

THE UNIVERSITY OF DELAWARE LONGITUDINAL STUDY OF ACADEMIC  
AND PERSONAL DEVELOPMENT:  
SUMMARY OF FINDINGS FOR THE FRESHMAN THROUGH SENIOR YEARS,  
FALL 1993 THROUGH SPRING 1997

Karen W. Bauer, Ph.D.  
Assistant Director, Institutional Research & Planning  
The University of Delaware

To better understand the cognitive and social development and experiences of undergraduate students, a longitudinal study is under way with the Class of 1997 at The University of Delaware<sup>1</sup>. This project consists of several components: a fall survey completed prior to matriculation; a spring survey completed in late spring or early summer during enrollment, focus group discussions with a subsample of spring survey respondents, and an alumni survey one year following graduation. This paper presents findings for data collected from the freshman through senior years on the subset of students who completed all five surveys from Fall 1993 through Spring 1997. Findings thus examine activities and attitudes reported by respondents each academic year as well as changes occurring from the freshman to senior year.

**Outline of Data Collection Strategy**

Quantitative and qualitative data were gathered for this project at specific points during the baccalaureate experience. During New Student Orientation in July 1993, a *New Student Survey* was completed by over 1,600 new students. This survey obtained demographic information as well as information on programs and services in which students anticipated involvement. On this survey, students also indicated the importance of activities (e.g., being active in politics, participating in programs to clean up the environment, etc.) personal values (e.g., importance of promoting racial

---

<sup>1</sup> This study was begun with a small research grant from NEAIR; the author wishes to express her thanks for the grant funding which helped make this study possible.

understanding), satisfaction with financial aid offerings, and level of confidence for their academic success.

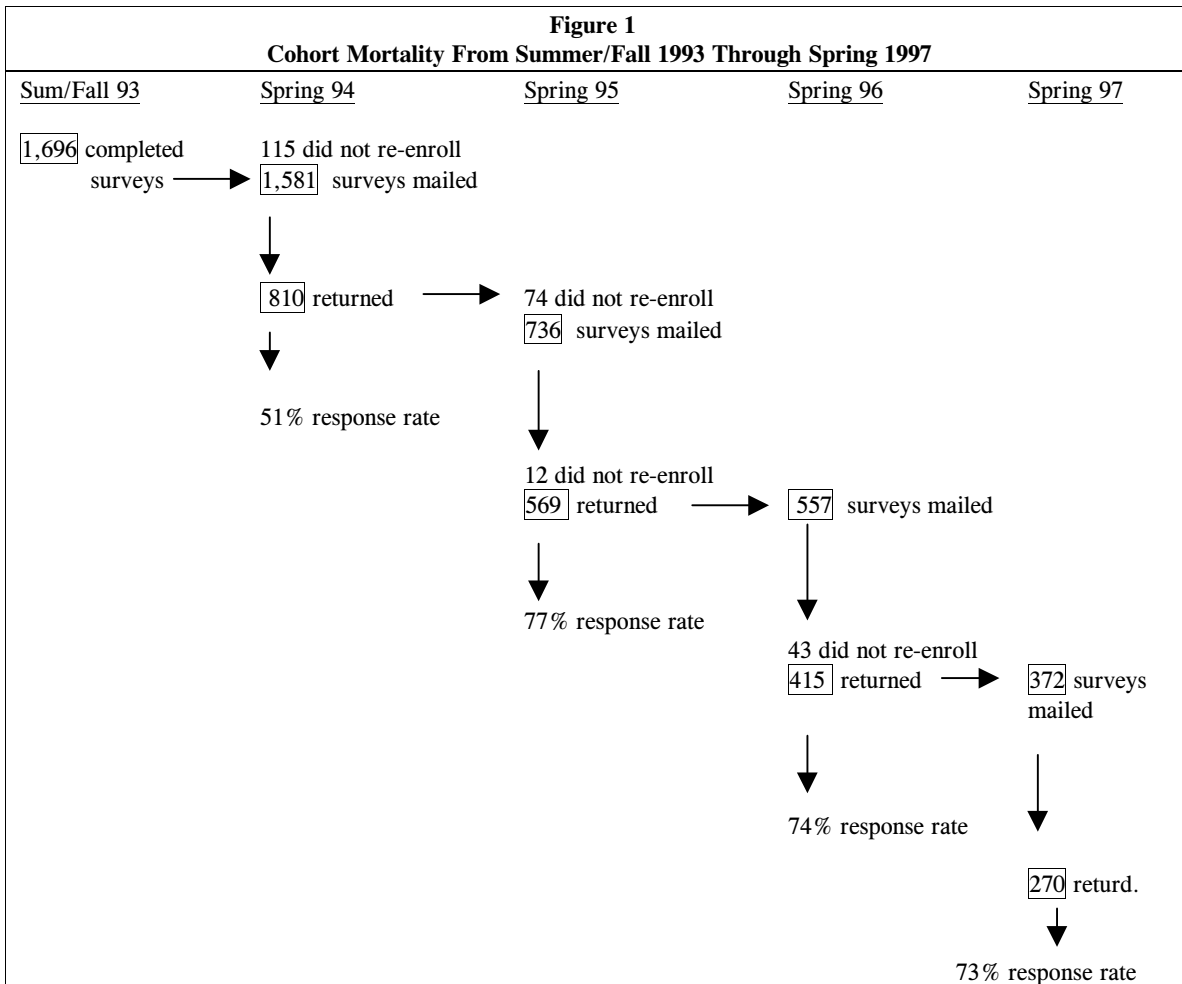
In April 1994, a second survey was sent to students who had returned the *New Student Survey* and who were still enrolled at UD. The *Spring Survey* examined the curricular and extracurricular activities in which respondents were involved, their satisfaction with campus, and the intellectual and personal areas of growth for them over the past year. Thus, with each collection effort, new data was added for each student that enabled me to chart changes from year to year and growth from the freshman through senior year.

### **Spring Samples and Major Findings**

**Response Rates.** Perhaps the largest obstacle for any longitudinal data collection effort is cohort mortality. Each year, attrition from a longitudinal project produce a smaller number of potential respondents (See Figure 1). Each year a portion of the cohort did not return to the University, and of those who did return, a portion did not return the completed survey. Each subsequent year, the *Spring Survey* was sent only to those students who had returned the previous spring's questionnaire. As shown in the figure, the response rate was the lowest in Spring 1994; in subsequent years, approximately 3/4 of the cohort completed the surveys<sup>2</sup>. Analyses for this report are based on the final sample of 270 students.

---

<sup>2</sup> I believe a major reason for low response rates was due to few or no incentive awards. In Spring, 1994, I offered no incentive for return of the survey; in subsequent Springs, I offered the opportunity for those who returned the survey to be included in a random drawing for one of five cash awards, ranging from \$25 - 100 each.



For each Spring survey, a follow-up postcard, personal phone call, and/or second copy of the questionnaire was mailed to all respondents approximately three weeks after the initial survey was mailed. The Spring 1995 response rate was 77 percent; the Spring 1996 rate was 74%, and the Spring 1997 response rate was 73%. Due to cohort mortality, findings presented may represent a biased sample of respondents. Thus, findings must be interpreted cautiously, since findings do not generalize to the full University student population. They can, nevertheless, be useful in examining student growth and activity patterns over time.

***Respondent Demographics and Fall 1993 Findings***

Two hundred-seventy UD students completed all five surveys from Fall 1993 through Spring 1997. Of this group, 203 (75%) were women, 255 (94%) White, and

15 (6%) were Black or other minority. As shown in the Table 1, these students began their studies at UD with high hopes and intentions to succeed. Sixty percent or more felt that high school had prepared them well for writing & composition, math, sciences, and history tasks.

<u>Task</u>	<u>Percent</u>
Writing and Composition	67
Math	65
Sciences	63
American & World History	60
Social Issues	50
Study Skills	45
Foreign Languages	43
Art, Music, Drama	32

Levels of satisfaction with UD during the first year and plans for their future after graduation were high. When asked if their satisfaction with UD had changed since entering, 92% said their level of satisfaction was the same or were more satisfied as end of year freshmen. When asked if they could choose the same baccalaureate institution again, 86% of the freshmen said they would choose UD again.

As entering freshmen, 74% said they planned to pursue graduate level education. Almost no one expected to fail, and very few expected to drop out before graduating. When asked how important a list of goals were, 98% said that gaining knowledge and skills directly applicable to a career were very important, but only 38% were highly interested in learning about other languages and cultures. Respondents were also asked how well high school had prepared them for college level academic tasks. As shown below in Table 2, the majority believed they were well prepared for writing and composition, math and science, but less than one-third felt prepared for cultural art, music and drama.

<u>Goal</u>	<u>Percent*</u>
Gain knowledge & Skills directly applicable to a career	98
Learn to think creatively and analytically	84
Learn more about myself	78
Gain a broad, liberal arts education	63
Learn about other languages and cultures	38
* indicates percent who said goal was 'important' or 'extremely important'	

A key factor in college withdrawal is a lack of congruence between students' expectations and reality. Respondents' perception of high school preparation was significantly correlated with reported level of satisfaction during Year One. As shown below for all six areas listed, respondents who said they felt well prepared were more likely to report higher satisfaction during their freshman year:

Writing	Language	Science	History	Social Sciences	Study Skills
.146*	.140*	.188**	.144*	.123*	.132*

p < .05; \*\* p < .01

Table 3 lists the percent of respondents who reported they had a good or very good chance of completing tasks during their first year. As shown, the majority of respondents expected to experience academic and interpersonal skill development. While 87% expected to maintain a B average or better, very few respondents expected to transfer before graduating, drop out, fail, or need extra time to complete their degree.

### **Reported Activities and Changes from Spring 1994 through Spring 1997**

Self-reported cumulative grade point average (GPA), changes in major, and satisfaction with UD are presented in Table 4. The finding of an increased mean GPA was consistent for respondents by gender and ethnic category, but women and white students reported higher GPAs than men and minority students. Relationships between first year GPA and subsequent growth, satisfaction, and academic success are discussed later in this paper.

Fluctuations in level of overall satisfaction with The University are consistent with the 'sophomore' or 'junior level slump' noted by other researchers (Wilder, 1993). During their baccalaureate years, a small percentage of students in this study moved from being more optimistic and satisfied as freshmen, to less enthusiastic upper classmen (when asked how their satisfaction had changed over the past year 8% during the freshman year compared to 15% during the senior year). At the same time, however, another group of respondents indicated high levels of satisfaction during the freshman and senior years, with fewer students reporting greater satisfaction during the sophomore and junior year.

Table 3 (As incoming freshmen) Percent of Students Who Said They Had a “Good” or “Very Good” Chance of Completing the Following Tasks:	
<u>Task</u>	<u>Percent</u>
Be satisfied with UD	96
Have UD friends of different cultures	88
Maintain a B average	87
Develop regular study habits	82
Find a job relevant to my major	65
Go directly to graduate school	49
Graduate with honors	45
Transfer before graduating	12
Need extra time to complete my degree	11
Seek personal counseling	9
Party more than study	6
Fail one or more courses	4
Temporarily drop out	3

### **Self-Reported Gains**

A major component of this study examined the self-reported student growth during college. To that end, this sample of respondents indicated how much they had grown (1 = no growth; 5 = extraordinary growth) over the past year for a series of 36 academic and social skills items. Across all four years, respondents said they achieved the greatest growth (consistently high scores across all four years) in these items:

- Exercising personal responsibility
- Functioning independently
- Gaining factual knowledge
- Gaining exposure new intellectual areas.

The largest change in freshman to senior year scores were for these items (change was

in positive direction toward greater agreement):

- Preparing for graduate or professional school
- Gaining knowledge and skills applicable to a career
- Developing a clearer idea of my career goals and plans
- Preparing for active participation in a democratic society.

For some Gains questions, respondents indicated relatively high growth all four years, but reported the highest growth in Year One, followed by slightly lower gain (e.g., adapting to a different social situation; exercising personal responsibility, self-discipline). For other questions, however, growth was highest during their upperclass years (e.g., functioning effectively as a team member; building a record of academic achievement that will enhance my future; developing a clearer idea of career goals and plans). This increase during the later years may be due to students' increased knowledge of self, self-abilities, and the ability to cognitively evaluate and synthesize content knowledge as juniors and seniors.

Table 4 GPA, Major Changes, and Satisfaction with UD				
	Spring 94	Spring 95	Spring 96	Spring 97
<u>Cumulative GPA</u>				
Overall	2.86	2.92	2.98	3.02
Men	2.84	2.88	2.99	2.98
Women	2.87	2.93	2.97	3.03
Minority Students	2.67	2.66	2.67	2.75
White	2.87	2.93	3.00	3.03
<u>Number of Times Changed Major (during each year)</u>				
One or More Times	13%	29%	18%	6%
<u>Satisfaction with UD (since beginning of this year)</u>				
Less satisfied	8%	12%	13%	15%
About same	51%	53%	57%	45%
More satisfied	41%	35%	30%	40%
<u>Overall, I would choose UD again</u>				
Probably/definitely No	3%	7%	6%	6%
Unsure	11%	11%	15%	13%
Probably/def. Yes	86%	82%	79%	81%

## Attitudes and Experiences

This study also sought to examine students' attitudes about and experiences during their baccalaureate years. Respondents were asked to indicate on a 4-point scale their level of agreement with a series of 34 statements (1 = strongly disagree; 4 = strongly agree). Items that had the highest level of agreement involved respondents' experiences with faculty and friends, and their desire to do well academically. Across all four years (Spring 1994 through 1997), respondents had consistently high agreement with statements:

- Getting good grades is important to me
- I know several UD students who would help me if I had a problem
- I have developed strong friendships with other students, and
- Generally I put forth a good deal of effort into being well prepared for exams.

Agreement with these statements likely indicates that these respondents succeeded in enhancing their social relationships while balancing their academic responsibilities.

The attitude & experience items with the largest increase in agreement over four years were:

- I have a friendly relationship with at least one faculty member
- My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations
- My out of classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes, and
- Most of the faculty members I had contact with this year are genuinely outstanding or superior teachers.

A steady annual increase in mean scores for the activity and attitudes questions likely indicates student growth and personal development over the baccalaureate years.

For example, many questions related to respondents' experiences in the classroom and with faculty show a steady increase in mean scores from Spring 1994 through Spring 1997. These scores likely indicate that respondents refine their sense of self, become more assertive in speaking up in class and/or with faculty after class, achieve greater academic and personal self-confidence, and become more comfortable with their place within the higher education community.



## Factor Analyses of Gains and Attitude/Experience Scores

Exploratory factor analyses established three factors to more easily examine the 36 academic and personal social gains and four factors for the 34 attitude and college experience items. The seven factors are:

### Academic and Personal/Social Gains

- Factor 1: Personal Independence
- Factor 2: Academic&Career Knowledge
- Factor 3: Cognitive Growth

### Attitudes and Experiences

- Factor 4: Faculty & Classroom
- Factor 5: Interpers. Relations
- Factor 6: Academic Self-Confid.
- Factor 7: Academic Preparedness

Group mean scores for each year are presented in Figures 2 and 3 below:

**Figure 2**  
Mean Scores, Spring 1994 - Spring 1997  
Factors 1 - 3

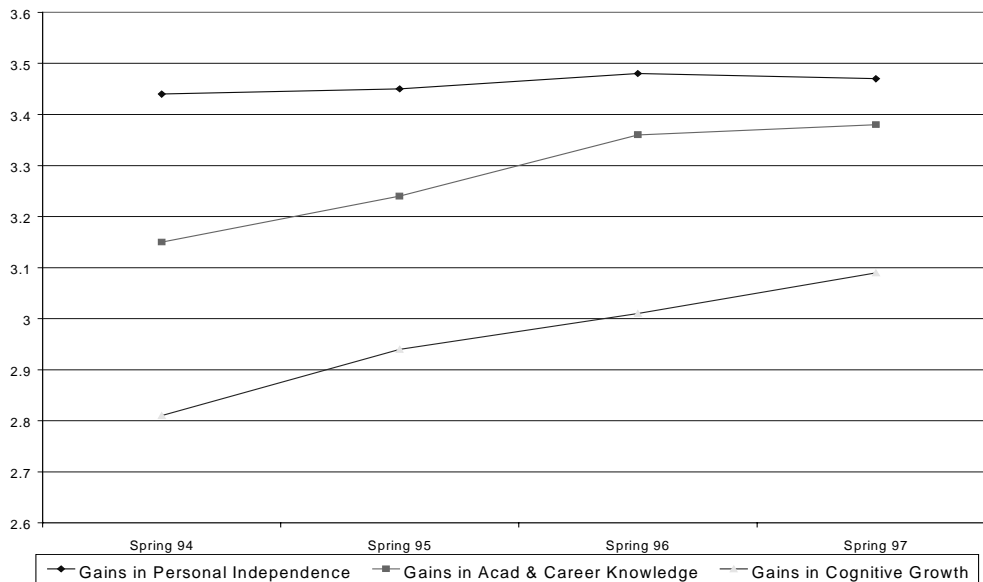
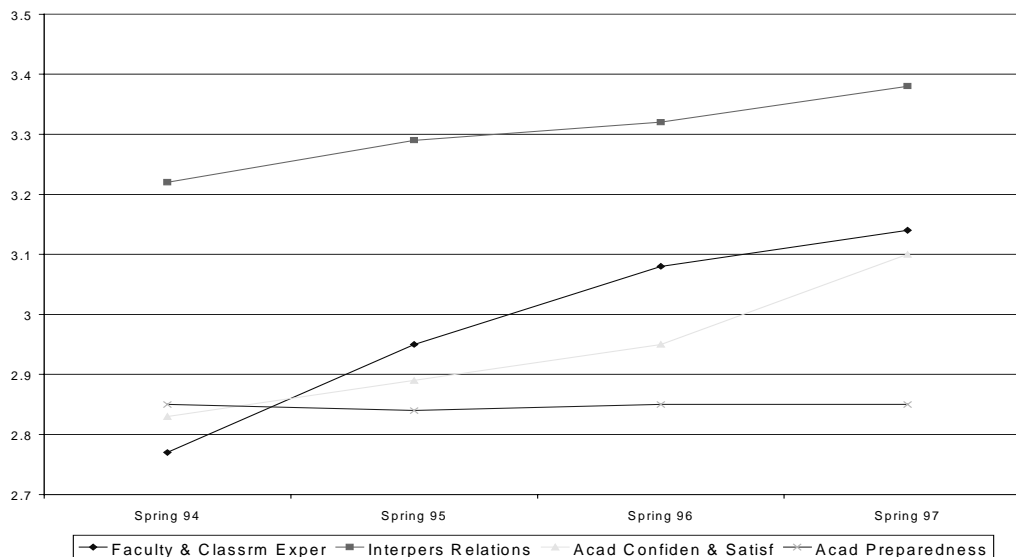


Figure 3  
Changes in Mean Scores Factors 4-7



As expected, mean scores most of the factors increased from the freshman to senior year. Except for the *Academic Preparedness* factor that remained constant over the four years, scores for the other six modestly increased from 1994 to 1997. The largest mean increase for the gains factors was for *Gains in Cognitive Growth*. The largest increase for the Attitudes and Experiences Factors was *Faculty and Classroom Experiences*.

### **Relationships Between First Year Experiences and Subsequent Satisfaction and Growth**

Findings from respondents in this study confirm previous findings that experiences incurred during the freshman year are related to subsequent satisfaction, retention, and academic success. Correlation analyses revealed a significant negative relationship between number of times that respondents changed major and overall satisfaction with UD ( $r = -.191$ ,  $p = .002$  at end of freshman year;  $r = -.194$ ,  $p = .001$  at end of sophomore year).

Along with issues of satisfaction, respondents who said they planned to pursue a graduate degree reported significantly higher GPAs during each year. In addition, as

shown in the correlation matrix below, respondents' GPA is significantly correlated with factor scores for *Gains in Academic and Career Knowledge* for three years as well as for *Faculty and Classroom Experiences*, *Academic Self-Confidence*, and *Academic Preparedness* across all four years. These findings confirm the need to offer a balance of support and frequent distribution of information to ensure successful integration into campus activities during the freshman year.

Correlation Coefficients for GPA with Mean Factor Scores				
	Cumulative GPA reported in term:			
	Spring 1994	Spring 1995	Spring 1996	Spring 1997
Factor 1 - Gains in Personal Independence	-.052	-.004	-.029	-.006
Factor 2 - Gains in Acad. & Career Knowledge	.157	.270*	.198*	.245*
Factor 3 - Gains in Cognitive Growth	.038	-.006	.025	.065
Factor 4 - Faculty & Classroom Experiences	.264*	.222*	.211*	.255*
Factor 5 - Interpersonal Relationships	-.001	-.098	.007	.055
Factor 6 - Academic Confidence & Satisfaction	.645*	.587*	.521*	.607*
Factor 7 - Academic Preparedness	.283*	.231*	.333*	.346*

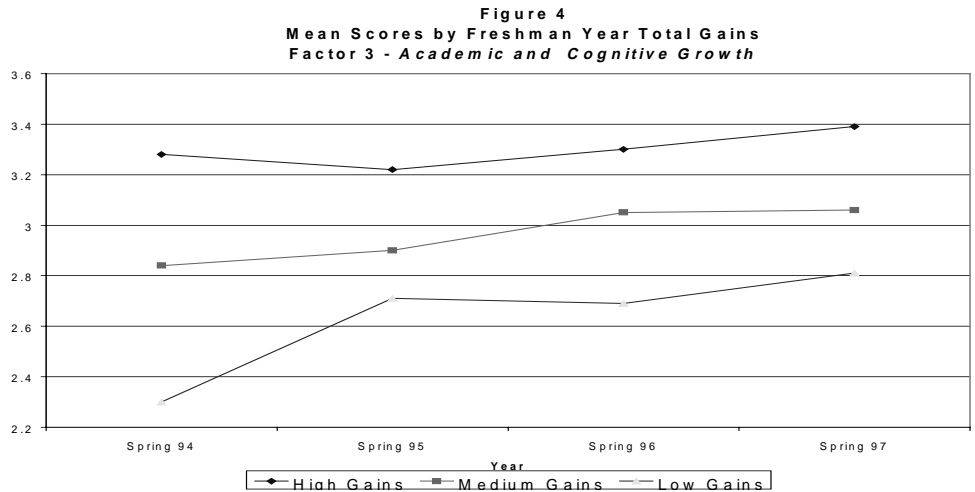
\* p < .01

### **Differential Growth By Year One Gains Scores**

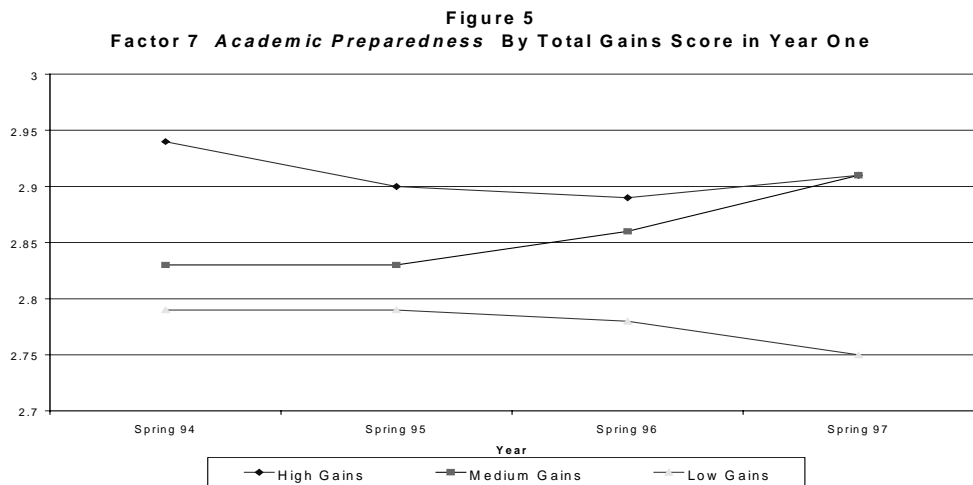
To further examine student scores, a Total Gains Score was calculated for each respondent by summing their score on all 36 Gains items. Total Gain Scores ranged from 64 to 175, with higher scores indicating greater self-reported growth.

Respondents were then divided into three groups: 1). High Gains- the top 1/3 of the total group, whose total score was 121 or higher; 2). Medium Gains- the middle 1/3 whose total score was between 109-120; and 3). Low Gains- the lower 1/3 whose total score was 108 or lower. Mean scores for each factor and cumulative GPA were then graphed by the three Total Gains categories. As shown in Figures 4-6 below, respondents with a low Total Gains score in their freshman year consistently reported lower gains, less satisfaction, and lower cumulative GPAs across during all four years.

In most instances (as shown in Figure 4), all respondents, including those with Low Total Gains report slightly higher scores in subsequent years, but in every case, those with Low Gains still lag behind those with Medium or High Gains Scores. Scores on one factor, *Academic Preparedness*, however, are discouragingly different.



As shown in Figure 5, respondents who report low Total Gains not only reported lower levels of academic preparedness as freshmen and sophomores, but their level of preparedness dropped even further as upperclassmen. This finding indicates

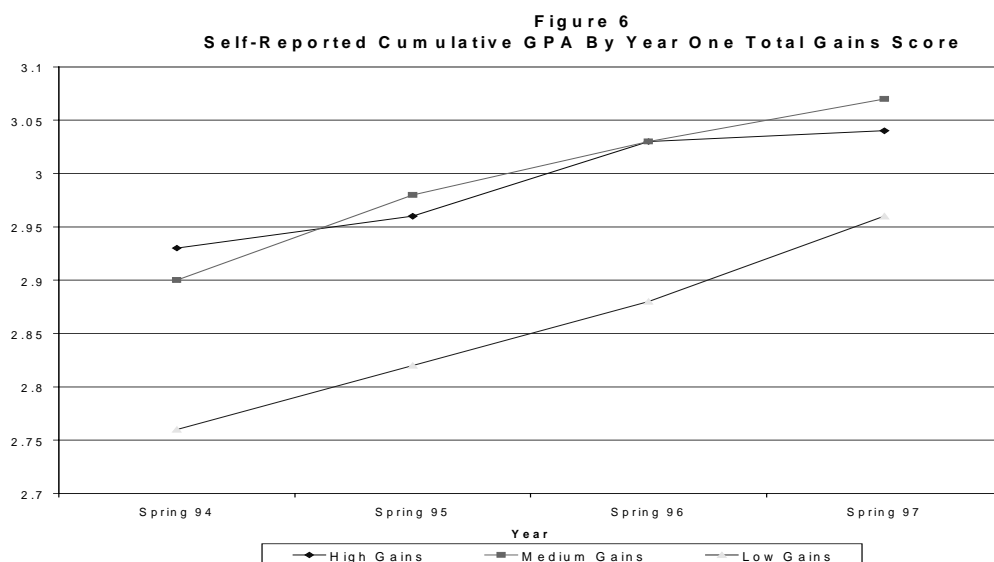


that higher Year One Total Gains likely affect<sup>3</sup> a students' continued growth and success throughout the entire baccalaureate experience and points to the need to ensure a strong start for students as freshmen.

Comparison of Longitudinal Results with Other UD Data and Implications for Future Action

Since its inception, the Office of Institutional Research and Planning has engaged in the study of University students. While we can not make one-to-one comparative statements between the UD Longitudinal Study (UDLS) and other cross-sectional analyses, it is appropriate to compare UDLS findings with other data reported by recent students to examine similar trends.

On the UDLS, 74% of the respondents as incoming freshmen, said they planned to pursue graduate education and 51% said they would go directly to graduate school following baccalaureate work at UD. While many researchers (in Pascarella & Terenzini, 1991) report higher retention rates for students who plan to pursue graduate education, the number of UD students who enroll in graduate education soon after completing their baccalaureate work is significantly lower. Data from the Career



3 This finding points to the likely relationship between the variables, but a causal relationship can not be proven.

Plans Survey (administered to graduating seniors approximately 6-12 months after graduation; Trusheim, IRS 97-01) shows that on average over the past decade, about 15% of UD undergraduates pursue graduate education immediately following baccalaureate study. This disparity between plans as freshmen and actual attendance after baccalaureate graduation may be due to a change in career plans, life and family goals, and/or postponing graduate school until later in life.

Less than 1/3 of the UDLS respondents said they felt well prepared for art, music, or drama after high school, and less than 38% said they were highly interested in learning more about other languages and cultures. This information should be shared with local K-12 teachers and administrators who might wish to enhance their curriculum with more cultural events. In addition, UD officials might wish to review the characteristics of Generation X students (e.g., Bauer, in press; Ritchie, 1995; Zill & Robinson, 1995) which may offer insight into novel ways to encourage more students to take advantage of the many cultural activities (including study abroad) that occur on or near campus.

Eighty-seven percent of the UDLS incoming freshmen expected to maintain a B average or better. To help students understand college-level grades and expectations for learning, faculty may wish to spend more time discussing with students their criteria for certain class grades. In addition, students who receive prompt and frequent feedback throughout the semester are more aware of their grade as the term progresses and are less likely to be surprised by a low grade at the end of the semester.

Findings in this study show a significant negative relationship between the number of times students change major and overall satisfaction with the University. A recent analysis of time to graduation (Graham, IRS 95-02) showed that, on average, those students who made one or more major changes increased their time to graduation by one-half semester. Early intervention with freshmen, in programs such as the Career Planning Center's *Major Mania*, may help undeclared and other freshmen and sophomore students clarify their educational goals. In a related study (Bauer &

Horowitz, 1995) on student dropouts, 1/3 of the students who dropped out (but in good academic standing) did so because they were unsure of their academic goals.

Somewhat lower levels of satisfaction during the sophomore and junior years can be attributed to many possibilities, including: unclear career/educational goals but feeling pressure to declare a major; parking, commuting, or course scheduling concerns; roommate or other relationship issues; increased course load and subsequent homework/lab requirements; and/or cognitive dissonance with new information being presented (different from previously held notions). A review of life events that occur for students at each class level might reveal the perceived burdens that students share. Curricular loads for many students increase in the sophomore year. Students may report lower satisfaction due to additional stress from increased academic demands as well as from other life events such as interpersonal relationships.

It is also possible that a substantial part of the perceived lower satisfaction involves students' yet unresolved assimilation of old (pre-college) and new (post-matriculation) information and attitudes that occur through campus activities (Piaget, 1972). Especially true for traditional aged students, campus life brings the challenge of interacting with people of different ethnic groups, religious beliefs, and personal values. When first confronted with difference, it is not unusual for some students to assign negative thoughts or rely on preconceived stereotypes (Deaux & Lewis, 1984). Through repeated interaction and dialogue with ideologies or others who are different, many students engage in the cognitive process of assimilating some new ideas to incorporate as their own. If students engage in thoughts and actions which allow for cognitive assimilation during or by the end of the senior year, they might report higher levels of satisfaction as seniors based in part on their new understanding of the world around them.

UDLS respondents reported greatest growth in exercising personal responsibility. Due to the traditional age and developmental level of UD new freshmen, this finding confirms the need for students to feel knowledgeable about and comfortable in their social and living environment before they will turn their focus to

academics. As new freshmen, many of whom are away from parental guidelines for the first time, these respondents acknowledged their movement toward adulthood and adult responsibilities. High gains in independence and acquiring factual and other intellectual knowledge indicate an increased level of maturity as they progress from freshmen to seniors. In addition, these gains indicate that students have met some of the major goals of the UD undergraduate education, " ... to communicate clearly as speakers and writers, and to become informed citizens and leaders" (*UD 1997-98 Undergraduate Catalog, p. 2*).

Respondents with a Low Total Gains Score during the freshmen year reported lower gains and cumulative GPAs throughout their baccalaureate experience, and those with a lower cum GPA reported lower mean factor scores across all four years. These findings confirm the need for a high level of information and support during the freshman year. If students do not get off on the right foot as freshmen, it is possible that they spend too much time playing catch-up and end up not getting as much out of college as those who do make a smooth transition on to campus. Achieving that delicate balance of support and stimulating challenge, at a time when students are refining values and definitions of self, will help ensure a strong start for future growth and success.



## References

- Bauer, K.W. (in press). Characteristics of Generation X. In K.W. Bauer, (Ed.) *The Campus Climate: Its condition, future, and measures*. New Directions for Institutional Research, San Francisco: Jossey-Bass.
- Bauer, K., & Horowitz, R. (1995). *Summary report of the student attrition survey*. Unpublished Institutional Research & Planning report.
- Deaux, K. & Lewis, L. (1984). Structure of gender stereotypes: Interrelationships among components and gender label. *Journal of Personality and Social psychology*. 46, 991-1004.
- Graham, R. (1995). *Student Flow and Academic Outcomes for the Fall 1988 Freshman Cohort*, IRS 95-02, The Office of Institutional Research & Planning, UD.
- Pascarella, E., & Terenzini, P. (1991). *How college affects students*. San Francisco: Jossey-Bass.
- Piaget, J. (1972). Intellectual evolution from adolescence to adulthood. *Human Development*, 15, 1-12.
- Ritchie, K. (1995). *Marketing to generation X*. New York: Lexington Books.
- Trusheim, D. (1996). *Summary Report from The 1995 Career Plans Survey*, IRS 97-01, The Office of Institutional Research & Planning, UD.
- Wilder, J. (1993). The sophomore slump: A complex developmental period that contributes to attrition. *College Student Affairs Journal*. 12, 18-27.
- Zill, N., & Robinson, J. (1995). The generation X difference. *American Demographics*, April, 24-39.

