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ABSTRACT

This paper presents a study that explored the persistence of both women and men towards careers in the hard sciences and examined the factors that encourage and/or discourage students' participation in science. Specifically, the study explored the relationship between men's and women's background characteristics, their college experiences, and their persistence toward careers in science. The study involved analysis of data from 15,519 students in 192 four-year colleges and universities. Among the findings were the following: (1) while 20.6 percent of male college students aspire towards careers in the hard sciences, only 6.4 percent of women shared these career goals; (2) men were higher in persistence rates than women in the biological, physical, and engineering sciences; and (3) of those who alter their career plans away from the hard sciences, males were attracted to business, the military, and law, while women were attracted to business, education, and medicine. Positive associations for persistence in the hard sciences included grade-point-average, math self-rating, and parental careers; and negative associations included raising a family, self-rating in popularity, and parents' income. Also, it was found that men were more monetary-minded in their career choice while women were more concerned with the social good of their choice. Contains 13 references. (GLR)

Predicting Persistence of Science Career Aspirations: A Comparative Study of Male and Female College Students

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The term "scientific manpower" connotes an image of national strength based on the scientific capabilities and productivity of a nation. Currently, national leaders are expressing concern that the scientific manpower of the United States is in decline, and that this reduction puts America at the risk of "falling behind" our competitors. Indeed, the number of college students graduating with bachelor's degrees in science and engineering fields is steadily decreasing (Task Force for Women, Minorities, and the Handicapped in Science and Technology, 1988). For women, the situation is especially bleak; in recent years, women have constituted only 15% of the nation's scientists and engineers (National Science Foundation, 1988). Are the factors discouraging students from pursuing careers in science especially critical for women?

Oakes (1990b) describes the underrepresentation of women in science as a reflection of their declining participation in science throughout the educational pipeline. In elementary school, girls exhibit the same math and science abilities as boys, but express less interest in these fields. By junior high school, achievement of boys and girls is still comparable within math and science courses, but girls are taking fewer math and science courses than boys. By senior high school, women are taking significantly fewer courses in math and science than are men; this inherently precludes them from the academic preparation necessary to pursue scientific fields in college, as high school math and science courses are usually prerequisites for college science courses (Oakes 1990a, 1990b; Brush, 1985; Vetter, 1989).

Additionally, by the end of high school, women exhibit less mathematical confidence than men (MacCorquodale, 1984). Ethington (1988) provided evidence that math self-confidence is the most influential predictor of women's SAT math scores, as well as of their decision to pursue math and science fields in college. In fact, by the end of high school, differences between men and women's ability begin to appear, as is evidenced

by lower math scores received by women on SAT and Achievement tests (Oakes, 1990b). Thus, women's negative attitudes towards math and science, lower math self-confidence, and less math and science preparation, are reflected in lower math aptitude test scores than those attained by men.

By the point of college entry, women's interest in science is well below that of men's. Among college freshmen in 1990, 24% of men, and only 7% of women, reported that they would major in biological science, physical science, or engineering (Dey, et al., 1991). Although small by comparison, this 7% of women represents those who were not discouraged away from science during the pre-college years. Despite personal and societal forces, these women have chosen to enter a field in which they are clearly the minority. What effect will going to college have on women's science aspirations? Will this small minority of women remain interested science after four more years in the science pipeline?

Women's current underrepresentation in science fields may have a negative effect on the scientific aspirations of female college students. Disproportionately fewer women than men are in top science positions both within and outside of academe, and women earn less than men at every level within science careers (Benditt, 1992). Thus, in addition to facing fewer financial opportunities in science than men, female college students encounter fewer role models and have fewer opportunities for same-sex mentoring than do men. Additionally, societal pressures force women, more than men, to choose between family and career (Benditt, 1992). Women must either struggle to balance the time demands of science careers with the time demands of family, or compromise their goals (and risk social scrutiny) by sacrificing one or the other. Thus, the climate does not appear favorable for women to enter scientific fields.

This study explores the persistence of both women and men towards careers in the hard sciences, and examines the factors that encourage and/or discourage students' participation in science. Specifically, the study will explore the relationship between men's and women's background characteristics, their college experiences, and their persistence

towards careers in science[1]. If aspects of the college environment can be linked to men and women's persistence in science, perhaps we can gain an understanding of how educational programs, pedagogical techniques, peer group characteristics, and student involvement may differentially impact the career goals of men and women who are initially interested in science.

Data Source and Analytical Methods

The data source used in this study is the Cooperative Institutional Research Program (CIRP) Freshman Surveys and Follow-Up Surveys, which are sponsored by the American Council on Education and the UCLA Higher Education Research Institute. This data, collected as part of a recent national survey of college students, includes information from over 27,000 1985 freshmen who were followed up in 1989. The database also incorporates information acquired directly from institutions, as well as information regarding enrollments, earned degrees, faculty, and curriculum.

This study employs the Inputs-Environments-Outcomes (I-E-O) methodological framework, through which we can assess the impact of various college environments and experiences on specific student outcomes, after controlling for students' pre-college characteristics and experiences. Implementation of this model requires that the effects of "input" characteristics, such as students' high school science preparation, be controlled so that one can measure the effect of the college "environment" on any number of cognitive or affective "outcomes" (Astin, 1991). First, crosstabular analyses were conducted to describe the persistence rates of women and men towards careers in the hard sciences, including persistence rates within specific major fields, and ultimate career aspirations of

[1] Hard science careers are defined as fields that utilize knowledge of engineering and the natural and physical sciences. Specifically, hard science careers include: engineer, research scientist, statistician, conservationist/forester, and college teachers with final majors in biological science, physical science, or engineering.

defectors from hard science. Next, blocked stepwise regression analysis, including 330 independent variables, was utilized separately for women and men in order to explore which input or environmental characteristics may contribute to men's and women's decisions whether or not to persist towards a career in the hard sciences. Variables were blocked according to the temporal sequence in which they may have had an effect on students' career decisions four years after college entry (Appendix A lists all variables included in regressions).

The dependent variable used in this study is "persistence vs. defection" of hard science career aspirations. An individual is defined as a "persister" in a hard science career field if that individual has an aspiration toward a career in the hard sciences in 1985 (college entry) and also has an aspiration toward any one of the hard science career fields in 1989. An individual is defined as a "defector" if that individual has an aspiration toward a career in a hard science field in 1985 and aspires toward any other career field in 1989[2].

In order to best understand the effects of various college environments on students' career decisions, the characteristics of the students at the time of college entry must be controlled. These "input" characteristics are included in regression analysis in two groups. First, background characteristics include: race, citizenship, parents' careers, education, and income, religion, SAT scores, high school academic information, high school activities, reasons for coming to college, degree aspirations, life goals and attitudes, and expectations about college. The second block of input characteristics includes students' intended major choice. Major choice is not included in the same block with the other input variables because while a student's initial major choice is a characteristic of the student at the point of college entry, major choice also serves to define the environment that the student is

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[2] To qualify as either a persister or defector, students must meet at least one of three conditions of college retention: (1) have completed college with at least a bachelor's degree, (2) be currently enrolled in college and aspire to obtain a bachelor's degree, or (3) plan to enroll in college in 1989 and aspire to a bachelor's degree. Therefore, all students in this study have started college with hard science career goals, and have either maintained their interest in hard science, or are headed towards the bachelor's degree with alternative career plans.

exposed to during college. Hence, major choice may be seen as a bridge between input and environmental blocks.

The environmental variables employed in this study are grouped into four blocks: (1) living arrangements during college and financial aid sources, (2) curricular measures and characteristics of the peer and faculty environments, (3) institutional characteristics, including type and control, percent of degrees awarded in various fields, expenditures and enrollment characteristics, and (4) involvement measures/intermediate outcomes. The last environmental block has been named "Intermediate Outcomes" (Astin, 1991) because they can be interpreted as both college environments or college outcomes. Intermediate outcomes include courses taken during college, experiences and activities during college, as well as the hours per week students engaged in various pursuits. Because we can not be sure that a correlation between any intermediate outcome and the dependent variable implies a causal relationship, interpretation of the "effects" of intermediate outcomes is necessarily tenuous. For instance, while exposure to the college environment may lead a student to engage in a particular activity, the very involvement in that activity exposes the student to a different aspect of the college environment, which in turn may influence the student's development on an outcome measure. However, it hoped that the blocking of the regression variables will allow us to have controlled for students' tendencies to engage in particular activities, so that any remaining correlation between these variables and the dependent variable might denote an "effect."

Results and Analysis

The total sample in this study includes 15,519 students[3] in 192 four year colleges and universities. Table 1 describes the gap between men's and women's interest in hard science careers, as well as the loss of both men and women from science during college.

Table 1
The Pipeline in the Hard Sciences for Men and Women

	All Students		Men		Women	
	N	%	N	%	N	%
Total	15,519	100.0	6,251	100.0	9,268	100.0
1985 Career Hard Sciences	1,877	12.1	1,285	20.6	592	6.4
Hard Science Persisters	724	4.6 (38.6)	516	8.3 (40.2)	208	2.2 (35.1)
Hard Science Defectors	1,153	7.5 (61.4)	769	12.3 (59.8)	384	4.1 (64.9)

Percentages in parentheses are based on the number indicating a hard science career choice in 1985.

Although 12.1% of the entire sample shows an initial interest in hard science careers, only slightly over one-third of these students actually maintain their hard science career aspirations throughout college. It is important, however, to understand whether these rates are similar for women and men. The percent of men and women with initial interests in hard science careers is strikingly different. While 20.6% of male college students aspire towards careers in the hard sciences, only 6.4% of women share these career goals at the time of college entry. Much of the reason that engineers and scientists are predominantly male is simply that fewer women are headed towards college with science as a career goal. Given the importance of college preparation for science careers, many women are

[3] In order to study the effects of four years of college on students' career decisions, the original sample of 27,000 is reduced to 15,519 due to the following restrictions: (1) students must be "retained", as described above, and (2) two-year college students were excluded.

excluding themselves from these fields simply because of a lack of interest and/or preparation in hard science at the point of college entry.

Also described in Table 1 are the persistence rates among men and women who express an initial aspiration towards the hard sciences. Men appear to persist towards hard science careers at only a slightly higher rate (40.2%) than women (35.1%). Yet, given that women enter college with less interest in these careers than men, a lower persistence rate in college does facilitate increasing the number of women scientists and engineers.

Table 2
Choice of Major Field for Students with Hard Science Career Aspirations

Initial Choice of Major	Percent choosing major: Men (N=1,288)	Percent choosing major: Women (N=592)	Rate of Persistence in Hard Science Careers: Men	Rate of Persistence in Hard Science Careers: Women
Biological Sciences	6.7	20.6	43.0	27.0
Physical Sciences	12.0	18.4	44.2	31.2
Engineering	70.7	51.9	40.2	41.4
Non-Science	9.7	7.1	33.6	31.0

Perhaps some of the difference between men and women is in their choice of a major. What majors are students with an initial interest in science choosing? Do these majors act similarly to retain students in the sciences? Table 2 describes the most common major choices of students who express an initial interest in science and engineering. Although engineering is the most popular major for both men and women, men are much more concentrated in this field than are women. Women show substantial interest in biological sciences and physical sciences. By looking at persistence rates within these same fields, we can see whether major choice itself may be a factor in retaining students for hard science careers. Men majoring in biological sciences, physical sciences, and

engineering experience very similar hard science career persistence rates (43.0, 44.2, 40.2 respectively). Women, on the other hand, exhibit very different persistence patterns depending on their field of study. The highest rate of persistence towards hard science careers for women occurs in engineering (41.4), followed by physical sciences (31.2), and biological sciences (27.0). Women's persistence appears to be affected more strongly by choice of major than does persistence for men. Perhaps there are aspects of engineering departments that encourage women's continued participation in science more than do biology and physics departments. However, it may be that the women who choose biology and physics are less committed to the hard sciences than women who choose engineering.

Given the large percentage of students who alter their career plans away from the hard sciences, it is important to know what fields these "defectors" are planning to enter. Table 3 describes the 1989 career choices most often cited by students who abandon hard science career interests during college. For both men and women who defected from hard sciences, the most popular career choice four years later is business or accounting; one-fourth of male defectors and one-fifth of female defectors choose business fields. Aside from the "other" career category, the military is the next most popular career option for male defectors (6.7), whereas education is the next most popular career choice for women (12.5). A greater percentage of men than women defectors indicate interest in law, whereas a greater percentage of women than men change their career plans to scientist-practitioner. In general, of students who abandon career interests in the hard sciences, men are attracted to business, the military, and law, while women are attracted to business, education, and medicine.

Table 3
Career Choices Most Often Cited by Hard Science Career Defectors

1989 Career Choice	Percent choosing career: Men (N=769)	Women (N=384)
Business or Accounting	25.5	20.6
Military	6.7	3.6
Lawyer	4.0	2.9
Education	3.6	12.5
Undecided	3.5	3.6
Science-Practitioner[a]	3.1	6.7
Other	7.7	14.1

[a] Science-Practitioner includes the following careers: physician, dentist, veterinarian, pharmacist, optometrist, and clinical psychologist.

Regression Analyses

The results of regression analyses may help to shed light on the factors associated with students' decisions to remain in or leave the hard sciences. Regression analyses were performed separately for women and men, and explain approximately 40% of the variance in the career decisions within each group. Yet, while the variables which enter the regression equations (significant at the .01 level) account for the same percentage of the variance in the outcome, the actual items that enter the regressions are very different for men and women.

Input Measures. By controlling for the effects of input variables, the Multiple R for men reaches .36, and for reaches .38 for women. Table 4 describes the input variables which enter regression equations for women and men. Four variables have similar effects on both men's and women's career decisions. Self-rating in math ability appears to have a strong positive effect on men's and women's decision to persist towards a hard science

career, although the effect appears to be much stronger for men. Students who have confidence in their math abilities are more likely to maintain their science ambitions, whereas those with less mathematical confidence are more likely to choose alternative careers.

Table 4
Input Variables Associated with Persistence Towards Hard Science Careers

Variable	Beta after Input Block		Final Beta	
	Men	Women	Men	Women
Positive Associations				
Math Self-Rating	.21	.09	.12	.01
HS GPA	.10	.17	.06	.01
Father's Career: Engineer	.06	.07	.05	.02
Reason for going to college: Parental Expectations	.11		.10	
Mother's Career: Research Scientist	.07		.05	
U.S. Citizen	.07		.09	
Goal: Be Successful in Own Business		.13		.17
Mother's Career: College Teacher		.13		.08
Years of Physical Science in H.S.		.10		.04
Major Choice: Engineer		.12		.11
Negative Associations				
Goal: Raise a Family	-.07	-.12	-.03	-.05
Self-Rating: Popularity	-.09		-.06	
Parents' Income	-.11		-.10	
Goal: Be Successful in Own Business	-.08		-.04	
Expect to Change Career Choice	-.07		-.04	
Self-Rating: Writing Ability	-.08		-.02	
Expect to Change Major Field		-.14		-.12
Goal: Help Others in Difficulty		-.05		-.02
Number of Typology Categories		-.11		-.11

Another variable which has positive effects for both men and women is high school grade-point average (GPA), although in this case the effects are stronger for women than for men. It is interesting that the effects of math self-rating are stronger for men, and that high school GPA has a stronger effect for women, especially because men rate

themselves higher on math ability than women, and women receive higher high school grades than men (see Appendix A). Perhaps students' forte in certain areas gives them the confidence that is required to succeed in a demanding science career.

Having a father who is an engineer is positively associated with persistence for both men and women. Having a father who is an engineer may provide at least two major functions in helping science students stay interested in science careers. First, these fathers may act as role models and/or mentors for their children, and second, children of engineers may feel an added pressure to persist towards a science career, as if they are expected to follow in their fathers' footsteps. Regardless of how this variable affects students emotionally, having a father who is an engineer does increase students' chances of persisting in the hard sciences.

One measure that has negative associations for both men and women is the priority placed on raising a family as a life goal. Students placing a high priority on raising a family are less likely to persist towards a career in the hard sciences. Perhaps realizing the intense time commitment that science and engineering careers demand, as well as the time that might need to be spent in graduate programs, students become less interested in continuing plans for such careers. On the other hand, students who are less concerned with raising a family might be more attracted to science and engineering careers than those who place more importance on the family. The association is slightly stronger for women than for men, suggesting that the trade-off between a science career and raising a family is even greater for women.

Interestingly, one measure was positively associated with persistence for women (Beta after inputs=.13), but negatively associated for men (Beta after inputs= -.08): hoping to be successful in one's own business. Why this variable would have opposite effects on men and women suggests that these two groups might be interpreting their career and business opportunities much differently. For men, science and engineering might represent fields that do not offer much financial incentive for hard work. Men who value

financial success might be turned off from science and engineering, believing that their skills and abilities will be more highly rewarded through business ventures. Women, on the other hand, might see a career in science and engineering as a means to ultimately becoming successful in business. Given the competitive, male-dominated aspect of the business world, women might believe that they will have a better chance of succeeding in business if they can gain entry by first proving their scientific abilities and training.

A large number of input measures were found to be significant for either men or women, but not both. For men, citing "parents wanted me to go" as a reason for attending college is positively associated with persisting toward a career in the hard sciences. This finding suggests that for men, but not for women, parental pressure is a strong influence on students' decisions to attend college, and has a direct effect on students' commitment to a science career.

Having a mother who is a research scientist is also a positive predictor of persistence for men. Similar to the effect of having a father who is an engineer, having a scientist mother has a unique effect on men's science persistence. Interestingly, this measure does not have an effect on women. Given the importance often placed on providing female role models for women, it is surprising that having a scientist mother does not have an effect on women's persistence towards science careers.

Being a U.S. citizen was also found to be a positive predictor of persistence for men. Perhaps foreign students are more likely to report an initial interest in science, partially because of family pressure to achieve in science, and in part because language barriers pose less of a problem in science fields. However, after four years of college, these students might improve their language skills, become more aware of the various career opportunities available to them, and thus are less likely to persist in science.

A number of negative predictors of persistence were found among men, but not women. The strongest negative predictor of persistence for men is family income. Students with lower family incomes are more likely to persist. Perhaps this is because

students with higher family incomes might have less incentive to become a scientist or engineer, believing that these careers offer lower incomes than to what they are already accustomed. Higher income students might initially be attracted to science because of their abilities and interests, yet when faced with a career choice four years after college entry, these men might opt for careers which offer greater monetary rewards, such as careers in business or law.

Men's self-rating on popularity had a negative association with persistence towards hard science careers. Men who rate themselves low on popularity are more likely to persist in science than men who feel they are popular. Men who feel less confident socially might be attracted to science fields, in which they have the opportunity to succeed without a lot of social contact. Interestingly, this finding is consistent with the stereotype of scientists and engineers as "loners" or "anti-social." Another input variable with a negative effect on men's persistence is expecting to change their career choice. Clearly, students who exhibit career ambivalence upon entry to college are less likely to maintain their career interests after four years.

The final input variable to have an effect only for men is self-rating of writing ability. Men who have greater confidence in their writing ability are less likely to persist in science. These "defectors" might have the confidence to enter fields requiring good writing skills. Perhaps men with low confidence in their writing skills feel more comfortable in quantitative fields which do not demand much written work.

In addition to valuing business success as a life goal, three other input variables have positive associations with persistence for women only: having a mother who is a college teacher, the number of years of physical science taken in high school, and majoring in engineering. Women who persist in science are those with female role models, early science preparation, and an early commitment to a science field. Each of these factors may act to reinforce women's confidence in their scientific abilities. Consistent with the findings

in Table 2, majoring in engineering does indeed have a uniquely strong effect on women's persistence towards careers in the hard sciences.

Among the input variables negatively associated with women's persistence in the hard sciences, three seem to be particularly revealing. First, the strongest negative effect for women is the expectation to change their major field during college. As with men's expectations to change career choice, this variable suggests that women who are initially unsure about their choice of major are more likely to change their career choice as well. Women who commit early to a major are more likely to maintain their decision for a career in science.

Placing higher priority on helping others in difficulty is negatively associated with science career persistence for women. Perhaps women do not feel that there is a connection between helping others and hard science and engineering pursuits. This finding is consistent with the finding that, among hard science career defectors, larger proportions of women than men are choosing careers in education and medicine, careers which are based on the notion of "helping others."

An interesting finding is that, among women, those who qualify for multiple typologies[4] are less likely to persist towards a science career. This suggests that women with strong and diverse interests and views are more likely to be attracted away from science and engineering careers.

[4] Student typologies used in this study are factors developed by Astin (1992) that reflect various student personality types. Typologies include: Leader, Status Striver, Scholar, Artist, Hedonist, Activist, and Uncommitted.

Environmental Measures. The inclusion of environmental variables brings the Multiple R to .46 for men (a change of +.10 from the input block), and .40 for women (a change of +.04 from inputs). The effect of the college environment on persistence appears to be stronger for men than for women.

Table 5
Environmental Variables Associated with Persistence Towards Hard Science Careers

Variable	Beta after Input Block		Final Beta	
	Men	Women	Men	Women
Positive Associations				
Peer mean: Outside work	.17	.14	.15	.16
Aid Source: Parents or family	.10		.04	
Aid Source: Other college loan	.08		.05	
Major dominated G.E.	.09		.06	
Negative Associations				
Distance from home to college	-.09		-.03	
Percent of faculty teaching in general ed.	-.05		-.09	
Faculty perception: Competition among students	-.06		-.11	

Table 5 describes environmental characteristics affecting men's and women's persistence towards science careers. The environmental variable with the strongest positive association with men's and women's persistence (and in fact the only environment affecting women) is the peer measure of the number of students at an institution holding jobs. A high score on this factor means that the student attends an institution in which many of his/her peers hold jobs and/or work full time while attending school. That this variable would have the strongest effect on both men's and women's science career persistence is at first a curious result. However, upon inspection of the environmental characteristics highly correlated ($r > .20$) with this variable, it appears that the effect of having a large number of peers working is actually a proxy for the type of institution in which many students hold outside jobs. Environmental characteristics positively correlated with this peer measure

include: living at home, percent of students receiving need-based financial aid, faculty perception of poor student relations, percentage of total bachelor's degrees awarded in education, and student-faculty ratio. Characteristics negatively associated with the peer outside work measure include: living on campus, peer intellectual self-esteem, peer socio-economic status (as defined by parents' income and education level), science preparation of the student body, institutional emphasis on resources and reputation, percentage of total bachelor's degrees awarded in history, political science, and social science, and institutional selectivity (defined by the mean SAT scores of the peer group). Thus, being at an institution with a large number of students holding jobs actually represents being in a large, less selective, low SES, commuter school. One reason that being at this type of institution has a positive effect on persistence towards science careers might be that it provides few distractions for students interested in science. First, these schools are not highly selective, thus students' confidence in science may be maintained more than at institutions with larger numbers of highly able science students. Also, these schools do not have large social science, political science, and history departments that might distract students from the hard sciences. Finally, because students attending these schools are more likely to live at home, their main interaction with peers will be within their courses. Thus, the peer environment of science students at commuter schools are other students interested in science, a factor which may help to retain student interest in science as a career.

The remaining environmental variables with effects on persistence are only significant for the male population. Receiving financial assistance from parents or a college loan is positively associated with men's persistence towards science careers. Perhaps students with greater financial assistance do not have to hold extra jobs to support themselves through college, and thus have more time to devote to a demanding science major.

Having a major-dominated general education program also has a positive effect on science career persistence. A major-dominated program is one in which required general

education courses were determined primarily by the student's major department (Hurtado, et al., 1991). Since students planning careers in science are more likely to be science majors, a major-dominated curriculum may act to reinforce students' science interests, and pose less of a distraction than general education programs requiring students to take many courses outside of their major. Consistent with this finding is the negative effect of the percent of faculty teaching general education courses. Again, this suggests that students are less likely to maintain their science interests when they are taking greater numbers of non-science courses.

Two additional environmental variables have a negative effect on men's persistence towards science careers. First, male students who attend colleges farther from their homes are also less likely to maintain an initial career interest in science. Consistent with the positive effects associated with attending commuter schools, perhaps men who relocate to attend college are more likely to rethink their career plans. Living away from home provides students with new experiences and opportunities, many of which may attract the science student away from his initial aspirations.

Finally, being in a more competitive environment is negatively associated with men's persistence towards a science career. Men faced with competitive science programs may begin to doubt their scientific abilities, realizing that they are not the "best" in science, as they may have been in high school. Because competitive environments naturally filter out the less ambitious or less able students, perhaps the men who abandon their science aspirations in competitive schools will be more satisfied with careers in other fields.

Involvement Measures. After controlling for the effects of input and environmental measures, the "effects" of student involvement on persistence in science can be examined. As stated earlier, involvement measures (intermediate outcomes) may be viewed as both environments and outcomes, thus cautious interpretation of "effects" must be observed.

Inclusion of involvement variables brings the Multiple R to .64 for men (a change of +.18 from the environment block), and .64 for women (a change of +.24 from the

environment block). Measures of involvement are thus more strongly associated with persistence for women than they are for men.

Involvement measures associated with persistence of men's and women's science aspirations are described in Table 6. Three involvement measures have similar relationships for men and women: the number of science courses taken (+), having taken a multiple choice exam (-), and choosing their career because they enjoy working with people in their field (-). The first two measures more likely the result of persisting in science, rather than the cause. Students persisting in science are more likely to take more science courses, and within these courses, exams are more likely to be problem solving than multiple choice. It is possible that some of the association with number of science courses taken is an "effect"; students who take more science courses are more likely to have the preparation necessary for science careers. The third involvement measure common for both men and women is choosing a career because people in the field are enjoyable to work with. This variable has a negative association with men's and women's persistence towards a science or engineering career. Perhaps students who highly value their working relationships are more likely to abandon initial science career interests, whereas students who maintain an interest in the hard sciences might place less importance on the social aspect of their careers.

A number of intermediate outcomes have effects associated with either women or men, but not both. Five involvement measures are associated only with women's persistence towards the hard sciences. Working on a professor's research project and the number of math courses taken in college are positively associated with persistence. While each of these may simply be the result of continued science study during college, the fact that they enter the regression for women, but not for men, suggests that these findings represent more than mere persistence in science. Working with a professor on research may be a factor encouraging women to remain interested in science. Given the male-dominated, and often impersonal, nature of science fields, getting hands-on research

experience, as well as guidance from a professor, may be invaluable in retaining women within science. Similarly, taking a greater number of math courses has a unique positive effect on women. Considering that women begin college with lower math self-confidence than men (see Appendix A), perhaps women who enroll in many math courses have a sincere interest in scientific inquiry that may help them to persist in a science or engineering career.

Table 6
Involvement Variables Associated with Persistence Towards Hard Science Careers

Variable	Beta after Input Block		Final Beta	
	Men	Women	Men	Women
Positive Associations				
# Science courses taken	.34	.36	.28	.26
Hrs. per week: Studying or homework	.11		.08	
Reason for career choice: Work is interesting	.04		.09	
Reason for career choice: Satisfies parents' hopes	.05		.08	
Worked on professor's research		.21		.16
# Math/Numerical courses taken		.22		.12
Negative Associations				
Took multiple choice exam	-.25	-.23	-.17	-.17
Reason for career choice: Enjoy working with people in field	-.13	-.22	-.13	-.14
# Writing Skills Courses	-.21		-.13	
Had Paper Critiqued by Instructor	-.24		-.13	
Received Personal/Psych. Counseling	-.11		-.08	
Hrs. per week: Volunteer Work	-.11		-.08	
Took essay exam		-.26		-.16
Held part-time job off-campus		-.11		-.15

Holding a part-time job off-campus is negatively associated with women's persistence in the hard sciences. This finding speaks to the time commitment required to succeed in the sciences. Women who spend more time working off-campus have less time to devote to the demands of college science programs. This also suggests that among

women with an initial interest in science, those whose financial situations require them to work are more likely to choose a non-science career four years later.

Additionally, having taken an essay exam is positively associated with science career persistence for women. Because taking essay exams is more likely to occur in non-science courses, this finding probably reflects students who have defected from science early in college, and are thus taking courses which are more likely to require essay examinations.

Seven involvement measures are associated specifically with men's persistence towards hard science careers. The number of hours per week spent studying is positively related to persistence, perhaps because students who have persisted in science fields are more likely to spend greater amounts of time studying or doing homework. Yet, this variable may also suggest that devoting greater amounts of time to school work increases a student's chances of persisting in science. Two variables positively associated with men's persistence are related to the reason why they made their particular career choice. Choosing a career because the work is interesting is a positive factor for retaining students in science. Those who truly enjoy science are thus more likely to persist. Interestingly, making a career choice based on parents' expectations is also positively related to persistence for men. This finding is consistent with the results of the input block, which suggested that men who persist in science were more likely to go to college because their parents wanted them to. Clearly, men are especially affected by the expectations of their parents.

The amount of time spent volunteering was also found to be negatively related to science persistence. As with all involvement measures, it is unclear whether volunteering has a causal negative effect on persistence. While the amount of time required for science during college may preclude students from engaging in volunteer activities, it is also possible that students who are more likely spend time volunteering are less committed to science as a career.

Receiving personal or psychological counseling is also negatively related to persistence for men. Due to the high levels of competition and high expectations within the sciences, science students must cope with a large amount of stress. Perhaps those who are less able to cope with the pressure of the sciences, the ones who are less likely to persist, are more likely to seek counseling. This does not imply that persisters do not experience high stress levels; rather, persisters may be less likely to seek counseling to deal with their stress.

The number of writing skills courses and having a paper critiqued by an instructor are both negatively related to persistence towards hard science careers for men. As with a number of other variables, these findings are likely the result, not the cause, of defection from the sciences.

Conclusions and Recommendations

Given the large number of variables associated with hard science career persistence for men and women, what generalizations can be made? While the specific variables entering the regressions for men and women differ, there are common themes reflected for both of these groups. Students with an early commitment to science and greater amounts of science preparation before college are more likely to maintain an interest in science during college. Having a parent whose career involves science or scientific inquiry increases one's chance of persisting in science in college. While in college, students who are more focused on their course work and the demands of science majors are more likely to maintain their science interests than students who have diverse interests and capabilities. Similarly, students who commit much of their time to non-academic pursuits (outside jobs, volunteering, etc.) are less likely to persist towards a science career. Thus, students who enter college more prepared and focused, and with less outside interests and/or demands, are more likely to persist towards careers in science.

However, there are some interesting differences in the types of variables associated with men and women's persistence in science. Men who defect from science careers might do so because of expectations of the relative lack of financial reward in science fields. Wanting to be successful in business, and choosing careers in business and law are more strongly associated with men's defection from science than women's. In fact, desiring business success was associated with science *persistence* for women!

Women report to be more concerned with helping others in difficulty than are men; consequently, women defecting from hard science career goals are more likely than men to choose careers in education or medicine. These differences suggest that women and men may have different motivations guiding their choice of a career. Men appear to be more concerned with the monetary aspect of a career, while women are apparently more concerned with the "social good" of their career choice. Perhaps these findings represent the different ways in which women and men are socialized, and how their life opportunities are presented to them.

It is important for future research to examine further the motivations guiding career choices, especially for science careers. Perhaps men and women perceive careers differently, or perhaps they merely perceive their opportunities differently. Research on this topic should explore how students' understanding of specific careers and of career opportunities changes during the college years, the years in which students must prepare themselves for future employment. At what point during college do students lose interest in science? Is the field itself a "turn-off," or does college provide new opportunities that students had not previously considered? Also, efforts should be made to understand how institutional selectivity and student competition affect science students. Are we losing our most talented science students because of the competitive nature of science programs at many of our nation's top colleges?

In order to increase the chances that youth of today become committed to science and engineering by the time they graduate college, we must work to ensure that they are not

turned away from science during their educational experience. First, we must work to foster academic self-confidence in all students. From the early ages, both girls and boys should receive positive reinforcement for their accomplishments, and should be encouraged to express confidence in their intellectual abilities. Second, all students, especially women, should be encouraged to take more math and science courses in high school, so that they are not precluded from participating in science programs in college.

Finally, if more women and men are needed to become the scientists and engineers of tomorrow, the nature of science and engineering programs in college should become more adaptable to diverse student needs. Although the content of science and engineering programs demands a concentrated time commitment from students, science departments could work to become more flexible for science students with varied interests. Efforts should be made to procure financial assistance and research opportunities for science students. Science departments could foster more cooperative learning environments, rather than promoting competition among students, which may turn many of them away from science. Finally, science programs should make special efforts to retain students who show an initial interest in science, but may not be fully committed to their science aspirations. Perhaps these students need only a little extra encouragement to remain in science. Future scientific breakthroughs and discoveries may be in the minds of these very students who are lost from science during college. Instead of losing many creative and multi-talented individuals, the educational system can work to retain them, and enhance the scientific capabilities of our nation.

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Appendix A. Input, Environment, and Involvement Measures used in Regression Analyses for Women, Men

12:21:55 WOMEN: INPUT: HARD SCIENCE CAREERS: PERSISTERS V DEFECTORS
DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 496 Missing= LISTWISE 13 out of 114 IVs were significant

	MEAN	STD DEV	LABEL
INPUT VARIABLES			
SATV	527.206	99.107	SAT VERBAL
SATM	577.966	99.788	SAT MATH
HSGPA	6.978	1.116	AVERAGE HIGH SCHOOL GRADES
HSRANK	4.854	.468	ACADEMIC RANK IN HIGH SCHOOL
DEGASP85	4.242	.682	HIGHEST DEGREE PLANNED ANYWHERE
CHOICE	3.663	.656	CHOICE OF COLLEGE
RACE1	1.853	.355	WHITE/CAUCASIAN
RACE2	1.089	.285	BLACK/NEGRO/AFRO-AMERICAN
RACE3	1.008	.090	AMEPICAN INDIAN
RACE4	1.038	.192	ASIAN-AMERICAN/ORIENTAL
RACE5	1.010	.100	MEXICAN-AMERICAN/ CHICANO
RACE6	1.010	.100	PUERTO RICAN-AMERICAN
CITIZEN	1.974	.160	CITIZENSHIP STATUS
ACT8412	1.981	.691	1984 ACT: TUTORED ANOTHER STUDENT
ACT8413	2.219	.562	1984 ACT: ASKED TEACHER FOR ADVICE
ACT8414	1.346	.615	1984 ACT: IN SCIENCE CONTEST
ACT8415	2.000	.606	1984 ACT: DID EXTRA COURSE WORK
ACT8416	1.452	.630	1984 ACT: GUEST IN TEACHER'S HOME
ACT8417	2.332	.598	1984 ACT: STUDIED WITH OTHER STUDENTS
ACT8420	2.062	.653	1984 ACT: PERFORMED VOLUNTEER WORK
ACT8425	2.113	.554	1984 ACT: FELT OVERWHELMED
ACT8426	1.964	.483	1984 ACT: FELT DEPRESSED
RATE8501	4.375	.593	ACADEMIC ABILITY
RATE8502	2.999	.915	ARTISTIC ABILITY
RATE8503	4.209	.676	DRIVE TO ACHIEVE
RATE8504	3.757	.808	EMOTIONAL HEALTH
RATE8505	3.644	.827	LEADERSHIP ABILITY
RATE8506	4.068	.749	MATHEMATICAL ABILITY
RATE8507	3.666	.843	PHYSICAL HEALTH
RATE8508	3.304	.629	POPULARITY
RATE8509	3.871	.745	SELF-CONFIDENCE <INTELL>
RATE8510	3.290	.868	SELF-CONFIDENCE <SOCIAL>
RATE8511	3.607	.830	WRITING ABILITY
REASON01	2.724	.537	REASON FOR COLL: GET A BETTER JOB
REASON02	2.704	.482	REASON FOR COLL: GAIN GENERAL EDUCATION
REASON03	2.153	.678	REASON FOR COLL: IMPROVE STUDY SKILLS
REASON04	1.104	.347	REASON FOR COLL: NOTHING BETTER TO DO
REASON05	2.271	.635	REASON FOR COLL: BECOME MORE CULTURED
REASON06	2.450	.608	REASON FOR COLL: MAKE MORE MONEY
REASON07	2.795	.422	REASON FOR COLL: LEARN ABOUT NEW THINGS
REASON08	2.504	.666	REASON FOR COLL: PREP FOR GRAD-PROF SCH
REASON09	1.739	.695	REASON FOR COLL: PARENTS WANTED
REASON10	1.083	.347	REASON FOR COLL: COULDN'T FIND JOB
REASON11	1.551	.623	REASON FOR COLL: GET AWAY FROM HOME
POLIVW85	3.055	.732	POLITICAL ORIENTATION
INCOME	8.131	2.833	ESTIMATED PARENTAL INCOME
FATHEDUC	5.847	1.891	FATHER'S EDUCATION
MOTHEDUC	5.209	1.783	MOTHER'S EDUCATION
SPROT	1.427	.495	PROTESTANT
SOTHER	1.056	231	OTHER RELIGION

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

	MEAN	STD DEV	LABEL
SJEWISH	1.026	.160	JEWISH
SCATH	1.355	.479	CATHOLIC
SNONE	1.117	.322	NO RELIGION
REBORN85	1.193	.385	BORN-AGAIN CHRISTIAN IN 1985?
GOAL8501	1.555	.741	ACHIEVE IN PERFORMING ART
GOAL8502	2.982	.709	BECOME AUTHORITY IN OWN FIELD
GOAL8503	2.661	.766	OBTAIN RECOG FROM COLLEAGUES
GOAL8504	1.639	.659	INFLUENCE POLITICAL STRUCTURE
GOAL8505	2.040	.710	INFLUENCE SOCIAL VALUES
GOAL8506	2.839	.926	RAISE A FAMILY
GOAL8507	2.153	.778	HAVE ADMIN RESPONSIBILITY
GOAL8508	2.661	.826	BE VERY WELL OFF FINANCIALLY
GOAL8509	2.747	.692	HELP OTHERS IN DIFFICULTY
GOAL8510	2.369	.917	MAKE THEORETICAL CONTRIBUTION
GOAL8511	1.453	.722	WRITE ORIGINAL WORKS
GOAL8512	1.404	.664	CREATE ARTISTIC WORKS
GOAL8513	1.952	.881	BE SUCCESSFUL IN OWN BUSINESS
GOAL8514	2.094	.795	BECOME INVOLVED IN ENVIRONMENT
GOAL8515	2.514	.954	DEVELOP MEANINGFUL PHILOSOPHY
GOAL8516	2.093	.736	PARTICIPATE IN COMM ACTION
GOAL8517	2.315	.822	PROMOTE RACIAL UNDERSTANDING
GOAL8518	1.625	.713	BE EXPERT ON FINANCE/COMMERCE
TSCRESCH	23.565	2.599	TYPOLOGY SCORE: SCHOLAR
TSCREACT	8.520	1.952	TYPOLOGY SCORE: ACTIVIST
TSCREART	9.518	2.123	TYPOLOGY SCORE: ARTIST
TSCREHED	6.083	1.612	TYPOLOGY SCORE: HEDONIST
TSCRELDR	10.234	1.868	TYPOLOGY SCORE: LEADER
TSCRESTR	12.450	2.562	TYPOLOGY SCORE: STRIVER
TSCREUNC	10.230	2.219	TYPOLOGY SCORE: UNCOMMITTED
TYPOCNT	2.466	1.000	NUMBER OF TYPOLOGY FLAGS MARKED "YES"
SFEMINSM	2.587	.797	PEER FAC: FEMINISM
SSCIORNT	4.784	1.181	PEER FAC: SCIENTIFIC ORIENTATION
SSES	19.122	4.977	PEER FAC: SOCIO-ECONOMIC STATUS
SOUTWORK	4.768	1.289	PEER FAC: OUTSIDE WORK
SSCIPREP	16.012	1.747	PEER FAC: SCIENCE PREP IN HS
ACT8401	2.093	.702	1984 ACT: USED PERSONAL COMPUTER
FCAR04	1.040	.197	FATHER'S CAREER GRP: COLLEGE TEACHER
FCAR05	1.018	.134	FATHER'S CAREER GRP: DOCTOR
FCAR08	1.179	.384	FATHER'S CAREER GRP: ENGINEER
FCAR10	1.016	.126	FATHER'S CAREER GRP: HEALTH PROF
FCAR13	1.024	.154	FATHER'S CAREER GRP: RESEARCH SCIENTIST
MCAR05	1.010	.100	MOTHER'S CAREER GRP: COLLEGE TEACHER
MCAR09	1.002	.045	MOTHER'S CAREER GRP: ENGINEER
MCAR11	1.016	.126	MOTHER'S CAREER GRP: HEALTH PROF
MCAR14	1.093	.290	MOTHER'S CAREER GRP: NURSE
MCAR15	1.002	.045	MOTHER'S CAREER GRP: RESEARCH SCIENTIST
YRSTUDY4	4.321	1.017	YEARS OF HS STUDY: PHYSICAL SCIENCE
YRSTUDY5	3.462	.786	YEARS OF HS STUDY: BIOLOGICAL SCIENCE
YRSTUDY7	2.156	1.089	YEARS OF HS STUDY: COMPUTER SCIENCE
FUTACT01	2.677	.750	EXPECTATION: CHANGE MAJOR FIELD

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 496 Missing= LISTWISE 13 out of 114 IVs were significant

	MEAN	STD DEV	LABEL
FUTACTO2	2.749	.746	EXPECTATION: CHANGE CAREER CHOICE
SINTESTM	26.728	3.161	PEER FAC: INTELLECTUAL SELF ESTEEM
SOCSCI85	1.006	.078	85 MAJ: SOCIAL SCIENCE
NATSCI85	1.409	.492	85 MAJ: NATURAL SCIENCE
BIOSCI85	1.206	.405	85 MAJ: BIOLOGICAL SCIENCE
PHYSCI85	1.204	.403	85 MAJ: PHYSICAL SCIENCE
ENGIN85M	1.510	.500	85 MAJ: ENGINEERING
SCEN185	1.919	.273	85 MAJ: SCIENCES1
PSYCH85	1.008	.090	85 MAJ: PSYCHOLOGY
SCEN285	1.970	.171	85 MAJ: SCIENCES2
UNDEC85	1.006	.078	85 MAJ: UNDECIDED
SMARTHUM	1.002	.045	SIF MAJ: ARTS/HUMANITIES
SMBUS	1.002	.045	SIF MAJ: BUSINESS
SMEDUC	1.002	.045	SIF MAJ: EDUCATION
PDEFSCIC	1.419	.494	PERSISTERS VERSUS DEFECTORS: HARD SCIEN

14:15:43 WOMEN: HARD SCIENCE CAREERS: PERSISTERS V DEFECTORS
DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 481 Missing= LISTWISE 21 out of 239 IVs were significant

	MEAN	STD DEVI	LABEL
ENVIRONMENTAL VARIABLES			
LIVEHOME	1.110	.313	PLAN TO LIVE AT HOME IN FALL 1985?
LIVEPRIV	1.008	.091	PLAN TO LIVE OFF CAMPUS IN FALL 1985?
LIVECAMP	1.873	.333	PLAN TO LIVE ON CAMPUS IN FALL 1985?
DISTHOME	4.365	1.324	DISTANCE FROM HOME TO COLLEGE
AID01	5.010	2.374	AID SOURCE: PARENTS OR FAMILY
AID03	1.647	.479	AID SOURCE: SAVINGS FROM SUMMER WORK
AID04	1.331	.471	AID SOURCE: OTHER SAVINGS
AID05D	1.012	.111	FULLTIME JOB IN COLLEGE
AID06D	1.320	.467	PARTTIME JOB IN COLLEGE
AID07D	1.158	.365	PELL GRANT
AID08D	1.106	.308	SEOG GRANT
AID09D	1.229	.420	STATE SCHOLARSHIP OR GRANT
AID10D	1.214	.411	COLLEGE WORKSTUDY
AID11D	1.486	.500	OTHER COLLEGE GRANT
AID17D	1.335	.472	FGSL LOAN
AID19D	1.060	.238	OTHER COLLEGE LOAN
AIDBASE1	1.582	.494	AID BASED ON: ACADEMIC MERIT
AIDBASE2	1.503	.501	AID BASED ON: FINANCIAL NEED
AIDBASE3	1.017	.128	AID BASED ON: ATHLETIC TALENT
AIDBASE4	1.044	.205	AID BASED ON: OTHER TALENT
F1	1.116	3.521	PROGRESSIVE OFFERINGS
F2	.324	3.880	PERSONALIZED/INDIVIDUALIZED
F3	1.904	2.955	INTEGRATIVE/INTERDISCIPLINARY
F4	1.041	1.997	STRUCTURED CURRICULUM
TRUECORE	1.042	.200	INTERDISCIPLINARY CORE
MAJORDOM	1.073	.260	MAJOR DOMINATED G.E.
GRADE5	1.069	.253	WRITTEN EVALUATION
INTEG1	1.732	.839	STATUS OF MINORITY/3RD WRLD STUDIES
INTEG2	1.572	.732	STATUS OF WOMENS/GENDER STUDIES
INTRN	1.019	.136	INTERNSHIP REQUIRED
THESIS	1.215	.514	THESIS/SR PROJECT REQUIRED
COMP	1.240	.597	COMPREHENSIVE REQUIRED
INDYRES	1.206	.529	INDEPENDENTR RESEARCH REQUIRED
MIN3CRS	1.087	.364	MINORITY/3RD WORLD COURSE REQ
WMNCRS	1.090	.401	WOMENS/GENDER STUDIES COURSE REQ
MARC	1.033	.180	MINORITY ACCESS TO RESEARCH CAREERS
MBRS	1.085	.280	MINORITY BIOMEDIAL RESEARCH

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 481 Missing= LISTWISE 21 out of 239 IVs were significant

	MEAN	STD DEV	LABEL
PINTESTM	25.595	1.574	PEER MEAN: INTELLECTUAL SELF ESTEEM
PPERMISS	4.531	1.032	PEER MEAN: PERMISIVENESS
PSOCACTV	11.532	.691	PEER MEAN: SOCIAL ACTIVISM
PMATSTAT	15.771	.857	PEER MEAN: MATERIALISM AND STATUS
PFEMINSM	1.999	.263	PEER MEAN: FEMINISM
PARTINCL	7.102	.413	PEER MEAN: ARTISTIC INCLINATION
POUTWORK	4.701	.325	PEER MEAN: OUTSIDE WORK
PSCIORNT	3.786	.206	PEER MEAN: SCIENTIFIC ORIENTATION
PSES	19.502	2.518	PEER MEAN: SOCIO-ECONOMIC STATUS
PSCIPREP	15.479	.661	PEER MEAN: SCIENCE PREP IN HS
PCTCAMP	85.473	18.540	% PLANNING TO LIVE ON CAMPUS IN FALL '85
PCTMERIT	33.242	11.599	% WHOSE AIO IS BASED ON MERIT
PCTNEED	41.833	13.515	% WHOSE AID IS BASED ON NEED
PCTJEW	5.940	8.538	% RJEWISH IN 1985
PCTCATH	31.621	21.079	% CATHOLIC IN 1985
PCTBORN	16.924	15.876	% BORN-AGAIN CHRISTIAN IN 1985
MEANVW85	3.056	.202	MEAN POLITICAL ORIENTATION IN 1985
FSCI	31.078	11.319	% SCIENCE FACULTY
FSEX	27.509	12.642	% FEMALE
FPCTPHD	81.216	11.117	% PHD
FINTERD	43.944	13.641	% TAUGHT INTERDISCIPLINARY
FTGT_GE	39.121	16.606	TAUGHT GEN ED COURSE
FTEAMT	40.136	12.506	% TEAM-TAUGHT A COURSE
FSRP	73.728	10.069	% WORKED WITH STUDENTS ON RESEARCH
FTCHADV	10.569	.975	TEACHING AND ADVISING (HRS)
FPOLVW	3.448	.243	POLITICAL VIEW
FPOSGE	2.883	.262	FAC PER: FAC POSITIVE ABOUT G.E.
FKEEN	2.161	.316	FAC PER: KEEN COMPETITION AMONG STU
FGTA	1.490	.483	USE GRAD TEACHING ASSISTANTS
FSFI	7.960	.217	STUDENT FACULTY INTERACTION
FMORALE	47.007	7.896	FACULTY MORALE
FRESOR	28.324	4.546	RESEARCH ORIENTATION
FSTD__	14.366	1.302	FAC PER: COMMITMENT TO STUOENT DEVELOPME
F__SA	11.151	.690	FAC PER: COMMITMENT TO SOCIAL ACTIVISM*
FACTIVL	14.909	1.499	ACTIVE LEARNING
FDIVER	5.633	.674	FAC PER: DIVERSITY ORIENTATION
FLIB	19.061	1.209	LIBERALISM
FTSTRES	14.821	.766	TIME STRESS
FAGEFAC	217.900	5.865	AGE OF FACULTY
FADMINV	8.895	.446	INVOLVEMENT IN ADMINISTRATION
FHUMOR	5.428	.707	HUMANITIES ORIENTATION
FMULTC	3.075	.526	USE OF MULTIPLE CHOICE EFAC PER: AMS
FCSTRES	1.681	.123	COLLEGIAL STRESS
FSOCACT	13.310	1.975	FAC PER: SOCIAL ACTIVISM AND COMMUNITY O
FSTUOR	14.238	1.955	FAC PER: STUDENT ORIENTATION
FADMREL	3.321	1.335	FAC PER: RELATIONS WITH THE ADMINISTRATI
FDIVEMP	12.275	1.659	FAC PER: DIVERSITY EMPHASIS
FSTUREL	4.119	.708	FAC PER: STUDENT RELATIONS
FRESREP	11.589	1.423	FAC PER: RESOURCE AND REPUTATION EMPHASI
FRACCON	1.213	.759	FAC PER: RACIAL CONFLICT

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

	MEAN	STD DEVI	LABEL
FACADCM	6.990	.401	FAC PER: ACADEMIC COMPETITIVENESS
PCTBA01	.782	2.137	% OF 1986 BA'S IN AGRICULTURE
PCTBA02	6.081	3.464	% OF 1986 BA'S IN BIOLOGICAL SCIENCES
PCTBA03	15.432	14.135	% OF 1986 BA'S IN BUSINESS
PCTBA04	4.202	5.769	% OF 1986 BA'S IN EDUCATION
PCTBA05	13.636	15.500	% OF 1986 BA'S IN ENGINEERING
PCTBA06	2.753	2.261	% OF 1986 BA'S IN ENGLISH
PCTBA07	3.830	5.378	% OF 1986 BA'S IN HEALTH PROFESSIONS
PCTBA08	4.397	3.196	% OF 1986 BA'S IN HISTORY/POLITICAL SCI
PCTBA09	7.017	5.552	% OF 1986 BA'S IN HUMANITIES
PCTBA10	4.464	3.678	% OF 1986 BA'S IN FINE ARTS
PCTBA11	2.896	2.807	% OF 1986 BA'S IN MATH/STATISTICS
PCTBA12	4.249	5.517	% OF 1986 BA'S IN PHYSCAL SCIENCES
PCTBA13	19.869	13.287	% OF 1986 BA'S IN SOCIAL SCIENCES
PCTBA14	3.291	4.092	% OF 1986 BA'S IN OTHER TECHNICAL
PCTBA15	7.062	7.657	% OF 1986 BA'S IN OTHER NON-TECHNICAL
PUBUNIV	1.193	.395	PUBLIC UNIVIERSITY
PUB4YR	1.096	.294	PUBLIC 4-YEAR COLLEGE
PRIVUNIV	1.272	.446	PRIVATE UNIVERSITY
NONS4	1.227	.419	NONSECTARIAN 4-YEAR
CATH4	1.050	.218	CATHOLIC 4-YEAR
PROT4	1.100	.300	PROTESTANT 4-YEAR
PEXP06	7.391	4.806	% STUDENT SERVICES
PEGEXP	73.604	10.723	% TOTAL INSTRUCTION-RELATED EXP
INSTRACE	1.062	.242	IC: INSTITUTIONAL RACE
WOMENCOL	1.089	.286	WOMENS COLLEGE
SELECT	110.296	14.314	IC: INSTITUTIONAL SELECTIVITY (SATV+M)
TOTFTE	5.998	1.509	TOTAL FTE
MAJMEN	1.023	.150	OVER 80% MEN
PCTGRAD	16.154	15.348	OFE: % ENROLLMENT OF GRADUATE STNTS
PCTBLKT	6.353	13.180	OFE: % BLACK UGFTE
PCTASNT	3.669	4.468	OFE: % ASIAN UGFTE
PCTHIST	2.620	4.961	OFE: % HISPANIC UGFTE
STUFACRT	18.524	5.301	STU/FAC RATIO
SCIDEG	27.644	17.558	PCT OF 86 BAS IN SCI RELATED FIELDS
AVFACSAL	39490.838	8421.750	AVERAGE FAC SALARY
UGFTET	5820.738	6518.016	OFE: UNDERGRADUATE FTE STUDENTS
INVOLVEMENT VARIABLES/INTERMEDIATE OUTCOMES			
COLACT01	1.549	.494	ENROLLED IN HONORS PROGRAM
COLACT02	1.642	.474	ENROLLED IN INTERDISCIPLINARY COURSE
COLACT03	1.268	.442	MEMBER OF FRATERNITY OR SORORITY
COLACT04	1.067	.249	GOTTEN MARRIED
COLACT05	1.728	.444	HELD PART-TIME JOB ON-CAMPUS
COLACT06	1.524	.497	HELD PART-TIME JOB OFF-CAMPUS
COLACT07	1.101	.300	WORKED FULL TIME WHILE STUDENT
COLACT08	1.130	.335	IN STUDY ABROAD PROGRAM
COLACT09	1.304	.459	IN COLLEGE INTERNSHIP PROGRAM
COLACT10	1.285	.450	IN CAMPUS DEMONSTRATIONS
COLACT11	1.276	.446	ELECTED TO STUDENT OFFICE
COLACT14	1.116	.318	TAKEN READING STUDY/SKILLS CLASSES
COLACT15	1.264	.440	TOOK PART IN INTERCOLLEGIATE ATHLETICS

NOTE: If variable label is blank, no label was specified in SPSS-x job.

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 481 Missing= LISTWISE 21 out of 239 IVs were significant

	MEAN	STD DEVI	LABEL
COLACT16	1.353	.477	WORKED ON PROFESSOR'S RESEARCH PROJECT
COLACT17	1.025	.156	PLAYED INTERCOLL FOOTBALL/BASKETBALL
COLACT18	1.036	.185	TAKEN REMEDIAL/DEVELOPMENT COURSES
COLACT20	1.290	.453	ENROLLED IN ETHNIC STUDIES COURSE
COLACT21	1.220	.413	ENROLLED IN WOMEN'S STUDES COURSE
COLACT22	1.240	.426	ASSISTED FACULTY IN TEACHING CLASS
COLACT23	1.326	.466	ATTD RACIAL/CULTURAL AWARENESS WORKSHOP
YEARSIN	4.397	.445	YEARS IN ANY COLLEGE
ACT8801	1.920	.835	WORKED ON IND RESEARCH PROJECT
ACT8803	2.181	.706	WORKED ON GROUP PROJECT FOR A CLASS
ACT8804	1.410	.560	GUEST IN PROFESSOR'S HOME
ACT8805	2.044	.745	TOOK A MULTIPLE-CHOICE EXAM
ACT8806	1.798	.691	TUTORED ANOTHER STUDENT
ACT8811	2.073	.525	GAVE A PRESENTATION IN CLASS
ACT8812	1.532	.718	PARTICIPATED IN INTRAMURAL SPORTS
ACT8813	1.917	.614	DISCUSSED RACIAL/ETHNIC ISSUES
ACT8820	1.653	.572	RECEIVED VOCATIONAL/CAREER COUNSELING
ACT8821	1.173	.444	RECEIVED PERSONAL/PSYCH COUNSELING
ACT8822	1.229	.440	PARTICIPATED IN CAMPUS DEMONSTRATIONS
ACT8823	2.376	.607	TOOK AN ESSAY EXAM
ACT8824	1.208	.426	RECEIVED TUTORING IN COURSES
ACT8826	2.412	.603	SOCIALIZED WITH ONE FROM DIFF ETHNIC GRP
ALCOHOL	3.821	1.098	DRANK BEER OR WINE
ACT8828	2.152	.707	HAD CLASS PAPER CRITIQUED BY INSTRUCTOR
COLLGPA	4.383	.950	AVERAGE UNDERGRADUATE GRADES
UGCLASS1	2.923	1.071	# OF WRITING SKILLS COURSES
UGCLASS2	3.827	1.085	# OF MATH/NUMERICAL COURSES
UGCLASS3	4.156	1.099	# OF SCIENCE COURSES
UGCLASS4	2.322	.865	# OF HISTORY COURSES
UGCLASS5	1.890	.941	# OF FOREIGN LANGUAGE COURSES
HPW8901	6.593	1.171	ATTENDING CLASSES OR LABS
HPW8902	6.291	1.387	STUDYING OR DOING HOMEWORK
HPW8903	5.528	1.458	SOCIALIZING WITH FRIENDS
HPW8904	2.898	.949	TALKING WITH FACULTY OUTSIDE CLASS
HPW8905	3.553	1.485	EXERCISING OR SPORTS
HPW8906	2.435	1.334	READING FOR PLEASURE
HPW8907	3.435	1.742	USING A PERSONAL COMPUTER
HPW8908	3.315	1.652	PARTYING
HPW8909	4.568	2.380	WORKING (FOR PAY)
HPW8910	1.718	1.135	VOLUNTEER WORK
HPW8911	2.980	1.448	STUDENT CLUBS OR GROUPS
HPW8912	3.487	1.556	WATCHING TV
HPW8913	2.037	1.333	COMMUTING TO CAMPUS
HPW8914	2.004	1.151	RELIGIOUS SERVICES OR MEETINGS
HPW8915	2.354	1.284	HOBBIES
REASCAR1	2.705	.847	REASON FOR CAREER-JOB OPPORTUNITIES
REASCAR2	2.902	.871	REASON FOR CAREER-ENJOY PEOPLE IN FIELD
REASCAR3	3.507	.623	REASON FOR CAREER-INTERESTING WORK
REASCAR4	2.368	.894	REASON FOR CAREER-PAYS WELL
REASCAR5	1.611	.753	REASON FOR CAREER-SATISIFIES PARENTS

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 481 Missing= LISTWISE 21 out of 239 IVs were significant

	MEAN	STD DEVI	LABEL
REASCAR6	3.266	.677	REASON FOR CAREER-CHALLENGING WORK
REASCAR7	2.794	.911	REASON FOR CAREER-CONTRIB TO SOCIETY
REASCAR8	2.258	.904	REASON FOR CAREER-OPP FOR ADVANCEMENT
REASCAR9	2.593	.883	REASON FOR CAREER-OPP FOR FREEDOM OF ACT
LEFTSKUL	1.159	.365	LEFT SCHOOL OR LEAVE OR TRANSFER
STDSTDB	14.996	2.756	STU-STU INTERACT/BEHAVIORS
STDFACB	6.901	1.606	STU-FAC INTERACT/BEHAVIORS

12:44:41 MEN: INPUT: HARD SCIENCE CAREERS: PERSISTERS V DEFECTORS
DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 939 Missing= LISTWISE 12 out of 116 IVs were significant

	MEAN	STD DEV	LABEL
SATV	535.260	89.987	SAT VERBAL
SATM	624.125	88.689	SAT MATH
HSGPA	6.623	1.345	AVERAGE HIGH SCHOOL GRADES
HSRANK	4.753	.593	ACADEMIC RANK IN HIGH SCHOOL
DEGASP85	4.144	.709	HIGHEST DEGREE PLANNED ANYWHERE
CHOICE	3.626	.678	CHOICE OF COLLEGE
RACE1	1.874	.332	WHITE/CAUCASIAN
RACE2	1.038	.192	BLACK/NEGRO/AFRO-AMERICAN
RACE3	1.011	.103	AMERICAN INDIAN
RACE4	1.065	.247	ASIAN-AMERICAN/ORIENTAL
RACE5	1.016	.125	MEXICAN-AMERICAN/ CHICANO
RACE6	1.002	.046	PUERTO RICAN-AMERICAN
CITIZEN	1.971	.167	CITIZENSHIP STATUS
ACT8412	1.852	.701	1984 ACT: TUTORED ANOTHER STUDENT
ACT8413	2.113	.571	1984 ACT: ASKED TEACHER FOR ADVICE
ACT8414	1.382	.614	1984 ACT: IN SCIENCE CONTEST
ACT8415	1.824	.630	1984 ACT: DID EXTRA COURSE WORK
ACT8416	1.408	.609	1984 ACT: GUEST IN TEACHER'S HOME
ACT8417	2.195	.605	1984 ACT: STUDIED WITH OTHER STUDENTS
ACT8420	1.945	.629	1984 ACT: PERFORMED VOLUNTEER WORK
ACT8425	1.931	.586	1984 ACT: FELT OVERWHELMED
ACT8426	1.842	.517	1984 ACT: FELT DEPRESSED
RATE8501	4.460	.615	ACADEMIC ABILITY
RATE8502	2.953	.925	ARTISTIC ABILITY
RATE8503	4.111	.733	DRIVE TO ACHIEVE
RATE8504	3.861	.827	EMOTIONAL HEALTH
RATE8505	3.733	.833	LEADERSHIP ABILITY
RATE8506	4.334	.733	MATHEMATICAL ABILITY
RATE8507	3.995	.830	PHYSICAL HEALTH
RATE8508	3.407	.720	POPULARITY
RATE8509	4.071	.746	SELF-CONFIDENCE <INTELL>
RATE8510	3.344	.898	SELF-CONFIDENCE <SOCIAL>
RATE8511	3.543	.848	WRITING ABILITY
REASON01	2.785	.501	REASON FOR COLL: GET A BETTER JOB
REASON02	2.510	.577	REASON FOR COLL: GAIN GENERAL EDUCATION
REASON03	2.070	.674	REASON FOR COLL: IMPROVE STUDY SKILLS
REASON04	1.100	.351	REASON FOR COLL: NOTHING BETTER TO DO
REASON05	2.102	.673	REASON FOR COLL: BECOME MORE CULTURED
REASON06	2.590	.582	REASON FOR COLL: MAKE MORE MONEY
REASON07	2.717	.484	REASON FOR COLL: LEARN ABOUT NEW THINGS
REASON08	2.348	.688	REASON FOR COLL: PREP FOR GRAD-PROF SCH
REASON09	1.726	.683	REASON FOR COLL: PARENTS WANTED
REASON10	1.049	.252	REASON FOR COLL: COULDN'T FIND JOB
REASON11	1.618	.657	REASON FOR COLL: GET AWAY FROM HOME
POLIVW85	2.953	.807	POLITICAL ORIENTATION
INCOME	8.458	2.799	ESTIMATED PARENTAL INCOME
FATHEDUC	5.875	2.044	FATHER'S EDUCATION
MOTHEDUC	5.210	1.827	MOTHER'S EDUCATION
SPROT	1.372	.484	PROTESTANT
SOTHER	1.044	.204	OTHER RELIGION

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 939 Missing= LISTWISE 12 out of 116 IVs were significant

	MEAN	STD DEV	LABEL
SJEWISH	1.031	.173	JEWISH
SCATH	1.378	.485	CATHOLIC
SNONE	1.134	.341	NO RELIGION
REBORN85	1.157	.347	BORN-AGAIN CHRISTIAN IN 1985?
GOAL8501	1.406	.644	ACHIEVE IN PERFORMING ART
GOAL8502	2.981	.757	BECOME AUTHORITY IN OWN FIELD
GOAL8503	2.700	.788	OBTAIN RECOG FROM COLLEAGUES
GOAL8504	1.847	.752	INFLUENCE POLITICAL STRUCTURE
GOAL8505	2.022	.775	INFLUENCE SOCIAL VALUES
GOAL8506	2.934	.863	RAISE A FAMILY
GOAL8507	2.262	.831	HAVE ADMIN RESPONSIBILITY
GOAL8508	2.896	.806	BE VERY WELL OFF FINANCIALLY
GOAL8509	2.612	.723	HELP OTHERS IN DIFFICULTY
GOAL8510	2.378	.891	MAKE THEORETICAL CONTRIBUTION
GOAL8511	1.471	.734	WRITE ORIGINAL WORKS
GOAL8512	1.355	.639	CREATE ARTISTIC WORKS
GOAL8513	2.174	.933	BE SUCCESSFUL IN OWN BUSINESS
GOAL8514	2.107	.795	BECOME INVOLVED IN ENVIRONMENT
GOAL8515	2.523	.953	DEVELOP MEANINGFUL PHILOSOPHY
GOAL8516	1.922	.696	PARTICIPATE IN COMM ACTION
GOAL8517	2.200	.803	PROMOTE RACIAL UNDERSTANDING
GOAL8518	1.757	.761	BE EXPERT ON FINANCE/COMMERCE
TSCRESCH	23.919	2.764	TYPOLOGY SCORE: SCHOLAR
TSCREACT	8.404	2.116	TYPOLOGY SCORE: ACTIVIST
TSCREART	9.199	1.985	TYPOLOGY SCORE: ARTIST
TSCREHED	6.387	1.705	TYPOLOGY SCORE: HEDONIST
TSCRELDR	10.483	1.937	TYPOLOGY SCORE: LEADER
TSCRESTR	13.069	2.746	TYPOLOGY SCORE: STRIVER
TSCREUNC	10.053	2.224	TYPOLOGY SCORE: UNCOMMITTED
TYPOCNT	2.585	1.033	NUMBER OF TYPOLOGY FLAGS MARKED "YES"
SFEMINSM	1.682	1.207	PEER FAC: FEMINISM
SSCICRNT	4.585	1.067	PEER FAC: SCIENTIFIC ORIENTATION
SSES	19.477	5.253	PEER FAC: SOCIO-ECONOMIC STATUS
SOUTWORK	4.734	1.279	PEER FAC: OUTSIDE WORK
SSCIPREP	16.468	1.950	PEER FAC: SCIENCE PREP IN HS
ACT8401	2.326	.665	1984 ACT: USED PERSONAL COMPUTER
FCAR04	1.034	.182	FATHER'S CAREER GRP: COLLEGE TEACHER
FCAR05	1.048	.214	FATHER'S CAREER GRP: DOCTOR
FCAR08	1.174	.379	FATHER'S CAREER GRP: ENGINEER
FCAR10	1.014	.117	FATHER'S CAREER GRP: HEALTH PROF
FCAR13	1.020	.141	FATHER'S CAREER GRP: RESEARCH SCIENTIST
MCAR05	1.012	.108	MOTHER'S CAREER GRP: COLLEGE TEACHER
MCAR06	1.009	.092	MOTHER'S CAREER GRP: DOCTOR
MCAR09	1.001	.033	MOTHER'S CAREER GRP: ENGINEER
MCAR11	1.031	.173	MOTHER'S CAREER GRP: HEALTH PROF
MCAR14	1.069	.254	MOTHER'S CAREER GRP: NURSE
MCAR15	1.006	.080	MOTHER'S CAREER GRP: RESEARCH SCIENTIST
YRSTUDY4	4.503	1.069	YEARS OF HS STUDY: PHYSICAL SCIENCE
YRSTUDY5	3.295	.776	YEARS OF HS STUDY: BIOLOGICAL SCIENCE
YRSTUDY7	2.532	1.160	YEARS OF HS STUDY: COMPUTER SCIENCE

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 939 Missing= LISTWISE 12 out of 116 IVs were significant

	MEAN	STD DEV	LABEL
FUTACT01	2.557	.766	EXPECTATION: CHANGE MAJOR FIELD
FUTACT02	2.579	.765	EXPECTATION: CHANGE CAREER CHOICE
SINTESTM	27.109	3.230	PEER FAC: INTELLECTUAL SELF ESTEEM
SOCSCI85	1.002	.046	85 MAJ: SOCIAL SCIENCE
NATSCI85	1.219	.414	85 MAJ: NATURAL SCIENCE
BIOSCI85	1.078	.268	85 MAJ: BIOLOGICAL SCIENCE
PHYSCI85	1.142	.349	85 MAJ: PHYSICAL SCIENCE
ENGIN85M	1.687	.464	85 MAJ: ENGINEERING
SCEN185	1.906	.292	85 MAJ: SCIENCES1
PSYCH85	1.001	.033	85 MAJ: PSYCHOLOGY
SCEN285	1.981	.137	85 MAJ: SCIENCES2
UNDEC85	1.001	.033	85 MAJ: UNDECIDED
SMARTHUM	1.003	.056	SIF MAJ: ARTS/HUMANITIES
SMBUS	1.001	.033	SIF MAJ: BUSINESS
SMEDUC	1.001	.033	SIF MAJ: EDUCATION
SMTECH	1.009	.092	SIF MAJ: VOC/TECHNICAL

14:14:00 MEAN: HARD SCIENCE CAREERS: PERSISTERS V DEFECTORS
DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 922 Missing= LISTWISE 30 out of 237 IVs were significant

	MEAN	STD DEVI	LABEL
ENVIRONMENTAL VARIABLES			
LIVEHOME	1.119	.324	PLAN TO LIVE AT HOME IN FALL 1985?
LIVEPRIV	1.013	.113	PLAN TO LIVE OFF CAMPUS IN FALL 1985?
LIVECAMP	1.848	.359	PLAN TO LIVE ON CAMPUS IN FALL 1985?
DISTHOME	4.410	1.338	DISTANCE FROM HOME TO COLLEGE
AID01	4.876	2.374	AID SOURCE: PARENTS OR FAMILY
AID03	1.664	.473	AID SOURCE: SAVINGS FROM SUMMER WORK
AID04	1.355	.479	AID SOURCE: OTHER SAVINGS
AID05D	1.021	.142	FULLTIME JOB IN COLLEGE
AID06D	1.294	.456	PARTTIME JOB IN COLLEGE
AID07D	1.128	.334	PELL GRANT
AID08D	1.075	.263	SEOG GRANT
AID09D	1.202	.402	STATE SCHOLARSHIP OR GRANT
AID10D	1.149	.356	COLLEGE WORKSTUDY
AID11D	1.384	.487	OTHER COLLEGE GRANT
AID17D	1.295	.456	FGSL LOAN
AID19D	1.048	.213	OTHER COLLEGE LOAN
AIDBASE1	1.475	.500	AID BASED ON: ACADEMIC MERIT
AIDBASE2	1.394	.489	AID BASED ON: FINANCIAL NEED
AIDBASE3	1.047	.211	AID BASED ON: ATHLETIC TALENT
AIDBASE4	1.021	.142	AID BASED ON: OTHER TALENT
F1	1.215	3.521	PROGRESSIVE OFFERINGS
F2	.050	3.550	PERSONALIZED/INDIVIDUALIZED
F3	1.736	2.847	INTEGRATIVE/INTERDISCIPLINARY
F4	.822	1.464	STRUCTURED CURRICULUM
TRUECORE	1.007	.080	INTERDISCIPLINARY CORE
MAJORDOM	1.065	.247	MAJOR DOMINATED G.E.
GRADE5	1.073	.260	WRITTEN EVALUATION
INTEG1	1.759	.876	STATUS OF MINORITY/3RD WRLD STUDIES
INTEG2	1.512	.719	STATUS OF WOMENS/GENDER STUDIES
INTRN	1.017	.131	INTERNSHIP REQUIRED
THESIS	1.192	.472	THESIS/SR PROJECT REQUIRED
COMP	1.203	.543	COMPREHENSIVE REQUIRED
INDYRES	1.166	.486	INDEPENDENTR RESEARCH REQUIRED
MIN3CRS	1.089	.382	MINORITY/3RD WORLD COURSE REQ
WMNCRS	1.065	.352	WOMENS/GENDER STUDIES COURSE REQ
MARC	1.009	.093	MINORITY ACCESS TO RESEARCH CAREERS
MBRS	1.041	.199	MINORITY BIOMEDICAL RESEARCH
PINTESTM	25.758	1.712	PEER MEAN: INTELLECTUAL SELF ESTEEM

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 922 Missing= LISTWISE 30 out of 237 IVs were significant

	MEAN	STD DEVI	LABEL
PPERMISS	4.491	.912	PEER MEAN: PERMISIVENESS
PSOCACTV	11.292	.489	PEER MEAN: SOCIAL ACTIVISM
PMATSTAT	15.838	.716	PEER MEAN: MATERIALISM AND STATUS
PFEMINSM	1.918	.233	PEER MEAN: FEMINISM
PARTINCL	7.084	.389	PEER MEAN: ARTISTIC INCLINATION
POUTWORK	4.697	.421	PEER MEAN: OUTSIDE WORK
PSCIORNT	3.829	.218	PEER MEAN: SCIENTIFIC ORIENTATION
PSES	19.288	2.270	PEER MEAN: SOCIO-ECONOMIC STATUS
PSCIPREP	15.627	.685	PEER MEAN: SCIENCE PREP IN HS
PCTCAMP	84.235	19.003	% PLANNING TO LIVE ON CAMPUS IN FALL '85
PCTMERIT	32.955	12.867	% WHOSE AID IS BASED ON MERIT
PCTNEED	39.888	15.440	% WHOSE AID IS BASED ON NEED
PCTJEW	5.525	7.376	% RJEWISH IN 1985
PCTCATH	35.986	20.628	% CATHOLIC IN 1985
PCTBORN	14.630	12.816	% BORN-AGAIN CHRISTIAN IN 1985
MEANVW85	3.013	.180	MEAN POLITICAL ORIENTATION IN 1985
FSCI	34.048	12.558	% SCIENCE FACULTY
FSEX	22.757	7.540	% FEMALE
FPCTPHD	80.534	10.454	% PHD
FINTERD	42.231	12.102	% TAUGHT INTERDISCIPLINARY
FTGT_GE	36.093	16.140	TAUGHT GEN ED COURSE
FTEAMT	38.933	11.556	% TEAM-TAUGHT A COURSE
FSRP	74.366	9.701	% WORKED WITH STUDENTS ON RESEARCH
FTCHADV	10.342	.865	TEACHING AND ADVISING (HRS)
FPOLVW	3.412	.232	POLITICAL VIEW
FPOSGE	2.825	.239	FAC PER: FAC POSITIVE ABOUT G.E.
FKEEN	2.203	.305	FAC PER: KEEN COMPETITION AMONG STU
FGTA	1.579	.471	USE GRAD TEACHING ASSISTANTS
FSFI	7.935	.192	STUDENT FACULTY INTERACTION
FMORALE	47.881	6.428	FACULTY MORALE
FRESOR	29.024	4.218	RESEARCH ORIENTATION
FSTD__	14.152	.978	FAC PER: COMMITMENT TO STUDENT DEVELOPME
F___SA	10.968	.558	FAC PER: COMMITMENT TO SOCIAL ACTIVISM*
FACTIVL	14.569	1.293	ACTIVE LEARNING
FDIVER	5.376	.499	FAC PER: DIVERSITY ORIENTATION
FLIB	18.846	1.051	LIBERALISM
FTSTRES	14.643	.588	TIME STRESS
FAGEFAC	217.324	5.282	AGE OF FACULTY
FADMINV	8.848	.371	INVOLVEMENT IN ADMINISTRATION
FHUMOR	5.164	.727	HUMANITIES ORIENTATION
FMULTC	3.066	.450	USE OF MULTIPLE CHOICE EFAC PER: AMS
FCSTRES	1.649	.115	COLLEGIAL STRESS
FSOCACT	12.685	1.680	FAC PER: SOCIAL ACTIVISM AND COMMUNITY O
FSTUOR	13.559	1.801	FAC PER: STUDENT ORIENTATION
FADMREL	2.988	1.236	FAC PER: RELATIONS WITH THE ADMINISTRATI
FDIVEMP	11.907	1.445	FAC PER: DIVERSITY EMPHASIS
FSTUREL	4.262	.772	FAC PER: STUDENT RELATIONS
FRESREP	11.754	1.476	FAC PER: RESOURCE AND REPUTATION EMPHASI
FRACCON	1.311	.700	FAC PER: RACIAL CONFLICT
FACADCM	6.886	.366	FAC PER: ACADEMIC COMPETITIVENESS

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 922 Missing= LISTWISE 30 out of 237 IVs were significant

	MEAN	STD DEVI	LABEL
PCTBA01	1.106	2.598	% OF 1986 BA'S IN AGRICULTURE
PCTBA02	5.100	3.774	% OF 1986 BA'S IN BIOLOGICAL SCIENCES
PCTBA03	15.565	12.444	% OF 1986 BA'S IN BUSINESS
PCTBA04	3.725	5.699	% OF 1986 BA'S IN EDUCATION
PCTBA05	19.026	16.177	% OF 1986 BA'S IN ENGINEERING
PCTBA06	2.012	1.745	% OF 1986 BA'S IN ENGLISH
PCTBA07	3.986	4.951	% OF 1986 BA'S IN HEALTH PROFESSIONS
PCTBA08	3.703	3.159	% OF 1986 BA'S IN HISTORY/POLITICAL SCI
PCTBA09	5.174	4.354	% OF 1986 BA'S IN HUMANITIES
PCTBA10	5.266	4.391	% OF 1986 BA'S IN FINE ARTS
PCTBA11	3.104	3.765	% OF 1986 BA'S IN MATH/STATISTICS
PCTBA12	4.978	7.706	% OF 1986 BA'S IN PHYSCAL SCIENCES
PCTBA13	16.086	12.428	% OF 1986 BA'S IN SOCIAL SCIENCES
PCTBA14	3.595	4.645	% OF 1986 BA'S IN OTHER TECHNICAL
PCTBA15	7.464	6.960	% OF 1986 BA'S IN OTHER NON-TECHNICAL
PUBUNIV	1.262	.440	PUBLIC UNIVIERSITY
PUB4YR	1.144	.352	PUBLIC 4-YEAR COLLEGE
PRIVUNIV	1.329	.470	PRIVATE UNIVERSITY
NONS4	1.170	.376	NONSECTARIAN 4-YEAR
CATH4	1.041	.199	CATHOLIC 4-YEAR
PROT4	1.039	.194	PROTESTANT 4-YEAR
PEXP06	7.222	6.173	% STUDENT SERVICES
PEGEXP	72.894	12.194	% TOTAL INSTRUCTION-RELATED EXP
INSTRACE	1.014	.118	IC: INSTITUTIONAL RACE
SELECT	111.376	11.831	IC: INSTITUTIONAL SELECTIVITY (SATV+M)
TOTFTE	6.495	1.245	TOTAL FTE
MAJMEN	1.078	.268	OVER 80% MEN
PCTGRAD	17.809	14.343	OFE: % ENROLLMENT OF GRADUATE STNTS
PCTBLKT	5.298	11.013	OFE: % BLACK UGFTE
PCTASNT	4.128	5.373	OFE: % ASIAN UGFTE
PCTHIST	2.556	3.625	OFE: % HISPANIC UGFTE
STUFACRT	19.726	5.606	STU/FAC RATIO
SCIDEG	33.315	19.708	PCT OF 86 BAS IN SCI RELATED FIELDS
AVFACSAL	41762.969	7375.042	AVERAGE FAC SALARY
UGFTET	7294.979	6501.520	OFE: UNDERGRADUATE FTE STUDENTS

INVOLVEMENT VARIABLES/INTERMEDIATE OUTCOMES

COLACT01	1.563	.493	ENROLLED IN HONORS PROGRAM
COLACT02	1.629	.478	ENROLLED IN INTERDISCIPLINARY COURSE
COLACT03	1.255	.434	MEMBER OF FRATERNITY OR SORORITY
COLACT04	1.047	.211	GOTTEN MARRIED
COLACT05	1.613	.486	HELD PART-TIME JOB ON-CAMPUS
COLACT06	1.506	.498	HELD PART-TIME JOB OFF-CAMPUS
COLACT07	1.103	.303	WORKED FULL TIME WHILE STUDENT
COLACT08	1.075	.261	IN STUDY ABROAD PROGRAM
COLACT09	1.278	.445	IN COLLEGE INTERNSHIP PROGRAM
COLACT10	1.189	.389	IN CAMPUS DEMONSTRATIONS
COLACT11	1.215	.409	ELECTED TO STUDENT OFFICE
COLACT14	1.103	.301	TAKEN READING STUDY/SKILLS CLASSES
COLACT15	1.295	.454	TOOK PART IN INTERCOLLEGIATE ATHLETICS
COLACT16	1.337	.472	WORKED ON PROFESSOR'S RESEARCH PROJECT
COLACT17	1.066	.247	PLAYED INTERCOLL FOOTBALL/BASKETBALL

NOTE: If variable label is blank, no label was specified in SPSS-x job. BetaView 1.88

DV: PDEFSCIC PERSISTERS VERSUS DEFECTO N= 922 Missing= LISTWISE 30 out of 237 IVs were significant

	MEAN	STD DEVI	LABEL
COLACT18	1.032	.175	TAKEN REMEDIAL/DEVELOPMENT COURSES
COLACT20	1.190	.389	ENROLLED IN ETHNIC STUDIES COURSE
COLACT21	1.049	.211	ENROLLED IN WOMEN'S STUDES COURSE
COLACT22	1.216	.410	ASSISTED FACULTY IN TEACHING CLASS
COLACT23	1.194	.392	ATTD RACIAL/CULTURAL AWARENESS WORKSHOP
YEARSIN	4.401	.444	YEARS IN ANY COLLEGE
ACT8801	1.883	.872	WORKED ON IND RESEARCH PROJECT
ACT8803	2.220	.684	WORKED ON GROUP PROJECT FOR A CLASS
ACT8804	1.309	.501	GUEST IN PROFESSOR'S HOME
ACT8805	2.004	.710	TOOK A MULTIPLE-CHOICE EXAM
ACT8806	1.804	.637	TUTORED ANOTHER STUDENT
ACT8811	1.988	.523	GAVE A PRESENTATION IN CLASS
ACT8812	1.915	.779	PARTICIPATED IN INTRAMURAL SPORTS
ACT8813	1.835	.571	DISCUSSED RACIAL/ETHNIC ISSUES
ACT8820	1.558	.576	RECEIVED VOCATIONAL/CAREER COUNSELING
ACT8821	1.090	.317	RECEIVED PERSONAL/PSYCH COUNSELING
ACT8822	1.157	.385	PARTICIPATED IN CAMPUS DEMONSTRATIONS
ACT8823	2.220	.650	TOOK AN ESSAY EXAM
ACT8824	1.186	.404	RECEIVED TUTORING IN COURSES
ACT8826	2.353	.608	SOCIALIZED WITH ONE FROM DIFF ETHNIC GRP
ALCOHOL	4.162	1.212	DRANK BEER OR WINE
ACT8828	2.119	.695	HAD CLASS PAPER CRITIQUED BY INSTRUCTOR
COLLGPA	4.309	.985	AVERAGE UNDERGRADUATE GRADES
UGCLASS1	2.815	.944	# OF WRITING SKILLS COURSES
UGCLASS2	4.119	.970	# OF MATH/NUMERICAL COURSES
UGCLASS3	4.263	.984	# OF SCIENCE COURSES
UGCLASS4	2.388	.895	# OF HISTORY COURSES
UGCLASS5	1.602	.896	# OF FOREIGN LANGUAGE COURSES
HPW8901	6.551	1.183	ATTENDING CLASSES OR LABS
HPW8902	6.228	1.480	STUDYING OR DOING HOMEWORK
HPW8903	5.812	1.487	SOCIALIZING WITH FRIENDS
HPW8904	2.622	.893	TALKING WITH FACULTY OUTSIDE CLASS
HPW8905	4.079	1.500	EXERCISING OR SPORTS
HPW8906	2.547	1.274	READING FOR PLEASURE
HPW8907	3.713	1.769	USING A PERSONAL COMPUTER
HPW8908	3.717	1.686	PARTYING
HPW8909	4.039	2.537	WORKING (FOR PAY)
HPW8910	1.664	1.076	VOLUNTEER WORK
HPW8911	2.757	1.538	STUDENT CLUBS OR GROUPS
HPW8912	3.696	1.605	WATCHING TV
HPW8913	2.131	1.353	COMMUTING TO CAMPUS
HPW8914	1.825	1.055	RELIGIOUS SERVICES OR MEETINGS
HPW8915	2.841	1.498	HOBBIES
REASCAR1	2.709	.861	REASON FOR CAREER-JOB OPPORTUNITIES
REASCAR2	2.674	.843	REASON FOR CAREER-ENJOY PEOPLE IN FIELD
REASCAR3	3.533	.578	REASON FOR CAREER-INTERESTING WORK
REASCAR4	2.632	.884	REASON FOR CAREER-PAYS WELL
REASCAR5	1.574	.717	REASON FOR CAREER-SATISIFIES PARENTS
REASCAR6	3.197	.702	REASON FOR CAREER-CHALLENGING WORK
REASCAR7	2.662	.935	REASON FOR CAREER-CONTRIB TO SOCIETY

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	MEAN	STD DEVI	LABEL
REASCAR8	2.411	.890	REASON FOR CAREER-OPP FOR ADVANCEMENT
REASCAR9	2.744	.853	REASON FOR CAREER-OPP FOR FREEDOM OF ACT
LEFTSKUL	1.181	.383	LEFT SCHOOL OR LEAVE OR TRANSFER
STDSTDB	15.000	2.681	STU-STU INTERACT/BEHAVIORS
STDFACB	6.485	1.511	STU-FAC INTERACT/BEHAVIORS