do correlate significantly with various outcomes, but that biodata and SJT do add to the explanation of all student outcomes considered in this report.

Applicant Ratings Used by Various Institutions. Data were obtained on college admissions ratings across five dimensions from each of six institutions: Admission Package Rating (Furman, Meredith, Earlham, Kenyon, and Lafayette), Essay Rating (Furman, UNC-Chapel Hill), Extracurricular Rating (Furman, UNC-Chapel Hill), Program Rating (UNC-Chapel Hill), and Performance Rating (UNC-Chapel Hill). Preliminary analyses suggested that, for a given rating dimension, the various institutions appeared to be using different rating scales. Therefore, prior to running correlation or regression analyses, each of the rating dimensions were standardized to *z*-scores (mean = .00, SD = 1.00) within each of the institutions. The resultant sample size for each rating dimension across the institutions is shown in Table 19.

Table 15

Correlation between Hours Allocated toward Various Activities and GPA (N = 675)

	1	2	3	4	5	6
1. FY College GPA	--					
2. Hours Academic	**.183**	--				
3. Hours Extracurricular	.008	**.074**	--			
4. Hours Care	-.025	.001	.006	--		
5. Hours Relax	.027	**-.066**	-.044	-.031	--	
6. Hours Work	**-.076**	-.022	.048	.051	-.053	--

Note. Estimates in bold significant at the $p < .05$ level. FY College GPA = First Year College GPA, Hours Academic = Hours Spent on Academic Activities per Week, Hours Extracurricular = Hours Spent on Extracurricular Activities per Week, Hours Care = Hours Spent Providing Care per Week, Hours Relax = Hours Spent Relaxing per Week, Hours Work = Hours Spent Working per Week.

Table16

First Year College GPA Regressed on Hours Allocated toward Various Activities (N=675)

	*b**	*t*	*p*
Hours Academic	.184	4.829	.000
Hours Extracurricular	.000	-.012	.990
Hours Care	-.020	-.533	.594
Hours Relax	.035	.922	.357
Hours Work	-.069	-1.805	.072

Note. Hours Academic = Hours Spent on Academic Activities per Week, Hours Extracurricular = Hours Spent on Extracurricular Activities per Week, Hours Care = Hours Spent Providing Care per Week, Hours Relax = Hours Spent Relaxing per Week, Hours Work = Hours Spent Working per Week.

Table 17.

Incremental Validity of Biodata and SJT Measures: Hierarchical Regression Results - Positive Outcomes

		FY College GPA		BARS		OCB		Academic Satisfaction		Social Satisfaction	
		*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*
Step 1			**.314**		.015		.019		.009		.003
	SAT/ACT	**.432**		.099		**-.140**		.078		.003	
	High School GPA	**.229**		.043		.097		.030		.049	
Step 2			**.036**		**.349**		**.284**		**.091**		**.249**
	SAT/ACT	**.451**		.072		**-.120**		.075		.009	
	High School GPA	**.216**		.028		.075		.011		.036	
	Extraversion	.024		**.183**		**.370**		-.033		**.405**	
	Agreeableness	.071		**.258**		**.308**		**.169**		.062	
	Conscientiousness	**.160**		**.280**		.072		**.129**		-.020	
	Emotional Stability	-.065		**.104**		.020		**.180**		**.205**	
	Openness	-.075		**.190**		-.048		.011		-.077	
Step 3			**.056**		**.138**		**.106**		**.070**		.039
	SAT/ACT	**.421**		.064		-.078		.041		.025	
	High School GPA	**.195**		.012		.063		.002		.035	
	Extraversion	.050		.089		**.263**		-.024		**.409**	
	Agreeableness	.050		**.155**		**.232**		.095		.001	

Conscientiousness	**.201**	**.204**	.046	.089	-.029
Emotional Stability	-.036	**.123**	.044	**.175**	**.199**
Openness	**-.122**	.043	**-.118**	.001	-.079
SJT	-.086	-.033	-.052	-.027	-.034
Knowledge	.092	.024	-.126	.085	-.063
Cont Learning	.031	**.156**	**.151**	.029	.055
Artistic	-.034	.106	-.047	-.067	-.085
Multicultural	.133	.009	.085	.013	.074
Leadership	-.017	.096	.073	-.114	**-.186**
Responsibility	.020	.028	**.140**	.084	**.131**
Health	-.050	.019	-.064	.045	.011
Career	**-.150**	.085	.057	.056	-.006
Adaptability	-.115	-.054	-.014	-.044	-.022
Perseverance	.064	**.158**	**.169**	-.027	.109
Ethics	.013	.063	-.018	**.220**	.092
Awards	.048	.006	.012	.051	.043
Jobs	-.051	.002	.036	.021	.039
Model R^2	**.406**	**.501**	**.408**	**.170**	**.290**
Adjusted R^2	.364	.466	.366	.111	.239
N	316	317	316	317	317

Note. Estimates in bold are significant at the $p < .05$ level. Cont Learning = Continuous Learning, FY College GPA = First Year College GPA, BARS = Behaviorally Anchored Rating Scales, OCB = Organizational Citizenship Behavior, SJT = Situational Judgment Test.

Table 18

Incremental Validity of Biodata and SJT Measures: Hierarchical Regression Results - Negative Outcomes

	Deviance		Turnover Intentions		Absenteeism		Drug Use		Problem Drinking	
	*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*	*b**	*ΔR²*
Step 1		.009		.011		.004		.007		.014
SAT/ACT	-.052		-.064		.042		.001		.014	
High School GPA	-.063		-.063		-.064		-.086		**-.122**	
Step 2		**.150**		.006		**.045**		.022		**.096**
SAT/ACT	-.053		-.064		.036		-.007		.029	
High School GPA	-.040		-.060		-.048		-.074		**-.119**	
Extraversion	**.243**		-.036		**.122**		.043		**.330**	
Agreeableness	**-.234**		.018		-.092		-.002		-.100	
Conscientious	**-.222**		-.056		**-.148**		-.086		.005	
Emotional Stability	-.074		-.030		-.056		-.098		-.091	
Openness	-.034		.021		.039		.077		-.097	
Step 3		**.091**		**.123**		**.132**		**.098**		**.073**
SAT/ACT	.024		-.016		.094		.022		.054	
High School GPA	-.033		-.071		-.020		-.047		-.078	
Extraversion	**.161**		-.036		.100		-.011		**.248**	
Agreeableness	**-.162**		**.170**		-.012		-.008		-.084	
Conscientious	**-.235**		-.033		**-.133**		-.083		.001	
Emotional Stability	-.081		-.084		-.085		-.096		-.095	
Openness	.008		.075		.001		.082		-.087	

SJT	**-.127**	**-.147**	-.091	.047	-.066
Knowledge	-.114	.001	**-.163**	-.020	-.022
Cont Learning	-.005	-.096	.093	-.085	-.060
Artistic	-.051	-.024	.015	.141	.078
Multicultural	-.060	-.001	.064	.083	.038
Leadership	.125	**.164**	.079	-.034	.086
Responsibility	.048	-.130	**-.146**	.028	.053
Health	.032	.061	-.085	.004	.060
Career	.104	.106	.009	-.084	**-.128**
Adaptability	-.077	.059	**.309**	.133	.029
Perseverance	.136	**-.179**	-.063	-.049	.063
Ethics	**-.163**	**-.161**	-.111	**-.170**	**-.129**
Awards	-.024	.024	-.094	-.031	-.122
Jobs	.058	-.092	.070	**.199**	**.132**
Model R^2	**.250**	**.140**	**.181**	**.127**	**.182**
Adjusted R^2	.197	.079	.122	.065	.124
N	317	316	316	317	317

Note. Estimates in bold are significant at the $p < .05$ level. Cont Learning = Continuous Learning, SJT = Situational Judgment Test.

Table 20 contains zero-order correlations between the various rating dimensions and each of the Big Five, the Biodata and SJT scales, High School and First Year College Grade Point Average, and SAT/ACT. For the Admission Package Rating, significant correlations were observed for Awards (r = .454, p < .01), First Year College Grade Point Average (r = .598, p <.01), SAT/ACT (r = .519, p <.01), and High School Grade Point Average (r = .669, p <.01). For the Essay Rating, significant correlations were observed for Agreeableness (r = .170, p < .05), First Year College Grade Point Average (r = .186, p < .05), and SAT/ACT (r = .226, p < .01). For the Extracurricular Rating, significant correlations were observed for Extraversion (r = .224, p = .009), Knowledge (r = .252, p<= .01), Leadership (r = .348, p <.01), Responsibility (r = .327, p <.01), Health (r = .246, p< .01), Adaptability (r = .255, p < .01), Perseverance (r = .404, p <.01), Ethics (r = .286, p < .01), Jobs (r = .212, p< .05), and First Year College Grade Point Average (r = .183, p < .05). For the Program Rating, significant correlations were observed for First Year College Grade Point Average (r = .303, p< .01), SAT/ACT (r = .461, p <.01), and High School Grade Point Average (r = .382, p <.01). Finally, for the Performance Rating, significant correlations were observed for Knowledge (r = .350, p < .01), Multicultural (r = -.207, p < .05), Award (r = .372, p< .01), First Year College Grade Point Average (r = .417, p < .01), SAT/ACT (r = .356, p <.01), and High School Grade Point Average (r = .352, p < .01). We also intended to perform regression analyses of each of the college admission rating dimensions on the biodata scales to assess the extent to which student background characteristics predict the various rating dimensions, but sample sizes precluded these analyses. Overall, the correlations indicate that there are relatively large correlations between some biodata scales and the Admissions Package Rating, the Extracurricular Rating, and the Performance Rating.

Table 19.

Number of Students For Whom Ratings Data Was Provided, By Institution

	APR	ESS	EXT	PRO	PERF
Furman University	31	31	31	--	--
Meredith College	8	--	--	--	--
Earlham College	10	--	--	--	--
Kenyon College	13	--	--	--	--
UNC, Chapel Hill	--	106	106	105	106
Lafayette College	4	--	--	--	--
Total	66	137	137	105	106

Note. APR = Admission Package Rating, ESS = Essay Rating, EXT = Extracurricular Rating, PRO = Program Rating, PERF = Performance Rating.

Table 20

Correlations between Standardized Ratings and the Big Five, Biodata, and SJT

	APR	ESS	EXT	PRO	PERF
Extraversion	.056	.125	**.224**	.040	-.186
Agreeableness	.022	**.170**	-.006	-.102	-.192
Conscientiousness	.222	.051	.127	.095	.117
Emotional Stability	.070	.058	-.060	.031	-.088
Openness	.156	.149	.079	.166	-.104
SJT	-.094	.088	.213	-.229	-.086
Knowledge	.261	.135	**.252**	-.028	**.350**
Cont Learning	.002	.142	.109	-.076	.068
Artistic	.154	.126	.062	.091	.050
Multicultural	-.194	.070	-.055	.011	**-.207**
Leadership	.097	.119	**.348**	.085	.061
Responsibility	.040	.036	**.327**	-.074	-.159
Health	.046	-.007	**.246**	-.036	.010
Career	-.065	.027	.173	-.080	-.099
Adaptability	.217	.134	**.255**	.032	.000
Perseverance	.121	.131	**.404**	.008	.002
Ethics	.085	.070	**.286**	.073	.208
Award	**.454**	.107	.193	-.070	**.372**
Jobs	-.177	.128	**.212**	-.166	-.106
College GPA	**.598**	**.186**	**.183**	**.303**	**.417**
SAT/ACT	**.519**	**.226**	.117	**.461**	**.356**
High School GPA	**.669**	.043	.111	**.382**	**.352**

Note. Estimates in bold significant at the $p < .05$ level. *N* ranges from 35 to 137. APR = Admissions Package Rating, ESS = Essay Rating, EXT =

Extracurricular Rating, PRO = Program Rating, PERF = Performance Rating, Cont Learning = Continuous Learning, SJT = Situational Judgment Test.

DISCUSSION AND SUMMARY

This report details the results of analyses of the responses of applicants to 12 different colleges and universities. Some of these analyses and our conclusions were limited by the sample sizes available. While a quite large number of applicants provided usable data (N=7,885) on the biodata and SJT, a much smaller number (N=2,023) enrolled at the institutions to which they applied, and only 844 responded to a follow-up survey and provided consent to obtain archival data from their institutions.

Relationships between the 13 biodata scales (measuring the original dimensions plus Awards and Jobs scales developed from the Common Application Blank), the SJT and ten different student outcomes are reported. We also report regression analyses of these outcomes on HSGPA, SAT/ACT, and the noncognitive measures. We also report the degree to which responses of various demographic groups differ and the degree to which there are differences between applicant responses and those of incumbent students as one indication that students are likely to inflate responses when the biodata and SJT are used to make actual admission decisions. Finally, we report results on the analyses of several experimental variables.

We feel that the following are the most important outcomes of our various data analyses.

1. Biodata and SJT measures do have adequate internal consistency reliability and they exhibit reasonable discriminant validity; that is, intercorrelations indicate that the measures are not redundant.
2. First-year college GPA is predicted significantly by several biodata scales, most notably Knowledge, Ethics, and Perseverance, but HSGPA and SAT/ACT scores are much more

predictable of college GPA than are biodata and SJT. The latter do not add in a statistically significant sense to the prediction of college GPA beyond the two traditional measures of academic potential though the magnitude of incremental variance associated with biodata and SJT measures is similar to that of previous research on these measures.

3. Self ratings of performance (BARS), organizational citizenship behavior (OCB), and student self-reports of Deviance were especially well predicted by the biodata measures and SJT while HSGPA and SAT/ACT were relatively uncorrelated with these outcomes.
4. Satisfaction, absenteeism and turnover intentions were less well predicted by all measures. The biodata scale Ethics was best related to these outcomes
5. The two experimental outcome measures (Drug Use and Problem Drinking) were not related to most predictors with the exception of the Ethics measure. These two outcomes were related quite highly to class absenteeism and deviance, two other outcomes.
6. Gender comparisons on the predictor measures were generally small and favored women in most instances. Exceptions included the SAT/ACT and the Health, Ethics, Adaptability, and Continuous Learning measures on which males slightly outperformed females.
7. Ethnic group differences generally favored Whites over Blacks, but there was a very small number of Black participants. White-Hispanic differences were small, some favoring Whites and others favoring Hispanics. Whites outperformed Hispanics by the largest amount (d=.65) on the SAT/ACT. The results for Asian-White comparisons were also mixed, but Asian students' SAT/ACT scores were slightly larger (d=-.08) than those of Whites.

8. Differences between applicants and incumbent students revealed that applicants may have been inflating their responses to the biodata and SJT. Differences on Knowledge (d=.75) and Continuous Learning (d=.56) were largest; differences on most other scales ranged from .30 to .50 standard deviation units.
9. Time spent studying was related to grades positively though the correlation (r=.18) was low. There was a small, and marginally significant negative relationship with the number of hours spent working.
10. Several standard measures of the Big Five (especially Conscientiousness) were related to grades and various other outcomes, but in all these analyses, the biodata and SJT explained additional variance.
11. Investigation of the role significant events (shocks) might play in student decisions to remain involved in academic pursuits revealed that a number of these events (singly and in combination) were related to student absenteeism, intent to leave school and deliberations about leaving school. These analyses underscore the fact that occasionally unforeseen circumstances dictate whether a student can remain in school.
12. Analyses of relationships between admissions officers' ratings of student portfolios primarily from smaller liberal arts institutions revealed that these ratings were related to a number of important student outcomes as well as the objectively scored biodata. Correlations with what these schools called the Admissions Rating, a rating of extracurricular activities and a Performance rating were especially large across several biodata scales. Whether they are large enough to replace these ratings with the biodata measures would be a matter of judgment on the part of admissions officers and possible a

function of the resources available to employ large numbers of admissions officers to rate student portfolios.

Perhaps the biggest limitation of this study was the failure to get a larger number of participants. We did not get the expected number of applicants to respond initially and then only 25% of those respondents enrolled in the participating institutions precluding the collection of follow-up responses and archival data. Finally, we received only a 40% response rate to three repeated attempts to get follow-up data.

We were also disappointed in the validity of the SJT in predicting several outcomes. This is inconsistent with previous research reporting validities across several studies. This may have been due to the fact that data were collected on the web in unsupervised conditions. The SJT is longer than the biodata and requires close attention to the items which may have discouraged some respondents. In earlier research, the biodata and SJT were administered in paper-and-pencil format in supervised conditions.

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