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Latina/o Student Achievement: Exploring the Influence of Student-Faculty Interactions on College Grades

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The influence of student-faculty interactions on the academic achievement of Latina/o college students is examined using a national cross-sectional sample of 836 students (36.1% men, 63.9% women). Students' college grades were regressed onto college and student variables, and a variety of student-faculty interactions. Academically related and personal interactions with faculty, as well as the perceived quality of relationships with faculty were found to be positively associated with academic performance.

The comparatively low educational attainment rate of the Latina/o population combined with demographic changes the United States underscores the importance of identifying factors that may enhance Latina/o educational achievement. The graduation rates for minority students continue to lag behind those of White students. Recent figures show that 82% of White, 75% of Black, and 57% of Latina/o youths graduate from high school (Wilds & Wilson, 1998) and the college participation rates for each group reflect the same pattern, 41%, 30%, and 22% respectively (Devarics, 2000). The educational attainment for Latina/o students does not bode well in light of the fact that Latinas/os make up 12% of the U.S. population, a figure that is expected to reach 14% by 2010 and 25% by the middle of the 21st century (U.S. Census Bureau, 1999). Unfortunately the baccalaureate degree attainment rates are also bleak; amongst the recipients 79% are White, 7% are African American, and 5% are Latina/o students (Wilds & Wilson). Thus, enhancing the educational achievement of Latina/o students would serve the nation well. The natural place to turn is towards college faculty given that interactions with faculty directly impact student "degree attainment, and . . . overall academic development" (Pascarella

& Terenzini, 1991, p. 342). However, a careful examination of the higher education literature reveals a lack of data, beyond descriptive information, on minority students in general and even less research on Latina/o students. Furthermore, perhaps because of the increasing tendency in published research to not include or report race as a variable (Graham, 1992), very little is known about race-linked factors associated with the educational experiences of and outcomes for minority students (Oakes, 1990). This study examines the potential influence on the achievement of Latina/o students of different interactions with faculty while taking into account student and college factors.

Theoretically, the social context contributes significantly to the development of racial minorities (Garza & Lipton, 1982; Hall, Cross, & Freedle, 1972; Helms, 1990; Keefe & Padilla, 1987) and shapes individual experiences and interracial interactions (Helms, 1985; Ramirez, 1977). In a multiracial society, student and faculty experiences may vary as a function of differences in race-related experiences, awareness of race, ability to deal with racial diversity, and differences in understanding of racial issues. Moreover, interracial interactions reflect the experiences of the individuals involved (Helms, 1985); and students or professors might have positive student-faculty contacts and continue these interactions, or they may experience frustration with and early termination of student-faculty interactions. Hypothetically, these experiences can shape student educational outcomes. For instance, a model of student-faculty informal contact depicts universities as socializing organizations, influencing student outcomes through various institutional factors and through student interactions with institutional agents such as faculty (Pascarella, 1980). As

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such, the effectiveness of educational policies programs and practices would be a consequence of the student involvement elicited and maintained (Astin, 1984). Student involvement, development, and learning have been hypothesized to be a direct function of the amount of time and energy a student invests in relevant activities (Astin, 1984). Essentially, theory suggests that academic college environments, experiences, and activities, as well as student-faculty interactions, can promote learning and achievement; research has provided supporting evidence.

Student-faculty interactions have been studied in some cases in terms of the frequency of interactions and in other cases the influence of different types of interactions has been examined. In 1977, Astin observed that interacting frequently with faculty had a positive impact on a variety of developmental outcomes but no impact on academic outcomes. Subsequent research yielded mixed results. Pascarella, Terenzini, and Hibel (1978) reported that academic performance was facilitated by a variety of student-faculty interactions (discussions over intellectual matters or course-related issues and discussions about career goals). Similar results were reported by researchers using a variety of academic measures: self-reported intellectual development, general knowledge, math skills, development of problem-solving skills, public speaking skills, and academic performance as measured by the college GPA (Endo & Harpel, 1982; Terenzini & Pascarella, 1978, 1980). Student-faculty interactions had a relatively greater influence on student's overall academic development for seniors than for other students (Terenzini & Wright, 1987). In contrast, Endo and Harpel found that neither formal nor informal student-faculty contact had a significant impact on academic achievement as measured by college grades. But they did report that student progress toward intellectual goals was positively associated with student-perceived helpfulness of the faculty (Endo & Harpel). The contradictory results found in the literature could be due to differences in student characteristics or to differences in the nature of their experiences with

faculty. All in all, the weight of the early evidence points toward beneficial effects.

Recent studies, which have taken student characteristics into account, have yielded additional evidence that academic and non-academic student-faculty interactions enhance academic performance as measured by college grades (Anaya, 1992, 1999; Astin, 1993). Moreover, these interactions appear to facilitate academic achievement as measured by student-reported gains, performance on standardized tests, as well as college grades (Anaya, 1999). Despite contradictory data generated during the 1970s and 1980s, over the last 15 years researchers have observed that a variety of student-faculty interactions appear to facilitate academic achievement (Anaya, 1992, 1999; Astin, 1993; Terenzini & Wright, 1987). However, the studies discussed thus far did not examine the impact of student-faculty interactions on the educational outcomes for minority students.

Very few studies have been conducted on the student-faculty interactions of African American students and even fewer on Latina/o students' experiences. The national longitudinal multi-institutional study conducted by Fleming (1984) is a useful template for a discussion of the relevant research. First, Fleming observed limited out-of-class contact with professors for African American students at predominantly White institutions (PWIs) in comparison to their peers at historically Black colleges and universities (HBCUs). Subsequently, in a study on community college transfer rates Nora and Rendón (1990) reported that less than 35% of both Latina/o and White students interacted with faculty outside of class. More recently, Cole (1999) found comparable faculty interaction rates for African American and White students at PWIs: 36% of African American and 32% of White students interacted with a professor after class. The latter studies suggest that similar rates of contact with professors occur for African American, Latina/o, and White students at non-HBCs.

With regard to academic outcomes, Fleming (1984) observed relatively smaller intellectual gains among African American students at PWIs in comparison to students at HBCs and to White

students at PWIs. The lower academic performance of African American students at PWIs was attributed to the absence of strong relationships with professors in comparison to White students at PWIs (Allen, 1992). In fact, researchers have reported that student-faculty relationships positively influence GPA and persistence for both Black and White students (Davis, 1991; Nettles, 1991). However, Davis observed relatively larger gains in undergraduate grades for White students than for African American students as a result of contact with faculty. Could this difference in accrued academic benefits be due to race-related factors?

Student-faculty interactions for Latina/o and African American students are generally interracial, whereas for White students they are same-race interactions. As a salient factor, race can contribute to the dynamics of relationships and, for example, White faculty might expect minority students to have knowledge concerning racial issues and race relations in America (Burrell, 1980). Additionally, minority students often contend with race-related assumptions about their academic ability, ambition, high school preparation, and faculty perceptions of minority students —all of which may hinder the development of significant student-faculty relationships (Kraft, 1991). Regardless of ability level, minority students may experience limited accessibility to faculty (Arnold, 1993; Hurtado, 1994; Turner, 1994). Hurtado reported that among high achieving Latina/o students one in six believed that White students had more faculty access and support. And once access is gained, African American students (Feagin, Vera, & Imani, 1996) and minority valedictorians (Arnold) have related poignant personal narratives about the lack of guidance and support from faculty. Nonetheless, some minority students do enjoy positive relationships with university faculty and staff as well as the related benefits. For instance, having contact with faculty or staff with whom students are able to identify with (role models) has been reported to be strongly associated with high grades for students in several racial groups: African American, Mexican American, Native American, and White students (Mayo, Murguía, & Padilla, 1995). However, meetings with faculty outside of class for help or advice only enhanced the academic performance of African American and White students (Mayo et al.). The complex and at times delicate nature of interracial associations may be a pivotal factor in shaping the quality of interpersonal contacts (Helms, 1985).

Finally, additional individual and college factors may also impact student achievement and should be taken into account whenever possible. Educational researchers have consistently reported that academic achievement is associated with gender and parent's education (Astin, 1977, 1993; Chapman & Pascarella, 1983; Pascarella & Terenzini, 1991; Trent & Medsker, 1968). The type of college attended and the place of residence while in college can also impact student performance. Students who live on campus are likely to be more involved with the college experience and to enjoy a variety of educational benefits (Astin, 1977, 1984, 1993). The shared educational goals of these living units may promote learning (Blimling & Hample, 1979; Moos, 1979; Winston, Huston, & McCaffrey, 1980). Thus, each of these factors was taken into account in this study.

METHOD

Sample and Instrument

The national database for the College Student Experiences Questionnaire (CSEQ) includes data collected annually by universities. The third edition of the College Student Experiences Questionnaire (CSEQ) was completed by 28,556 students in 1997. For this study, the researchers used a sample of 836 undergraduate Latina/o students attending Research and Doctoral granting institutions, 30 colleges. (Table 1). The CSEQ is a 191-item survey on the quality of student effort and educational gains during college. The survey includes items on participation in cocurricular activities, interpersonal experiences, and student-faculty interactions and student-reported undergraduate grades (Pace, 1984). Student background data includes class standing in college, gender and race. However, the race categories used in the third edition do not include Latina/o subgroups.

TABLE 1.

Gender, Class Standing, and College GPA of Participants and Distribution by Type of Institution (N = 836)

	%
Gender	
Men	36.1
Women	63.9
Class	
Senior	18.4
Junior	21.3
Sophomore	23.4
Freshman	36.8
GPA	
A	5.9
A–, B+	29.5
B	32.3
B–, C+	25.4
C, C–, or lower	5.6
Institutions	
Comprehensive college	34.2
Doctoral university	5.6
Research university	60.2

Variables

The dependent variable in this study was academic achievement as measured by college grades (Figure 1). Two types of independent variables were used. The first group includes student background variables and class standing. The second group includes college environment and experiences variables. The college environment variables include the student's academic major and place of residence. The college experiences variables include student motivational and behavioral variables, and measures of a variety of student-faculty interactions.

RESULTS

The majority of the Latina/o students in the sample were doing well; approximately 68% reported average grades of B or higher (Table 1). Almost all (98%) had spoken with a professor (Table 2). For discussion purposes, student-faculty interactions are grouped into three general a priori categories: general, academically related, and primary-personal contact. The first category of interactions can be seen as general and possibly more superficial than the other two categories. Table 2 indicates that 36% of the Latina/o students often interacted "briefly" with an instructor after class (selected either "often" or "very often" as their response). This is essentially the same rate that Cole (1999) reported for African American and White students. This general contact with professors can be a precursor to more educationally purposeful academic and interpersonal interactions. In fact, students interacted with faculty more often for academic purposes (e.g., to get information on a course) and much less frequently on a more personal basis (e.g., for coffee, Cokes, or snacks). In the former case, the more academically focused of these interactions occurred only occasionally for most students. Although 56.4% of the students often asked a professor for general course information, only occasionally did they discuss ideas for a term paper (54%) or faculty comments about their work (49.8%). The third category of student-faculty contact was akin to personal counseling or advising, implying more in-depth interactions and communication between student and professor. Actually very few students reported frequent interpersonal contact with faculty (19.7% or less), perhaps because most perceived their professors as neutral (46%) and in some cases remote and unsympathetic (12%). This data supports research indicating that many minority students experienced constrained or unsatisfactory contact with faculty (Arnold, 1993; Feagin et al. 1996; Fleming, 1984; Hurtado, 1994; Turner, 1994). As indicated earlier, because an overwhelming majority of college professors are White, the student-faculty interactions of Latina/o students are most likely to be interracial interactions. Unfortunately, Rendón and Valadez (1993) have noted

FIGURE 1.

Variables Used in the Study, Coding and Value Labels

Variable	Scale	Code
College grades:	1 = C, C–, or lower; 2 = C+ or B–; 3 = B; 4 = B+ or A–; 5 = A	1-5
Gender of student:	Male, Female	1-2
Either parent graduated from college:	none, father or mother, both	1-3
Classification in college:	freshman, sophomore, junior, senior	1-4
Institutional type:	research, comprehensive, or doctoral university	dummy coded
Major field of study:	business, education, English, foreign & area studies, health-related majors, humanities, physical & biological science, sociology, other	dummy coded
Place of residence:	on campus, with parents or relatives, off campus	dummy coded
Time spent on schoolwork:	1 = *less than 20 hrs/wk*, 2 = *about 20 hrs/wk*, 3 = *about 30 hrs/wk*, 4 = *about 40 hrs/wk*, 5 = *about 50 hrs/wk*	1-5
Expect to enroll for advanced degree:	no, yes	1-2
Quality of relationships with faculty:	1 = *remote, discouraging, or unsympathetic*; to 7 = *approachable, helpful, understanding, or encouraging*	1-7
Frequency of interactions* with faculty:	1 = *never*, 2 = *occasionally*, 3 = *often*, 4 = *very often*	1-4

* Talked with faculty; visited informally after class; made office appointment with faculty; asked for information related to a course (grades, make-up work, assignments, etc.); discussed term paper or project with faculty, asked for comments or criticisms about work; worked with faculty on research project; discussed career plans with faculty; had coffee, Cokes, snacks with faculty; discussed personal problems with faculty

TABLE 2.

Percent of Students That Rated Faculty Approachable and
the Frequency of Different Types of Student-Faculty Interactions

Quality of relationships with faculty (% responding)			
	Remote, discouraging, unsympathetic	Neutral[a]	Approachable, understanding, encouraging
Total	12	46	42
Comprehensive	12	39	49
Doctoral	12	41	45
Research	13	50	37

Frequency of interactions with faculty			
	Seldom[b] or Never	Occasionally	Very often
General			
Talked with a professor	2.5	36.1	61.3
Visited informally and briefly with an instructor after class	14.2	49.4	36.4
Made an appointment to meet with a professor in his or her office	16.4	53.9	29.7
Academic			
Asked your instructor for information related to a course you were taking	4.8	38.8	56.4
Discussed ideas for a term paper or other class project with professor	19.0	54.5	26.5
Asked your instructor for comments and criticism about your work	27.0	49.8	23.2
Worked with professor on a research project	82.4	11.2	6.4
Personal			
Discussed your career plans and ambitions with a professor	32.6	47.7	19.7
Had coffee, Cokes, or snacks with a professor	73.2	20.9	5.9
Discussed personal problems or concerns with a professor	63.6	28.2	8.2

[a] The quality of relationships with faculty was rated on a 7-point scale, ratings of 4, 5 = *neutral*.

[b] The frequency of interactions was reported on a 4-point scale: 3 = *often* and 4 = *very often*.

faculty resistance to structural and psychological changes that might enhance cultural understanding and possibly accommodate culturally diverse student populations.

Multiple regression techniques were used to examine the potential influence of different types of interactions with faculty and in order to take into account relevant student and college factors. A hierarchical blocked regression was used and the student's demographic characteristics and class standing were entered in the first block of the regression. The second block consisted of institutional characteristics, college learning environments, and student behavioral and motivational indicators. The third block included the student-faculty interaction variables. The standardized coefficients for the variables for two points in the regression (the "after inputs" and final regression) are reported in Table 3. The "after inputs" beta was the regression coefficient at the point in the analysis at which student characteristics had been entered: the demographic characteristics and class standing. This provided a statistical control for the effects, if any, of student characteristics on the environmental and outcome variables. These coefficients provided an indication of the potential impact on student performance of each environmental variable, independent of student factors and before other variables were entered into the regression equation (Astin, 1993). College environment and experiences data and student-faculty interactions data were entered in subsequent blocks, and the standardized regression coefficients are reported in Table 3. At this point the influence of all the independent variables had been statistically controlled thus, the final betas provided an indication of the unique contribution of each variable. After controlling for the influences of student factors most measures of faculty contact are statistically significant.

DISCUSSION

Influences on Academic Achievement

The students in this study had had different types of interactions with their professors and the frequency and quality of relationships with professors varied for each student. Theory and prior research suggest that contact with faculty can promote achievement, and student characteristics, motivation, and behavior, as well as institutional factors can play a significant role. For instance, the type of college attended provides a general indicator of the educational environment, as does the student's major. However, to the degree that students select and change their academic program, the major can also reflect intrinsic academic motivation. Recall that student background characteristics were statistically controlled in the first part of the analysis and that institutional factors and student motivational and behavioral factors while in college were controlled in the second and third blocks of the regression. The data in Table 3 suggest that academic achievement is positively associated with having two parents who have graduated from college, as well as the student's motivation (degree plans) and behavior (schoolwork time). The latter appears to have had a relatively stronger impact than the student's background (parent's education) and educational motivation. The standardized coefficient for the time spent on schoolwork (.18, $p < .01$) was relatively larger than the coefficients for parent's education (.13, $p < .01$) and for the student's advanced degree plans (.08, $p < .05$). Although these three student factors contributed to student performance, academic behaviors had a relatively stronger impact.

The type of college attended, undergraduate major, and place of residence were also associated, to some degree, with student achievement. In comparison to students at doctoral colleges, students attending research universities tended to have lower college grades and students attending comprehensive colleges tended to have higher grades. A close examination of Table 3 shows that the "after inputs" beta ($-.09, p < .05$) for attending a research university remained significant after all of the college environment and experiences variables had been taken into account (final beta = $-.10, p < .01$). In other words, the negative association between grades and attending a research university remained significant after all of the student variables and all of the college environment and experiences variables had been taken into account. On the

TABLE 3.

College Grades Regressed Onto Student and Institutional Characteristics, and Student-Faculty Interactions (With Standardized Coefficients)

Independent Variables	After Inputs Beta	Final Beta
Student characteristics		
Classification in college	−.020	−.010
Gender	−.050	−.050
Both parents graduate from college	.130**	.130**
R^2	.016	
R^2 Change		.016**
Institutional factors		
Research University	−.090*	−.100**
Comprehensive college or university	.080*	.040
R^2	.023	
R^2 Change		.007**
Student factors		
Major field of study:		
Business	.070*	.110**
Education	.090*	.100**
English	−.040	−.020
Foreign & area studies	−.050	−.020
Health-Related majors	−.050	−.030
Humanities	.060	.060*
Physical & biological science	.040	.050
Sociology	.060	.030
Time spent on schoolwork	.180**	.180**
Expect to enroll for advanced degree	.090**	.080*
Live on campus	−.070*	−.040
Live with parents or relatives	.070*	.040
R^2	.089	
R^2 Change		.067**
Student-Faculty interactions		
Quality of relationships with faculty	.170**	.100**
Experiences with faculty:		
Talked with faculty	.160**	.140**
Visited informally after class	.040	−.100*
Made office appointment with faculty	.060	−.010
Asked for information related to a course	.070*	−.030
Discussed term paper or project with faculty	.090**	.020
Asked for comments or criticism about work	.100**	.010
Worked with faculty on research project	.090**	.050
Discussed career plans with faculty	.100**	.030
Had coffee, Cokes, snacks with faculty	.080*	.030
Discussed personal problems with faculty	.020	−.040
Multiple R	.343	
R^2	.118	
R^2 Change		.029*

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

other hand, the beta for attending a comprehensive college did not remain significant once other college variables were entered in the equation. This suggests that the tendency for higher student grades at these colleges was due in part to attending a comprehensive college and in part to other college environments and experiences.

The student's place of residence was also a contributing factor. Note that approximately 63% of the students in the sample lived on campus and 15% lived with family. The data in Table 3 indicate that living on campus was negatively associated with achievement. The standardized coefficient for this variable was statistically significant ($-.07$, $p < .05$) after controlling for student inputs but it became smaller and non-significant (.04) after all variables were entered in the analysis. For Latina/o students, living on campus provided no academic advantages over living off campus. Although the coefficients for both place of residence variables did not remain significant at the final step in the analysis, the data is contrary to research that has consistently reported positive educational outcomes associated with living on campus (Astin, 1993; Pascarella & Terenzini, 1991).

Student-Faculty Interactions

The general hypothesis that student-faculty interactions are positively associated with student educational outcomes was derived from Pascarella's (1980) informal student-faculty interaction concept. Astin's (1984) student involvement construct allows for a more specific idea: student-faculty interactions focusing on academic concerns are hypothetically positively associated with academic achievement. The data suggest that few of the student-faculty interaction variables had a unique effect on achievement for Latina/o students. Of the 10 student-faculty interaction variables, 7 were statistically significant after controlling for student characteristics. As suggested by the second hypothesis, four of these were academically related interactions with professors. However, at the final step in the equation only three variables maintained statistical significance: (a) quality of relationships with faculty, (b) talked with faculty, and (c) visited informally after class with faculty. The first variable—students' assessment of the quality of student relationships with faculty—had a final standardized coefficient of .10 ($p < .01$). However, the regression results suggest that after-class visits were negatively associated with college grades; the final standardized beta is $-.10$ ($p < .05$). Nonetheless, the latter variable was moderately correlated with most of the student-faculty interaction variables (correlations range from .3 to .5) but had a correlation with college grades that is close to zero (.04), thus, it was a suppressor variable (Pedhazur, 1982). The negative value of the coefficient suggests that this variable is reflecting variance associated with other independent variables rather than with the dependent variable. Thus, the change from the "after inputs" to the final coefficient for each of the student-faculty interaction variables was in part due to the magnitude of the correlation with this variable (after class visits with faculty). Nonetheless, the data in Table 3 provide evidence of the positive impact of student-faculty interactions. Specifically, frequent interactions with faculty (talked with professor, final beta = .14, $p < .01$) enhanced student academic achievement. In summary, this study yielded minimal evidence that informal contact with faculty (Coke or coffee with professors) may be fulfilling a socialization function that facilitates academic achievement. On the other hand, discussing course work (paper, project, and feedback), working with a professor on a research project, and discussing career plans appear to be more likely to contribute to academic performance. In essence, student involvement in educationally related and distinctly academic interactions with professors appears to enhance student's academic performance. Additionally, student achievement was enhanced when professors are perceived as accessible and supportive. Finally, unique college effects regarding the student's place of residence may be operating. Prior research has consistently pointed to the positive effects of living on campus; however, similar data for Latina/o or other minority students is absent from the literature.

Limitations

Student-faculty interactions involve general, academic, and personal maters and the quality of each of these experiences may vary. However, a global indicator of the quality of relationships with faculty was used in the study. Furthermore, an assumption was made that most of the interactions are with White faculty. Additional data on race-related factors that might influence interracial interactions could be useful. Additionally, the survey data does not include information on within-Latino group membership (e.g., Chicano, Puerto Rican), precluding an examination of possible differences for Latina/o subgroups.

Implications

Learning environments in which students are actively engaged in the learning process and that provide learning opportunities in a variety of settings can optimize academic achievement (Anaya, 1996, Cole, Sugioka, & Yamagata-Lynch, 1999). To the degree that the social milieu of a college campus is malleable, student affairs professionals can play a critical role by creating and facilitating activities and programs in which faculty can engage students outside the classroom. Thus, faculty and student affairs practitioners wishing to direct attention and energy towards student learning should incorporate a three-part strategy to foster student-faculty interaction in and beyond the classroom. First, simply promote and increase the frequency of student-faculty interactions. To begin with, student affairs practitioners can, at minimum, increase the frequency of student-faculty interactions. Professors typically participate in orientation programs and summer programs designed for first-generation college students and minority students. These programs are designed to facilitate the transition to college life and in many ways initiate the collegiate socialization process. However, as students persist beyond the first year, fewer institutionalized support services regularly bring faculty and students together outside of class. This problem can be turned into an opportunity for staff-faculty collaboration in developing and implementing services and activities for continuing students. Second, student affairs practitioners can focus on interactions that complement classroom learning. Student services and academic departments can enhance students learning and academic achievement through campus forums, debates, and workshops on campus, regional and international issues of interest to minority students in general and Latina/o students in particular. Third, practitioners can work towards facilitating nurturing and mutually satisfying interactions. This may be the more important or difficult strategy requiring attention to interracial and cross-cultural interactions. The quality of student-faculty relationships can be enhanced through, for example, tournaments, field days, faculty fellows programs (hosted by residence halls or student organizations), and other social activities. Although the suggestions made here are not new, the research on minority students underscores the need for creating quality learning environments for all students.

In sum, the results of this study suggest implications for faculty, administrators and student affairs professionals, as well as for future research. Latina/o college students tend to have favorable perceptions of their interactions with faculty. However, the frequency of interactions is low. The role of faculty is critical. Professors have the option to respond to the initiative of an individual student or to formal initiatives presented by administrators and student affairs professionals. The investment of time and energy in out-of-classroom activities, which complement a professor's teaching efforts, can potentially optimize student academic performance. Because a significant portion of Latina/o students view faculty as neutral, perhaps the most challenging task for faculty and staff is to increase the frequency of student-faculty interactions for Latina/o students while ensuring engaging and supportive interactions. Conscientious efforts at improving the institutional and classroom climate for diversity need to be addressed by college faculty and staff. Finally, research efforts should, in addition to examining more closely the nature of student-faculty interactions, make a determination of student's perceptions of the quality of each of these interactions and examine factors that might influence interracial interactions. In

light of distinctly different educational performance and attainment profiles of Mexican American and Puerto Rican students (Pennock-Roman, 1990), an even closer examination of within-group differences may prove fruitful.

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REFERENCES

Allen, W. R. (1992). The color of success: African-American college student outcomes at predominantly White and historically Black public colleges and universities. *Harvard Educational Review, 62*(1), 26-44.

Anaya, G. (1992). *Cognitive development among college undergraduates*. Unpublished doctoral dissertation, University of California, Los Angeles.

Anaya, G. (1996). College experiences and student learning: The influence of active learning, college environments and cocurricular activities. *Journal of College Student Development*, *37*(6), 1-12.

Anaya, G. (1999). Accuracy of student-reported test scores. *College and University: Journal of the American Association of Collegiate Registrars and Admissions Officers*, *75*(2), 13-19.

Arnold, K. D. (1993). The fulfillment of promise: Minority valedictorians and salutatorians. *The Review of Higher Education*, *16*(3), 257-283.

Astin, A. W. (1977). *Four critical years*. San Francisco: Jossey-Bass.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, *22*, 297-308.

Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass.

Blimling, G. S., & Hample, D. (1979). Structuring the peer environment in residence halls to increase academic performance in average-ability students. *Journal of College Student Personnel, 20*(4), 310-316.

Burrell, L. F. (1980). Is there a future for Black students on predominantly White campuses? *Integrated Education*, *18*(5-6), 23-27.

Chapman, D. W., & Pascarella, E. T. (1983). Predictors of academic and social integration of college students. *Research in Higher Education*, *19*(3), 295-322.

Cole, D. G. (1999). *Faculty-student interactions of African American and White college students at predominantly White institutions*. Unpublished doctoral dissertation, Indiana University, Bloomington.

Cole, D., Sugioka, H., & Yamagata-Lynch, L. (1999). Supportive classroom environments for creativity in higher education. *Journal of Creative Behavior, 33*(4), 277-293.

Davis, R. B. (1991). Social support networks and undergraduate student academic-success-related outcomes: A comparison of Black students on Black and White campuses. In W. R. Allen, E. G. Epps, & N. Z. Haniff, N. Z. (Eds.), *College in Black and White: African American students in predominantly White and historically Black public universities*. Albany: State University of New York Press.

Devarics, C. (2000). Hispanic-serving institutions make impressive strides. *Black Issues in Higher Education*, 17(9), 32-35.

Endo, J., & Harpel, R. (1982). The effect of student-faculty interaction on students' educational outcomes. *Research in Higher Education*, *16*(2), 115-138.

Feagin, J. R., Vera, H., & Imani, N. (1996). *The agony of education: Black students at White colleges and universities*. New York: Routledge.

Fleming, J. (1984). *Blacks in college*. San Francisco: Jossey-Bass.

Garza, R. R., & Lipton, J. P. (1982). Theoretical Perspectives on Chicano Personality Development. *Hispanic Journal of Behavioral Sciences, 4*(4), 407-32.

Graham, S. (1992). Most of the subjects were White and middle class: Trends in published research on African Americans in selected APA journals, 1970-1989. *American Psychologist, 47*, 629-639.

Hall, W. S., Cross, W. E., Jr., & Freedle, R. (1972). Stages in the development of Black awareness: An exploratory study. In R. L. Jones (Ed.), *Black Psychology*. New York: Harper & Row.

Helms, J. E. (1985). Toward a theoretical explanation of the effects of race on counseling: A Black and White model. *The Counseling Psychologist, 12*(4), 153-165.

Helms, J. E. (Ed.). (1990). *Black and White facial identity: Theory, research, and practice*. New York: Greenwood Press.

Hurtado, S. (1994). The institutional climate for talented Latino students. *Research in Higher Education, 35*(1), 21-41.

Keefe, S. E., & Padilla, A. M. (1987). *Chicano Ethnicity*. Albuquerque: University of New Mexico Press.

Kraft, C. L. (1991). What makes a successful Black student on a predominantly White campus? *American Educational Research Journal*, *28*(2), 423-443.

Mayo, J. R., Murguía, E., & Padilla, R. V. (1995). Social integration and academic performance among minority university students. *Journal of College Student Development, 36*(6), 542-552.

Moos, R. (1979). Assessing the social environments of sheltered care settings. *Gerontologist, 19*(1), 74-82.

Nettles, M. T. (1991). Racial similarities and differences in the predictors of college student achievement. In W. R. Allen, E. G. Epps, & N. Z. Haniff (Eds.), *College in Black and White: African American students in predominantly White and historically Black public universities*. Albany: State University of New York Press.

Nora, A., & Rendón, L. I. (1990). Determinants of predisposition to transfer among community college students. *Research in Higher education*, *31*(3), 235-255.

Oakes, J. (1990). *Opportunities, achievement, and choice:*

Women and minority students in science and mathematics. (Document No: R-3774-NSF/RC). Rand Corp, Santa Monica.

Pace, C. R. (1984). *Measuring the quality of college student experiences*. Los Angeles: University of California, Higher Education Research Institute, Graduate School of Education.

Pascarella, E. T. (1980). Student-Faculty informal contact and college outcomes. *Review of Educational Research*, *50*(Winter), 545-595.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students*. San Francisco: Jossey-Bass.

Pascarella, E., Terenzini, P., & Hibel, J. (1978). Student-faculty interactional settings and their relationship to predicted academic performance. *Journal of Higher Education*, *49*, 450-463.

Pedhazur, E. J. (1982). *Multiple regression in behavioral research: Explanation and prediction*. New York: Holt, Rinehart, & Winston.

Pennock-Roman, M. (1990). *Test validity and language background: a study of Hispanic American students at six universities*. New York: College Entrance Examination Board.

Ramirez, M., III. (1977). Recognizing and understanding diversity: Multiculturalism and the Chicano movement in psychology. *Chicano Psychology*. New York: Academic Press.

Rendón, L. I., & Valadez, J. R. (1993). Qualitative indicators of Hispanic student transfer. *Community College Review*, 20(4), 27-37.

Terenzini, P., & Pascarella, E. (1978). The relations of students' precollege characteristics and freshman year experience to voluntary attrition. *Research in Higher Education, 9,* 347-366.

Terenzini, P. T., & Pascarella, E. T. (1980). Student/Faculty relationships and freshman year educational outcomes: A further investigation. *Journal of College Student Personnel*, *21*(6), 521-528.

Terenzini, P. T., & Wright, T. M. (1987). Influences on students' academic growth during 4 years of college. *Research in Higher Education*, *26*(2), 161-179.

Trent, J. W., & Medsker, L. L. (1968). *Beyond high school*. San Francisco: Jossey-Bass.

Turner, C. S. (1994). Guests in someone else's house: Students of color. *The Review of Higher Education*, *17*(4), 355-370.

U.S. Census Bureau. (1999). *Population estimates: National* [On-line]. Available : www.census.gov/population/www/estimates/popest.html.

Wilds, J. D., & Wilson, R. (1998). *Minorities in higher education: Twelfth annual status report on minorities in higher education*. Washington, DC: American Council on Education.

Winston, R. B., Huston, G. S. & McCaffrey, S. S. (1980). Environmental influences on fraternity academic achievement. *Journal of College Student Personnel*, *21*(5), 449-55.

Developmental Outcomes of College Students' Involvement in Leadership Activities

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Using longitudinal data from 875 students at 10 institutions, descriptive and multivariate analyses were conducted to assess whether student participation in leadership education and training programs has an impact on educational and personal development. Results indicate that leadership participants showed growth in civic responsibility, leadership skills, multicultural awareness, understanding of leadership theories, and personal and societal values.

Developing leadership skills and abilities among students is a claim made by many college and university mission statements as an important aspect of creating educated individuals (Clark, 1985; Roberts, 1997). Yet, despite this laudable goal, most institutions have traditionally only paid minimal attention to the development of their students as leaders in terms of offering specific leadership programs or curricula. This situation seems all the more ironic given increased accountability pressures placed upon institutions by their constituents and the public to prepare college graduates to deal with major economic, societal, and environmental issues. Indeed, developing leadership values and skills for effective civic involvement is often a secondary rather than a primary function of colleges and universities. Thus, although the short- and long-term goals of leadership development efforts are seemingly important educational objectives, competing institutional priorities often hinder the advancement of intentional leadership development programs on campuses.

Fortunately, the study of leadership and leadership development is steadily increasing at higher education institutions (Huey, 1994; Kezar & Moriarty, 2000; Roberts, 1981). The Center for Creative Leadership has estimated that nearly 700 college leadership programs exist across the country (Schwartz, Axtman, & Freeman, 1998). These programs range from a series of short workshops offered by student services personnel to academic minor or major degree programs offered by the faculty. The result is that implicit notions to nurture civic responsibility and leadership ability are being replaced with explicit strategies to provide students with the knowledge and experiences to enhance their leadership capabilities.

Despite the large number of investigations into the impact of leadership development programs in business organizations (e.g., Fuchsberg, 1993; Lombardo & McCall, 1981; McCauley & Hughes-James, 1994; Phillips, 1996; Smith, 1993; Tharenou & Lundon, 1990; Young & Dixon, 1996) and in community-based programs (e.g., Bolton, 1991; Daugherty & Williams, 1997; Rohs & Langone, 1993; Seeley, 1981; Whent & Leising, 1992; Williams, 1981), far fewer studies focus on the development of college students' leadership ability (Posner & Brodsky, 1992; Ryan, 1994; Seitz & Pepitone, 1996), or on strategies for evaluating the success of leadership development efforts on college campuses (Chambers, 1992). To that end, this study was specifically designed to assess whether leadership education and training has a direct effect on college students' leadership ability as well as on their personal and educational development. In other words, can leadership skills be taught? And, does the development of

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such skills affect other educational outcomes? In particular, does leadership development increase students' motivation for civic responsibility (such as a willingness to promote racial understanding, an intention to become involved with environmental issues, and a desire to influence the political structure and social values).

Involvement in the college environment is positively related to developmental outcomes (Astin, 1977, 1984, 1993). Student involvement refers to both the physical and psychological energy devoted to the academic experience. Pace's (1984) notion of "quality of effort" is closely related to Astin's (1985) postulate that the amount of student learning and personal development is directly proportional to the quality and quantity of student involvement in the process of learning, including participation in leadership experiences and activities. Additional research has revealed that student involvement in both academic and interpersonal activities had significant positive correlations with student development (Pace, 1984, 1987, 1990) including leadership development (Kezar & Moriarty, 2000). Further, research also has indicated that students involved in leadership activities have higher levels of educational attainment and increases in personal values (e.g., desire to promote racial understanding) than do students who do not participate in these activities (Astin, 1993).

Under the assumption that participation in intentional leadership development efforts would result in positive developmental gains for college students and that individual colleges and universities may not have the resources to support such efforts, the W. K. Kellogg Foundation funded a number of projects during the past decade that focused on the leadership development of college-age adults. Specifically, 21 institutions of higher education were given resources to create a wide variety of leadership activities including seminars, workshops, mentoring, skill-building activities, and community service experiences. The leadership development programs were primarily housed within student affairs divisions, but included both curricular and cocurricular activities. In these learning environments, students were able to test out leadership theories, practice leadership skills, and develop a meaningful understanding of leadership in a contemporary context. (For a specific list and description of activities see Zimmerman-Oster & Burkhardt, 1999.)

Information initially reported by the institutions indicated that student leadership participants cited increased confidence in their abilities, leadership skills, and willingness to serve in a leadership role. Also, compared to nonparticipants, leadership program participants were noticeably more cooperative and less authoritarian and held more ethical views of leadership. However, although anecdotal information from each of the institutions indicated that student leadership knowledge and skills had increased, empirical evidence was needed to support this assertion. Moreover, the question still remained whether such intentional leadership development programs had a direct impact on students' educational development.

Therefore, the current study was designed as a longitudinal examination across 10 of the institutions for which we had quantitative data to identify the effects of leadership development programs. Two primary research questions guided this study. First, Were the programs at these 10 institutions effective in enhancing students' leadership knowledge and skills? And second, What relationship, if any, appears to exist between leadership development and other educational outcomes such as multicultural awareness and civic responsibility? In other words, "How do we know our students are learning—and how do we know we influence that learning?" (Whitt, 1996, p. 32).

METHOD

Data

To assess whether leadership education and training had a direct effect on college students' leadership ability as well as on other personal and educational outcomes, data were collected and analyzed by staff at the Higher Education Research Institute (HERI), University of California, Los Angeles (UCLA). The databases at HERI, as part of the Cooperative Institutional

Research Program (CIRP), included 10 colleges and universities that were funded to develop leadership programs. This enabled us to design a longitudinal assessment of student developmental outcomes at these institutions. The 10 colleges and universities ranged in type and control of institution, from a small, religiously affiliated liberal arts college to a large public research university.

Instruments

Longitudinal data were collected from students at the time of college entry, 1994 (freshman) and during the academic year, 1997-98 (senior). In the Summer and Fall of 1994, all entering freshmen at the 10 institutions were administered a questionnaire as part of the Cooperative Institutional Research Program (CIRP) at HERI. Every year, all entering undergraduate students (freshmen) from a representative sample of over 600 higher education institutions are administered a survey that includes questions about demographic and background characteristics, high school experiences, educational aspirations and plans, and values and attitudes. As part of the ongoing CIRP program, students at a selected sample of institutions were administered a follow-up questionnaire. This follow-up questionnaire, the College Student Survey (CSS), explored students' educational experiences and progress as well as future plans. The CSS repeats a number of questions used in the freshman questionnaire in order to assess changes in personal development as a result of the college experience.

For the purposes of this study, the students at each of the 10 sample institutions were administered 20 supplemental questions in addition to those posed on the CSS. The supplemental questions included specific leadership outcome measures that were identified in collaboration with the leadership project directors at these institutions. The survey items asked students to describe changes since entering college and included:

· understanding of self
· ability to set goals
· interest in developing leadership in others
· commitment to civic responsibility
· sense of personal ethics
· clarity of personal values
· conflict resolution skills
· decision-making abilities
· ability to deal with complexity, uncertainty, and ambiguity
· ability to plan and implement programs and activities
· willingness to take risks
· understanding of leadership theories

Leadership program directors agreed that the goals of leadership education and training should include the development of skills (e.g., conflict resolution skills), values (e.g., clarity of personal values), and cognitive understanding (e.g., understanding of leadership theories). These outcome goals are consistent with the American College Personnel Association (ACPA) Student Learning Imperative which includes the assumption that learning, personal development, and student development are inextricably intertwined and inseparable and that the hallmarks of a college-educated person include cognitive skills, practical competence and the ability to apply knowledge, an understanding and appreciation for human differences, and a coherent sense of self within a societal context (ACPA, 1994).

In response to the supplemental questions, students also indicated whether they had participated in any or all of the activities provided at their institution as part of the named leadership program at their institution. Examples of leadership activities on these campuses included student participation in volunteer or community service, tutoring or peer mentoring, occupying an elected student leadership role, attending alternative spring breaks, or attending leadership development workshops.

Participants

Any student who indicated "none" on the supplemental questions was considered a nonparticipant in a leadership development program; all others were identified as participants. Based on their responses, we identified a total of 425 participants and 450 nonparticipants across the 10 institutions. This yielded a sample of 875

respondents for whom data were available in 1994 (as entering freshmen) and 1997-98 (follow-up data). The majority of respondents were female (593 or 68%) and White (679 or 78%). For the students of color, 8% indicated that they were Asian, 5% Hispanic, 3% American Indian, and 2% African American/Black (the rest indicated "other" or did not mark a response to the race/ethnicity question). Unfortunately, additional ethnic subgroups for Asians were not available. However, 4% of the students of color indicated they were Mexican American/Chicano; the majority of Hispanic students.

Data Analysis

We performed descriptive and multivariate analyses. In the descriptive analyses, we examined the self-reported outcomes for program participants as compared to students who began college at the same time but who did not participate in leadership activities.

Multivariate analyses were conducted using a hierarchical regression analysis model. The conceptual framework used for these analyses is based on the Input-Environment-Outcome (I-E-O) model that is specifically designed to deal with methodological issues inherent in nonexperimental studies in the social sciences: the nonrandom assignment of people in certain programs, in this case, leadership programs (see Astin, 1991, for further elaboration of this model).

Because some students may be more inclined to participate in leadership development activities, the outcomes associated with this participation may not reflect the impact of leadership experiences. Instead, these outcomes may be the result of differences in students at the point of college entry (Inputs) and differences among students with respect to other college experiences (Environments). Therefore, in using a hierarchical regression analysis model, we were able to control for these confounding variables and assess whether participation in leadership activities has had a direct effect on developmental outcomes, above and beyond any differences in entering student characteristics or college environments.

RESULTS
Descriptive Analyses

Table 1 indicates the percent of students endorsing each outcome measure by participation and nonparticipation status. Although nearly all students reported that their "understanding of self" was stronger or much stronger since entering college, participants in leadership activities rated this change at a higher level than nonparticipants did. Indeed, participants in leadership activities, as compared to nonparticipants, rated their level of change more strongly on each of the 14 outcomes. For example, participants were more likely to report growth in their commitment to civic responsibility, conflict resolution skills, ability to plan and implement programs and activities, and willingness to take risks. Congruent with these findings, participants were also more likely to report holding an elected leadership position and to be very involved in cocurricular activities. Moreover, chi-square analyses (as noted by the asterisks in the table) indicated that participants were significantly higher than nonparticipants on 10 of the developmental outcomes measures including ability to set goals and interest in developing leadership skills in others.

Thus, participants in leadership programs indicated positive growth and change on the developmental outcomes that were originally identified by the program directors as the objectives of the leadership development programs. Specifically, leadership participants showed increased gains in the three leadership areas of skills (e.g., decision making abilities), values (e.g., sense of personal ethics), and cognitive understanding (e.g., understanding of leadership theories).

To examine further the developmental differences between participants and nonparticipants, we conducted an exploratory factor analysis (principal components method with varimax rotation) on both the outcome measures from the supplemental survey and on leadership-related items in the College Student Survey. Five distinct composite measures (or factors) emerged from the analysis: (a) Leadership Understanding and Commitment, (b) Leadership Skills, (c) Personal and Societal Values, (d) Civic Respon-

sibility, and (e) Multicultural Awareness and Community Orientation. Cronbach's alpha for the variable loadings on each factor indicate relatively strong reliability for each composite measure (see Table 2).

Next, we tested significant differences between participants and nonparticipants using analysis of variance (ANOVA) for each of the five composite variables (see Table 3). Comparison of participants with nonparticipants on the composite measures indicated that participants differed significantly from nonparticipants on every composite outcome. In other words,

leadership participants reported changes since college entry that were statistically greater than changes for nonparticipants in the development of social and personal values, leadership ability and skills, civic responsibility, multicultural awareness and community orientation, and leadership understanding and commitment.

Although these group differences in outcomes are highly suggestive, they raise a critical question regarding self-selection. Is this evidence of program impact, or are these differences simply reflecting self-selection artifacts? To further examine whether participation in leader-

TABLE 1.

Percentages Responding Positively to Each Outcome and
Involvement Measure and Tests of Significance

Measure	Leadership Activities	
	Nonparticipants	Participants
Understanding of self[a]	94.8	96.2
Conflict resolution skills[a]	85.3	91.7***
Clarity of personal values[a]	85.5	88.7
Ability to set goals[a]	83.6	88.0*
Ability to deal with complexity, uncertainty, ambiguity[a]	84.5	87.5
Decision-making abilities[a]	82.7	86.3
Ability to plan and implement programs and activities[a]	71.0	84.6***
Sense of personal ethics[a]	79.6	84.4*
Willingness to take risks[a]	71.5	80.6**
Understanding of leadership theories[a]	58.9	76.0***
Interest in developing leadership in others[a]	51.3	72.3***
Commitment to civic responsibility[a]	53.3	64.9***
Held elected or appointed leadership position[b]	35.8	54.1***
Level of cocurricular involvement[c]	20.6	33.7***

Note. Significant difference between participants and nonparticipants based on chi-square analysis.

[a]   Compared with entering college, stronger or much stronger.

[b]   Yes.

[c]   Very involved.

p < .05.   **p* < .01.   ***p* < .001.

TABLE 2.

Composite Variables From Supplemental Questions and College Student Survey (CSS)

	Factor Loading
Supplemental Questions	
Leadership Understanding and Commitment	(alpha = .6880)
Interest in developing leadership in others	.6079
Understanding of leadership theories	.4989
Leadership Skills	(alpha = .7826)
Decision-making skills	.7276
Willingness to take risks	.6705
Ability to deal with complexity, uncertainty, and ambiguity	.6186
Ability to set goals	.6124
Conflict resolution skills	.5918
Ability to plan and implement programs and activities	.5888
Personal and Societal Values	(alpha = .7205)
Clarity of personal values	.8243
Sense of personal ethics	.8017
Commitment to civic responsibility	.5577
Understanding of self	.5069
College Student Survey	
Civic Responsibility	(alpha = .7962)
Participate in community action programs	.7677
Promote racial understanding	.7295
Influence social values	.7084
Influence the political structure	.6615
Become involved with environmental clean-up	.6105
Help others who are in difficulty	.5736
Multicultural Awareness and Community Orientation	(alpha = .7983)
Acceptance of others from different races and cultures	.8057
Knowledge of people from different races and cultures	.6850
Interpersonal skills	.5956
Understanding of community problems	.5999
Ability to work cooperatively	.5629
Understanding of national problems	.5039

ship development activities does indeed influence these outcomes and to determine whether other college experiences and a student's predisposition result in changes as reported by students, a set of multivariate analyses were performed using the longitudinal student data. In essence, we wanted to identify the factors that contribute to students' educational and leadership develop-

ment. Are they programmatic in nature, or merely personal?

Multivariate Analyses

As described earlier, data were available from the 10 institutions for students who enrolled in 1994 (at the time of college entry) and in 1997-98 after exposure to college experiences including leadership education and training.

Dependent variables. The dependent variables (outcomes) used in this analysis included the five composite measures that were developed based on responses to the supplemental questions and to questions in the CSS: (a) Leadership Understanding and Commitment, (b) Leadership Skills, (c) Personal and Societal Values, (d) Civic Responsibility, and (e) Multicultural Awareness and Community Orientation. (See Table 2 for a complete list of items included under each dependent measure.)

For each of the five regression analyses, we used a set of independent predictor variables that were controlled prior to entering the students' leadership activities status (i.e., being a participant or not). As indicated earlier, we were interested in assessing whether involvement in leadership activities can affect the desired developmental outcomes after controlling for background characteristics and institutional variables.

Independent variables. We used four sets of independent or control variables: (a) demographic characteristics (e.g., gender and race or ethnic identity); (b) student predisposition qualities or characteristics that may account for differences among participants and nonparticipants on the outcome measures (e.g., students' self-assessment of leadership ability and desire to participate in community action programs prior to college entry); (c) students' academic major was also controlled for because experiences and learning in certain majors may affect students differently with respect to leadership outcomes (e.g., students in the social sciences may develop greater competencies and understanding of multicultural issues than students majoring in business or physics); and (d) students' engagement in a variety of college experiences because these experiences could possibly influence the development of leadership skills, independent of the specific programmatic leadership activities that were offered (e.g., volunteer work, group projects in class, internships, etc.).

Even though we could not assess how strictly

TABLE 3.
ANOVA Comparisons for Leadership Activities Participants and Nonparticipants on Composite Variables

Composite Variable	Nonparticipants mean (stddev)	Participants mean (stddev)	mean squares	*F* ratio
Leadership Understanding and Commitment	7.28 (1.22)	7.94 (1.28)	91.27	58.02***
Leadership Skills	23.78 (2.74)	24.64 (3.01)	153.79	18.55***
Personal and Societal Values	16.17 (2.07)	16.57 (2.16)	33.77	7.55**
Civic Responsibility	13.23 (3.68)	14.25 (3.55)	224.77	17.22***
Multicultural Awareness and Community Orientation	23.31 (2.80)	24.03 (2.82)	112.28	14.20**

**p < .01.   ***p < .001.

TABLE 4.

Comparison of Dependent Variables for Activities Participants

	Leadership Understanding	Civic Responsibility	Leadership Skills	Multicultural Awareness	Personal/ Societal Values
Activities participant[a]	.184**	.142**	.087*	.081*	Did not enter
Variance accounted for (R^2)	.2286	.2944	.1199	.1561	.0659

[a] Values reflect final solution beta coefficients.

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

independent the college experiences are from the leadership program activities, by controlling for participation in these general college experiences (partialling out their effect) we were able to get a better assessment of how the specific leadership program activities may affect the desired leadership and educational outcomes. (See Appendix for a complete list of variables.) Thus, if the variable representing student acknowledgement of their participation in the leadership development program's activities maintained its statistical significance after taking into account all other variables, we could say with confidence that the leadership program made a direct impact on student development.

The impact of participation in various leadership program activities on selected developmental outcomes is noteworthy. Table 4 presents summary results of the impact of leadership activities participation on each of the five outcome measures after control of the independent predictor variables. The amount of variance explained by each dependent variable is also indicated.

After statistically accounting for student differences in gender, race or ethnic identity, and other characteristics such as academic major and inclinations toward creating social change, leadership participants indicated significant growth and change for four of the five outcome measures. Students who participate in leadership training activities were more likely to show significant gains 4 years after college matri-

culation than nonparticipants with regard to Leadership Understanding and Commitment (e.g., understanding leadership theories and encouraging leadership in others). Participants were also more likely to develop a sense of Civic Responsibility (e.g., the importance of participating in community action programs, influencing social values, and helping others in difficulty). In addition, participation in leadership activities influenced the development of Multicultural Awareness and Community Orientation (e.g., acceptance of others from different races and cultures, and understanding of community problems). Finally, Leadership Skills were also increased as a result of participation in programmatic leadership activities. Leadership skills included abilities such as decision-making skills, ability to deal with complexity, uncertainty and ambiguity, and willingness to take risks.

Gender did not enter any of the regression equations, indicating that male and female students were equally likely to report development in leadership capabilities and their associated skills. The variables representing race/ ethnic identity did not enter the regression equations except for Multicultural Awareness and Community Orientation where the variable for Mexican American/Chicano remained significant. It appears that Mexican American/Chicano students may especially value from leadership activities that emphasize university-community interactions. Indeed, these types of opportunities may resonant with Mexican American/Chicano

students' interests in understanding community problems. Although some educators have questioned whether traditional leadership programs alienate students of color (Ortiz, Ah-Nee Benham, Cress, Langdon, & Yamasaki, 1999), through their reliance on hierarchical conceptions of leadership, thereby jeopardizing not only their potential for leadership development but possibly other associated learning outcomes. These findings seem to indicate, however, that for those students of color who do participate in leadership development programs on their campuses they are quite likely to evidence multiple educational gains.

Interestingly, one of the independent variables that predicted each of the five developmental outcomes was hours per week in volunteering. The more hours students spent performing volunteer work, the more likely they were to show growth in the developmental areas of Leadership Skills and Knowledge, Civic Responsibility, their understanding of Personal and Social Values, and their awareness of Multicultural and Community Issues. In addition, students who participated in class group projects indicated gains on four of the educational outcomes: Leadership Skills, Leadership Understanding, Multicultural and Community Awareness, and insight into Personal and Societal Values. Finally, three measures were positively affected by student participation in an internship program: Leadership Understanding and Commitment, commitment to Civic Responsibility, and Multicultural and Community Awareness. In other words, students who volunteer, intern, or work collaboratively in class are more likely to develop their leadership potential whether or not they participate in a formal leadership development program. This finding bodes well for the possibility of positively impacting all students through curricular and cocurricular leadership activities.

DISCUSSION

The findings reported here provide clear evidence of student gains from participation in leadership development programs. Furthermore, we conclude that not merely individual characteristics or self-selection, but rather experiences in leadership education and training programs affect the intended outcomes because numerous independent variables were taken into account during the analysis. Thus, as opposed to older notions of leadership as "positional" or "an inherent characteristic," all students who involve themselves in leadership training and education programs can increase their skills and knowledge. Therefore, these findings are a strong indication that leadership potential exists in every student and that colleges and universities can develop this potential through leadership programs and activities.

Practical Implications

In this study, we examined the leadership development programs of only 10 institutions, so caution must be used in generalizing the findings to all institutions. However, the implications for colleges and universities seem apparent. If institutions are serious about developing lifelong competencies in their students; if they value connecting academic learning with community concerns; and if they desire to graduate a legacy of leaders in businesses, organizations, governments, schools, and neighborhoods, then leadership development programs and activities must be given priority.

Three common elements of the leadership programs in this study emerged as directly impacting student development: (a) opportunities for service (such as volunteering); (b) experiential activities (such as internships); and (c) active learning through collaboration (such as group projects in the classroom). Other generic elements that we were able to discern through doing a content analysis of the leadership programs included: engagement in service learning to promote greater civic responsibility; faculty involvement through increased collaboration between academic and student affairs; and self-reflection and evaluation of skills, values, and knowledge through using written journals.

Specific ideas and strategies for developing workshops, creating academic majors and minors, and designing leaderships programs are offered on-line by the National Clearinghouse for Leadership Programs (see http://www.inform.umd.edu/OCP/NCLP/index.html). Further,

Zimmerman-Oster & Burkhardt (1999) have identified four specific hallmarks of effective leadership development programs that are consistent with the recommendations for good practices in student affairs (e.g., forging educational partnerships, creating inclusive learning communities, and systemically evaluating student and institutional performance) (Blimling & Whitt, 1999). The hallmarks described below are based on a qualitative examination of the institutions in this study that was completed concurrent with the empirical analysis. The hallmark elements include context, philosophy, common practices, and sustainability.

Context includes: (a) a strong connection between the mission of the institution and the mission of the leadership development program; (b) an academic home for the leadership program—ideally, under the auspices of both academic affairs and student affairs; and (c) inputs from many sources such as civic service groups, resource agencies, and community leaders.

Philosophy includes: (a) a clear definition of leadership articulated by key stakeholders; (b) a focus on ethically and socially responsible behavior; (c) a recognition that leadership is a relational process; and (d) an emphasis on the potential of all people to lead.

Common practices include: (a) the development of self-awareness through the use of assessment tests, simulations, discussions, group projects, outdoor experiences, capstone courses, internships, and reflection exercises including journal writing; (b) training sessions that address the concerns of campus "positional" leaders allowing students to learn leadership skills within the context of their own groups; (c) student mentoring for heightening intercultural awareness, understanding, and acceptance; (d) service learning, community service, and volunteer experiences as vehicles for self- and community discovery; and (e) student initiation of leadership activities allowing participants to develop, promote, implement, and evaluate their own programs.

Finally, *sustainability* includes: (a) an evaluation process with clearly stated and measurable objectives that are disseminated to stakeholders for revision and strengthening of the leadership program; (b) faculty incentives to encourage participation such as course-release time from their teaching load or a stipend for course or curriculum revision; (c) cocurricular transcripts and portfolios that document students' experiences; and (d) recognition of student growth and leadership development through certificates, awards, and celebrations.

Although not every hallmark will be applicable in every situation, the elements allow for critical reflection on the goals and purpose of leadership programs at a wide variety of institutions. Indeed, student development programs should emerge from within their own institutional contexts and environments. However, with the above hallmarks in mind and with an informed perspective based on the empirical results, administrators can critically reflect on the goals and purpose of their own leadership program, its place in the institution, and its meaningful impact on student development.

Limitations and Direction for Future Research

Because the current study compared students across 10 institutions, the range of leadership education and training experiences differed considerably. Thus, to compare student experiences on a case-by-case basis given the variations in institutional size, type, and program would be outside the scope of this empirical analysis. We do not know, for instance, the degree or level of involvement for each student in each leadership program. Instead, the focus had to be limited to statistical analysis of educational outcomes between those students who did and did not participate in the leadership programs.

Certainly, additional qualitative studies should further examine the components of successful leadership programs as they differentially impact students within and across institutions, as well as to identify motivations for engagement in leadership education and training. In particular, more attention should be paid in the future to the experiences of women students and students of color (Arminio et al., 2000; Kezar & Moriarty, 2000) because independent analysis of the data based on gender and race or ethnic identity was not possible due to the limited

comparison numbers in the sample. However, because these two variables did not enter the regression equations (except once for Mexican American/Chicano students) we could assume that all participating students—independent of gender and race or ethnic identity—benefited from participation in the leadership activities. For future studies, researchers might also examine the role of faculty in facilitating student development and how college students in their communities apply leadership skills and knowledge after graduation.

Students who participated in leadership development efforts not only increased specific leadership skills (such as ability to set goals, to make decisions, and to use conflict resolution skills), but they also increased their commitment to developing leadership in others, becoming involved with community action programs, and promoting understanding across racial and ethnic groups. Other studies have also noted that these characteristics of leadership are essential in today's world (Astin & Leland, 1991; Bennis, 1989; Lipman-Blumen, 1996; Wielkiewicz, 2000). These contemporary paradigms of leadership require the development of personal and social values, the ability to collaborate, the use of visionary and creative thinking, understanding of the advantages of incorporating multiple perspectives and viewpoints of diverse individuals and groups, and the importance of a commitment to serving the common good.

This study has demonstrated how engagement in intentional leadership education and training efforts result in a wide variety of developmental outcomes in college students (Leadership Understanding and Commitment, Leadership Skills, Personal and Societal Values, Civic Responsibility, and Multicultural Awareness and Community Orientation). The empirical evidence also highlights the importance of making resources available for the development of leadership programs in higher education. If colleges and universities are interested in aligning their mission statements and goals for student learning and growth with tangible developmental outcomes, leadership development activities offer such an opportunity.

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REFERENCES

American College Personnel Association (ACPA). (1994). The student learning imperative: Implications for student affairs. In E.J. Whitt (Ed.), *College student affairs administration, ASHE Reader Series*, (pp. 36-40). Needham Heights, MA: Simon and Schuster.

Arminio, J. L., Carter, S., Jones, S. E., Kruger, K., Lucas, N., Washington, J., Young, M., & Scott, A. (2000). Leadership experiences of students of color. *NASPA Journal*, *37*(3), 496-510.

Astin, A. W. (1977). *Four critical years*. San Francisco: Jossey-Bass.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, *25*(4), 297-308.

Astin, A. W. (1985). *Achieving educational excellence: A critical assessment of priorities and practices in higher education*. San Francisco: Jossey-Bass.

Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. New York: American Council on Education.

Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.

Astin, H. S., & Leland, C. (1991). *Women of influence, women of vision: A cross-generational study of leaders and social change*. San Francisco: Jossey-Bass.

Bennis, W. (1989). *On becoming a leader*. New York: Addison-Wesley.

Blimling, G. S., Whitt, E. J., & Associates. (1999). *Good practice in student affairs: Principles to foster student learning*. San Francisco: Jossey-Bass.

Bolton, E. B. (1991). Developing local leaders: Results of a structured learning experience. *Journal of the Community Development Society, 22*(1), 119-143.

Chambers, T. (1992). The development of criteria to evaluate college student leadership programs: A Delphi approach. *Journal of College Student Development*, *33*(4), 339-347.

Clark, K. E. (1985) Teaching undergraduates to be leaders. *AAHE Bulletin*, *37*(7), 11-14.

Daugherty, R. A., & Williams, S. E. (1997). The long-term impacts of leadership development: An assessment of a statewide program. *Journal of Leadership Studies*, *4*(2), 101-115.

Fuchsberg, G. (1993). Executive Education: Taking Control. *Wall Street Journal*, pp. R1-R13.

Huey, J. (February 21, 1994). The leadership industry. *Fortune*, *129*(4), 54-56.

Kezar, A., & Moriarty, D. (2000). Expanding our understanding of student leadership development: A study of gender and ethnic identity. *Journal of College Student Development*, *41*(1), 55-69.

Lipman-Blumen, J. (1996). *The connective edge: Leading in an interdependent world*. San Francisco: Jossey-Bass.

Lombardo, M. M., & McCall, M. W., Jr. (1981). *Leaders on line: Observations from a simulation of managerial work*. Greensboro, NC: Center for Creative Leadership.

McCauley, C. D., & Hughes-James, M. W. (1994). *An evaluation of the outcomes of a leadership development program*. Greensboro, NC: Center for Creative Leadership.

Ortiz, A., Ah-Nee Benham, M., Cress, C. M., Langdon, E., & Yamasaki, E. (1999, November). *Challenging old models, creating new ones: Ethnically relevant leadership studies*. Symposium conducted at the annual conference of the Association for the Study of Higher Education National Conference, San Antonio, TX.

Pace, C. (1984). *Measuring the quality of college student experiences*. Los Angeles: University of California, Higher Education Research Institute.

Pace, C. (1987). *Good things go together*. Los Angeles: University of California, Center for the Study of Evaluation.

Pace, C. (1990). *The undergraduates: A report of their activities and progress in college in the 1980s*. Los Angeles: University of California, Center for the Study of Evaluation.

Phillips, J. J. (1996). Meeting the ROI challenge: A practical approach to measuring the return on investment in training and development. *European Forum for Management Development*, *96*(3), 24-28.

Posner, B. Z., & Brodsky, B. (1992). A leadership development instrument for college students. *Journal of College Student Development*, *33*(3), 231-237.

Roberts, D. C. (1997). The changing look of leadership programs. *Concepts & Connections: A newsletter of leadership educators, 5*(2), 1,3,4,11-14.

Roberts, D. C. (1981). *Student leadership programs in higher education*. Washington, DC: ACPA.

Rohs, F. R., & Langone, C. A. (1997). Increased accuracy in measuring leadership impacts. *Journal of Leadership Studies*, *4*(1), 150-158.

Ryan, L. (1994). The case for national student leadership on community college issues. *Leadership Abstracts*, *7*(6).

Schwartz, M. K., Axtman, K. M., & Freeman, F. H. (1998). *Leadership Education Source Book* (7th ed.), Greensboro, NC: Center for Creative Leadership.

Seely, J. A. (1981). *Development of a model network of university/community team leadership final report*. Akron, OH: Akron University.

Seitz, S., & Pepitone, S. (1996). Servant leadership: A model for developing college students. *Metropolitan Universities: An International Forum*, *6*(4), 113-122.

Smith, A. (1993). Management development evaluation and effectiveness. *Journal of Management Development*, *12*(1), 20-32.

Tharenou, P., & Lundon, J. T. (1990). The effect of a supervisory development program on leadership style. *Journal of Business and Psychology*, *4*(3), 365-373.

Whent, L. S., & Leising, J. G. (1992). A 20-year evaluation of the California Agricultural Leadership Program. *Journal of Agricultural Education*, *33*(3), 32-39.

Whitt, E. J. (1996, September/October). Some propositions worth debating. *About Campus*, *1*, 31-32.

Wielkiewicz, R. M. (2000). The leadership attitudes and beliefs scale: An instrument for evaluating college students' thinking about leadership and organizations. *Journal of College Student Development*, *41*(3). 335-347.

Williams, A. S. (1981). Training rural citizens: An evaluation of a leadership training program. *Journal of the Community Development Society*, *12*(1), 63-82.

Young, D. P., & Dixon, N. M. (1996). *Helping leaders take effective action: A program evaluation*. Greensboro, NC: Center for Creative Leadership.

Zimmerman-Oster, K., & Burkhardt, J. (1999). *Leadership in the making: Impact and insights from leadership development programs in U.S. colleges and universities*. Battle Creek, MI: W. K. Kellogg Foundation.

APPENDIX.

Listing of Independent Variables Used in Regression Analyses

INPUTS

Block 1**:** (from 1994 Freshman Survey)
    Gender
    Race or ethnic identity

Block 2**:** (from 1994 Freshman Survey) (Varied per dependent variable)

Civic Responsibility

High school activity	:	performed volunteer work
Freshman objective	:	become involved in environmental clean-up
	:	help others in difficulty
	:	influence social values
	:	influence political structure
	:	participate in community action program
	:	promote racial understanding

Multicultural Awareness and Community Orientation

High school activity	:	performed volunteer work
Freshman objective	:	become involved in environmental clean-up
	:	help others in difficulty
	:	influence political structure
	:	participate in community action program
	:	promote racial understanding
	:	understanding of others
	:	cooperativeness

Leadership Skills

Freshman self-rating	:	leadership ability

Leadership Understanding and Commitment

Freshman self-rating	:	leadership ability

Personal and Society Values

High school activity	:	performed volunteer work
Freshman objective	:	become involved in environmental clean-up
	:	help others in difficulty
	:	influence social values
	:	influence political structure
	:	participate in community action program
	:	promote racial understanding

ENVIRONMENT VARIABLES

Block 3: (from 1997 CSS)
    14 different academic majors

agriculture	engineering	history or political science	social science
biological science	English	humanities	technical
business	fine arts	math or statistics	
education	health	physical science	

Block 4**:** (from 1997 CSS)
    Leadership Activities Participant

Block 5: (from 1997 CSS)
    College activities :
        Worked on group projects
        Participated in student government
        Elected to student office
        Participated in internship program
        Hours per week in volunteer work

Implementation of a Comprehensive System of Program Evaluation: The Iowa State University Experience

Michelle P. Clark   Terry W. Mason

A key task for individual student affairs offices is to demonstrate the impact services have on the academic mission of the university. Much has been written about why this is important, but little has been written about how to accomplish this task. The authors describe the process that one student affairs office followed to implement a system of program evaluation and the positive impact of this endeavor. Implications for other student affairs offices are provided.

Academic institutions are showing an increased focus on accountability, and funding decisions are often driven by data-based demonstrations of outcome (Bishop, 1990; Bishop & Trembley, 1987; Stone & Archer, 1990). Student affairs offices have been significantly impacted by this trend, and each office within student affairs has different challenges in responding to this need. Many authors have described effective research efforts coordinated by the entire division of student affairs (e.g. Moxley, 1999). At the same time, individual student affairs offices have a significant need to provide data-based demonstrations of their role in supporting the mission of the university.

Many authors have suggested that for student affairs to compete successfully for scarce resources, they must account for their funding by demonstrating a positive impact on student functioning and the academic mission of the university (Upcraft & Schuh, 1996). At the same time, student affairs professionals face significant barriers to conducting extensive program evaluation and research. According to Schuh and Upcraft (1998), "Our best staff (that is, those who are most productive and committed to serving students first) are often the most resistant to taking time away from their primary responsibilities to work on assessment" (p. 7).

Cage (1992) discussed the vulnerability of student affairs and described how in a time of budget constraints, "student services have borne the brunt of budget cuts" (p. A25) as administrators prioritize academic programs over all other programs. Multiple authors have described nationwide significant reductions in student affairs services, for example, decreasing the number of staff providing career or psychological services (Bishop, 1990; Bishop & Trembly, 1987; Crego, 1990; Upcraft & Schuh, 1996). In addition, a current trend is either to pay off-campus agencies to provide services that had been offered on campus or to eliminate the services altogether (Gallagher, 1996; Upcraft & Schuh, 1996).

Upcraft and Schuh (1996), experts in the field of student affairs assessment, have described frequent phone calls requesting assistance in documenting the importance of student services from student affairs professionals. They have indicated that these calls are often prompted by an immediate need for data-based support to avoid a threatened cut of services. Upcraft and Schuh have described this type of intervention as "crisis management" (p. 4) and suggest that student affairs offices require a much more planful and comprehensive approach to assessment to survive in the current environment of accountability in higher education. They have suggested that the key question all student affairs offices must address is: "In an era of declining resources, are student services and programs really necessary?" (p. 8).

The answer to this question goes far beyond simple, quick-and-dirty surveying of students

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(Upcraft & Schuh, 1996) and cannot be generated in a brief period of time in response to an external threat. This provides a strong rationale to implement a comprehensive assessment plan. Schuh and Upcraft (1998) have indicated that "assessment should be seen as an investment in a unit's future . . . sometimes we do what we must in order to do what we want" (p. 7). However, efforts in this area continue to be inconsistent and hampered by the barriers of cost, skill, and administrative support (Upcraft & Schuh). For example, although more than 70% of university counseling centers have indicated that they use a database and assess client satisfaction (Gallagher, 1995), a recent literature search revealed only two studies that directly tie counseling center services to academic outcomes (Illovsky, 1997; Wilson, Mason, & Ewing, 1997). Thus, many authors have described the necessity for accountability and program evaluation; however, the implementation of focused research activities demonstrating the impact of student services on the strategic plan of the university does not appear to have happened on a consistent and wide-scale basis. According to Upcraft and Schuh:

> Unfortunately, among many staff in student affairs, assessment is an unknown quantity at best, or at the worst, it is misunderstood and misused. It has been our experience that while everyone in student affairs would agree that assessment is important, too often it is . . . done poorly; as a result, it simply gathers dust on someone's shelf, with little or no impact. (p. 4)

We hope that the following description of how our office instituted a program of accountability and research—and the impact this change had on funding and relationships with the administration of the university—will be helpful to other student affairs professionals.

SETTING

Student Counseling Service (SCS) at Iowa State University currently serves a student body of approximately 26,000 students. The services provided by SCS are those of a macrocenter and

include personal and career counseling, testing, training of practicum students and predoctoral interns, and extensive outreach and consultative services. Clinical services are provided by 12 full-time psychologists, 4 doctoral interns, 4 contract staff (masters degrees), and practicum students from the counseling psychology program. One staff psychologist coordinates program evaluation and research, allocating 30% of her time to this task. Demand for counseling services had increased approximately 13.4% per year since 1992. The Student Counseling Service falls within the Division of Student Affairs and reports directly to the Vice President for Student Affairs.

PROCESS

The SCS's transition into program evaluation began in 1993. The process of implementing a comprehensive program of evaluation and research met with many of the barriers that Stone and Archer (1990) defined: lack of funds, competition from ever-pressing clinical demands, and a staff preference for service provision. Stone and Archer (1990) suggested that commitment by the agency director and the next tier of administration is a requirement in overcoming these hurdles, and in practice the wisdom of this recommendation became quite clear.

The primary motivators for the move to program evaluation were increasing clinical demands combined with a clear message from the university administration that allocation of funds for additional staff would require a very compelling argument. The overall perception within the division of student affairs was that adding staff positions was an unobtainable goal.

The increase in clinical demands with no increase in resources coincided with intense national discussions among former counseling center staff from the multiple universities where the counseling center had been disbanded and mental health services were being provided off campus by a for-profit organization at a lower cost . The field was responding with concern to the impact privatization had on students: mental health services became more difficult to access because students had to travel off campus, and

the services were provided by professionals who were less able to integrate mental health issues with academic functioning. Counseling center personnel at universities where counseling services had been privatized often had relatively little warning or preparation time to create arguments about the important role the center played. Data-based evidence of the contribution of our counseling center to the mission of the university appeared to be the only avenue by which to obtain resources to keep up with demand, as well as proactive protection against privatization.

The Conflict

The professional staff within the center was highly aware of the press for clinical services and the need for additional staff because finding ways to meet the demand was a day-to-day challenge. Initially, the staff believed that the best solution to this problem was to focus all available resources on seeing more clients. However, the director, with more distance from this clinical press, and more involvement with the administration, was in a position not only to observe, but also to experience on a day-to-day basis, the importance of accountability within the current administrative system. Thus, the majority of the staff were aware of the importance of the evolving zeitgeist of accountability within higher education and psychology, but the director was in a position to actually experience the results of the zeitgeist. On a routine basis, administrators requested outcome data as criteria for considering funding requests, and director colleagues at other universities shared painful experiences of losing funding at their institutions.

When the director initially shared his vision of reallocating some clinical time toward program evaluation, he met significant staff resistance. The primary reaction was, We already have more to do than we can manage, how can we take on another labor intensive task, especially one that pulls us away from clinical service? Only after many staff discussions were we able to come to a consensus on the best solution to the need for more resources. The primary deciding factor was the highly significant increase in clinical demand each year combined with the fact that current strategies had been completely unsuccessful in garnering new funding. As the director described the administrative environment, the staff became convinced that no new resources would become available simply by describing an increased demand. With no increase in staff, but an increase in clinical demand the entire staff recognized that short-term solutions focusing more energy on providing clinical service would not solve the problem. Each staff member was able to envision what her or his job would be like in 5 years of increased demand with no increase in staff. The staff was still somewhat reluctant to sacrifice the clinical time needed for one or more staff members to begin devoting a portion of time to program evaluation. However, the consensus was that this was the only solution that had the potential to provide long-term benefits for the department and the students served. The fact that this endeavor would also protect the counseling center (and psychologists' jobs) from potential outsourcing threats, was a placating factor for the staff. Thus, in the words of John Schuh and M. Lee Upcraft (1998), our office decided to "do what we must in order to do what we want" (p.7).

An additional conflict surrounded the allocation of the program evaluation tasks. As suggested by Stone and Archer (1990), our staff demonstrated a strong preference for service provision over research and evaluation. Multiple attempts were made to assign assessment tasks to a variety of staff members. It became clear that, for example, the clinical director's job was already too labor intensive to assume these tasks, and other staff felt they had neither the motivation nor the readily accessible skills (statistical, etc.) to feel comfortable in the position. When a staff position was vacated, the hiring process for a new psychologist was focused on hiring a psychologist who was qualified and motivated to conduct research. Again, because no additional money was allocated at this time, the 30% of the new staff member's time devoted to program evaluation was a 30% sacrifice in clinical services.

Based on this commitment by the staff, a request was made to the vice president for student affairs to provide funding for computer resources

to implement the database. The agreement to conduct outcome research relating counseling services to retention was a major factor in this proposal being accepted.

Thus, the initial implementation of the evaluation process required a significant commitment on the part of the director, financial support from the vice president for student affairs, an up-front sacrifice of clinical service provision for the staff involved in the process, and resolution of staff conflict over that sacrifice of clinical time. These initial commitments and sacrifices were made with the hope, but no guarantee, that program evaluation efforts would benefit the center.

Identification of Variables and Collection of Data

In addition to the staff allocations, the development of the program evaluation system required a determination of critical variables the SCS needed to track, as well as methods and procedures for data collection and data entry. This determination was made in part by reviewing the counseling center literature, examining prior administrative requests for data, and generating ideas about types of outcome research that would demonstrate our positive impact on students and the academic mission of the university. In addition, we were interested in monitoring our counseling center for evidence of trends that were being documented at other universities (e.g., the increase in levels of student pathology being treated). Of primary importance was gathering data regarding counseling outcomes and the ability to tie those outcomes to academic performance and retention.

As with any systems change, these alterations resulted in intense staff discussion. Decisions had to be made in critical areas. How much time is can a client reasonably be expected to spend filling out forms and surveys? How could we gather data that were equally clinically relevant and research relevant? Who would manage the increased complexity in managing additional paperwork and data entry? How would we cover the costs of additional testing? The clinical director and the coordinator for program evaluation and research managed the imple-

mentation of data collection procedures, with input from the entire staff. These changes were implemented gradually, with the involvement of the professional staff as well as the support staff. This discussion of critical variables led to a revision of SCS intake forms, the addition of a client satisfaction survey, and a search for appropriate outcome measures in addition to those of retention and academic performance.

Although intake paperwork had initially included only very basic demographics and information necessary to contact the client (i.e., name, age, gender, GPA, address, phone number), the new paperwork included variables that were necessary for published articles as well as specific answers to queries from administrators. For a complete list of the variables on the intake form, see Appendix A. These additions allowed an immediate response to questions such as, "What percentage of your clients are African American, and how does that relate to the percentage of African Americans on-campus?" or, "Do students who are referred by a faculty member improve at the same rate as students who are self-referred?"

PROCESS OUTCOMES

One of the benefits of program evaluation is ongoing feedback regarding the services and processes of the agency. We were able to use the immediate results of program evaluation in a number of ways to improve our services and functioning. One of the immediate results of the implementation of the database was an increased ability to monitor the efficiency and efficacy of services provided. Using the database, the clinical director was able to concretely identify when the SCS had the highest demand for specific services such as career counseling, learning disability assessment, or substance abuse intervention. Prior to the database, this had been done mostly by intuition. This information facilitated the fluid alteration of staff hours; for example, increasing career counseling hours during the high demand time in October by decreasing learning disability assessment hours that have a lower demand during that time. Prior to the implementation of the database, the

utilization rate for counseling appointments was 65%. Using the database to monitor which appointment slots were consistently not being used allowed a systematic reallocation of appointment time to the peak use hours, resulting in a 19% increase in utilization of appointment times. This helped keep the waiting list for services from increasing even though the requests for services increased 10% per year and staffing remained stable.

Another benefit of program evaluation was the ability to make internal decisions regarding allocation of funds based on feedback from the system. For instance, our client satisfaction surveys had been uniformly positive, with the exception of satisfaction with our waiting area, which clients repeatedly indicated was uncomfortable and lacked privacy. Using this data from clients, we submitted a successful proposal for funds to improve the waiting area. For sample items from the client satisfaction survey, see Appendix C.

Feedback from the program evaluation system is also used to provide more objective input for intern and staff evaluations. Data regarding number of clients seen, overall client satisfaction with the counselor, and changes in pretest to posttest measures for clients are used in staff evaluations, complementing more subjective measures. Interns in our APA-accredited internship are also able to document completion of direct-service minimum requirements in a more objective manner.

To protect the confidentiality of client records, the database is housed in a stand-alone server located in our office, and no off-site access to the database is possible or allowed. The director, clinical director, program evaluation coordinator, and one computer staff member have password-protected access to the database. For a list of variables included in the database, see Appendix B.

Outcome Research

As discussed thus far, implementing a program evaluation plan had a positive impact internally on our accuracy and efficiency. However, the primary reason for conducting assessment was documenting the positive impact of our services on the academic mission of the university. This required documentation of positive *outcome* for students. One of the primary outcome variables in this demonstration is student retention. Early in our program evaluation process, we established relationships with other campus offices to obtain data regarding students' academic persistence and performance. Permission was granted for our agency to have a direct computer link with student academic records, which allowed access to academic data without divulging confidential information that would identify clients. Wilson, Mason, and Ewing (1997) conducted and published a study that showed that those students who received counseling were retained at a 14% higher rate than students who requested counseling but were not provided with services because the center did not have enough staff to accommodate all the requests for services. This study was made possible by the existing counseling center database and a data connection to student records.

In addition to demonstrating the academic impact of our services, the center was also invested in documenting the more clinical aspects of improvement that took place as a result of counseling. Because our mission is to assist students to function better across a variety of situations, we searched for a psychometric outcome measure that demonstrated broader outcomes than retention and academic progress. We needed a well-validated, powerful, and specific psychometric outcome measure that demonstrated improvement in the symptoms that caused students to seek counseling. The instrument also needed to be cost-effective and appropriate for a university counseling center setting. For personal counseling (individual, group, and couples), we chose the Quality of Life Inventory (Frisch, Cornell, Villanueva, & Retzlaff, 1992), which measures satisfaction with 17 domains of life such as self-esteem, love, and friends. One of the primary reasons for the selection of this instrument was that its measure of subjective well-being was not pathology-based, but had been effective in assessing inpatient, outpatient, and university counseling center clients. In our initial analyses, our client sample typically showed a .75 to 1 standard

deviation increase in life satisfaction from pretest to posttest, whereas a control sample of health education students shows no change (Clark & Mason, 1999). Administration of this instrument costs approximately $1 per inventory. In a typical year, this agency spends approximately $1,500 to administer and score this instrument.

We selected a specific career counseling outcome measure, the Career Decision Scale (CDS) (Osipow, Carney, Winer, Yanico, & Koschier, 1976), to assess this component of our services. The CDS is a 19-item assessment that measures a student's certainty regarding their decision of a major or career, as well as their level of overall career indecision. The CDS is given to all clients prior to career counseling and at the completion of counseling. In one study conducted at our center (Zilber, Johnson, & Osipow, 1995) students completing the CDS before and after a 2-hour career workshop showed a statistically significant increase in career certainty. The results of the pre-post data gathered on all career clients indicate a significant increase in career certainty and a decrease in career indecision over the course of career counseling. In the future, our collaboration with the registrar's office will provide retention data that can be combined with these results.

The Results

The program evaluation efforts have had a significant impact on the SCS's relationship with the vice president for student affairs, the president of the university, and SCS's reputation on campus and nationally. First, following the successful study on retention, a proposal for additional funding for staff was made to the vice president for student affairs. This proposal highlighted the demonstrated impact counseling had on student retention, and the importance of adequate staff resources to respond to student needs. The vice president's initial response was that the proposal was one of the best proposals he had ever seen in his 18 years in administration. Additionally, he indicated that if SCS were able to continue similar demonstrations of efficacy, downsizing or outsourcing was no longer a threat.

The results of one of SCS's outcome studies were formally presented to the university president and his cabinet. During this meeting, the president expressed great enthusiasm for our efforts to empirically demonstrate the impact of counseling as well as the actual results themselves. During the presentation, the president commented on the contribution SCS was making and suggested to his cabinet that they consider additional funding. Following this meeting, the President reviewed our vice president's list of top funding priorities, on which SCS requests were ranked first and third. The president funded Items 1 and 3 but did not fund Item 2 (submitted from a different student affairs office). This approval resulted in three new staff positions: a learning disability specialist, a psychologist, and a support staff position. Thus, our initial allocation of staff time to program evaluation sacrificed clinical hours; however, approval for additional staff, based primarily on data from the program evaluation efforts, resulted in an overall increase in staff and clinical hours. The argument that students were 14% more likely to drop out if they sought out counseling center services but could not be served because of insufficient clinical hours, was a potent argument for the importance of having adequate staff to deal with clinical demands.

Stone and Archer (1990) suggested that university counseling centers can serve as "a cornerstone in the student affairs research effort" (p. 588). At our institution, SCS was the first office within student affairs to implement comprehensive program evaluation efforts. Consultation between our director and the vice president for student affairs contributed to the vice president's push for the other offices in student affairs to follow SCS's lead. Also, our coordinator of program evaluation and research served as a consultant to other student affairs offices as they set up their program evaluation systems. When a division-wide task force on assessment within student affairs was developed, SCS staff were key members. Our model of an identified staff member with the responsibility for coordinating program evaluation has become a model for the entire division of student affairs. Each student affairs department now has identified one person who coordinates their office's efforts, is allocated time in their schedule for

these activities, and whose performance evaluation includes an evaluation of productivity in this area.

These contributions and service in program evaluation provided by SCS staff are unique and would not be replaced by a managed care company if the counseling center were outsourced. Thus, expertise in program evaluation and research contributed to the functioning of the division and enhanced respect for our contributions within the division of student affairs.

In addition to the positive outcomes within our institution, the field of student affairs experienced positive effects. As mentioned previously, the publication of the article demonstrating the impact of counseling on student retention resulted in over 100 responses from counseling center directors, an on-campus visit by the director of an Australian university counseling center, and a presentation at a national conference. In addition, interns in our program who have gained program evaluation experience have been particularly successful in their job searches. Making contributions to the field was one of the purposes of the program evaluation efforts, and we have been rewarded to see our efforts positively impact our colleagues.

APPLYING THE MODEL TO OTHER STUDENT AFFAIRS DEPARTMENTS

University counseling centers are not the only departments within student affairs to feel the pressure of accountability. Traditionally, departments such as student activities, minority student affairs, and international student services have mainly been concerned with providing the best service they can to their student customers. Now, these very same service-oriented departments must demonstrate that their services contribute to accomplishing the mission of the university, which usually has an academic focus. Outcome measures that appropriately address these issues are critical; however, selecting the right measure may be problematic in certain student affairs offices (e.g., registrar's office, student union, judicial affairs).

Some student affairs departments might be able to use retention as an outcome measure. For instance, a study that examined the differential retention rates of those students who participate in a university club, run by the student activities department, versus a matched sample of students who don't participate in clubs, could address the question of how the student activities department contributes to the mission of helping students persist through graduation. Likewise, minority student affairs could examine the impact their programs have on minority student retention.

With other student affairs departments, retention might not be an appropriate outcome measure. For instance, judicial affairs performs a function that is very important to the university but that may have a negative effect on the retention rate of their student participants (i.e., judicial affairs may actually remove them from the university). Departments like judicial affairs must find other, more appropriate outcome measures to justify their existence or need for additional resources.

For departments within student affairs to survive and prosper, they must identify how they contribute to the mission of the university, determine what outcome measures can demonstrate this contribution, and set up a system of collecting the data needed to conduct an outcomes assessment. As our SCS example demonstrates, the costs of this process are considerable in terms of staff resources, computer hardware, and computer software. As a result, the department—especially the director—must have a strong commitment to the program. Those implementing program evaluation systems in student affairs departments should be prepared for staff to resist such efforts. The less relevant that program evaluation seems to be in relation to what the department "should" be doing, the more resistant staff will be. Directors could feel between the proverbial rock and a hard place as they attempt both to provide accountability data and to appease their staff. However, given the zeitgeist of accountability, for many student affairs departments, they have only this option—do or perish.

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REFERENCES

Bishop, J. B. (1990). The university counseling center: An agenda for the 1990s. *Journal of Counseling and Development, 68*, 408-413.

Bishop, J. B., & Trembley, E. L. (1987). Counseling centers and accountability: Immovable objects, irresistible forces. *Journal of Counseling and Development, 65,* 491–494.

Cage, M. C. (1992, November 18). To shield academic programs from cuts, many colleges pare student services. *Chronicle of Higher Education*, A25-A26.

Clark, M. P., & Mason, T. W. (1999). The relationship between improvement during counseling and academic retention. Poster presented at the annual convention of the American Psychological Association, Boston.

Crego, C. A. (1990). Challenges and limits in search of a model. *The Counseling Psychologist, 18*(4), 608-613.

Frisch, M. B., Cornell, J., Villanueva, M., & Retzlaff, P. J. (1992). Clinical validation of the Quality of Life Inventory: A measure of life satisfaction for use in treatment planning and outcome assessment. *Psychological Assessment, 4*(1), 92-101.

Gallagher, R. P. (1995). *National survey of counseling center directors*. Alexandria, VA: International Association of Counseling Services.

Gallagher, R. P. (1996). *National survey of counseling center directors*. Alexandria, VA: International Association of Counseling Services.

Illovsky, M. E. (1997). Effects of counseling on grades and retention. *Journal of College Student Psychotherapy, Vol. 12*(1), 29-44.

Moxley, L. S. (1999). Student affairs research and evaluation: An inside view. *New Directions for Student Services*, *85*, pp. 11-22.

Osipow, S.H., Carney, C.G., Winer, J.L., Yanico, B.J. & Koschier, M. (1976). *Career Decision Scale (3rd Revision)*. Lutz, Fl: Psychological Assessment Resources.

Schuh, J. H., & Upcraft, M. L. (1998). Facts and myths about assessment in student affairs. *About Campus, 3*(5), 2-8.

Stone, G. L., & Archer, J. (1990). College and university counseling centers in the 1990s: Challenges and limits. *The Counseling Psychologist, 18*(4), 539-607.

Upcraft, M. L., & Schuh, J. H. (1996). *Assessment in student affairs: A guide for practitioners.* San Francisco: Jossey-Bass.

Wilson, S. B., Mason, T. W., & Ewing, M. J. (1997). Evaluating the impact of receiving university-based counseling services on student retention. *Journal of Counseling Psychology, 44*(3), 316-320.

Zilber, S. M., Johnson, D. C., & Osipow, S. H. (1995). The impact of a career exploration workshop on career self-efficacy and career indecision. Poster presented at the annual convention of the Southwestern Psychological Association.

APPENDIX A.
Variables on Intake Form

Social Security Number

Date of Birth

Gender

Ethnicity

Previous history of counseling:
    At our center
    At another setting

Year in school

Source of referral:
    Self
    Faculty or staff
    Parent
    Friend
    Significant other

Living arrangement:
    Residence hall
    Fraternity or sorority
    With parents
    Off campus

Major

GPA

Academic college

Year of entry at ISU

Suicidal or homicidal thoughts

History of abuse:
    physical
    emotional
    sexual

Concern about alcohol or drug use

Self-rating of level of distress

APPENDIX B.
List of Variables in Database

Date of session

Service area:
  Individual
  Couples
  Intake
  Crisis intervention
  Eating disorder
  Learning disability
  Substance abuse
  Career
  Group

Name of staff providing the service

Staff level:
  Senior staff
  Intern
  Practicum student

Service provided:
  Session
  Phone call
  Brief Contact
  Report written
  Consultation

Attendance status:
  Attended
  Cancelled by client
  Cancelled by therapist
  No show

File status:
  Active
  On-Hold
  Terminated

Type of termination:
  Planned termination
  Unplanned termination

Name of staff providing the service

Staff level:
  Senior staff
  Intern
  Practicum student

Client diagnosis

Client identification number

APPENDIX C.

Sample Items From Client Satisfaction Survey

	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
The counseling service was a comfortable and attractive place.	1	2	3	4	5
The receptionists were friendly and helpful.	1	2	3	4	5
My counselor was competent and knowledgeable.	1	2	3	4	5
The services I received have helped me make positive changes.	1	2	3	4	5
If I needed further counseling, I would use the counseling service again.	1	2	3	4	5

Students' Choices of College Majors That are Gender Traditional and Nontraditional

Anne Childers Lackland   Richard De Lisi

Regression analyses of questionnaires completed by University students (99 men, 143 women) revealed that humanitarian concerns, femininity scores, masculinity scores, and utility values were significant predictors of college major. Education, English, and nursing majors had greater confidence, satisfaction, and expectations for future success than did engineering, mathematics, and physics majors.

Despite concerted efforts in the United States over the past 20 years to reduce a gender imbalance that favors men, women are still underrepresented in graduate programs and in employment that requires advanced training in engineering and the physical sciences. Choice of college major is an important factor in career development and vocational choice (Turner & Bowen, 1999). For example, a recent U.S. Department of Education report (Snyder & Hoffman, 2000, Table 258) showed that in 1996-1997, the percentages of bachelor's degrees earned by women in engineering and physics were 18% and 19%, respectively. Given these national enrollment patterns at the college level, the fact that women are underrepresented in advanced graduate training and in employment in these fields is not surprising. On the other hand, women have been and still are over-represented in fields such as early childhood education and nursing. Again, choice of college major seems critical as fully 89% of majors in these fields are women (Snyder & Hoffman).

In the current study, a college major that has had a recent and continuing history of gender enrollment differentials of 80% or greater was considered to be a *traditional* major for the majority gender and a *nontraditional* major for the minority gender. For example, engineering is a nontraditional college major for a woman but a traditional major for a man. Nursing, on the other hand, is a traditional college major for a woman but a nontraditional major for a man. Note that characterizations of majors as traditional or nontraditional were based on actual enrollment patterns, not personal beliefs or stereotypes.

The main purpose of the current study was to clarify choices of traditional and nontraditional majors by female and male college students enrolled in coeducational institutions. Solnick (1995) found that female students were more likely to leave female-dominated majors when enrolled in women's colleges as compared to coeducational institutions. On the other hand, Solnick also found that students in women's colleges were not more likely than female students in coeducational institutions to choose male-dominated fields. Thus, Solnick's study does not help explain why women choose nontraditional majors and did not analyze men's choices of majors. Canes and Rosen (1995) found that from 1974 to 1988, the number of female faculty members in various majors bore no relation to the number of female students who chose those majors at Whittier College, the University of Michigan, and Princeton University. Thus, a simple role model effect did not seem to be operating as an explanation for women's choice of majors. Again, this study did not address nontraditional choices in male college students. Turner and Bowen (1999) showed that a measure of academic ability, namely the Scholastic Aptitude Test (SAT; now called Scholastic Assessment Test) could only account for some of the variance in the gendered nature of college major choices.

Rather than academic ability, per se, students'

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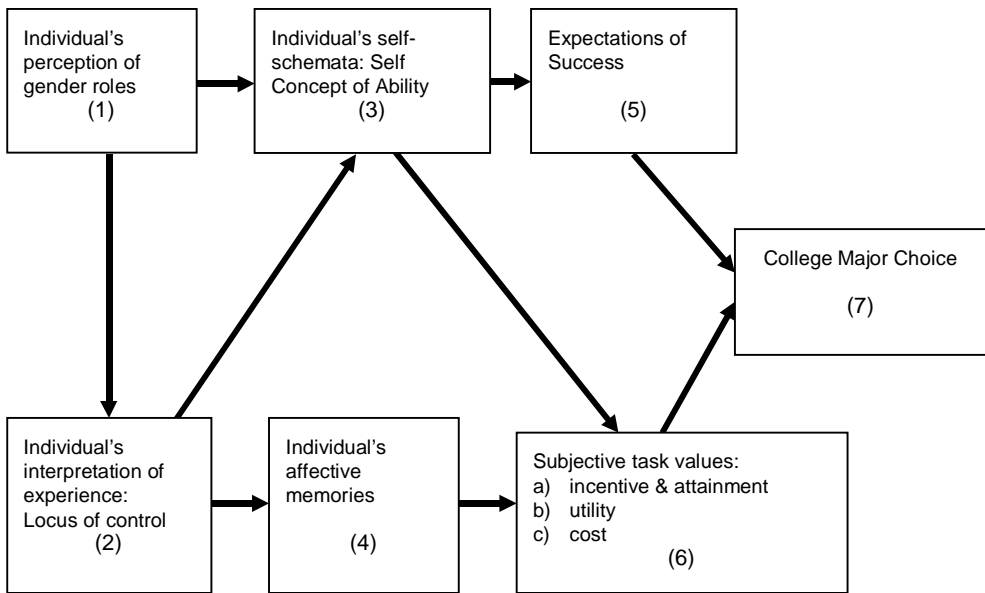
FIGURE 1. Expectancy-value model used to predict college students' choice of major.

Adapted from Figure 1 of Wigfield & Eccles (1992) by permission of Academic Press, Inc.

perceptions or beliefs about their own abilities and their feelings of self-efficacy have been shown to play a role in college major choice (Bergeron & Romano, 1994; Betz, Heesacker, & Shuttleworth, 1990; Hackett, 1985; Trusty & Ng, 2000). Eccles and her colleagues (Eccles, 1984, 1987, 1994; Eccles, Adler, & Meece, 1984; Wigfield & Eccles, 1992) have developed a theoretical model of achievement choice based on expectancy-value theory (see Figure 1) in an attempt to identify factors that influence individual achievement choice, persistence, and performance in a field of study. This model has been used to address questions relating to achievement behaviors, development of task values, and sex differences, especially for mathematics in the middle school and high school years. The current study expands upon previous efforts by including a wider range of majors and by focusing on college men as well as women as they make traditional, nontraditional, and gender-neutral choices of majors.

As can be seen in Figure 1, students' expectations for success in their major field of study (Component 5) and their personal sense of values (Component 6) are hypothesized to be proximal factors determining choice of major. Both expectations and values are each hypothesized to be influenced by students' academic self-concept (Component 3). Students' feelings about their previous academic experiences in high school (Component 4) should have an influence on their value systems. Finally, students' sense of gender identity (Component 1) and the degree to which they believe that their life experiences are under personal control (Component 2) are the most distal factors in the model. Use of an a priori model such as that depicted in Figure 1 to derive predictions is important in this study because students' choices had already been made and the design was therefore correlational and ex post facto in nature.

METHOD

Participants

The participants were 242 students enrolled in six different fields of study in a large, land grant, public university in the northeastern United

States. Table 1 shows the numbers of female and male students in each of these six fields. Physics and engineering were selected to represent male-dominated majors, with less than 20% female students, and were grouped together as *science* majors. Nursing, special education, and elementary education were selected as the female-dominated majors, with less than 20% male enrollment. These majors were grouped together to form a *helping profession* category. Mathematics and English were selected as neutral majors as nationally, mathematics has an enrollment ratio of 54% male to 46% female students, and English has an enrollment ratio of 34% male, and 66% female students. Enrollment numbers were obtained from the university institutional reports in 1993 and from the U.S. Department of Education (1991). A more recent U.S. Department of Education report (Snyder & Hoffman, 2000, Table 258) showed that for the 1996-1997 school year, the percentages of women earning bachelor's degrees in various fields were as follows: engineering, 18%; physics, 19%; mathematics, 47%; English, 66%; early childhood or elementary and special education, 89%; and nursing, 89%. Using a different methodology, Turner and Bowen (1999) had a similar classification of majors as dominated by either female or by male students. Finally, a report by McClain (2000) confirmed that both nursing and noncollege teaching are professions dominated by women. Thus, the enrollment patterns that formed the basis of our characterization of majors as gender-traditional or nontraditional have remained stable for most of the last decade.

Eighty-seven percent of the participants were enrolled at the university, 9% were from a neighboring engineering school, and 4% were from a neighboring liberal arts college. The latter institutions were used to obtain sufficient numbers of female students in engineering, and sufficient numbers of male students in education, and nursing.

Participants included 137 (57%) seniors, 89 (37%) juniors, 11 (5%) graduate or certificate-only students, 3 sophomores (1%), and 2 (1%) first-year students. The latter 16 students were all men enrolled in fields that are heavily subscribed to by female students. Students' self-identifications were as follows: 175 (72%) as Caucasian, 30 (12%) as Asian American, 17 (7%) as Hispanic, 12 (5%) as African American, and 8 (3%) as Other or no response. Ninety-four percent of the students reported that they were U.S. Citizens, and 86% said that English was their first language. Sixty-seven percent of the students reported that their high school GPA was B+ or above, and 29% reported C+ or above; 40% of the students reported that their current college GPA was B+ or above, and 54% reported C+ or above.

The mean age for all student participants was 24.5 (*SD* = 5.7) years old. Male students enrolled in education and nursing were significantly older (mean age = 31.7) than all other groups of

TABLE 1.

Number of Female and Male Students in Each Major Field of Study

	Major Field of Study					
	Engineering	Physics	Mathematics	English	Education	Nursing
Females	17	6	17	22	61	20
Males	35	18	16	10	10	10
Total #	52	24	33	32	71	30
(% of Total)	(22%)	(10%)	(14%)	(13%)	(29%)	(12%)

students, whose mean ages ranged from 21.9 to 24.8 years old. The tendency for male students in education and nursing to be older was true for both institutions from which students volunteered. This trend was responsible for a significant institutional difference in mean age.

Procedures

Statistical tests (ANOVAs using Institution and College Major as between-subject factors) were conducted to determine if students' demographic characteristics and scores on psychological variables differed by institution. In all cases except one (student age), results did not vary by institution. For this reason, institution was dropped as a variable in further analyses.

The study was conducted in the 1994-95 academic year. Department chairs and deans gave permission to contact instructors of upper-level courses in each major field (so the 5 first- and second-year male students who participated were enrolled in advanced college courses). Instructors gave permission for the first author to visit classes and take a few minutes to explain the study and solicit voluntary participation. All students in attendance received a packet of materials that contained a letter of introduction, instructions, questionnaires, and a return envelope. Students were asked to return unused packets if they declined to participate. Participation was completely voluntary and anonymous. Approximately 900 packets were distributed and 306 returned as completed (34% response rate). Sixty-four packets could not be used because students were not in an appropriate major field.

Students' self-perceptions of gender roles (Component 1 of Figure 1) were assessed with the Bem Sex-Role Inventory (BSRI) (Bem, 1974, 1981) and the Personal Attributes Questionnaire (PAQ) (Spence, Helmreich, & Stapp, 1974). Previous studies have shown that sex role identity is a factor in student decision making (Chusmir, 1990; Galbraith, 1992; Lemkau, 1984; Lyson & Brown, 1982; Strange & Rea, 1983; Williams, 1989). Reliability estimates for BSRI scales range from .80 to .86 (Bem, 1974); reliability estimates for the PAQ scales range from .80 to .98 (Spence et al.). Component 2 of the model

was measured by the Internal Control Index, which has a scale reliability around .85 (Dutt-weiler, 1984) and by the Internal-External Locus of Control Scale which has a test-retest reliability range from .49 to .83 (Rotter, 1966). Component 3 of the model was assessed by the Academic Self-Concept Scale, which has a reliability estimated at .92 (Reynolds, 1988). Component 4, students' affective memories for academic achievement, was assessed via questions devised for this study. For example, students rated their high school academic experiences on a 1 (*negative pole*) to 5 (*positive pole*) scale. Component 5, expectation for success in college academics, was also assessed via questions devised for this study. For example, students rated how well they expected to do in coursework this year as compared to other students in their major using a scale from 1 (*much worse than others*) to 5 (*much better than others*), with 3 indicating *average*. A factor analysis of responses yielded two factors: expected success on college grades, and expected success in career. These factor scores were used in subsequent analyses. Students' values (Component 6) were measured with the Rokeach Value Survey (Rokeach, 1973, 1983) and with a task value questionnaire devised for this study. On the latter instrument, students rated, on a 1 to 5 scale, the importance of various reasons for selecting their choice of college major (e.g., "I enjoy working with people," "This major leads to profitable careers.") A factor analysis of the task value questionnaire revealed four factors governing choice of major field: intrinsic interest in subject matter, humanitarian concerns, utility value, and outside influences. These factor scores were used in subsequent analyses.

The instruments when assembled into packets were presented in the following order: letter of introduction and instructions, demographic information sheet, BSRI, Rokeach Value Survey, student academic questionnaire, Academic Self-Concept Scale, task values questionnaire, Internal Control Index, PAQ, and Internal-External Locus of Control Scale. We were not able to record the time students actually took to complete these measures because the

measures were not completed in a laboratory setting. A student who completed the packet in one sitting would need 45 to 60 minutes.

RESULTS

Predicting Major Field Choices

Multiple regressions were run to assess the contribution of each variable included in the expectancy-value model to the choice of major field. Major field was therefore the dependent variable in these analyses and was dummy coded as follows: helping professions, 1; English, 2; mathematics, 3; and science, 4. Note that "higher scores" for major represent science majors. (Results did not vary appreciably when English and mathematics were coded together or when each of the six majors was coded separately.) The independent variables in the regression analyses were: expected success in college grades, expected success in career, intrinsic interest in subject matter, humanitarian concerns, utility value of major, outside influences, academic self-concept, affective memory about school, BSRI femininity score, BSRI masculinity scores, PAQ expressive scale score, PAQ instrumental scale score, PAQ Male-Female Positive scale score, internal control index, and the internal-external locus of control score. The Rokeach Value Survey was excluded because the results are rank-ordered scores and are not appropriate for use in regression analyses.

The results of the multiple regression analysis revealed an overall $R^2 = .45$; $F(15, 201) = 10.93$, $p < .001$. The beta weights and p values for the five significant predictors revealed by this analysis are reported in Table 2. Two value scores and three sex-role identity scores were significant predictors of students' choices for major fields. Students who endorsed humanitarian concerns and who had higher femininity scores were more likely to be in the helping professions than in the sciences. Students who did not endorse humanitarian concerns and who had lower femininity scores were more likely to be in the sciences than in the helping professions. Students who endorsed utility values, had higher masculinity scores, and higher male-female sex role scores were more likely to be in the sciences than in the helping professions. Students who did not endorse utility values, and had lower masculinity, and male-female sex role scores were more likely to be in the helping professions than in the sciences. Regressions were conducted for female students and male students separately. An $R^2 = .45$ was obtained for female students, $F(15, 109) = 6.09$, $p < .001$. Significant beta weights were obtained for humanitarian concerns (beta = $-.55$; $p < .001$), and for the BSRI femininity scale (beta = $-.26$, $p < .05$). The

TABLE 2.

Significant Predictors of Major Field Choices According to a Multiple Regression Analysis

Independent Variable	Beta Weight	Significant *T*
Utility Value of Major	+.13	$p < .05$
BSRI Masculinity Scale	+.17	$p < .05$
BSRI Femininity Scale	−.19	$p < .01$
PAQ Male-Female Positive Scale	+.26	$p < .01$
Humanitarian Concerns	−.50	$p < .001$

Note. Positive values indicate a choice in the direction of science fields; negative values indicate a choice in the direction of helping profession fields.
BSRI = Bem Sex-Role Inventory.
PAQ = Personal Attributes Questionnaire.

TABLE 3.

Rank-Order Differences Among Four Major Fields on Sex Role Identifications,
Academic Experiences, Expectancies, Satisfaction, Self-Concept, and Values

	Major Field of Study			
	English	**Education & Nursing**	**Engineering & Physics**	**Mathematics**
BSRI Feminine	3 [b]	1 [a]	4 [b]	2 [b]
PAQ Expressive	3 [b]	1 [a]	4 [b]	2 [a,b]
PAQ Male-Female	1 [a]	2 [a]	4 [b]	3 [b]
Academic Self-Concept	1 [a]	2 [a,b]	3 [b,c]	4 [c]
Affective memories	1 [a]	2 [a,b]	3 [b,c]	4 [c]
Satisfaction with major	1 [a]	2 [a]	3 [a,b]	4 [b]
Expected grades	1 [a]	2 [a]	3 [b]	4 [b]
Intrinsic interest in subj.	1 [a]	2 [b]	3 [c]	4 [c]
Humanitarian concerns	2 [a]	1 [a]	4 [b]	3 [b]

Note. Rank of 1 = *highest scoring major*, rank of 4 = *lowest scoring major*. An ANOVA revealed a significant main effect due to major field for each variable listed. Row superscript values that differ indicate significant mean differences ($p < .05$) between majors according to post hoc tests.

regression for male students yielded an $R^2 = .33$, $F(15, 76) = 2.53$, $p < .01$. Significant beta weights were obtained for humanitarian concerns (beta = $-.33$, $p < .05$), utility value of major (beta = $.22$, $p < .05$), and PAQ male-female positive scale (beta = $.32$, $p < .05$).

Profiles of Different Major Fields

Separate Sex of Subject (2) × Major Field of Study ANOVAs were conducted on each of the variables used to predict choice of major. In only 1 of 15 cases was the sex of subject × major interaction significant (for the PAQ-Expressive scale). In only three cases was a significant main effect for sex of subject obtained and each of these involved sex role identifications (females were higher on the BSRI femininity and PAQ male-female scales; males were higher on the BSRI masculinity scale). In contrast to the generally nonsignificant effects due to student sex, a significant main effect for major field was obtained in 9 of 15 cases. These differences are summarized in Table 3.

The profiles of English majors and students in the helping professions were very similar to one another as were the profiles of students in the sciences and in mathematics. The helping profession students were set apart by their identification with feminine and expressive sex roles and their endorsement of humanitarian concerns. Along with the English majors, helping profession students expressed more positive academic memories, higher academic self-concepts, expected to receive higher grades, were more satisfied with their majors and expressed a greater intrinsic interest in their majors than did students in the sciences and mathematics.

Grades received in major courses were likely responsible for the above patterns pertaining to academic self-concept and satisfaction with major. One-way ANOVAs using the four major fields as the independent variable and students' self-reported grades as the dependent variable revealed several significant differences among majors. The majors did *not* differ on self-reported high school GPAs. Significant effects were

obtained for expected grades in current major courses, $F(3, 237) = 6.15$, $p < .001$; current college GPA, $F(3, 237) = 7.41$, $p < .001$; current major GPA, $F(3, 237) = 5.08$, $p < .002$; and expected GPA at graduation, $F(3, 237) = 7.85$, $p < .001$. Post hoc LSD tests revealed that science majors reported lower grades than English and helping profession students in all cases; mathematics students reported lower grades than English students in all cases; and mathematics students reported lower grades than helping profession students for expected grades in current major courses and in expected GPA at graduation. We found no significant differences between science and mathematics majors nor were there significant differences between English and helping profession majors in grades. Students' total academic self-concept scores and their overall satisfaction with major scores were each significantly correlated with each of the above grade scores (except high school GPA). For example, academic self-concept and major GPA were correlated $r(239) = .525$, $p < .001$; satisfaction with major and expected GPA at graduation were correlated, $r(239) = .344$, $p < .001$. Interestingly, students' self-reported intrinsic interest in their major area was not significantly correlated with their self-reported grades. Academic self-concept and satisfaction with major were significantly correlated, $r(239) = .433$, $p < .001$.

DISCUSSION

Why do certain majors continue to show marked gender imbalances in terms of enrollments? This pattern has persisted with respect to engineering and the physical sciences in spite of concerted efforts over the last two decades at the national, state, and institutional levels to increase the participation of women. (Similar efforts to increase the participation of men in nursing and in early childhood education have not occurred with the same vigor.) Recent studies have shown that students' choices of majors cannot be fully explained by institutional factors such as single-sex versus coeducational or numbers of female faculty in various departments (Canes & Rosen, 1995; Solnick, 1995) or by academic ability as

measured by the SAT (Turner & Bowen, 1999). Institutional variables and intellectual ability no doubt play a role in selection of a major, but they are not the whole story. Previous work using expectancy-value theory (Eccles, 1984, 1987, 1994; Eccles et al., 1984; Wigfield & Eccles, 1992) has shown that reframing the question about gender imbalances in academic achievement in terms of students' choices is useful. The question becomes, Why do women tend to choose certain majors and men choose certain other majors? The current study has added to this work by expanding this basic question to include not only traditional and nontraditional choices in men as well as women, but also by including major fields that do not show large gender imbalances in enrollments (English and mathematics). The current results show that the model depicted in Figure 1 can account for a wide variety of choices made by female and male college students.

As it turned out, students' value systems but not their expectancies for success were a significant predictor of major choices. For both men and women alike, endorsement of humanitarian concerns was associated with selection of a helping profession major and failure to endorse humanitarian concerns was associated with selection of a science major. In addition, students in a helping profession ranked first, and students in a science major ranked last, on the humanitarian concern scale. Stressing the importance of the utility value of a major was also found to be associated with selection of a science major, especially in male students. The design of our study does not allow us to specify a causal direction for these significant relationships between values and choice of college majors. It is likely that students select courses of study based on their value systems and that once the courses are selected, experiences in those courses tend to reinforce those value systems. For example, students who want to help others might be drawn to early childhood or special education, or to nursing, and subsequent experiences in those majors such as stressing the importance of meeting student and patient needs, serve to underscore the importance of helping others. Students who find their humanitarian value

systems to be contradicted by their experiences in courses are likely candidates to discontinue study in that field, especially if a mismatch becomes evident (cf. Lips, 1992; Ware & Lee, 1988).

College advisors can use this information to help students select courses and majors. Brief interviews with students about their values can be of assistance in course selection. On the other hand, perhaps the status quo can be changed. College instructors need to be mindful that a failure to consider a broad spectrum of student values in their courses might be shrinking the potential pool of students who select additional courses in that field. Science instructors, in particular, tend to view their role as teachers in terms of presenting facts and principles much more than a focus on student development (Angelo & Cross, 1993). College professors cannot change the fact that beginning engineers tend to earn higher salaries than beginning teachers in the current job market. However, engineering faculty can point out the benefits to society that accrue from the work of engineers just as education faculty can point out some of the economic-utilitarian benefits associated with a K-12 teaching career (job security, steady income growth, 10-month contracts, etc.). College personnel need to emphasize the full range of values that are associated with all fields of study as a means to increase diversity in the major pool. However, at a given institution, if a major is associated with certain value systems (such as humanitarian concerns) but not others (such as utilitarian concerns), college personnel can use this information in advising students who are uncertain about which path to pursue.

Of course, students select courses and majors based on their prior academic performance and their expectancies for future academic performance in that field, not just on the basis of their value systems. The fact that we did not find expectancy for success to be a predictor of college major choice is not a serious threat to the expectancy-value model because we only asked students how they expected to do in their current and future fields compared to others in those same fields. Recall that our sample consisted of declared majors (mostly third and fourth year students). If we had asked students how they expected to perform in a wide range of courses, we might have found expectancy to predict choice as well. A test of this part of the model would require administration of an expectancy-for-success measure in a wide variety of majors at the start of the first year of study with a longitudinal follow-up.

As for the more distal factors described by the model in Figure 1, only gender role orientation was found to be predictive of college major choice. For women, a higher score on the BSRI femininity scale was associated with choice of a helping profession major. For men, a higher score on the BSRI masculinity scale and the PAQ male-female positive scale was associated with a choice of a science major. These associations suggest that gender role identifications are influential in students' choices of fields of study. Scores on the gender role identification measures were the only ones in the study to vary significantly by sex of student. Given these sex differences and the fact that a feminine orientation was associated with choice of a helping profession major, whereas a masculine orientation was associated with choice of a science major, it would seem that traditional sex-role stereotypes are still operative in student decision making. This conclusion is not as surprising for male students' avoidance of nontraditional majors as it is for female students' avoidance of nontraditional majors given the efforts that have been made to attract women into engineering and the physical sciences. In sum, students' choices of college majors can be explained by their sex-role orientation and by their value systems.

The results of this study also showed that the majors sampled had distinct profiles on the variables assessed and that these profiles did *not* vary by sex of student. English and helping profession majors generally scored higher than mathematics and science majors on academic self-concept, academic affective memories, satisfaction with major, expected grades in major, and intrinsic interest in subject matter. We were interested to note that these measures of academic self-evaluation and performance were higher in the majors that have a predominance of female to male students. The fact that these

results did not vary with the sex of student means, for example, that women majoring in English and the helping profession majors were more similar to men in these same fields than they were similar to women in mathematics or the science majors. The majors had distinct profiles such that mathematics and science majors had lower academic self-concept scores, were less satisfied with their major, and had less intrinsic interest in their major than English and helping professions majors.

Many of these differences among majors seemed to reflect the fact that students in the sciences and in mathematics reported receiving and expected to receive lower grades than students majoring in English and in the helping professions. College course grades have been found to vary in this fashion in several empirical studies (see Young, 1993, for a review). In the current study, the impact of grades was found to be substantial across majors. Students' self-reported GPAs in their majors correlated with academic self-concept scores. Students' self-reported expected GPAs at graduation correlated with their current satisfaction with their majors. College advisors may want to have recent institutional GPA information by major field in order to help students choose majors or to help them evaluate their performance relative to other students in a major as requirements are completed. In any event, students' feelings and beliefs about their grades apparently had an impact on the distinct major profiles observed in this study.

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REFERENCES

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques. A handbook for college teachers* (2nd ed.). San Francisco: Jossey-Bass.

Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42,* 155-162.

Bem, S. L. (1981). *Bem Sex Role Inventory Permissions Set.* Palo Alto, CA: Consulting Psychology Press.

Bergeron, L. M., & Romano, J. L. (1994). The relationships among career decision-making self-efficacy, educational indecision, vocational indecision, and gender. *Journal of College Student Development, 35,* 19-24.

Betz, N. E., Heesacker, R. S., & Shuttleworth, C. (1990). Moderators of the congruence and realism of major and occupational plans in college students: A replication and extension. *Journal of Counseling Psychology, 37,* 269-276.

Canes, B., & Rosen, H. (1995). Following in her footsteps? Faculty gender composition and women's choices of college majors. *Industrial and Labor Relations Review, 48,* 486-504.

Chusmir, L. H. (1990). Men who make nontraditional career choices. *Journal of Counseling and Development, 69,* 11-16.

Duttweiler, P. C. (1984). The internal control index: A newly developed measure of locus of control. *Educational and Psychological Measurement, 44,* 209-221.

Eccles, J. S. (1984). Sex differences in achievement patterns. In T. B. Sonderegger (Ed.), *Nebraska symposium on motivation: Vol. 32. Psychology and gender* (pp. 97-132). Lincoln: University of Nebraska Press.

Eccles, J. S. (1987). Gender roles and women's achievement-related decisions. *Psychology of Women Quarterly, 11,* 135-172.

Eccles, J. S. (1994). Understanding women's educational and occupational choices. *Psychology of Women Quarterly, 18,* 585-609.

Eccles, J. S., Adler, T., & Meece, J. (1984). Sex differences in achievement: A test of alternate theories. *Journal of Personality and Social Psychology, 46,* 26-43.

Galbraith, M. (1992). Understanding career choices of men in elementary education. *Journal of Educational Research, 85,* 246-253.

Hackett, G. (1985). Role of mathematics self-efficacy in the choice of math-related majors of college women and men: A path analysis. *Journal of Counseling Psychology, 32,* 47-56.

Lemkau, J. P. (1984). Men in female-dominated professions: Distinguishing personality and background features. *Journal of Vocational Behavior, 24,* 110-122.

Lips, H. M. (1992). Gender- and science-related attitudes as predictors of college students' academic choices. *Journal of Vocational Behavior, 40,* 62-81.

Lyson, T. A., & Brown, S. S. (1982). Sex-role attitudes, curriculum choice, and career ambition: A comparison between women in typical and atypical college majors. *Journal of Vocational Behavior, 20, 366-375.*

McClain, D. L. (2000, June 14). A growing gender gap (and it's not what you think). *The New York Times,* p. G1.

Reynolds, W. M. (1988). Measurement of academic self-concept in college students. *Journal of Personality, 55,* 223-240.

Rokeach, M. (1973). *The nature of human values.* New York: Free Press.

Rokeach, M. (1983). *Rokeach Value Survey.* Palo Alto, CA: Consulting Psychology Press.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1, Whole No. 609).

Snyder, T. D., & Hoffman, C. M. (2000). *Digest of Education Statistics, 1999, NCES 2000-031.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Solnick, S. (1995). Changes in women's majors from entrance to graduation at women's and coeducational colleges. *Industrial and Labor Relations Review, 48,* 505-514.

Spence, J. T., Helmreich, R., & Stapp, J. (1974). The personal attributes questionnaire: A measure of sex-role stereotypes and masculinity-femininity. *JSAS Catalogue of Selected Document in Psychology, 4,* 43-44.

Strange, C. C., & Rea, J. S. (1983). Career choice considerations and sex role self-concept of male and female undergraduates in nontraditional majors. *Journal of Vocational Behavior, 23,* 219-226.

Trusty, J., & Ng, K. (1999). Longitudinal effects of achievement perceptions on choice of postsecondary major. *Journal of Vocational Behavior, 57,* 123-135.

Turner, S. E., & Bowen, W. G. (1999). Choice of major: The changing (unchanging) gender gap. *Industrial and Labor Relations Review, 52,* 289-313.

U.S. Department of Education, National Center for Educational Statistics. (1991). *Degrees and other formal awards conferred.* Washington, DC: Author.

Ware, N. C., & Lee, V. E. (1988). Sex differences in choice of college science majors. *American Education Research Journal, 25,* 593-614.

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12,* 265-310.

Williams, C. L. (1989). *Gender differences at work: Women and men in nontraditional occupations.* Berkeley: University of California Press.

Young, J. W. (1993). Grade adjustment methods. *Review of Educational Research, 63,* 151-165.

College Student Performance and Credit Card Usage

Mary Beth Pinto   Diane H. Parente   Todd Starr Palmer

Over 1000 students at 3 college campuses in the Northeast were surveyed. The sample was evenly divided by gender. Eighty percent of the sample was traditional students. The original sample was reduced to 260 students having at least one credit card and was classified into groups as high or low academic performers. The groups did not differ in terms of the number of credit cards and outstanding balances; however, they differed significantly in the level of anxiety felt from carrying debt, perceived need to work, and perceived impact of employment on academic performance.

Much has been written in the popular press on credit card usage and spending patterns of American college students (Blair, 1997; Fine, 1999; Leon, 1998; Lynn, 1998; Murdy, 1995; Newton, 1998; Susswein, 1995). The proliferation of credit cards and their ease of acquisition ensure that college students today have more opportunities for making credit purchases than any prior generations of college students (Schor, 1998). Indeed, college campuses have become one of the most common sites for undergraduates with no credit history to sometimes acquire multiple credit cards. College officials and consumer advocacy groups have increasingly voiced their concerns about the effect that unlimited access to credit card spending may have on college student performance (Gordon, 1999; Hitti, 2000). Specifically, they have argued that the enhanced spending opportunities available through easy access to credit cards is likely to increase students' need to work extended hours to pay off outstanding balances, which could adversely affect academic performance (Grazier, 1998).

Many college administrators believe that credit card ownership encourages students to become consumers too early, at a time when they should be more appropriately engaged in academic pursuits. Lehigh University, for example, has banned credit card marketing on its campus because of its belief that credit cards create financial pressures for college students that negatively impact academic performance (Geraghty, 1996). Parks (1999) reported that college administrators perceived that credit card usage leads to depression and dropping out.

Predictably, financial institutions that actively market credit cards to college students take an opposing viewpoint and have suggested that college students are more sophisticated consumers than they actually are. These financial institutions further have contended that the majority of college students use credit cards responsibly, leaving college with reasonable credit card balances (Institute for Higher Education Policy, 1998). These institutions are highly motivated to "capture" these young consumers while still in college, as their research verifies that early customers tend to be lifelong customers (Vickers, 1999). Financial institutions have actively sought opportunities to work in partnership with colleges across the country to gain access to these thousands of prospective customers.

Many colleges hold an ambivalent attitude toward credit card solicitation on their campuses. Although many campus officials have decried the potential for excessive consumerism that unrestricted access to credit cards offers their students, they also have stood to reap significant financial rewards through working in partnership with the institutions issuing credit cards. Colleges

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routinely have allowed credit card banks to set up tables in student unions and other high-traffic areas and to promote social events sponsored by the colleges. At The Pennsylvania State University, for example, any student calling to register for classes over the telephone has had to first listen to a taped advertisement from a bank followed by an option to sign up for the card over the telephone.

As mirrored in the context of the larger society, the popularity of credit cards is beyond dispute. Credit cards have financed billions of dollars in purchases annually. Fueling this "possession obsession" is a prevailing culture of materialism, the availability of credit to all facets of society, and the lack of stigma attached to debt accumulation (Pinto, Parente, & Palmer, 2000). Students often acquire credit cards and become knowledgeable in their use prior to matriculating at their universities (Hitti, 2000). Indeed, one could reasonably argue that the current generation of college students is the first that has grown up having open access to credit and being comfortable in its use (Ritzer, 1995). How they choose to use credit cards (i.e., their spending patterns) therefore becomes an important issue in more fully understanding the effect that credit card usage can have on college students.

One aspect of any examination of college students' credit card activity is their roles as members of Generation Y (Y'ers), individuals born from 1977 to 1998 whose parents were born during the baby boom or Generation X (Von Bergen, 1998). This emerging market has been highlighted by the media and aggressively courted by marketers.

Y'ers have grown up as lifelong consumers, influencing the purchasing decisions of their parents in a variety of situations such as retail stores, at home, in cars, at the movies, during TV viewing, on vacation, and so on. Although some Y'ers had their own money and made their first purchases as young as preschool age, the median age for beginning these activities is 8 years (McNeal & Yeh, 1993). Shopping, buying, and going to malls are an integral component of socializing and serve as a major form of entertainment.

Changing social and cultural trends, along with technological advances have shaped many of the behaviors of this group (Omelia, 1998). Because a majority of Y'ers have been raised (or are being raised) in nontraditional families with mothers who work full-time, they have become independent consumers earlier in life than did previous generations (McNeal & Yeh, 1993). In addition, due to their technological sophistication, Generation Y is a prime target for companies using the Internet and other technologies to pitch their products and services (Krol & Cuneo, 1998). As a result, they are much more likely to use the World Wide Web to order merchandise and make payments (Mulhern, 1997).

The spending power of this generation is enormous. They are expected to have a buying power of roughly $156 billion by the year 2000 (Dugas, 1999). The majority of this group, ages 16 to 18, work either full- or part-time (Munk, 1997). According to Bureau of Labor statistics, Generation Y started working very young; 57% of all 14-year-olds have some work experience (Mandell, 1999). Not only does Generation Y have more money than previous generations, they like spending it; saving money for college or contributing a portion to the family were not major reasons for employment (Armstrong, 1999; Speer, 1998).

An enormous amount of research has examined factors that are related, either positively or negatively, to college student academic performance. Among the factors that have been found to predict, or at least correlate with student performance are: personal background of the student (Betts, 1999), academic factors (Bourde, 1998; Ely, 1990), stress (Barling, 1999; Goldman, 1997) and lifestyle activities (Cheung, 1998; Emmons, Wechsler, Dowdall, & Abraham, 1998; Maloney, 1993). Interestingly, one major component of college students' lifestyles is employment (National Center for Education Statistics, 1997). Today, 55% to 80% of students work while attending college (King, 1998; Miller, 1997). Although no doubt many students are forced to work to finance their education, several authors have argued that college students often voluntarily decide to seek employment so that they can make certain lifestyle choices. Employ-

ment offers them the means to have many of the material goods afforded by their parents.

The research on student employment and its impact on academic performance offer some mixed messages. Some findings show a non-significant relationship between part-time work commitments and academic achievement (Davis & Murrell, 1993; Hatcher, Prus, Endlehard, & Farmer, 1991). Other research suggests that students who work off campus tend to show less persistence in academic pursuits and tend to graduate later (Ehrenberg, 1987; Pascarella & Terenzini, 1991; Volkwein, 1989). For example, Bourde, Byrd, and Mondani (1996) found a negative relationship between hours of employment and academic performance in an introductory finance course. At the very least, employment has been shown to have a negative impact on whether students enroll the next year in school and tends to delay graduation (Ehrenberg, 1987; King, 1998).

As it relates to the current examination of the effect of credit card acquisition and usage, this past research poses some intriguing questions. To what degree does credit card usage negatively impact academic performance? Do students seek employment to pay off credit card bills? Do employment obligations harm college student academic performance? At what point do the hours spent on the job interfere with the academic achievement of college students? This paper seeks to clarify the relationship between academic performance and credit card usage among college students. The popular press is filled with conjecture about the effects of credit card usage and consumption patterns on college student performance. Many authors have argued that credit cards are a critical threat to academic success on college campuses today (Parks, 1999; Grazier, 1998; Dugas, 1999). At the heart of these concerns is the belief that access to credit cards promotes excessive spending and debt accumulation among college students. This high debt becomes a source of anxiety for students who are forced to devote more of their free time to working in order to pay off credit card balances.

We had two sets of hypotheses. The first three hypotheses were focused on the relationship between credit card usage, employment, and academic performance. The remaining hypotheses concerned differences between high versus low academic performers in terms of credit card usage, hours of employment, perceived need for employment, and anxiety toward credit card usage.

1. Credit card usage and employment will be significantly related.

2. Employment and academic performance will be significantly related.

3. Credit card usage and academic performance will be significantly related.

4. High academic performers will differ significantly from low academic performers in terms of credit card usage.

5. High academic performers will differ significantly from low academic performers in terms of the number of hours worked.

6. High academic performers will differ significantly from low academic performers in terms of their perceived need to work for the purpose of paying off their credit cards.

7. High academic performers will differ significantly from low academic performers in terms of the perceived impact of employment on academic performance.

8. High academic performers will differ significantly from low academic performers in terms of their anxiety about debt accumulation due to credit card usage.

METHOD
Participants

A total of 1,022 students participated in the study. Given the purpose of this study, only those respondents indicating that they had at least one personal credit card were used from the surveys collected, yielding 735 responses. Eighty percent of the sample fell into the age range of 18 to 22 years. The remaining sample included older (nontraditional) students. Fifty-one percent of the sample was female; 86% of the sample was single. The average number of credit cards per student was 2.6 and the range was 1 to 18. The

average outstanding balance carried month-to-month by the overall sample of students was $846.

Instrument

A three-stage process was employed to develop the research instrument. First, we conducted a thorough literature review of extant research on credit consumerism, college student spending patterns, and college student attitudes toward credit (Blair, 1997; Campbell-Rock, 1992; Kara, 1994; Omelia, 1998; Souccar, 1998). Second, two focus groups, composed of a total of 15 undergraduate college students, were conducted. The students were asked to discuss their lifestyles and spending habits—specifically, how they spent their time and their money. Particular attention was directed toward the students' attitudes toward credit and perceived benefits and drawbacks of credit. In the third stage of the process, a questionnaire was developed drawing on the information gained from the secondary research and insights for the exploratory research. The questionnaire was pretested using approximately 50 college students in an entry-level marketing course. Follow-up interviews were conducted with approximately 10 students to ascertain any problems with wording or understanding. The survey was revised based on the pretesting results.

In this study, we focused on six key variables: academic performance, credit card usage, hours worked, Perceived Need to Work, Perceived Impact of Employment on Academic Performance, and Anxiety Toward Credit Card Usage.

Academic performance. Academic performance was measured by asking students to indicate their college GPA on an 8-point categorical scale: 1 = *.00 to .50*; 2 = *.51 to 1.00*; 3 = *1.01 to 1.50*; 4 = *1.51 to 2.00*; 5 = *2.01 to 2.50*; 6 = *2.51 to 3.00*; 7 = *3.01 to 3.50*; and 8 = *3.51 to 4.00*. Responses were transformed to interval data by converting the midpoint of the category (e.g., 2.01 to 2.50 = 2.25). One assumption made when dealing with categorical data is that all observations are concentrated at the midpoint of the interval. This assumption is made in the calculation of statistics such as means,

standard deviations, and the construction of frequency polygons (Ferguson & Takane, 1989).

Credit card usage. Credit card usage was defined as the number of credit cards possessed and the respondents' outstanding credit balance. The first item in the questionnaire asked students to indicate the number of credit cards they had (excluding gasoline credit cards) (Mathur, 1994). Next they were told to record information for each of their credit cards. They were asked to start with their bankcards and report on the cards with the highest balances first. If they possessed more than four cards, they were to record information only on the cards with the highest balances.

Hours worked. Students were asked to indicate how many hours per week they spent working for pay: 1 = *0 hours*; 2 = *1 to 10 hours*; 3 = *11 to 20 hours*; 4 = *21 to 30 hours*; 5 = *31 to 40 hours*; and 6 = *more than 40 hours*. Responses were transformed to number of hours spent per week by converting the midpoint of the category (e.g., 1 to 10 hours per week = 5 hours per week). The same assumption regarding categorical data was made as noted above (Ferguson & Takane, 1989).

Perceived Need to Work and Perceived Impact of Employment on Academic Performance. To assess college students' perceived need to work to pay off their credit cards and the Perceived Impact of Employment on Academic Performance, participants completed two single-item measures: "I find myself having to work more hours to pay off my credit cards," and, "If I was not working so many hours at my job, I would do better in school." On both items, respondents indicated their agreement with the statements on 5-point Likert-type scales ranging from strongly disagree to strongly agree.

Anxiety Toward Credit Card Usage. Pinto et al. (2000) identified three factors in Attitude Toward Credit Card Usage: (a) Knowledge of Benefits and Drawbacks of Credit Card Use, (b) Anxiety About Credit, and (c) Access to Credit. In this paper, we specifically focused on the second factor, Anxiety About Credit. Anxiety was measured by three items with statements such as, "Whenever I use a credit card I worry about paying it off." On all items, respondents

indicated their agreement with statements on 5-point Likert-type scales ranging from strongly disagree to strongly agree. The coefficient alpha for this factor was .64. Although this coefficient alpha is lower than the fixed standard value of .70 suggested by Nunnally (1978), Carmines and Zeller (1979) contended that for exploratory studies employing new scales, a more relaxed standard is acceptable.

Procedure

The research was conducted at three colleges in the Northeast during the academic year of 1998-1999. In collecting data, we deliberately sought a mix of public and private schools, as well as a mix of college majors among the survey respondents. A convenience sample of professors at each of the colleges was contacted and asked to allow their students to participate in the study by filling out a survey administered in their classes. Whenever possible, one of us or a local contact person was also present to answer any questions or clear up misunderstandings while the survey was administered.

We followed Richins and Dawson's methodology (1992) to create three groups for Academic Performance based on the students' self-reported GPA. Due to the frequency distribution across the GPA categories we divided the sample into four groups initially, consisting of the following GPA ranges: less than or equal to 2.50, 2.51 to 3.00, 3.01 to 3.50, and 3.51 to 4.0). Our sample distributed respectively across these four categories as: 160 or 21.8%, 243 or 33%, 213 or 29%, and 119 or 16%.

To create a clear separation between groups following the Richins and Dawson methodology (1992), we chose Group 1 (GPA = 2.50) to represent the Low Performers. Likewise, we chose Group 4 (GPA = 3.51 to 4.00) to represent the High Performers.

In this manner, the original starting sample was reduced from 735 to 297 through eliminating the Medium Academic Performer groups ($n =$ 438). Listwise deletion of missing items further reduced the final sample size by 37 for a final research sample of 260. This sample was divided between the High ($n = 114$) and Low ($n = 146$) Academic Performers.

The High and Low groups were then compared using t tests to assess significant differences in terms of credit card usage, hours worked, attitude toward working, and attitude toward credit card usage. Sixty-one percent of the nontraditional students were in the High Academic Performer group. The High and Low Academic Performance groups did not differ significantly in terms of age, gender, or marital status.

RESULTS

Correlation analysis was used to test the first three hypotheses. We found a significant relationship between credit card usage (both in terms of number of cards and total balance) and employment, demonstrating support for Hypothesis 1. However, employment and credit card usage were not significantly related to academic performance. Therefore, Hypothesis 2 was not supported. Finally, as shown by the near-zero correlation between academic performance and credit card usage (using either number of cards or total balance), Hypothesis 3 also was not supported. Our findings suggest no significant relationship between academic performance and number of credit cards or balance owing.

The next two hypotheses pertained to credit card usage and number of hours worked (Hypotheses 4 and 5). Table 1 shows a comparison of high and low academic performers in terms of credit card usage and employment using a t test of significant differences, the statistical analysis used for comparing means of two groups. As the table illustrates, we found no significant difference between high and low academic performers in terms of the number of credit cards or total balances. Subjects reporting high GPAs possessed, on average, 2.77 credit cards, whereas those reporting low GPAs possessed 2.96 cards. In addition, although the low academic performance group reported higher average outstanding credit card balances ($912) than the high academic performance group ($857), the difference was not statistically significant. Therefore, we found no significant difference between high versus low academic performers in terms of their credit card usage.

TABLE 1.

Academic Performance, Usage, and Employment

| | Academic Performers | | |
Variable	High (n = 114)	Low (n = 146)	t
Credit Card Usage			
Number of cards	2.96	2.77	.72
Total balance	$857.00	$912.00	− .31
Employment			
Hours worked	14.68	14.44	.13

To rule out possible alternative explanations, we evaluated the impact of gender and class standing individually. With respect to total balance, we found no difference between high and low academic performers when controlling for either gender or class standing. However, both gender and class standing significantly impacted the number of cards held by high and low academic performers. Females across all academic years carried significantly ($p < .05$) more cards than males (3.35 vs. 2.34). Juniors and seniors also carried significantly ($p < .05$) more cards than first-year students and sophomores (3.53 versus 2.32).

Table 1 also shows the comparison between high and low academic performers and the number of hours worked per week. Both groups worked approximately 14.5 hours per week. We found no statistically significant difference between high and low academic performers in terms of the number of hours they reported working per week.

When controlling for gender we found no difference in the number of hours that high and low academic performers worked. In contrast, when controlling for class status, we found a significant difference between low and high academic performers. Upperclassmen worked more than 5 hours more per week than did first-year students and sophomores (17.8 versus 12.6).

Table 2 shows the t-test results on differences between the high academic performer group and the low academic performer group in terms of their Perceived Need to Work, Perceived Impact of Employment on Academic Performance, and Anxiety Toward Credit Card Usage (Hypotheses 6, 7, and 8). Hypothesis 6 pertained to students' perceived need to work to pay off their credit cards. The low performers were significantly different from the high performers in that they reported having to work more hours to pay off their credit cards.

The results indicate that low performers felt that their employment has an impact on their academic performance (Hypothesis 7). The low performance group showed significantly higher agreement than the high performance group with the statement, "If I was not working so many hours at my job, I would do better in school."

In terms of Anxiety Toward Credit Card Usage, the results shown in Table 2 were also significant. High academic performers were significantly more anxious about their credit card usage than were the low performers (Hypothesis 8). This result was consistent with anecdotal information that high performers tend to be more anxious in many areas. The low performers rationalized the use of credit cards but were less likely to worry about paying off their debt than were the high performers.

When controlling for gender and class standing, Hypotheses 6, 7, and 8 continued to be significant. The difference reported in the perceptual variables (Perceived Need to Work,

Perceived Impact of Employment, and Anxiety Toward Credit Cards) between high and low academic performers was not affected by either gender or class standing. We also tested the interaction between gender and age and found no significant difference.

DISCUSSION

Our findings demonstrate a significant relationship between credit card usage (both number of cards owned and balances carried from month to month) and the number of hours students worked. Interestingly, however, when these variables were correlated with overall academic performance, no significant relationship was found. Apparently, some students (those classified as low performers) did perceive the need to work additional hours while in school to pay for their credit card spending habits. This does not seem, however, to have resulted in any overall deleterious effect on academic performance.

A comparison of high and low academic performers in terms of credit card usage yielded some interesting results. First, although the two groups (high and low performers) did not significantly differ in terms of the number of cards they had, outstanding balances, and the number of hours they worked per week, our findings revealed real differences with regard to how the two groups perceived credit cards

impacting their college performance. Low performers as a group indicated that paying off credit cards was a key reason for their employment. Further, they believed that if they did not have to work to pay off their credit card debt, they would do better in the classroom. One could argue that this position represents a rationalization for lower performance; however, there is little question that their perceived need to work does impact on student psyches. High performers, on the other hand, although not demonstrating the same degree of perceived need for working to pay off credit cards, showed their own detrimental effects from credit card spending. Anxiety levels among high academic performers were significantly higher than lower performers in terms of their credit card use.

Could one argue that an anxious state is common in higher academic performers? Certainly one could make the case that pressures to perform (in the form of anxiety) could be a motivator, particularly with higher academic achievers (Donohue, 1997). On the other hand, our research bears out the impact that, all other things being equal, credit card spending contributed to a high-performing student's anxiety. Low performers, although feeling greater perceived need to work to pay off credit cards and perceiving the effect of work on their academic performance, were not as inclined to show related anxiety about debt accumulation.

TABLE 2.
Academic Performance, Perceptions, and Anxiety

Scale	Academic Performers		
	High (*n* = 114)	Low (*n* = 146)	*t*
Perceived Need to Work— paying off credit cards	−.21	.26	−3.43**
Perceived Impact of Employment on Academic Performance	.22	.30	−3.94***
Anxiety toward Credit Card Usage	.22	−.13	2.74**

Note. All scores are standardized.

**$p < .01$.   ***$p < .001$.

Counter to the impact of credit card usage on high academic performers (higher anxiety levels) were the demonstrated effects of credit card usage on low performers. As we noted, as a group, they tended to perceive a greater need to work to pay off credit card debt and believe that this extra work had a negative effect on their academic performance. It suggests an interesting irony; high performers work as many hours on average as low academic performers, carry the same number of credit cards, and average balances. Yet, our research suggests that low performers experienced greater internal pressure to work to pay off balances and were, therefore, more inclined to use these factors (credit card debt and work) as rationalizations for lower performance.

Our findings can inform academic administrators and student affairs practitioners who counsel students about finances and spending habits. High and low academic performers differed significantly in their perspectives regarding the need to work to pay off their credit card debt, the perceived impact of employment on their academic success, and their debt anxiety. These differing perspectives should be taken into consideration when developing and implementing debt education seminars and debt counseling on campus. For example, low performers as a group were more likely to justify (or rationalize) working extra hours to reduce or pay off their debt. Such students may be less willing to stop the "spend-work-pay" cycle that their lifestyle and spending habits have created. They see working longer hours as a necessary evil in their life and lower academic performance as an unavoidable consequence. As college administrators and public policy groups (including government) continue to grapple with the real and perceived effects that unbridled access to credit cards has on college students, research such as this study can offer some important information in guiding on-campus credit card policies and counseling efforts.

As with any study, some limitations have the potential to limit the generalizability of our findings. One possible problem area is the nature of the sample, a convenience versus a random sampling. Due to the potentially sensitive nature of the items, we felt that a random sample could have resulted in low response rates and possible result bias. The alternative we chose, approaching individuals in a classroom setting, does have the drawback of being nonrandom. Great pains, however, were taken to select classes with varied cross-settings of majors, departments, and class standings in three different educational institutions, two public and one private, one of which prohibits on-campus credit card solicitations.

Another limitation of this study lies in the potential for social desirability bias, particularly with regard to responses to some of the scale variables. Socially desirable responding has been widely viewed as the tendency for people to present themselves favorably according to current cultural norms when answering researchers' questions (Paulhaus, 1991). This response bias may particularly happen when respondents are unable or unwilling to report accurately on sensitive topics (Fisher, 1993). In this study, students were asked to indicate their perception of how employment affected their academic performance. As we noted, this self-report format may have encouraged students to externalize blame for poor performance on their job demands. Likewise, students may have felt that stating that they work to pay off credit card debt, regardless of their true motives, is socially desirable. In addition, the respondents' self-reported GPA may have been influenced by social desirability bias. However, the use of self-reported GPA measures is quite common in educational research (Connelly, DuBois, & Staley, 1998; Hensley, 1995; Ristow & Edeburn, 1984). Benton (1980), for example, studied whether university students would accurately report their GPAs and found no significant difference when self-reported GPAs were compared with official records.

Another issue refers to the skewed nature of the GPA categories. Fully 78% of the sample reported their GPAs above 2.5 on a range of 0 to 4.0. Our labeling scheme classified students with GPAs under 2.5 as low academic performers. An argument could be made questioning this label, noting that these students are, in reality, "average." However, in the universities studied,

students having GPAs below 2.0 typically do not remain beyond their first year of study, thereby eliminating many of the lower GPA categories.

A final problem stems from this study's limited focus on background factors that can impact the credit card usage. In this study we did address issues such as age, class standing, and gender, but did not consider other factors such as socioeconomic status, social class, and religion that can affect how consumers obtain the knowledge and acquire the skills to make smart decisions in the financial marketplace. Future researchers should include more descriptive variables that may aid in an understanding of the factors that impact credit card spending habits.

Other future research could be drawn from the literature concerning the financial literacy of Generation Y and consumer socialization. What impact does knowledge and perceived knowledge of credit concepts (APR, teaser rates, etc.) have on student credit card use? What role does explicitly taught parental values have on usage? What is the impact of modeling on credit card usage?

The list of factors that can potentially affect college student performance is long and varied.

Academics and practitioners in the field of higher education have worked at length to identify these factors and, where possible, establish policies and procedures designed to mitigate their effect. Although becoming more pronounced on college campuses in recent years, one issue that has not been adequately addressed is the impact that credit card usage and student spending patterns can have on their scholastic performance. Our findings demonstrated some interesting relationships between credit card usage, employment, and the psychological effects that excessive credit card debt could have. As campus administrators continue to examine the relatively new phenomenon of student access to credit cards and consumer debt, a number of alternatives and proposed remedies are likely to emerge. Care needs to be taken to consider how best to address this artifact of our consumer-oriented society in relation to the effects it can have in the classroom.

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REFERENCES

Armstrong, D. (1999, June 27). If only students saved as easily as they charge. *Milwaukee Journal Sentinel*, pp. 1.

Barling, J. (1999). Parents' job insecurity affects children's academic performance through cognitive difficulties. *Journal of Applied Psychology*, *84*(3), 437-444.

Benton, S. E. (1980). The use of self-reported grade point averages in research studies. *Southern Journal of Educational Research*, *14*(2), 145-150.

Betts, J. R. (1999). The determinants of undergraduate grade point average. *Journal of Human Resources*, *34*(2), 268-293.

Blair, A. (1997). A high wire act: balancing student loan and credit card debt. *Credit World*, *86*, 15-18.

Bourde, S. F. (1998). Predictors of student academic performance in the introductory marketing course. *Journal of Education for Business*, *73*(5), 302-306.

Bourde, S. F., Byrd, A. K., & Modani, N. K. (1996, November). *Determinants of student performance in introductory corporate finance courses*. Paper presented at the Southern Finance Association, Key West, FL.

Campbell-Rock, C. (1992, November/December). Buying a new car? *Black Collegian*, *23*, pp. 72-82.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Beverly Hills, CA: Sage.

Cheung, C. K. (1998). Activities and academic achievement among college students. *Journal of Genetic Psychology*, *159*(2), 147-162.

Connelly, K. P., DuBois, N. F., & Staley, R. (1998, April 15). *Structured interview study of the long-term effects of a college study skills course: Traces and self-report measures*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Davis, T., & Murrell, P. (1993). A structural model of perceived academic, personal, and vocational gains related to college: Student responsibility. *Research in Higher Education*, *34*(3), 267-289.

Donohue, T. L. (1997). Achievement motivation and college satisfaction in traditional and non-traditional students. *Education*, *118*(2), 237-243.

Dugas, C. (1999, March 12). Lead us not into temptation: Colleges target card solicitors. *USA Today*, pp. B1.

Ehrenberg, R. (1987). Employment while in college, academic achievement, and postcollege outcomes: A summary of results. *Journal of Human Resources*, *22*(1), 1-23.

Ely, D. P., & Hittle, L. (1990). The impact of math background on performance in managerial economics and basic finance courses. *Journal of Financial Education*, *Fall*, 59-61.

Emmons, K., Wechsler, H., Dowdall, G., & Abraham, M. (1998). Predictors of smoking among US college students. *American Journal of Public Health*, *88*(1), 104-107.

Ferguson, G. A., & Takane, Y. (1989). *Statistical analysis in psychology and education* (6 ed.). New York: McGraw-Hill.

Fine, A. (1999, August 8). College credit isn't always academic. *Chicago Sun-Times*, pp. 53A-55A.

Fisher, C. (1995, November). Off-campus life. *American Demographics*, *17*, pp. 54-55.

Geraghty, M. (1996, November 8). Students wooed by credit-card purveyors, often overcommit themselves, colleges find. *Chronicle of Higher Education*, *43*, pp. A37-A38.

Goldman, C. (1997). Stress and the college student. *Education*, *117*(4).

Gordon, M. (1999, June 15). Credit cards and college students. *(Erie, Penn.) Morning News*, pp. 8D, 11D.

Grazier, J. (1998, Sept. 17). College students warned about credit card come-ons. *Erie (Penn.) Daily Times*, pp. 1 & 8A.

Hatcher, L., Prus, J. S., Endlehard, B., & Farmer, T. M. (1991). A measure of academic situational constraints: Out-of-class circumstances that inhibit college student development. *Educational and Psychological Measurement*, *51*(4), 953-962.

Hitti, M. (2000, August). Teach your children well. *Fidelity Focus*, pp. 12-16.

Institute for Higher Education Policy. (1998). *Credit risk or credit worthy? College students and credit cards*. Washington, DC: Institute for Higher Education.

Kara, A. (1994). Credit card development strategies for the youth market: The use of conjoint analysis. *International Journal of Bank Marketing*, *12*, 30-36.

King, J. (1998, May 1). Too many students are holding jobs for too many hours. *Chronicle of Higher Education*, pp. A72.

Krol, C., & Cuneo, A. (1998, October 12). Marketers finding Gen Y a profitable playground. *Advertising Age*, *69*, pp. 57.

Leon, M. (1998, May 1998). Credit cards becoming a staple of campus life. *Inside Tucson Business*, *8*, pp. 16.

Lynn, B. (1998, October 1). Careless students find debt load harder than course load. *The Behrend College Beacon*, pp. 5.

Maloney, M. T. (1993). An examination of the role that intercollegiate athletic participation plays in academic achievement. *Journal of Human Resources*, *28*(3), 550-570.

Mandell, L. (1999). Our vulnerable youth: The financial literacy of American 12th graders—A failure by any measure. *Credit Union Magazine*, *65*(1), 4A-6A.

Mathur, A. (1994). Use of credit cards by older Americans. *Journal of Services Marketing*, *8*(1), 27-36.

McNeal, J., & Yeh, C. H. (1993, June). Born to shop. *American Demographics*, *15*, pp. 34-39.

Miller, B. (1997, February). Waiters, painters and Big Mac makers. *American Demographics*, *19*, pp. 26.

Mulhern, C. (1997, November). Junior boomers: Who's next? The net generation. *Entrepreneur*, *25*, pp. 14.

Munk, N. (1997, December 8). Girl power. *Fortune*, *136*, pp. 132-140.

Murdy, S. (1995, May/June). College students and credit cards. *Credit World*, *83*, pp. 13-15.

National Center for Education Statistics. (1997). *National Postsecondary Student Aid Study*. Available: http://nces.ed.gov/pubs/cc/c9713a01.html.

Newton, C. (1998). Today's college students: responsible, self-reliant, and realistic. *Credit World*, *86*(4), 16-17.

Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw Hill.

Parks, C. (1999, October). Credit card abuse puts students at risk. *Black Collegian*, *30*, pp. 72-78.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass.

Paulhaus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, *46*(3), 598-609.

Pinto, M. B., Parente, D. H., & Palmer, T. S. (2000). Materialism and credit card use by college students. *Psychological Reports*, *86*, 643-652.

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: scale development and validation. *Journal of Consumer Research*, *19*, 303-316.

Ristow, R. S., & Edeburn, C. E. (1984). *An inventory approach to assessing the learning styles of college students: Continued exploration*. Paper presented at the Annual Meeting of the Northern Rocky Mountain Educational Research Association, Jackson Hole, WY.

Ritzer, G. (1995). *Expressing America: A critique of the global credit card society*. Thousand Oaks, CA: Pine Forge Press.

Schor, J. B. (1998). *The overspent American: Upscaling, downshifting, and the new consumer*. New York: Basic Books.

Souccar, M. (1998). Revolving debt. *American Banker*, *143*(September), 12-14.

Speer, T. L. (1998). College come-ons. *American Demographics*, *20*, pp. 40-45.

Susswein, R. (1995, May/June). College students and credit cards: A privilege earned? *Credit World*, *83*, pp. 21-23.

Vickers, M. (1999, September 20). Big cards on campus: Affinity-card issuers are stepping in with megabucks. *Business Week*, pp. 137-138.

Volkwein, J. F. (1989, April 30-May 3). *The impact of employment on the academic achievement of full-time community college students*. Paper presented at the 29th Annual forum of the Association for Institutional Research, Baltimore, MD.

Von Bergen, J. M. (1998, March 17). Retailers advised to keep eye on Generation Y. *Erie Daily Times*, pp. 12-D.

The Leader Factor: Student Leadership as a Risk Factor for Alcohol Abuse

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A random sample of 2000 students (62% female, 50% non-White) in minority and religious groups was drawn from the Core Survey national data set. Students with two leadership positions reported drinking three times as much as other students, and twice the national average. These results suggest that leadership itself may be a risk factor for alcohol abuse, particularly for students with multiple leadership positions.

Few issues are more pressing for university administrators than the heavy use of alcohol by students on college campuses. In 1990 college presidents rated college student alcohol abuse as the problem that gave them the greatest concern (Boyer, 1990). This concern continues, as heavy alcohol use and the negative consequences resulting from alcohol abuse have been called the most serious public health problem in colleges and universities today (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998).

National studies of college student drinking have yielded remarkably consistent findings over time. On average college students drink about 4.5 drinks per week, and about two in five college students engage in high-risk drinking (five or more drinks at a sitting) at least once in an average 2-week period. As a result, college students experience serious consequences ranging from diminished academic performance to injury, and even death (Johnston, O'Malley, & Bachman, 1991, 1996; Presley, Meilman, & Cashin, 1996; Presley, Meilman, Cashin, & Lyerla, 1996; Presley, Meilman, & Lyerla, 1993; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler et al., 1998; Wechsler, Lee, Kuo, & Lee, 2000).

Although alcohol abuse is a general problem for college students nationally, there are some factors that are known correlates of higher or lower alcohol use by students. Men typically drink more than women, for example, and White and Native American students have higher rates of drinking than other racial or ethnic groups (Presley, Meilman, & Cashin, 1996). In particular, several studies have found that African American students drink less on average than their White peers (Globetti, Globetti, Lo, & Brown, 1996; Meilman, Presley, & Cashin, 1995; Meilman, Presley, & Lyerla, 1994). High use is associated with membership in Greek organizations and participation in college athletics (Cashin, Presley, & Meilman, 1998; Leichliter, Meilman, Presley, & Cashin, 1998; Presley, Meilman, & Cashin, 1993; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997). Low use is correlated with religious affiliation (Clarke, Beeghley, & Cochran, 1990; Goree & Szalay, 1996; Lo & Globetti, 1993; Poulson, Eppler, Satterwhite, Wuensch, & Bass, 1998). Personality factors are also correlated with alcohol use. Frequent drinkers are in general more extroverted and social; nondrinkers tend to be more oriented to family and academics (Goree & Szalay).

The role of student leadership has been minimally explored in regard to alcohol. Previous research has focused only on high-use groups (groups in which the average number of drinks per week is above the average for all college students). These include Greek organizations and college athletes. Cashin et al. (1998) investigated alcohol use according to students' level of involvement in fraternities and sororities. The researchers hypothesized that leaders would drink significantly less than nonleader members because of the extensive risk-management training provided by institutions and national offices. Contrary to their hypothesis, the researchers found that leaders of fraternities drink

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significantly *more* than active nonleaders (14.2 vs. 12.3 drinks per week, $p < .05$) and that leaders and active nonleaders in sororities drink about the same amount (6.0 vs. 5.5 drinks per week, ns).

In a similar study, Leichliter et al. (1998) investigated alcohol use among leaders and nonleaders in college athletics. Again the researchers hypothesized that leaders of athletic teams would drink less than nonleaders because of the responsibility associated with their leadership roles. As in the previous study, the results were contrary to the hypothesis. The analysis revealed that leaders of athletic teams actually drank more on average than nonleaders (7.34 vs. 8.25 drinks per week, $p < .05$).

In a study where they examined multiple involvements rather than leadership roles, Meilman, Leichliter, and Presley (1999) compared members of Greek organizations and athletes to investigate which group drinks more. They found that the combination of Greek membership and athletic involvement was associated with the highest level of alcohol consumption, as compared to students involved in only one of the groups being studied. Students who were both Greek and athletes consumed an average of 12.0 drinks per week, which was significantly higher than both Greek/nonathletes (8.4 drinks per week, $p < .05$), and non-Greek/athletes (5.9 drinks per week, $p < .05$).

These studies suggest that alcohol use tends to rise as involvement rises both within and across high-use student groups. However, they offer nothing to suggest how alcohol use might vary with involvement in low-use student groups, and nothing in the literature examines alcohol use by students with multiple leadership roles across different types of organizations. (The term "low-use group" is used here to refer to groups in which the average number of drinks per week is below the average for all college students.) The current study extends the literature on student leaders and alcohol because of the researchers' focus on leaders and nonleaders in low-use organizations, and their examination of students with multiple leadership roles.

The purpose of this study was to explore the relationship between student leadership and alcohol use in low-use student organizations. It was guided by the following null hypothesis: There will be no statistically significant difference in the mean number of drinks per week for students with two leadership roles in low-use organizations as compared to students with one leadership role and students who are nonleader members.

Absent a clear indication from the literature about the relationship between alcohol use and student leadership in low-use groups, the researchers adopted the directional hypothesis that leadership in these groups would be associated with lower alcohol use. The researchers hypothesized that groups may select leaders who embody the general values of the group. Logically, if high-use groups select leaders who are heavily involved with alcohol, low-use groups might select leaders who are less involved with alcohol. Those with multiple involvements in low-use groups would be expected to have the lowest use of alcohol.

METHOD

Sample

The Core Institute provided the sample for this study, using responses dating back to 1994 when the Long Form was introduced. The sample was selected from students who completed both halves of the Long Form, including Question 24 about level of participation in various student organizations. The sample included the following: 500 randomly selected leaders of minority and ethnic organizations; 500 randomly selected active participant nonleaders of minority and ethnic organizations; 500 randomly selected leaders of religious and interfaith groups; and 500 randomly selected active participant nonleaders of religious and interfaith groups. (The Core Survey does not define or give examples for these types of organizations. Students are free to report their affiliations based on their own understanding of the terms.) From this sample, 624 students were active in minority organizations only; 865 were involved in religious groups only; and 511 were active in both. Minority and religious groups were used for this study as examples of low-use organizations

TABLE 1.

Percentage of Females in the Overall Sample and Each Subgroup

Group	Female
Total Sample	62.4%
Dual Leadership Roles	60.6%
One Leadership Role	63.8%
Zero Leadership Roles	61.3%

because previous research, cited above, suggests that non-White students and students with active religious affiliation would drink less on average than other students.

Because previous studies have shown that both gender and racial or ethnic origin are correlated with differing rates of alcohol use, it is important to know the distribution of these demographic factors across the various subgroups in the sample. Table 1 displays the gender breakdown for the entire sample and for each subgroup studied. Table 2 displays the racial and ethnic distribution of the entire sample and each subgroup.

Instrument

The Core Alcohol and Drug Survey is a self-report instrument designed to elicit data about attitudes, use, and consequences of alcohol and other drug use. The instrument consists of 39 items that can be optically scanned. It has been administered to more than 700,000 students at more than 1,000 institutions since 1989. These responses are centrally housed at the Core Institute at Southern Illinois University–Carbondale. The present study used existing data from the Core Survey national dataset.

The Core Survey is a widely used instrument that has been found to be both valid and reliable. It was developed using APA standards for test development in order to ensure validity and reliability (Presley, Meilman, & Cashin, 1996).

Content-related validity was established by a panel of experts who reviewed each item on the survey, comparing them to domains of interest that had been established from the literature. A threshold of .90 was used for item inclusion. Professional judgment was used to identify and rate the universe of content, select the content sample, and specify the format of the items and how they would be scored (Presley, Meilman, & Cashin, 1996).

The Core Survey is also highly reliable. Spearman rank correlation coefficient and phi correlation coefficients were used to measure test-retest reliability for each item. As an example, the correlation for alcohol use within the last year was .98 (Presley, Meilman, & Lyerla, 1993).

For the current study, the researchers used Questions 14 (high-risk drinking) and 15 (average number of drinks per week) as the

TABLE 2.

Percentage Distribution of the Sample Groups by Racial or Ethnic Origin

Group	White	Black	Hispanic	Asian American	American Indian	Other
Total Sample	49.5	18.5	10.4	14.1	2.2	5.3
Dual Leadership Roles	28.6	32.1	5.7	13.6	7.1	12.9
One Leadership Role	51.1	18.3	11.6	14.1	1.5	3.5*
Zero Leadership Roles	51.1	16.7	10.1	14.2	2.1	6.0*

* Row totals exceed 100% due to rounding.

TABLE 3.

Means and Standard Deviations of the
Sample Groups for Drinks per Week

Group	*M*	*SD*
Total Sample	3.61	9.49
Dual Leadership Roles	9.75	20.38
One Leadership Role	2.75	8.08
Zero Leadership Roles	3.46	7.56

dependent variables. Question 24 (level of participation in various student organizations) was the independent variable.

Data Analysis

Starting with a sample of 2,000 responses to the Core Survey, the researchers first discarded eight outlier cases, with an average reported drinks per week of 99, reducing the total sample to 1,992. Six of the discarded cases represented students in dual leadership positions, and the other two discarded cases were one student involved in a nonleadership position in a minority organization and one student in a leadership position in a religious group.

The remaining students ($n = 1,992$) were coded according to the number of leadership positions held in these types of organizations. Respondents were categorized as follows: active members with no leadership positions in either type of group ($n = 958$); students with a leadership position in either minority organizations or religious groups, but not both ($n = 887$); and students with leadership positions in both minority organizations and religious groups ($n = 147$).

A one-way ANOVA was used to compare the average number of drinks per week for students with two, one, and zero leadership roles. A Scheffé post-hoc test was used to identify the pair-wise differences. The alpha level was set at .05.

RESULTS

The dependent variable for this study was the average number of drinks per week. For the overall sample the mean was 3.61. This is lower than the national average of 4.5 drinks per week for all college students (Presley, Meilman, & Cashin, 1996). Table 3 shows the means and standard deviations for drinks per week for all groups in the current study.

To test for a difference in the average number of drinks per week according to the number of leadership roles in low-use groups, a one-way ANOVA was used. A significant difference was found in average number of drinks per week among the three groups, $F(2, 1955) = 35.23$, $p = .000$); and a Scheffé post-hoc test was used to determine the nature of these differences. Students with dual leadership roles were found to drink significantly more drinks per week on average ($M = 9.75$, $SD = 20.38$) than those with one leadership position ($M = 2.75$, $SD = 8.08$) and those with zero leadership positions ($M = 3.46$, $SD = 7.56$).

Because the results for the two leader groups diverged, and because the standard deviation was so great for the dual leadership group, the researchers examined the distribution of responses within the two leader groups (those with one leadership role and those with dual leadership roles). For each group the median number of drinks per week was zero. In the single leadership group, 60.8% of respondents reported consuming zero alcoholic drinks in an average week. The dual leadership group had fewer abstainers (53.8%). Compared to the national average of 4.5 drinks per week, 26.2% of the students with dual leadership roles consumed more than the national average, whereas only 12.6% of students with one leadership role were above the national average.

To understand this difference between the two leader groups, the researchers compared the demographic distributions of leaders who drink more than the national average. Chi-square analysis revealed no statistically significant differences between single leaders and dual leaders by gender. However, there were statistically significant differences by race and

ethnicity (chi square = 17.334, *df* = 5, *p* = .004). The subset of dual leaders who drank more than the national average were less likely to be White and more likely to be Black than the single leaders who drank above the national average. Because White students in general drink more than Black students, this racial and ethnic distribution is makes clear that race and ethnicity cannot explain the discrepancy in alcohol consumption between the two leader groups. In fact, the race and ethnicity data would suggest an opposite finding.

DISCUSSION

The groups represented in this study were low-use organizations, when compared to average college students. This is consistent with the previous literature about the pattern of alcohol use for minority students and for those with religious affiliation.

The researchers began this study with the assumption that leaders in low-use groups would be even less involved with alcohol than non-

leaders because they might be selected—however unconsciously—to reflect the values of the group regarding alcohol. Further the researchers posited that students with multiple leadership roles in these organizations might drink the least of all the students in this study. In fact, for those with only one leadership position the research hypothesis proved true. However, for those with dual leadership positions the research hypothesis was false. Instead of drinking the least of all students in the study, they drank far more than the other students on average.

Figure 1 shows the average drinks per week for high-use organizations (from the studies cited previously), and the average drinks per week for low-use organizations as found in this study. As this figure demonstrates, the overall trend is for leaders to drink more than members. By far the largest differences between leaders and members in all of these groups occurs precisely where one might least expect it: in low-use groups, where students hold leadership positions in more than one organization. As this figure vividly demonstrates, the average number of drinks per week
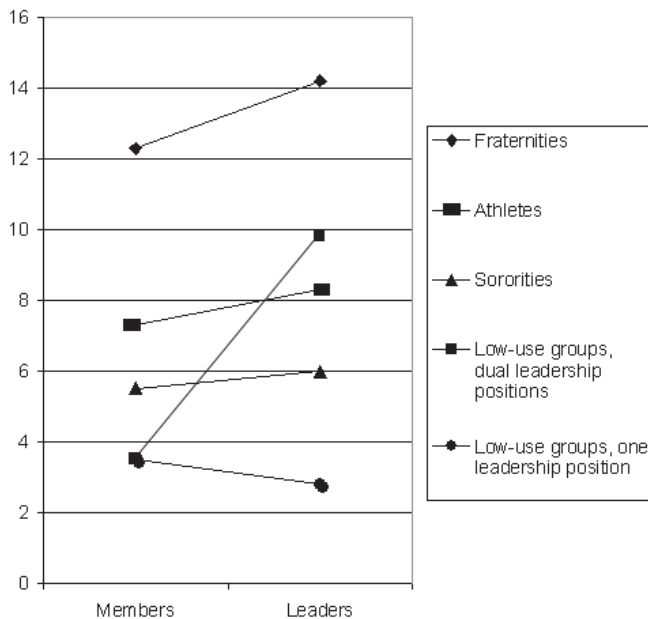

FIGURE 1. Drinks per week for members of student groups.

for students with dual leadership roles in low-use organizations is higher than the rate of drinking for leaders of athletic teams and sororities. In the literature cited here, only fraternity members and leaders drink more in an average week than students who are leaders of both religious and minority organizations.

But not all students in this dual leadership category are heavy drinkers, as the distribution of drinks per week within the two leadership groups demonstrates. This analysis suggests that two different types of leaders are present in these organizations. The majority are students who do not drink at all. A substantial minority, however, are students who drink more than the average for all college students, and far beyond the average rate for their own organizations. This group of heavier drinkers is about twice as common among students with dual leadership roles as among those with only one leadership role in these organizations, and their rate of drinking is so great that it pulls up the average for the entire group of dual leaders to beyond the national average. Demographic factors do not appear to explain the difference in the number of heavy drinkers between the two leadership groups.

This suggests that in the majority of cases low-use organizations do, in fact, select leaders whose drinking behaviors mirror those of the group, as the researchers hypothesized. However, a substantial minority of student leaders in low-use organizations–and particularly those with multiple leadership roles–behave more like leaders in high-use organizations than like members of their own groups. These students are at serious risk for all the negative consequences associated with alcohol abuse, even though they represent groups in which these consequences occur only rarely. These results are consistent with the findings of Meilman et al. (1999), who found that multiple involvement in Greek organizations and athletics was associated with higher rates of alcohol use than involvement in one type of organization alone.

Why would organizations whose cultural and moral values mitigate against alcohol use select as leaders students who drink a lot? And how would heavy drinkers come to hold not one, but two leadership roles in low-use organizations? Although some low-use organizations clearly select leaders who do embody their values, apparently some students become leaders not because they share the values of the organization but because they value the leadership role itself. For some students, then, leadership becomes a risk factor for alcohol use (not necessarily a cause, but a marker for risk). This can be thought of as a Leader factor. For high-use groups, the group norms surrounding alcohol and the Leader factor both operate in the same direction, toward higher rates of alcohol consumption. For low-use groups, the group norms press toward lower alcohol consumption whereas the Leader factor presses some students toward higher rates of drinking.

This interpretation is consistent with the findings of Goree and Szalay (1996), who argued that personal dispositions make individuals either more resistant to alcohol use or more vulnerable to it. In this case, internalized cultural norms and moral values may contribute to alcohol resistance for some students. On the other hand, some of the personality attributes associated with leadership may make others more vulnerable. Goree and Szalay reported that frequent drinkers were more likely than nondrinkers to be extroverted and social and to have an entertainment orientation. Students who are drawn to leadership positions, and particularly to multiple leadership positions, would be likely to have this type of disposition because of the kinds of personal interactions that are associated with leadership.

An alternate explanation for the findings of this study is the influence of other student leaders. Leaders of low-use organizations may become part of a leader culture, associating with students who drink heavily. These students might begin to take on the behaviors of the wider leader culture, in order to fit in with the majority of leaders who engage in heavy alcohol use. Students with multiple leadership positions might have more occasions than those with a single leadership role to be pulled into the high-use leader culture.

A third explanation for the higher rate of drinking found among some students with multiple leadership roles is the interaction of the

first two effects. Lewin's (1936) person-environment theory posits that behavior is a function of the interaction of the person and the environment. For many students in multiple leadership roles, alcohol use is the behavior; the extroverted, social personality is the personal factor; and the leader culture is the environment. Many student leaders, even in minority and religious organizations, may be at risk for alcohol abuse because of the way that their own social orientations combine with the wider culture of leadership. Those with multiple leadership roles may be more likely than others to have the extroverted, social orientation that is associated with frequent alcohol use, and these same students have the greatest opportunity to interact with other student leaders from high-use organizations. Therefore these students are most at risk.

Implications for Future Research

Four important limitations of this study suggest next steps for researchers. First, the number of students in dual leadership positions was small, relative to the other two groups. Given the probability values found in this study, a larger sample would be unlikely to yield results in a different direction. Nevertheless, a larger sample might show smaller differences in drinking behaviors between students with dual leadership positions and those with one or none. This study should be repeated with larger numbers of students in dual leadership positions.

Second, this study considered only the affiliations and leadership roles in minority and religious organizations. These same students may have had other memberships and leadership positions in other types of organizations, including Greek and athletic groups. Further research will be required to sort out the complex relationships between high-use and low-use groups for students who are members and leaders in both types of organizations.

Third, this study considered only two of the nine types of organizations mentioned on the Core Survey. Because dual leadership roles were found to be significant predictors of alcohol use in this study, further research should assess the effect of the total number of leadership roles across all nine types of organizations.

Finally, this study suggests that leadership is a risk factor for students, and that it interacts in complex ways with other risk factors such as organizational norms, larger cultural norms, and personal moral or religious values. This study leaves unanswered, however, the question of how this interaction works, and how the various interacting factors may be weighted for any individual student leader.

Implications for Practice

If the findings of this study are confirmed through additional research as outlined above, they would suggest important changes for professional practice in several areas of student affairs. These include alcohol education programming, leadership recruitment, organizational advisement, and leadership development, as well as the overall relationship between divisions of student affairs and student leaders.

This study both confirms and challenges widely held notions of alcohol use by various groups of students. Although the more disturbing implications of this study surround the alcohol-related risks for many student leaders, readers should note that many of the students in this study do not drink at all. Student affairs professionals need to be aware of the stark differences between individuals in their rates of drinking, to reinforce students whose behavior is consistent with their cultural and religious values for abstinence. These students are relatively invisible in the leader culture of many campuses. With appropriate support they could be encouraged to assert greater influence on other student leaders. These students are most likely to be found among those with only one leadership role in low-use organizations. Student affairs professionals who are looking for allies in reshaping campus norms should seek them among this group.

On the other hand this study also showed that many leaders of low-use groups are themselves heavy drinkers. Where student affairs professionals have been targeting alcohol education programs to high-use groups based on the belief that students in low-use groups are not at risk, this study would suggest a different approach. Students with multiple leadership roles in low-use groups may be at high risk for alcohol

abuse and are an appropriate group for additional targeted prevention programs.

Leadership recruitment programs for student organizations should be rethought as well. Student affairs professionals who recruit student leaders may have an idea of the type of student who makes a good leader, based on previous experience. This internalized picture may include some of the very factors that make an individual more vulnerable to heavy drinking. Student affairs professionals could counter this tendency by encouraging reluctant students with strong moral and cultural values to seek election. Simply by broadening the pool of leader candidates beyond those with a classic leader personality, student affairs professionals can help to dilute the effect of an alcohol-oriented leader culture on the drinking behavior of new student leaders.

If many student leaders are at risk for alcohol abuse, then recruitment programs should include some consideration of the role that alcohol plays for students with multiple leadership roles. This should include some discussion with potential leaders about their values and behaviors surrounding alcohol. Where this discussion reveals other known risk factors for alcohol abuse, such as family history, student affairs professionals can make appropriate referrals.

Advisors of student organizations commonly remark that many student leaders have time management problems because they are involved in so many different activities and organizations. This study suggests that advisors should be trained to recognize that multiple leadership roles can predict other problems as well, including alcohol abuse. At the very least, advisors should have conversations with students in multiple leadership roles about all the ways that they enhance or diminish their own wellness.

Leadership development programs can also benefit from the results of this study. Alcohol education programs for student leaders frequently focus on risk management issues for the organization, and these programs may be limited to leaders of high-use groups. This study suggests that all leaders, and particularly those with multiple leadership roles, may need information about their personal risks from alcohol abuse, in addition to information about organizational risk management.

This study also has broad and disturbing implications for the whole relationship between the student affairs profession and student leaders. On most campuses, a huge proportion of student affairs resources is devoted to recruiting, educating, advising, and mentoring student leaders. This study suggests, that these resources may sustain a population that is at risk for alcohol abuse. To the extent that alcohol abuse is influenced by environmental factors rather than inherent personal factors, leadership recruitment programs may actually place students at higher risk for alcohol abuse. Where student leaders have self-selected into this higher risk role, leadership development programs may serve in subtle ways to enable inappropriate behavior with alcohol. This should be a serious ethical concern for student affairs professionals who work with student leaders. It should stimulate a broad conversation about the unintended ways that professional interactions with student leaders may support rather than inhibit alcohol abuse.

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REFERENCES

Boyer, E. L. (1990). *Campus life: In search of community.* Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Cashin, J. R., Presley, C. A., & Meilman, P. W. (1998). Alcohol use in the Greek system: Follow leader? *Journal of Studies on Alcohol, 59,* 63-70.

Clarke, L., Beeghley, L., & Cochran, J. K. (1990). Religiosity, social class, and alcohol use: An application of reference group theory. *Sociological Perspectives, 33*(2), 201-218.

Globetti, G., Globetti, E., Lo, C. C., & Brown, C. L. (1996). Alcohol and other drug use among African American students in a Southern university. *Journal of Multicultural Counseling and Development, 24,* 118-128.

Goree, C. T., & Szalay, L. B. (1996). *Rethinking the campus environment: A guide for substance abuse prevention.* (Available from The Higher Education Center for Alcohol and Other Drug Prevention, Educational Development Center, Inc., 55 Chapel St., Newton, MA 02458-1060).

Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1991). *Drug use among American high school seniors, college students and young adults, 1975–1990 (Vol. 2)* (DHHS Publication No. ADM 91-1835). Washington, DC: Government Printing Office.

Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1996). *National survey results on drug use from the Monitoring the Future Study, 1975–1994 (Vol. 2)* (NIH Publication No. 96-4027). Washington: Government Printing Office.

Leichliter, J. S., Meilman, P. W., Presley, C. A., & Cashin, J. R. (1998). Alcohol use and related consequences among students with varying levels of involvement in college athletics. *Journal of American College Health, 46,* 257-262.

Lewin, K. (1936). *Principles of topological psychology.* New York: McGraw-Hill.

Lo, C. C., & Globetti, G. (1993). The drinking patterns of entering freshmen at a Southern university. *Journal of the Freshman Year Experience, 5,* 15-36.

Meilman, P. W., Presley, C. A., & Cashin, J. R. (1995). The sober social life at historical Black college. *Journal of Blacks in Higher Education, 9,* 98-100.

Meilman, P. W., Presley, C. A., & Lyerla, R. (1994). Black college students and binge drinking. *Journal of Blacks in Higher Education, 4,* 70-71.

Meilman, P. W., Leichliter, M. A., & Presley, C. A. (1999). Greeks and athletes: Who drinks more? *Journal of American College Health, 47,* 187-190.

Poulson, R. L., Eppler, M. A., Satterwhite, T. N., Wuensch, K. L., & Bass, L. A. (1998). Alcohol consumption, strength of religious beliefs, and risky sexual behavior in college students. *Journal of American College Health, 46,* 227-232.

Presley, C. A., Meilman, P. W., & Cashin, J. R. (1993). Alcohol and drug use among residents of Greek houses. *Discoveries: A bulletin of the Core Institute.* (Available from the Core Institute, Student Health Programs, Southern Illinois University at Carbondale, Carbondale, IL 62901)

Presley, C. A., Meilman, P. W., & Cashin, J. R. (1996). *Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the campus environment: Vol. 1. 1989-1991.* Carbondale, IL: Core.

Presley, C. A., Meilman, P. W., Cashin, J. R., & Lyerla, R. (1996). *Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the campus environment: Vol. 3. 1991-1993.* Carbondale, IL: Core.

Presley, C. A., Meilman, P. W., & Lyerla, R. (1993). *Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the environment. Vol. 1. 1989-1991.* Carbondale, IL: Core Institute.

Wechsler, H., Davenport, A. E., Dowdall, G. W., Grossman, S. J., & Zanakos, S. I. (1997). High-risk drinking, tobacco, and illicit drug use and involvement in college athletics: A survey of students at 140 American colleges. *Journal of American College Health, 45,* 195-200.

Wechsler, H., Davenport, A. E., Dowdall, G. W., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of 140 campuses. *Journal of the American Medical Association, 272,* 1672–1677.

Wechsler, H., Dowdall, G. W., Maenner, G., Gledhill-Hoyt, J., & Lee, H. (1998). Changes in high-risk drinking and related problems among American college students between 1993 and 1997: Results of the Harvard School of Public Health College Alcohol Study. *Journal of American College Health, 47,* 57-68.

Wechsler, H., Lee, J. E., Kuo, M., & Lee, H. (2000). College binge drinking in the 1990s: A continuing problem. Results of the Harvard School of Public Health 1999 College Alcohol Study. *Journal of American College Health, 48,* 199-210.

Psychosocial Development and Self-Esteem Among Traditional-Aged University Students in Hong Kong

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This study examined the relationship between psychosocial development and self-esteem among 449 Chinese freshmen enrolled at a Hong Kong university. Regression analyses revealed that the three developmental tasks of the Student Developmental Task and Lifestyle Inventory (SDTLI), Establishing and Clarifying Purpose (PUR), Developing Mature Interpersonal Relationships (MIR), and Academic Autonomy (AA), were unique and reliable predictors of self-esteem. Compared to prior data from a U.S. normative sample, the Hong Kong students scored lower on both PUR and MIR but higher on AA. Implications of these findings are discussed.

In higher education, psychosocial development refers to the move among students towards maturity and complexity as result of enrollment in an institution of higher education (Rodgers, 1990). Among the theories that have been formulated to describe and explain the developmental processes during college years, the one put forward by Chickering (1969) has been one of the most influential. This investigator has suggested that students in higher education undergo changes in more than their intellectual development because many developmental tasks facing them are nonacademic in nature (Chickering; Chickering & Reisser, 1993). Specifically, Chickering and Reisser have identified seven vectors or tasks that are central to identity formation among traditional college-aged students. These include developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity. The seven tasks can be viewed as different dimensions or aspects of identity along which students would move on throughout their college experience (Reisser, 1995).

The Student Developmental Task and Lifestyle Inventory (SDTLI) has successfully operationalized aspects of Chickering's theory (Winston & Miller, 1987). This instrument is a revision of a previous measure developed by the same group of researchers (the Student Developmental Task Inventory, Winston, Miller, & Prince, 1979) and has become the most widely used instrument in research on psychosocial development among college students. The SDTLI measures three tasks that Winston et al. believed are especially helpful in understanding college student developmental patterns. These tasks are to develop purpose (PUR), mature interpersonal relationships (MIR), and academic autonomy (AA). Research using the SDTLI has shown that development along these three dimensions is determined by factors such as moral orientation (Jones & Watt, 1999), boredom proneness (Watt & Vodanovich, 1999), perceptions of one's family (May & Logan, 1993), life role commitment (Niles, Sowa, & Laden, 1994), career decisions (Long, Sowa, & Niles, 1995), and involvement in student organizations (Cooper, Healy, & Simpson, 1994).

Although psychosocial development has been extensively studied in relation to different variables among college students, two important issues in the literature remain to be addressed more adequately. The first issue is related to an overconcentration among researchers on identification of predictors or antecedents of achievement of developmental tasks. Chickering (1969) suggested that accomplishment of the seven developmental tasks lead to the formation of a

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sense of identity—a stable, consistent, reliable sense of self—which according to ego psychology is one of the most crucial preconditions for psychological health or well-being (e.g., Erikson, 1982; Fromm, 1973). This suggests that psychosocial development should have important psychological consequences that are still elusive. Following the theory of Chickering and Reisser (1993), identity formation is most likely to affect aspects of an individual's self-concept, but data regarding this important relationship are rare.

The second issue concerns the universality of Chickering's theory in general and the SDTLI in particular. Most of the studies on psychosocial development among college students have been carried out with samples drawn from Western cultures. As a consequence, the validity of Chickering's model and the SDTLI when applied to non-Western cultures remains unclear. Sheehan and Pearson (1995) have already pointed out that Western models of identity development are based on Western values and do not take into account non-Westerners' worldviews. This fact suggests that a theory like Chickering's must be reexamined when applied to students from non-Western cultures.

Data regarding psychosocial development among students from non-Western cultures are rare. We are aware of only one study that examines differences in psychosocial development between U.S. and Asian international students enrolled at a university in the United States (e.g., Sheehan & Pearson, 1995). The SDTLI was used in this study, and Asian international students scored lower than did their U.S. counterparts on the task of PUR and the task of MIR. These findings, however, should be interpreted with caution because the differences were based on an instrument whose cross-cultural validity had not been established. Mistaken conclusions can be drawn without prior knowledge concerning whether the same set of concepts is being measured by the SDTLI in Asian students.

In response to the aforementioned issues, a study was designed to examine the applicability of the SDTLI to measure psychosocial development among Chinese university students in Hong Kong. The higher education context in Hong

Kong provided an appropriate setting for examining Western models of psychosocial development for two reasons. First, Hong Kong Chinese university students are bilingual and proficient in English. In fact, the majority of courses offered in universities in Hong Kong are taught in English. This implies that students would have minimal difficulty in completing the original version of the STDLI. Second, the development of city-states like Hong Kong, people primarily Chinese but administered by Westerners for a long time, provides a Chinese subculture that may have incorporated, to a certain extent, dominant values in the Western world (Cheung, Conger, Hau, Lew, & Lau, 1992). Recent evidence has shown that Hong Kong Chinese can be distinguished from their counterparts in mainland China along different personality dimensions (Cheung, Cogner et al.; Cheung, Leung et al., 1996). In addition, the Western model of dispositional optimism has been found to be more applicable to Hong Kong than Mainland Chinese undergraduates (Lai & Yue, 2000). These findings imply that Western theoretical models like Chickering's may be more useful in understanding the psychosocial development of Hong Kong Chinese students than their counterparts in other Chinese societies.

In this study, we examined the effects of psychosocial development on self-esteem instead of identifying predictors of the three tasks measured by the SDTLI. As reasoned earlier, accomplishment of developmental tasks results in the formation of identity or a stable sense of self, which is an important determinant of well-being. Recent studies with college students have shown that self-esteem is one of the most central components of the construct of well-being (e.g., Crocker, Luhtanen, Blaine, & Broadnax, 1994; Lucas, Diener, & Suh, 1996; Salmela-Aro & Nurmi, 1996; Wann & Hamlet, 1996; Zweig, Barber, & Eccles, 1997). In fact, Winston and Miller (1987) have alluded to the connection between resolution of developmental tasks and self-esteem or well-being. Successful accomplishment or achievement of a developmental task provides a basis for further development, whereas "failure to meet successfully the challenges inherent in a given developmental task

results in social disapproval and may hinder further growth in that area of development or can lead to maladaptive adjustment" (Winston & Miller, p. 2). This suggests that students who are able to accomplish developmental tasks to a greater extent would exhibit a higher level of self-esteem. Therefore, the validity of Chickering's theory can be tested by studying the relationship between scores on the three developmental tasks of the SDTLI and self-esteem. We predicted that self-esteem would be significantly correlated with developmental tasks but only moderately. Behaviors subsumed within a developmental task are specific to a particular domain; however, self-esteem is determined by one's evaluation of achievement across various domains. This difference in level of specificity between self-esteem and developmental task precludes observation of a high correlation.

METHOD

Participants

A total of 295 female and 149 male freshmen enrolled at a university in Hong Kong took part in this study. They were all ethnic Chinese of traditional college age. Their ages ranged from 17 to 23 years; the majority of participants (76.3%) were either 19 or 20 years old when the study was conducted. Most of these students came from three major undergraduate study streams (known as faculties in Hong Kong), namely, business (23.8%), humanities and social sciences (29.4%), and science and engineering (9.1%). The remaining 30.5% were enrolled in subdegree tertiary programs that confer awards (e.g., diplomas) equivalent to that conferred by community colleges in the United States. With regard to socioeconomic status, the majority of the sample (71%) were from families having a monthly household income ranging from HK$10,000 to HK$ 40,000 (M = HK$14, 420). About 30 percent of this sample were from families whose monthly household income was lower than the median income for Hong Kong households (M = HK$18,600), according to the most recent census data (Census and Statistics Department, 2000). Only 10% of the sample's parents have had college or university education.

Due to the rapid expansion in tertiary education in Hong Kong in recent years, more and more students from lower income families are entering universities. Although the socioeconomic characteristics of the current sample deviated from the middle-class norm, the sample is representative of the university student population of Hong Kong.

Instrumentation

The two instruments used in this study were the original English versions of (a) the three developmental tasks of the SDTLI (Winston & Miller, 1987) and (b) the Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965).

SDTLI. The SDTLI was developed to measure the level of accomplishment of developmental tasks central to the young adult college years. It was based on Chickering's (1969) theory of psychosocial development, which assumed that growth is continuous and cumulative. According to Winston and Miller (1987), the scale was designed originally for college-aged students to assess levels of personal development so that effective planning can enhance their educational and developmental experiences. This instrument, however, has been found to be a very useful research tool as well.

The SDTLI consists of a total of 140 items assessing three main developmental tasks and three scales. For the purpose of the current study, only items assessing the three tasks were used. These included PUR, MIR, and AA. The first two tasks are further defined by subtasks. PUR is composed of the (a) Educational Involvement (EI) (16 items), (b) Career Planning (CP) (19 items), (c) Lifestyle Planning (LP) (11 items), (d) Life Management (LM) (16 items), and (e) Cultural Participation (CUP) (6 items) subtasks. MIR is defined by the (a) Tolerance (TOL) (13 items), (b) Peer Relationships (PR) (9 items), and (c) Emotional Autonomy (EA) (8 items) subtasks. The AA task is composed of 10 items.

Each item describes a behavior or reports a feeling representative of a level of development within a specific task or subtask. Students respond to each item by indicating whether it accurately describes (*true*) or inaccurately

describes (*false*) them; on some items, respondents indicate *no decision*. Scoring is accomplished by counting the number of responses that indicate students' achievement of the underlying construct. The three tasks were scored separately.

According to Winston (1990), students who score higher on PUR (a) have developed well-defined educational goals and plans and are active, self-directed learners; (b) have synthesized knowledge about themselves and the world of work into appropriate career plans; (c) have a personal direction to their lives that takes into account their values, plans and objectives; (d) structure their lives in ways that allow them to meet their needs and life demands; and (e) exhibit a wide range of cultural interests and are active participants in traditional cultural events. Higher achievement on the task of MIR indicates (a) development of peer relationships characterized by independence, frankness, trust, and appreciation of differences; (b) respect and acceptance of members of different cultures, races, and backgrounds; and (c) a diminished need for continual reassurance and approval from others. Students who have higher achievement of AA have the ability to monitor and control their own behaviors in order to achieve their educational goals and fulfill academic requirements without extensive direction from others.

The SDTLI has relatively high temporal stability (test-retest reliability coefficients clustering around 0.8) and internal consistency (alpha = .93) (Winston & Miller, 1987). Reliability for each of the three main tasks has also been reported (Winston, 1990). Test-retest correlations for the PUR task ranged from .73 to .87; that for the MIR task range from .65 to .80; and the correlations for the AA task vary between .62 and .80. Cronbach alphas for the PUR, MIR, and AA tasks are .90, .76, and .70, respectively. In addition, intercorrelation studies have indicated that the tasks are relatively independent of each other (e.g., Winston, 1990). Specifically, the PUR and MIR tasks are relatively independent of each other but the AA task is relatively highly correlated with both PUR and MIR ($r = .41$ and $r = .39$, respectively). In terms of validity for the three tasks, scores on the PUR, MIR, and AA tasks were reported to be related in varying degrees to scales that measure conceptually related constructs. Winston (1990) subjected the summed scores for subtasks, scales, and the AA to a factor analysis using orthogonal rotation and found two factors. The first one was defined by the subtasks assigned to the PUR task and the second one contained subtasks assigned to the MIR task. The AA task was found to load on both of these two factors.

RSES. The RSES was designed to measure an individual's global feelings of self-worth (Rosenberg, 1965). The scale has been one of the most extensively used instruments in research on self-esteem (Blascovich & Tomaka, 1991). Defined as the evaluative component of the broader representation of self, the self-concept, self-esteem is operationalized as the sum of evaluations across salient attributes of one's self or personality (Rosenberg, 1965). Thus, self-esteem is more global than concepts such as self-confidence or body-esteem, which refer to the evaluation of a circumscribed set of related attributes. The test-retest reliability and internal consistency of the RSES are high (e.g., Shevlin, Bunting, & Lewis, 1995). Fleming and Watt (1980) reported a 1-week test-retest correlation of .82 for this 10-item scale. Nell and Ashton (1996) also reported Cronbach alphas as high as .88. Using confirmatory factor analysis, Shevlin et al. found that scale items loaded on one single factor, which lends further support to validity of the scale. For the current sample of Chinese students, the scale exhibited an acceptable level of internal consistency, with alpha equal to .75.

The RSES consists of five positively worded (e.g., I feel I have a number of good qualities) and five negatively worded (e.g., I feel I do not have much to be proud of) items. To complete the RSES, students were asked to indicate the extent to which they agree or disagree with each of the 10 items on a 4-point rating scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Ratings on the negatively worded items were reversed prior to scoring. A global index of self-esteem was computed by adding ratings on the 10 items.

Procedure

Data for the current study were collected during November and December in 1998. Freshmen

TABLE 1.

Means, Standard Deviations, Alphas of Tasks, Subtasks of the SDTLI and the Rosenberg Self-Esteem Scale ($N = 449$)

Task/Subtask/Self-Esteem Scale	M	SD	Cronbach Alpha
PUR	29.6	9.7	.85
EI	7.4	2.9	.61
CP	6.7	3.6	.73
LP	4.8	2.1	.48
LM	7.8	3.0	.61
CUP	2.7	1.5	.45
MIR	15.9	4.4	.66
PR	6.2	2.4	.51
TOL	5.2	1.8	.46
EA	4.6	1.7	.41
AA	4.9	2.0	.61
RSES	28.2	3.9	.75

Note. PUR = Establishing and Clarifying Purpose Task,
EI = Educational Involvement Subtask,
CP = Career Planning Subtask,
LP = Lifestyle Planning Subtask,
LM = Life Management Subtask,
CUP = Cultural Participation Subtask,
MIR = Developing Mature Interpersonal Relationships Task,
PR = Peer Relationships Subtask,
TOL = Tolerance Subtask,
EA = Emotional Autonomy Subtask,
AA = Academic Autonomy Task,
SES = Rosenberg Self-Esteem Scale.

enrolled in different programs at a university in Hong Kong were informed about the study's purpose and procedures in orientation sessions. A total of 295 female and 149 male students volunteered to participate. Subsequently, the participants were tested in groups of 5 to 23. Participation was voluntary and no financial rewards or course credits were given.

A questionnaire comprised of the three developmental tasks of the SDTLI and the RSES was administered to the students during test sessions conducted in classrooms in the university. The experimenter administered the questionnaire and provided instructions at each of the test sessions. Separate instruction sheets written in both Chinese and English were distributed to ensure correct completion of the scales in the questionnaire. Students were asked to read the instructions carefully before they started to complete the questionnaire. They were also encouraged to ask the experimenter for clarification if problems were encountered during the administration.

After the test session, participants were debriefed on the aim of the study and assured that the information provided would be kept strictly confidential.

RESULTS

Descriptive Statistics

The means, standard deviations, and Cronbach alphas of tasks, subtasks, and the self-esteem scale are summarized in Table 1. The alphas associated with the tasks and the RSES were all acceptable. Some of the subtasks such as LP, CUP, TOL and EA exhibited relatively low internal consistency. Alphas of tasks and subtasks ranged from .41 to .85 ($M = .58$). However, this pattern of alphas is comparable to that reported by Winston and Miller (1987), who have also found these four subtasks to be associated with relatively smaller alphas. The alphas reported by Winston and Miller (1987) were relatively larger and ranged from .45 to .90 ($M = .68$).

Contrary to data reported in prior studies with Western samples (e.g., Winston & Miller, 1987), gender differences had not been observed in the means of tasks and subtasks in the current sample. Only age had significant relationship with CP ($r = .23$), PUR ($r = .17$), and LM ($r = .13$). Because the practical significance of these correlation coefficients was minimal, age was not treated as a covariate in subsequent analyses.

Intercorrelations

The intercorrelations of tasks, subtasks, and the

RSES are listed in Table 2. Evidently subtasks correlated more with the tasks to which they were assigned than to any other task and to the subtasks subsumed under a task. AA was correlated moderately with PUR and MIR, which Winston (1990) also reported in a U.S. sample. On the other hand, the correlation between PUR and MIR observed in the current sample of Chinese students ($r = .02$) was weaker than that reported by Winston (1990) ($r = .26$). Self-esteem was significantly correlated with the three tasks and all subtasks.

Factor Structure

A principal component analysis was run on summed scores of subtasks and the AA task, using one as the communality for all variables.

Two factors emerged by applying varimax rotation. Unrotated and rotated factor loadings are listed in Table 3. The first factor contained all the subtasks assigned to the PUR task and explained 30.5% of total variance. The second was defined by the subtasks assigned to the MIR task and accounted for an additional 20.8% of variance. The AA task loaded almost equally onto the two factors and did not emerge as a separate factor. This was in line with correlational data presented in Table 2. In addition, this two-factor solution is almost identical to Winston's (1990) U.S. sample.

To further confirm the factor structure representing the subtasks and the AA task observed in the current Chinese sample, data of subtasks assigned to the PUR and MIR tasks

TABLE 2.

Intercorrelations of Tasks, Subtasks of the SDTLI, and
the Rosenberg Self-Esteem Scale ($N = 449$)

Tasks, Subtasks, or Self-Esteem Scale	PUR	EI	CP	LP	LM	CUP	MIR	PR	TOL	EA	AA
EI	.80										
CP	.81	.56									
LP	.69	.45	.47								
LM	.79	.53	.48	.47							
CUP	.42	.26	.19	.18	.30						
MIR	.02	.01	−.04	−.07	.04	.10					
PR	.01	−.01	−.02	−.02	.04	.01	.82				
TOL	.09	.11	.01	−.01	.10	.06	.72	.38			
EA	−.07	−.09	−.08	−.15	−.05	.15	.66	.33	.25		
AA	.25	.22	.14	.13	.27	.07	.37	.34	.31	.20	
RSES	.32	.24	.25	.17	.31	.16	.30	.28	.16	.22	.37

Note. Correlation coefficients greater than or equal to .11 are significant at $p < .05$.

PUR = Establishing and Clarifying Purpose Task,
CP = Career Planning Subtask,
LM = Life Management Subtask,
MIR = Developing Mature Interpersonal Relationships Task,
TOL = Tolerance Subtask,
AA = Academic Autonomy Task,

EI = Educational Involvement Subtask,
LP = Lifestyle Planning Subtask,
CUP = Cultural Participation Subtask,
PR = Peer Relationships Subtask,
EA = Emotional Autonomy Subtask,
RSES = Rosenberg Self-Esteem Scale.

TABLE 3.

Factor Analysis of Summed Scores
(*N* = 449)

SDTLI Tasks and Subtasks	Factor 1		Factor 2	
	Rotated	Unrotated	Rotated	Unroated
EI	.80	.79	.04	−.17
CP	.78	.74	−.07	−.27
LP	.74	.69	−.09	−.27
LM	.79	.79	.11	−.09
CUP	.38	.42	.21	.10
PR	−.02	.17	.75	.73
TOL	−.08	.26	.72	.67
EA	−.14	−.03	.66	.67
AA	.33	.47	.59	.49
Eigenvalues		2.75		1.87

Note. EI = Educational Involvement Subtask,
CP = Career Planning Subtask,
LP = Lifestyle Planning Subtask,
LM = Life Management Subtask,
CUP = Cultural Participation Subtask,
PR = Peer Relationships Subtask,
TOL = Tolerance Subtask,
EA = Emotional Autonomy Subtask,
AA = Academic Autonomy Subtask.

were subjected to a confirmatory factor analysis using LISREL 8 (Jöreskog & Sörbom, 1994). The adequacy of fit for the two-factor model was assessed by using the following goodness of fit indices: the nonnormed fit index (NNFI) (Bentler & Bonett, 1980); the comparative fit index (CFI) (Bentler, 1988); and the root mean squared error of approximation (RMSEA) (Browne & Cudeck, 1993). Values of .9 or higher on the two fit indices indicate good fit whereas values smaller than .08 on the RMSEA imply good fit. Results support the validity of the two-factor structure: $\chi^2 (19) = 52$, $p < .0001$; NNFI = .94; CFI = .96; and RMSEA = .06. These findings support the

validity of the constructs underlying the two sets of subtasks.

Relative Predictor Power of Tasks on Self-Esteem

Regression analyses were used to evaluate the predictive power unique to each of the three tasks on self-esteem scores. The PUR, MIR, and AA tasks were forced to enter as a single block in a stepwise manner so that the effect of any one of the tasks on the other two tasks could be controlled. Results summarized in Table 4 show that the three tasks were reliable and unique predictors of self-esteem. However, the AA task explains a total of 12.7% of the variance in self-esteem, which is twice that explained by the PUR or MIR tasks. This implies that Hong Kong Chinese students' feeling of self-worth is determined largely by perception of their own ability to meet the academic demands of higher education. The high value that Chinese attach to education may explain this finding. According to Stevenson and Lee (1996), scholars in traditional Chinese society were highly respected and Chinese parents dreamed of having a scholar in the family. This can be illustrated by the old

TABLE 4.

Multiple Regression Analyses Predicting Scores of Self-Esteem from the PUR, MIR, and AA Tasks (*N* = 449)

Predictors	R^2	Beta	*T*
AA	.13	.19	3.87*
PUR	.19	.28	5.98*
MIR	.24	.24	4.89*
Dependent variable: RSES			

Note. AA = Academic Autonomy Task,
PUR = Establishing and Clarifying Purpose Task,
MIR = Developing Mature Interpersonal Relationships Task,
RSES = Rosenberg Self-Esteem Scale.

*$p < .001$.

saying, "Whatever occupation one chose to be, it would not be as honorable as being a learned person." This value is still very much alive in Hong Kong and other Chinese societies (Gow, Balla, Kember, & Hau, 1996).

Comparisons Between Norms and the Hong Kong Findings

As the constructs of PUR, MIR, and AA have been demonstrated to be applicable to the current sample of Hong Kong Chinese students, meaningful comparison can be made between U.S. norms among freshmen reported by Winston and Miller (1987) and findings from the current sample. The method of large-sample hypothesis testing (Mendenhall, McClave, & Ramey, 1977, p. 219) was used to examine whether the population means of task and subtask scores are different between the U.S. normative sample and the current Chinese sample. Analysis was focused only on comparing the mean scores of the three tasks because they represent distinctive constructs. Although AA did not emerge as a separate factor, it cannot be subsumed under PUR or MIR. As such, it is more appropriately treated as a separate measure for the sake of parsimony.

According to Winston and Miller (1987), the means of the PUR, MIR, and AA tasks observed in 386 U.S. freshmen were 32.4 ($SD = 11.2$), 17.7 ($SD = 5.2$), and 4.6 ($SD = 2.3$), respectively. For the Hong Kong sample, these were 29.6 ($SD = 9.7$), 15.9 ($SD = 4.4$) and 4.9 ($SD = 2.0$), respectively. The mean of PUR of the U.S. sample was larger than that of the Hong Kong sample ($z = 3.73$, $p < .05$, two-tailed). In a similar vein, the MIR mean of the U.S. sample was also larger than that observed in their Hong Kong peers ($z = 5.18$, $p < .01$, two-tailed). However, the mean score of AA was larger in the Hong Kong than the U.S. sample ($z = 2.00$, $p < .05$, two-tailed).

DISCUSSION

In summary, the findings reported in this study point to the applicability of the three tasks of the SDTLI to Hong Kong Chinese students and illustrate the relative importance of these three developmental tasks in predicting self-esteem among Hong Kong Chinese students. Consistent with our predictions, achievement of each of the three tasks reliably predicted feelings of self-worth among Hong Kong students. In addition, our findings also indicate that Hong Kong students in general lag behind their U.S. counterparts in terms of development in nonacademic domains (PUR and MIR) but attain higher achievement in the academic domain (AA). As this pattern of findings may have important cross-cultural implications, further discussion is warranted.

The three tasks of the SDTLI exhibited acceptable levels of reliability and validity when applied to the current study sample. Cronbach alphas of some of the subtasks were relatively low compared to those reported among U.S. samples (Winston, 1990; Winston & Miller, 1987). This suggests that the behaviors and attitudes assessed by these subtasks may be perceived as more heterogeneous by Hong Kong Chinese students. In fact, Winston and Miller have already pointed out that the way the SDTLI was constructed may be one of the reasons leading to low internal consistency. According to Winston and Miller, items in the SDTLI were chosen to represent a wide range of difficulty and therefore do not necessarily produce high inter-item correlation.

The validity of the three tasks has been established primarily by results of exploratory and confirmatory factor analysis. The factor structure of subtasks that Winston (1990) reported was replicated in this study, which lends direct support to metric equivalence of constructs underlying the three tasks of the SDTLI. Items of the three tasks could thus be considered to measure the same set of constructs in both the U.S. and the Hong Kong Chinese cultures (Berry & Dasen, 1974). We are not aware of any prior data from which similar conclusions can be drawn.

Criterion-related validity is also demonstrated by the significant correlations between the three tasks and self-esteem. Each of the three tasks is a unique and reliable predictor of scores on the RSES. More important, the predictive power of the AA task was relatively higher than

that associated with the other two tasks. This implies that achievement in AA affects how Hong Kong students evaluate themselves more than achievement in the other two tasks, which can be attributed to the emphasis that Chinese people place on education during the socialization process. In fact, education has a high status among traditional Chinese values. Children are taught that among all jobs, study is of highest status (*wan ban jia xia pin*, *wei you dushu gao*).

The greater motivation in Chinese to achieve academically becomes evident as early as the elementary school years (Stevenson & Lee, 1990). Chinese schoolchildren spend more time in their studies than their U.S. peers do after the first grade. In addition, in a comparative study among fifth graders from Beijing and Chicago, Stevenson (1992) found that nearly 70% of the Chinese children's spontaneous wishes, but only about 10% of those of U.S. children, dealt with education. Competition to advance to successively higher levels of schooling is something of which contemporary Chinese students, parents, and teachers are well aware. Motivation is strong even though the probability of gaining such an education is low. In Hong Kong, for instance, only about 18% of high school graduates are able to gain admission to institutions of higher education. The high value attached to education and the low probability of gaining higher education jointly explain Hong Kong students' preoccupation with academically relevant activities.

The above explanation may also be applied to the finding that U.S. students scored higher in both the PUR and MIR tasks than did Hong Kong students. Probably overemphasis on academic success among Hong Kong students can only be achieved at the expense of lower achievement in other developmental dimensions. Although education is also considered by Chinese to be important as training towards the better development of the whole person (e.g., Ho, 1981; Wu, 1996), this value has been overshadowed by the emphasis on academic success in Hong Kong higher education. Deemphasis on pursuits related to the PUR task may be enforced by the collectivistic orientation in Chinese, which serves to downplay the importance of personal

aspirations (Bond, 1996). The concept of *yuan,* "secondary causation," which is central to Chinese interpersonal relations (Goodwin & Tang, 1996), may also explain the difference in MIR scores between the U.S. and the Hong Kong Chinese samples. Originated in Buddhist teachings, this notion of *yuan* stresses the significance of broad, contextual conditions that determine the formation, progress, or failure of interpersonal relationships. Thus, individuals are "passive recipients" of relationships, rather than active creators of them. The application of this concept helps maintain social harmony by stressing the inevitability of a relationship and the lack of personal causes for relationship difficulties. Belief in this notion may hinder active engagement in activities pertaining to the development of mature interpersonal relationships.

Disinterest in developmental aspects other than intellectual competence and academic achievement has been paralleled for years by underdevelopment of the student affairs profession in higher education institutions of Hong Kong. Nevertheless, interest in the notion of holistic, whole-person development has grown rapidly in the last few years in Hong Kong. This is evidenced by the launching of a large-scale project aimed at the promotion of whole-person development by the Student Development Services of the City University of Hong Kong. Hopefully, this interest will spread to other institutions of higher education in Hong Kong as more information related to student development is being disseminated.

The findings reported here form the first set of data that demonstrate (a) the generality of the developmental tasks of the SDTLI within the Hong Kong Chinese context, (b) differences in achievement of the developmental tasks of the SDTLI between a U.S. and a Hong Kong Chinese sample, and (c) significant relationships between achievement in developmental tasks and self-esteem. These show very clearly that the SDTLI can be properly used among Hong Kong Chinese students. Our findings expand the understanding of developmental constructs beyond the culture from which the SDTLI was originally developed and have a multitude of significant implications.

First, as pointed out earlier, our data strengthen the scientific status of the SDTLI by demonstrating cross-cultural validity of the test. In other words, the developmental tasks of the SDTLI may represent universal dimensions along which students from different cultures can be meaningfully compared. When expressed in the language of cross-cultural psychology, application of the three developmental tasks to Hong Kong students become truly "etic" (Triandis & Marin, 1983). Second, apparent differences between the U.S. and the Hong Kong cultures do not undermine the universal nature of the developmental tasks in the SDTLI. On the other hand, cultural factors provide reasonable explanations for observed differences in scores on different tasks. Different cultures place varying degrees of emphasis on each developmental task. This may hopefully sensitize counselors to the potential moderating effect of culture on individual differences along different developmental dimensions.

Despite the significance of the implications discussed above, future research on psychosocial development among Chinese should pay more attention to the following issue that may have limited the credibility of this study's findings. Although Hong Kong university students are generally proficient in both written and spoken English, their competence in English does vary. In fact, some participants noted problems in understanding the meanings of certain items. Due probably to relatively lower English proficiency, some students took considerable time to complete the questionnaire. Linguistic problems and fatigue caused by increased subject burden may have contaminated the validity of the collected data. Developing a Chinese adaptation may circumvent this problem. Although translated versions present unique problems, the advantages of using a translated version in future research outweigh the associated disadvantages. The major merit of devising an adapted Chinese version of the SDTLI is that research on psychosocial development can be extended to other groups of Chinese students (e.g., mainland or Taiwan Chinese) whose English proficiency are too minimal to correctly complete a questionnaire like the SDTLI. Due to the existence of different Chinese subcultures, a clearer picture of psychosocial development among Chinese students can only be attained by comparing and studying different Chinese groups.

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REFERENCES

Bentler, P. M. (1988). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238-246.

Bentler, P. M., & Bonett, D. G. (1980). Significance test and goodness of fit on the analysis of covariance structures. *Psychological Bulletin*, *88*, 588-606.

Berry, J. W., & Dasen, P. (Eds.) (1974). *Introduction to culture and cognition*. London: Methuen.

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychology attitudes*, Vol. I (pp. 115-160). San Diego, CA: Academic Press.

Bond, M. H. (1996). Chinese values. In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 208-226). Hong Kong: Oxford University Press.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Beverly Hills, CA: Sage.

Census and Statistics Department. (2000). Hong Kong social & economic trends, 1990-2000. Hong Kong: Hong Kong Government Printer.

Cheung, P, C., Cogner, A. J., Hau, K. T., Lew, W. J. F., & Lau, S. (1992). Development of the Multi-Trait Personality Inventory (MTPI): Comparison among four Chinese populations. *Journal of Personality Assessment*, *59*, 528-551.

Cheung, F. M., Leung, K., Fan, R. M., Song, W. Z., Zhang, J. X., & Zhang, J. P. (1996). Development of the Chinese Personality Assessment Inventory. *Journal of Cross-Cultural Psychology*, *27*, 181-199.

Chickering, A. W. (1969). *Education and identity*. San Francisco: Jossey-Bass.

Chickering, A. W., & Reisser, L. (1993). *Education and identity* (2nd ed.). San Francisco: Jossey-Bass.

Cooper, D. L., Healy, M. A., Simpson, J. (1994). Student development through involvement: Specific changes over time. *Journal of College Student Development, 35,* 98-102.

Crocker, J., Luhtanen, R., Blaine, B., & Broadnax, S. (1994). Collective self-esteem and psychological well-being among White, Black and Asian college students. *Personality & Social Psychology Bulletin, 20*, 503-513.

Erikson, E. H. (1982). *The life cycle completed*. New York: Norton.

Fleming, J. S., & Watt, W. A. (1980). The dimensionality of self-esteem: Some results for a college sample. *Journal of Personality & Social Psychology*, *39,* 921-929.

Fromm, E. (1973). *The anatomy of human destructiveness.* New York: Holt, Rinehart & Winston.

Goodwin, R., & Tang, C. S. K. (1996). Chinese personal relationships. In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 294-308). Hong Kong: Oxford University Press.

Gow, L., Balla, J., Kember, D., & Hau, K. T. (1996). The learning approaches of the Chinese people: A function of socialization processes and the context of learning? In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 109-123). Hong Kong: Oxford University Press.

Ho, D. Y. F. (1981). Traditional patterns of socialization in Chinese societies. *Acta Psychologica Taiwanica*, *23,* 81-95.

Jöreskog, K. G., & Sörbom, D. (1994). *LISREL 8 users' guide.* Chicago: Scientific Software.

Jones, C. E., & Watt, J. D. (1999). Psychosocial development and moral orientation among traditional-aged college students. *Journal of College Student Development*, *40*, 125-131.

Lai, J. C. L., & Yue, X. D. (2000). Measuring optimism in Hong Kong and mainland Chinese with the revised Life Orientation Test. *Personality & Individual Differences*, *28,* 781-796.

Long, B. E., Sowa, C. J., & Niles, S. G. (1995). Differences in student development reflected by the career decisions of college seniors. *Journal of College Student Development*, *36,* 47-52.

Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality & Social Psychology*, *71,* 616-628.

May, K. M., & Logan, C. R. (1993). Family type and the accomplishment of developmental tasks among college students. *Journal of College Student Development*, *34*, 397-400.

Mendenhall, W., McClave, J. T., & Ramey, M. (1977). *Statistics for psychology* (2nd ed.). North Scituate, MA: Duxbury Press.

Nell, K., & Ashton, N. L. (1996). Gender, self-esteem, and perception of own attractiveness. *Perceptual and Motor Skills*, *83*, 1105-1106.

Niles, S. G., Sowa, C. J., & Laden, J. (1994). Life role participation and commitment as predictors of college student development. *Journal of College Student Development*, *35*, 159-163.

Reisser, L. (1995). Revisiting the seven vectors. *Journal of College Student Development, 36*, 505-511.

Rodgers, R. F. (1990). Recent theories and research underlying student development. In D. Creamer & Associates (Eds.), *College student development: Theory and practice for the 1990s.* Alexandria, VA: American College Personnel Association.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Salmela-Aro, K., & Nurmi, J. E. (1996). Uncertainty and confidence in interpersonal projects: Consequences for social relationships and well-being. *Journal of Social and Personal Relationships*, *13,* 109-122.

Sheehan, O. T. O., & Pearson, F. (1995). Asian international and American students' psychosocial development. *Journal of College Student Development*, *36,* 522-530.

Shevlin, M. E., Bunting, B. P., & Lewis, C. A. (1995). Confirmatory factor analysis of the Rosenberg Self-Esteem Scale. *Psychological Reports*, *76*, 707-710.

Stevenson, H. W., (1992). Learning from Asian schools. *Scientific American*, *267,* 70-76.

Stevenson, H. W., & Lee, S. Y. (1996). The academic achievement of Chinese students. In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 124-142). Hong Kong: Oxford University Press.

Stevenson, H. W., & Lee, S. Y. (1990). Contexts of achievement: A study of American, Chinese, and Japanese children. *Monograph of the Society for Research in Child Development*, *55*, 1-116.

Triandis, H. C., & Marin, G. (1983). Etic plus emic versus pseudoetic: A test of a basic assumption of contemporary cross-cultural psychology. *Journal of Cross-Cultural Psychology*, *14*, 489-500.

Wann, D. L., & Hamlet, M. A. (1996). Being a "joiner" and psychological well-being. *Psychological Reports*, *79*, 1188.

Watt, J. D., & Vodanovich, S. J. (1999). Boredom proneness and psychosocial development. *Journal of Psychology*, *133,* 303-314.

Winston, R. B., Jr. (1990). The Student Developmental Task and Lifestyle Inventory: An approach to measuring students' psychosocial development. *Journal of College Student Development*, *31*, 108-120.

Winston, R. B., Jr., & Miller, T. K. (1987). *Student Developmental Task and Lifestyle Inventory manual.* Athens, GA: Student Development Associates.

Winston, R. B., Jr., Miller, T. K., & Prince, J. S. (1979). *Assessing student development: A preliminary manual for Student Developmental Task Inventory (rev. 2nd ed.) and the Student Development Profile and Planning Record.* Athens, GA: Student Development Associates.

Wu, D. Y. H. (1996). Chinese childhood socialization. In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 143-154). Hong Kong: Oxford University Press.

Zweig, N. M., Barber, B. L., & Eccles, J. S. (1997). Sexual coercion and well-being in young adulthood: Comparisons by gender and college status. *Journal of Interpersonal Violence*, 12, 291-308.

Book Reviews

John H. Schuh, ASSOCIATE EDITOR

Students Helping Students: A Guide for Peer Educators on College Campuses

Steven C. Ender and Fred B. Newton

San Francisco: Jossey Bass, 2000, 254 pages, $16.95 (softcover)

Reviewed by Keith E. Edwards, University of Delaware

Working with and training student leaders can be one of the most challenging and rewarding aspects of working with college students. *Students Helping Students: A Guide for Peer Educators on College Campuses* captures the essence of what makes being a peer educator both enjoyable and successful.

This book is chiefly designed as a broad introduction for any college student interested in being a peer educator. The primary text and accompanying trainer's manual are well designed to serve as the basis for a training class on any type of peer education position, from resident assistants to orientation leaders to academic advisors. The authors focus on several topics: role modeling, student development, diversity, counseling/helping skills, problem solving, group process, leadership, study skills, referral, and ethics. *Student Helping Students* has been well designed to complement the classroom atmosphere with learning objectives at the beginning and summary questions at the conclusion of each chapter.

The primary strength of *Student Helping Students* is its usability. The authors have done an excellent job of narrowing the focus of the book to the ten topics/chapters. At 254 pages, including references, the work is inviting rather than overwhelming for students new to the peer helper role. By excluding other arguably relevant topics the authors have allowed instructors using the book to add their own specific topics and examples while allowing the work as a whole to be applicable to the wide range of roles peer educators are assuming on campuses across the country.

The book is particularly strengthened by its outstanding emphasis on diversity, role modeling, and ethics. The chapter on diversity written by guest author Ata U. Karim is extremely impressive in its ability to address a large number of diversity concepts simply, swiftly, and effectively. The chapter blends theory and practice smoothly by presenting concepts and examples useful to students ready for a wide range of diversity challenges, while keeping a tone reassuring enough not to intimidate those with limited experience working with those different from themselves.

Role modeling, as a theme, is well woven throughout the entire work. *Students Helping Students* begins with a chapter on role modeling and ends with a superbly chosen chapter on ethics focusing on role modeling. The authors emphasize that despite all other efforts, poor leadership and unexamined ethical decisions will render any peer educator ineffective.

The work could benefit from some real-life examples or comments from students in a few chapters that, at times, allow reader interest to be lulled by details. However, the book is clearly designed as a companion for a training class and regularly guides the reader through thinking about examples from his or her own personal life or what may be encountered in the role as peer educator.

The authors of *Students Helping Students* have skillfully avoided the common temptation to create an exhaustive list of topics and chapters. This textbook is not as comprehensive as other student training books designed for a specific peer mentor group, such as, *The Resident Assistant: Applications and Strategies for Working With College Students in Residence Halls* (Blimling, 1999). While this work may not be as complete a reference tool as other works, its focus creates an inviting text for students new to the peer helper role.

This work is based on an earlier book Steven Ender coauthored, with a nearly identical title: *Students Helping Students: A Training Manual for Peer Helpers on the College Campus* (Ender,

McCaffrey, & Miller, 1979). In this guide, Ender shares the authorship with Fred B. Newton. While the title and the topic may be similar, the content of this textbook is more than an updated edition of a previous book. These authors have reflected a more current emphasis on role modeling, diversity, ethics, and leadership that is applicable to the contemporary role of peer educators.

In summary, *Students Helping Students* is an excellent textbook for those unsatisfied with the texts specific to their peer educator roles. Students are able to glean excellent basic skills from the text, while allowing trainers the freedom to add role and campus specific examples.

REFERENCES

Blimling, G. S. (1999). *The resident assistant: Applications and strategies for working with college students in residence halls*. (5th Ed.) Dubuque, IA: Kendall Hunt.

Ender, S. C. , McCaffrey, S. S., & Miller, T. K. (1979). *Students helping students: A training manual for peer helpers on the college campus.* Athens, GA: Student Development Associates.

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Managing Technological Change: Strategies for College and University Leaders

A. W. (Tony) Bates

San Francisco: Jossey-Bass Publishers, 2000, 256 pages, $34.95 (hardcover)

Reviewed by Doris A. Bitler,
George Mason University

Many of us in higher education cling to an ideal which includes soft-focus images of professors wearing academic regalia, students reading on grassy quadrangles, and venerable, ivy-covered buildings. The current reality is that colleges and universities must compete for prominence, and often survival, in a global society. In this competition, it is likely that thoughtful investment in and use of technology will serve to differentiate the winners and losers.

In *Managing Technological Change*, Bates provides an overview of technology in higher education intended for academic administrators and faculty members involved in guiding the present and future use of technology on campus.

Although other books have dealt with similar issues (e.g., Oblinger & Rush, 1998; Van Dusen, 1997), this volume has the advantage of covering a full range of topics, from theory to practice. Those interested in the technological challenges facing colleges and universities would do well to treat this book as a prelude to more specific and targeted study.

The need for change is addressed in the first chapter, with three specific factors identified as driving change in the academy. First, most institutions of higher education find that they are serving more students, at a higher cost per student than in the past, and they are being required to do so with static levels of funding. Second, the needs of society are forcing change in higher education. Many jobs now require post-secondary education, resulting in more traditional-aged students continuing into higher education, and more adult students returning to school. Finally, students require more flexibility to reach their educational goals. This flexibility includes offering classes and campus services in an assortment of different modalities, and at various times and locations, in order to allow students to meet their many obligations and find instruction to suit their individual learning styles.

The ability of technology to meet these challenges is described, followed by a report of the types of new technology most used in teaching, along with their possible applications on the college or university campus. Four case studies are presented as illustrations of the transformation of teaching through the use of technology. Those readers seeking more best-practice examples may wish to read Oblinger and Rush (1997).

One of Bates's main points is that technological change on a wide scale requires extensive reorganization and restructuring. He claims that most, if not all, colleges and universities currently operate under an industrial, "Fordist" model. As they become larger, there is more emphasis placed on structure and distinct hierarchies within the institution. Top-down management practices and the need for economies of scale (e.g., large lecture classes) lead to relative inflexibility in the products and services offered. In contrast, the post-industrial

model made possible through the judicious use of technology encourages a more decentralized structure with strong leadership and a common vision. This model allows for more customized products and services, providing the flexibility demanded by students and employers in today's society.

Obviously, such wide-ranging change will meet with resistance from those in higher education who believe their jobs and/or their values are threatened by the integration of technology in teaching and learning. Bates believes that strong leadership and careful planning are critical to the success of any attempt at campus-wide technological change. He provides examples of some strategies for initiating change at the course or program level with a particular emphasis on a project-management approach.

The remaining chapters are devoted to practical issues in managing technological change. For example, effective planning must take into account not only the necessary physical infrastructure but also the human support infrastructure critical to ensure the technology is fully available to students and faculty. The important issue of calculating the cost of technological change is raised along with examples of strategies for funding. Finally, models of organizational structures are provided, and the importance of program evaluation is emphasized.

Incorporating technology into the academy is an essential part of becoming more responsive to the needs of higher education's diverse constituencies. Finding effective ways to integrate and manage technology may help to encourage the cultural change necessary for colleges and universities to successfully compete in the global marketplace. Administrators and faculty members will find *Managing Technological Change* to be a useful first step toward understanding the challenges and potential rewards of planning for the technological revolution on campus.

REFERENCES

Oblinger, D. G., & Rush, S. C. (Eds.). (1997). *The learning revolution: The challenge of information technology in the academy.* Bolton, MA: Anker.

Oblinger, D. G., & Rush, S. C. (Eds.). (1998). *The future compatible campus: Planning, designing, and implementing information technology in the academy.* Bolton, MA: Anker.

Van Dusen, G. C. (1997). *The virtual campus: Technology and reform in higher education.* Washington, DC: The George Washington University.

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Planning for Student Services: Best Practices for the 21st Century

Martha Beede and Darlene Burnett, Eds.

Ann Arobor, MI: Society for College and University Planning, 1999, 150 pages

Reviewed by Thomas E. Miller, Eckerd College

In 1996, the IBM Best Practice Partner Group was formed. The IBM Education Consulting Team had received numerous requests for support in redesigning student services for institutions of higher education. They surveyed practitioners and professional associations and identified a selection of institutions that had succeeded in improving student services by improving technology, changing business processes, or making organizational changes.

There were 15 projects that met the "best practices" criteria, and representatives were called together for discussions and dialogue to determine their common characteristics and lessons learned. This text is a product of activities following those early discussions with institutional projects described by those responsible at 14 of the member institutions of the Best Practice Partner Group, which includes Babson College, Ball State University, Boston College, Brigham Young University, Carnegie Mellon University, Colorado Electronic Community College, Indiana University, Johnson County Community College, Northern Territory University, Oregon State University, University of Delaware, University of Minnesota, Southern Alberta Institute of Technology, and Seton Hall University.

Individual chapters describe the experiences and progress at the 14 institutions in the efforts to improve the efficiency of service to students. The service issues detailed relate to registration,

student billing, financial aid, and other institutional activities that normally rely on technology. The two major categories of driving forces for change are the improved use of technology and the redesign of services. The descriptions from the campuses are divided into those two groupings.

The common experiences of participants led to the identification of a set of principles and trends that were shared—to one extent or another—by the involved institutions. They include: a student-centered vision, redesigned services, a one-stop service center, cross-functional teams, self-service objectives, Web-enabled services, systemic change, and replacement of student information systems. The reporting institutions were measured against their application of those principles.

Projects described include combining enrollment management services, coordinating student services so multiple transactions are possible in one step, simplifying information to students about billing, offering students Web-based access to their records and academic advising, and team-based reorganizations to increase efficiency. Campus project circumstances described are of varying levels of maturity and sophistication, and the range of institutional types is quite substantial. As a result, there is something in this work for readers with many different interests and perspectives.

The intent of this text is to tell the stories of successful efforts at the use of technology or re-engineering and improving services to students. It is an effective compilation of those stories. Many of the authors made the effort to explain what were their problems and pitfalls in their efforts, giving balance and perspective to their experiences. Several described the limits presented by institutional characteristics, which may seem familiar to the reader.

In the past decade higher education has experienced a considerable degree of movement toward streamlining student service efforts and using technology to enhance the quality of service. This text aptly gives voice to efforts that have been successful. Not much has been written on these subjects that has been targeted to student affairs professionals, and there is considerable

potential interest by student affairs staff in this text. Much of the literature in this arena has been directed to information technology professionals or those working in student records and financial aid fields. A work directed to student affairs professionals has the potential to make an impact on the profession.

The quality of the descriptive stories in this text is somewhat uneven, as is the quality of campus experiences described in the various chapters. However, the net effect is positive for those engaged in student affairs work. A compilation of the experiences of a wide range of institutions with an even wider range of service upgrade efforts has the potential to be instructive for a great number of readers. This work will appeal to those student affairs professionals with responsibility for registration and student records management, financial aid, admissions, enrollment management, student billing, and other areas of student service dependent upon technology. Readers will learn about broadly applied institutional efforts to improve services and deliver them more efficiently to students.

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Civic Responsibility and Higher Education
Thomas Ehrlich, Ed.
American Council on Education and Oryx Press, Series on Higher Education, 2000 (hardcover)

Reviewed by Raechele L. Pope
and Radhika Suresh,
University at Buffalo, State University of
New York

For the majority of us who work in colleges and universities and do not, on a daily basis, question the mission, purpose, and future of higher education, *Civic Responsibility and Higher Education* should be required reading. This powerful book calls for a drastic change in higher education's role in society. Drawing heavily on John Dewey's philosophy about the important role played by education in a democracy, the authors call on education institutions to rethink their work in the context of society's needs. While it offers strong criticism of higher

education, the book also provides a viable, alternative vision for institutions and offers examples of successful efforts undertaken by several colleges to make themselves more relevant to their communities. There is a quiet revolution under way by many students, faculty, and administrators in higher education who genuinely believe that colleges and universities can make a difference in the overwhelming problems faced by the surrounding communities and the greater society. The book is a result of a project implemented by the Carnegie Foundation for the Advancement of Teaching. The book is classified into five sections, with each section made up of several chapters and addressing a specific theme. Skillfully edited by Thomas Ehrlich, the book draws upon the work of 29 well-regarded contributors, who together provide a community-sensitive vision for higher education.

At the core of the book is a vision for what higher education ought to be. There have been increased concerns expressed in the literature about the status of higher education. Many critics of higher education claim that institutions should be less concerned about enrollment, research grants, and competing for inclusion in top-50 lists of colleges and universities, and more committed to solving real-life problems, encouraging the development of responsive and responsible student-citizens, and contributing to civic life and democracy in these United States.

Civic Responsibility and Higher Education aims to address these issues and provide solutions. Overall, there are three major aspects to the ideas conveyed by the book. First, it calls for a complete change in the ways in which higher education institutions view themselves in relation to the communities in which they operate. Second, it is concerned with the incompleteness of the education offered to the students. Third, the book offers strategies to help colleges change their vision. The sentiment that runs through the entire book is that the university can no longer be self-contained and content to dwell in its ivory tower: now more than ever, the college must take its citizenship duties and responsibilities to heart, and its work must be relevant to the issues and problems faced by the community.

The book's first section, comprising three chapters, identifies the reasons for undertaking the book and the problems facing higher education. Linda J. Sax focuses on college students and examines how their commitment differs from the students of the past. She also tracks their civic responsibility through their college years and beyond and notes that while students show increased civic responsibility in college, these gains diminish sharply in the years immediately following graduation. Lastly, Sax offers ideas on how colleges can help develop civic responsibility in students. She suggests that refining the learning process and making students proactive participants in their education will promote the development of citizenship. William Sullivan suggests that the university's preoccupation with research has caused it to become more distant from the needs of the larger public. Harry C. Boyte and Nancy N. Kari build a case for higher education's potential to shape the evolution of democracy.

Section 2 focuses on the many different approaches taken by colleges when trying to combine civic education with the rest of the curriculum. Nancy Thomas suggests an integrated approach to developing citizenship skills in students; using both the academic curriculum and extracurricular activities is crucial to student and institutional success. Walking us through the evolution of higher education in the last hundred years, Carol Geary Schneider concludes that the first signs of divide and disconnection occurred with the breakdown of the general education curriculum, which she sees as another sign of the growing chasm that divides higher education from the rest of society. Alexander Astin shifts the debate to the student and has written a wonderfully thought-provoking essay on the need for higher education institutions to invest in the education of the under-prepared student. In the process he makes a connection between remedial education and civic engagement. He provides strategies that could be adopted by colleges and universities to better educate these students.

Section 3 of the book addresses the ways in which higher education relates to other segments of the community. David Mathews advocates for

more interaction between the college and the community and states that education institutions must ensure a direct relationship between what they do and the needs of the community. Jay Rosen expands on the concept of involvement as necessary for civic engagement and the optimal distance that a university must put between itself and the community. Lee Benson and Ira Harkavy suggest that universities must realize they can function as research institutions yet be more relevant to their communities. They call upon universities to take up the cause of elementary and secondary education with the belief that a cohesive, seamless K-college system is the best way to develop civic leadership in young people. Penelope Eckert and Peter Henschel offer a better understanding of the current generation of students and the different ways in which they engage themselves in the community.

Section 4 examines this issue of civic education from the perspective of a community college, a comprehensive university, a liberal arts college, an historically Black college, a religion-based college, and the research university. Paul Elsner elaborates on how community colleges can be more engaged in the community through incorporating service learning in the curriculum and describes the conditions that need to exist to make a successful venture. Heavily influenced by Ernest Boyer—who believed that knowledge by itself was not enough but had to be channeled to humane ends to give it meaning and purpose—Judith Ramaley believes that a comprehensive university must replace the traditional ideas of research, teaching, and service with a more encompassing definition that would include discovery, learning, and engagement. By promoting community-based learning opportunities as a part of the educational curriculum, institutions can strengthen their own abilities to fulfill their core mission and purpose.

Gregory Prince notes that because of the residential nature of the liberal arts college, it creates a laboratory to test the practicality of theories learned in an educational setting. Liberal arts colleges have the unique potential to integrate what is taught in the classroom with the needs of the community. Gloria Dean Randle

Scott notes that historically Black colleges have always had civic engagement as a core purpose. With this rich historical legacy, HBCUs continue to refine their mission to stay relevant and useful in the Black community.

William Byron believes that a faith-related institution that offers a religiously oriented, morally principled environment promoting community is a place that provides the best opportunity for students to learn how to practice civic engagement. The last essay in this section by Mary Lindenstein Walshok examines the civic duty of the research university. Since instilling civic engagement in a research university is both an intellectual and cultural problem, Walshok notes that the university community must adopt important attitude shifts, assume new functions, and put in place supportive mechanisms to facilitate civic engagement.

The last section of the book deals with issues that are common to all types of educational institutions as they prepare to integrate civic education into the curriculum. Given that higher education is oriented towards individual disciplines and with faculty loyalties often extended more to their disciplines than the university, Edward Zlotkowski notes that there are very few models to guide faculty participation in community-related work. Jane Wellman believes that colleges are not held accountable for their civic responsibilities, and she provides a well-constructed and comprehensive set of ideas to assess the work of colleges and universities as they practice civic engagement. Elizabeth Hollander and Matthew Hartley suggest that for such a massive change in focus to occur, there must be a concerted social movement in higher education. Since higher education, as a system, is very conservative when it comes to change, they use social movement theory to derive appropriate strategies that might work in a higher education setting.

Civic Responsibility and Higher Education provides Zelda Gamson the last word. She uses it well, articulating a vision for higher education, based on the belief that educating the complete individual is crucial in promoting a healthy democracy. Gamson talks about the national movement under way at many higher educational

institutions that shows a great deal of promise in changing the status quo and fostering a strong commitment to community involvement, both by modeling it and by educating the next generation.

In essence, *Civic Responsibility and Higher Education* is about change. The contributing authors build on the common theme that higher education institutions must fundamentally change the way in which they operate and reform their efforts in educating students to be better citizens. Although the book does a fine job of presenting the argument, it may not find complete acceptance within the academy. There are those who firmly believe that higher education institutions are continuing to fulfill the primary mission—providing quality education—and doing a fine job of it in an arena that has become more market-oriented and politicized. If there is a limitation in this volume, this is probably it. The book might have explored more deeply the tension that exists within the academy between those who genuinely believe that colleges are appropriately fulfilling the social responsibilities and obligations of society and the others who call for fundamental change and greater commitment far beyond the classroom.

Civic Responsibility and Higher Education offers a different vision for higher education that both inspires and overwhelms. It is inspiring to consider how we can make a difference not only in students' lives but also in our surrounding communities. It is overwhelming to think about the magnitude of institutional change needed to redirect the purpose and energy of higher education. Gamson probably had it right when she said,

> The first step in rebuilding civic life outside the academy is to rebuild civic life within the academy. Our ways of handling power differences and diverse points of view and cultures should be models of the civic life we wish to engender in our communities. Encouraging the articulation of differences and then finding areas for collaboration, should be the norm rather than the exception. (p. 372)

This book is a good resource that hopefully will challenge the student affairs profession to take a more active role in reshaping higher education. While it is often philosophical and intellectual in nature, it provides enough real-life examples and possible strategies to make it meaningful and useful to the average student affairs practitioner. Many of the aspects of higher education discussed in this book are outside the realm of influence and interest for many in student affairs, yet it provides a broader understanding of higher education that is necessary to participate in true institutional change efforts. *Civic Responsibility and Higher Education,* just like the re-conceptualizing and reinvigorating of higher education it encourages, is definitely worth the effort.

◆

Out and About Campus: Personal Accounts by Lesbian, Gay, Bisexual and Transgendered College Students

Kim Howard and Annie Stevens, Eds.

Los Angeles: Alyson Books, 2000, 304 pages, $12.95 (softcover)

Reviewed by Robert Schoenberg, University of Pennsylvania

A junior at Duke University struggles openly to reconcile his religious beliefs and his growing sense that he is gay. Some members of the campus Christian group to which he belongs are supportive, while many are hostile to his developing identity. The matter culminates in a formal debate within the organization. At the end of the deliberation, he is invited to stay—albeit somewhat grudgingly ("Well, if you say you want to still be a Christian, we can't very well ask you to leave, now can we?")—but, ultimately, he decides to separate himself from the group. The young man writes:

> I stopped attending church. My agnosticism eventually cooled to belief, but I couldn't forget how alone I felt that November evening when I had needed God most. I wouldn't trust Him, the church, or the virtue of honesty for a long, long time.

This story is one of 28 told in this collection (including one from my campus in which I play

a minor role). The editors' stated purpose is to give voice to college students whose experiences recognizing and expressing their identities as lesbian, gay, bisexual, and transgender have not been told in such a collection heretofore. They aimed to find a group of narrators who were diverse in many respects. In this objective they fared admirably. The writers are from 18 states (though 20% are from California) and there is a fairly even split between public and private institutions (though all but one are four-year). Twelve authors are women, 12 are men, and 4 identify within the broad rubric of transgender. At least 6 authors are students of color, and a few are not traditional-age college students.

Though many of the essays follow a somewhat predictable line—from self-awareness through challenges of some sort to acceptance by self and others—the specifics are varied enough to make the collection as a whole interesting reading. Among the expected areas of campus life presenting challenges, besides religion (which is addressed in four stories other than the one already mentioned), are athletics, fraternities and sororities, and dormitories. First loves, who are catalysts for self-realization, and dating in general, are also detailed in several narratives. More disturbing to college student affairs practitioners are the tales of insensitive health professionals, counselors, and advisors. Given the age of the writers, it is surprising how few stories deal with coming out to parents.

There is variability in style as well as substance. Given the youth and relative inexperience of most of the authors, the fact that not all of the essays are exceptional is understandable. Several of them make up in forthrightness and sincerity what they lack in originality or flair. Some are well written and tell lessfrequently heard stories. These stand out and provide absorbing reading.

A 23-year-old gay African American master's student movingly describes discovering that he is HIV-positive and the especially painful experience of being "invalidated" by his supervisor at his campus job. The struggle of a lesbian woman dealing with tremendous guilt as a member of the Intervarsity Christian Fellowship on her campus ends with "my career goals

transformed from Christian missionary to gay activist." The essay by a bisexual Latina at Stanford impressively raises issues related to multiple identities on a largely White campus and discusses her success, against substantial odds, bringing people together in a still-functioning organization called Familia and sponsoring the first-ever Queer Latino/a Youth Conference. A young gay man who flunked out his first time attending college in 1994 recounts the process leading to his becoming the first graduate of the University of Wisconsin with an individualized major in Queer Studies. Near the end of his essay, this author tells of a summer encounter with a former classmate. Though he barely remembers her, because she rarely spoke, she tells him what a significant impact his being out in class had on her own emerging lesbian identity. He concludes:

> If I could have this impact on one person, how might I have affected others who never said a word? What effect, then, might a queer studies program at a university have on the entire student body? Or, in the long run, on our entire society?

The editors invited the authors of each essay to suggest books, films, and Internet resources which they have found valuable—a nice touch— and have compiled them at the end of the book along with some useful recommendations of their own, including Web sites and conferences of particular value to higher education administrators.

Taken as a whole, the volume has value for college students and those who work with and support them. Both students and administrators might avoid some of the pitfalls encountered by the writers. In fact, some of the first-person accounts might be instructive, even inspirational, for individuals of any age and in any circumstances where they are discovering and considering disclosing lesbian, gay, bisexual, or transgender identities. All of us stand to gain from the wisdom expressed by the student who made a female-to-male transition while at Iowa State University: "The bottom line, for me, is that shame and embarrassment can't stick in the face of honesty and openness, and that there is magic and power in simply being yourself."

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The *Journal of College Student Development* is interested in manuscripts concerning student development, professional development, professional issues, administrative concerns, and creative programs to improve student services. Authors may focus on recent original research, replication of research, reviews of research, graduate education in student affairs, or essays on theoretical, organizational, and professional issues. Both quantitative and qualitative research manuscripts are considered. Manuscripts should address one of the following:

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3. Support for practitioner efforts to apply theoretical developmental constructs to programs in the field; or

4. Support for increasing our knowledge of organizational behaviors so that effective tactics and strategies might be applied to the implementation of developmentally focused programs on the campus.

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