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The 1976 Illini: Sweet Memories of Alma Mater

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Abstract:

The purpose of this article is to explore the attitudes of graduates of the class of 1976 from the University of Illinois toward their alma mater over a period of fifteen years. The central question addressed in this article is: How do former students feel about their educational institution as time passes? Early research suggests that students' attachment to their educational institution becomes weaker with the passage of time. This panel data on alumni attitudes towards the academic environment indicates that contrary to evidence from past research, students developed a stronger attachment towards the educational institution with passage of time. A similar positive pattern was evident when examining the attitude towards the program major. It is possible that better experiences in the real world have made the alumni comprehend the quality of education they received at the University of Illinois. Also, favorable disposition toward one's institution seems to be, to a very considerable extent, the college's contribution to the intellectual development of the student.

The purpose of this article is to explore the attitudes of the graduates of the class of 1976 from the University of Illinois toward their alma mater over a period of fifteen years. The central question addressed in this article is: How do former students feel about their educational institution as time passes? Assessing how well students regard both the university and the education they receive is important for evaluation and planning purposes. This article explores graduates' satisfaction with their educational experience and assesses how positively respondents feel toward the university, their major, and the preparation provided by their majors for their careers. Early research suggests that students' attachment to their educational institution becomes

weaker with the passage of time. Does the students' attitude toward the institution change differentially once they graduate from the University?

Few longitudinal studies spanning a decade or more of the formation of opinion by graduates toward academic institution have been undertaken in higher education research. The data for this paper originated from a panel study of the class of 1976 graduates from the University of Illinois who were interviewed at four points in time. Panel studies like this cost a great deal of time and money, but they help in building a rare data base for educational institutions which permits an analysis of student trends for usage in program review and planning.

Literature Review

Alumni research is crucial for assessing the long range benefits or detriments of college academic experience. The hallmark of a good University is the product -- the alumni (Spaeth, 1981) and they are an important part of higher education's constituency (Pace, 1979). However, literature in the field of alumni research has been meager until today. A delay in alumni research can adversely influence educational management issues like program review, curriculum planning, student assessment, resource allocation, and career counseling (Melchiori, 1988; Moden & Williford, 1988). Following alumni through their lives and focusing on demographic characteristics, attitudinal issues, and career patterns can help unravel the motivational forces of alumni as providers for their institutions (Melchiori, 1988; Stover, 1930).

Alumni research gained momentum after the 1930s because the economic depression stimulated systematic objective inquiries into the plight of college graduates (Pace, 1979). Two studies were conducted by the University of Minnesota and the U.S. Office of Education during the years of the Great Depression to determine the economic status of college alumni. The Minnesota study found that job opportunities for college graduates were markedly limited during the Depression years. However, more than sixty percent of the students got jobs in the same field as their college specialization. The average yearly salaries were low for men and uniformly lower for women (Pace, 1979). The results of the Minnesota survey were confirmed by a nationwide study of college graduates reported by the U.S. Office of Education (Pace, 1979). The study encompassed college graduates from 31 different colleges and universities during the years from 1928 to 1935, and confirmed the hardships faced by college graduates during the Depression era (Pace, 1979).

Following the Second World War, a landmark study of college graduates was conducted by the research division of Time Magazine (Pace, 1979). The Time study was a national sample of all college graduates whose names were obtained from 1200 degree-granting colleges and universities in the late 1940s. The survey included questions about the economic and occupational status of the alumni, their attitudes toward college and their involvement in civic, cultural and political affairs. The study revealed that a majority of the students attached a high value to their college and asserted that they would go back to the same institution from where they received their degrees.

Following the Time survey, the next alumni study of national scope was done in 1963 at the Survey Research Center of the University of California, Berkeley (Pace, 1979). The scope of the study went beyond job opportunities for students after graduation, delving into attitudes about their own education, its benefits, and also their involvement in a variety of civic and cultural activities. The major importance of this study was that it concentrated on the lives of men who had graduated with a major in one of the traditional liberal arts fields, i.e., the social sciences, humanities, literature, and the arts (Pace, 1979).

Another survey of nationwide scope was conducted by the National Opinion Research Center (NORC) in 1969. This included samples of alumni from the graduating class of 1961

from 135 colleges and universities. The result of the study was reported in a book written for the Carnegie Commission on Higher Education (Spaeth, 1970). The authors wanted to know how members of the class of 1961, after graduating a decade ago, assessed the performance of their alma mater. Among other issues, they wanted to ascertain the attitudes of former students toward their University. In their study, they found that nostalgia for their alma mater was not overwhelming among the alumni (Spaeth, 1970). Those who had a strong attachment to their college had declined in number a decade after they graduated from the University. It could be that experience in the outside world or the mere passing of time had moderated strong positive feelings toward the university (Spaeth, 1970).

Another study investigated the effects of various aspects of the academic environment on students' satisfaction with the college experience (Rich & Jolicouer, 1978). Data for this study was collected from 12 colleges and universities in California in the fall and winter of 1975-76 (Rich & Jolicouer, 1978). The authors found that longer tenure in college is negatively associated with positive rating for institutions. Students become disenchanted during the course of their stay in college, and high expectations they had from high school give way to realities of hard work, less success and difficulties with peers and faculty (Rich & Jolicouer, 1978). Interestingly, they also observed that students at public colleges rate their school less highly than those at private institutions (Rich & Jolicouer, 1978).

Research Hypotheses

This article explores student attitudes toward the University of Illinois and major Programs of Study over a period of fifteen years. Based upon the literature pertaining to alumni attitudes and higher education, the research hypotheses developed for this paper are:

- Strong positive feeling toward the college declines substantially with the passage of time.
- Attitude towards program major becomes more positive with better experience in the job market.
- Positive disposition towards the educational institution is a function of the University's contribution to the intellectual development and of the perception of faculty concern for student needs.

Research Design

The University of Illinois has conducted surveys of its graduates since 1973. The class of 1976 is unique because it has been surveyed four times at intervals of one, five, ten and fifteen years. The survey included measures to assess students' post-graduation employment history, further educational achievements, attitude toward the University and major Program of Study, and satisfaction with the quality of instruction and course offerings. The University Alumni Association maintains a database containing demographic information of all University alumni. This file provides information for each alumnus including home address, major curriculum code, degree awarded, sex, ethnic code, campus location, graduation month, birth date, and social security number.

This article is based on data collected in four waves (1977, 1981, 1986, 1991) through a 29 item, self- administered mail questionnaire. This was a population survey of graduates of the class of 1976 from both Urbana and Chicago campuses (N=12,854). A packet of materials, including a cover letter signed by the President of the University, the instrument, and a pre-addressed stamped envelope was mailed, using first class postage, to each respondent. Two follow up mailings of non-respondents were done at an interval of three weeks to enhance the response rate. This study is based on the pool of graduates who have participated in all four

surveys (N = 2,306) (Note 1).

Statistical Design

Repeated Measures Analysis was used to analyze alumni's emotional attachment to the University and attitude toward major Program of Study over time. (Please refer to the Appendix for detailed observation on the choice of statistical design). Cronbach's alpha was utilized to construct two indexes to measure program satisfaction and faculty guidance. The coefficient Alpha is based on the inter-item correlation, which helps decide whether a group of items should be added together to form a scale or index. Ordinary Least Squares (OLS) regression procedure was used to assess the impact of program satisfaction and faculty guidance index on the attitude towards the University. The Stepwise model selection procedure was used, where at each stage a test was made of the least useful predictor.

Discussion of Findings

Sample Characteristics

The sample consists of 1469 males and 837 females. The mean age of the male respondents at the time of graduation was 25.43 years, versus women, which was 25.85 years. In the panel, 62.6 percent of the students were baccalaureates, 24.5 percent received a Masters degree, 6.4 percent received doctoral degrees, and another 6.5 percent received a professional degree from the University. Characteristics of sample respondents by age, gender, campus location, geographical site, and degree level are provided (Table 1). As far as age distribution and geographical location was concerned, there was no difference between the panel respondents from the original pool. However, more men responded in all four surveys compared to women, and the sample also had more students from the Urbana-Champaign campus than the Chicago branch. In terms of degree level, there was a higher percentage of respondents with doctoral degree in the sample, and only a few professional degree holders returned surveys compared to the original pool.

Table 1

CHARACTERISTICS OF SAMPLE RESPONDENTS BY AGE, GENDER, CAMPUS, GEOGRAPHICAL LOCATION, AND DEGREE LEVEL

Variables	Original Sample (N=12,854)	Returned Sample (N=2306)
Age of Respondents (Mean Years)	25.6	25.6
Gender (in percent)		
Male	59.9	63.7
Female	40.1	36.3
Campus (in percent)		
Urbana	69.3	82.6

Chicago	30.7	17.4
Location (in percent)		
Illinois	83.0	80.5
Outside Illinois	17.0	19.5
Degree Level (in percent)		
Bachelors	62.4	62.6
Masters	24.4	24.5
Doctoral	5.9	6.4
Professional	7.3	6.5

Alumni Attitudes Toward The University

What was the reaction of the 1976 alumni toward the University in which they received their degree? In this section of the article, we used four dependent variables, the attitude towards the University (Note 2) surveyed at four different points in time in a repeated measures analysis. Table 2 compares the reactions of the alumni over a period of fifteen years. The multivariate test (Hotelling- Trace=0.055) was significant at the .0001 level (F=43.52, degree of freedom =3, p = .0001) which meant that there was substantial change in the level of attachment towards the alma-mater over time. In other words, strong positive feelings by the alumni toward the college kept rising over a period. The Univariate test also shows significance at the .0001 level (F=49.69, degree of freedom= 3, p = .0001).

The overall statistical difference found among the attitudinal measures leads us to determine which specific time condition was responsible for contributing to this significance. In this repeated measures design, where a single group of subjects was measured at four points in time, we did a set of repeated contrasts. This was done to investigate whether there were significant differences at adjacent points in time. An analysis of variance was performed on the contrast variables, which represent the difference of mean between the attitudinal variable measured in 1977 with subsequent time periods. The results presented in the last column of Table 2 show that there was a substantial strengthening of positive feeling from former students toward the University over a period of fifteen years. The intensity reached its peak ten years after graduation but leveled off slightly after fifteen years.

Table 2
REPEATED MEASURES ANALYSIS OF ATTITUDE TOWARDS THE UNIVERSITY FOR THE CLASS OF 1976 OVER FIFTEEN YEARS

Dependent Variables	Mean	Standard Deviation	Test of Contrast (1)
Attitude Towards University			
1977	3.503 (N=2290)	0.604	

1981	3.616 (N=2290)	0.560	F=82.38, df=1, p=.0001*
1986	3.647 (N=2295)	0.528	F=117.10, df=1, p=.0001*
1991	3.601 (N=2298)	0.558	F=47.40, df=1, p=.0001*

Multivariate Test	Univariate Test
Hotelling Trace=0.055, F=43.521, df=3, p=.0001* (N=2257)	F=49.69, df=3, p=.0001* Greenhouse-Geisser I=.9299 (2) (N=2257)

1 The last column indicates the contrasts which represent the difference of means in 1977 with subsequent time periods.
2 The assumption of sphericity is tenable.
* Significant at .001 level.

Positive Feelings Toward Program Major

In Table 3 we discover how the alumni rate their major Program of Study over a period of time. Positive strong feelings toward the major field of study were ascendant over a period of fifteen years. Repeated measures analysis was again used to gauge the intensity of feelings of alumni toward their major. The multivariate test (Hotelling- Trace=0.00929) was significant at .0001 level (F=6.955, degree of freedom= 3, p= .0001) which meant that there was an overall significant positive effect over time toward the major field of study by the alumni. The Univariate test also showed significance at the .0001 level (F=7.97, degree of freedom= 3, p = .0001). Again, since an overall difference was found, we wanted to determine which specific time period differed in the analysis. The analysis of variance for the contrast variable presented in last column of Table 3 revealed that there was a significant difference in feeling towards the major program of study over a period of ten and fifteen years. However, there was no appreciable change in response between 1977 and 1981 towards the major field of study (Table 3). It could be that a better experience in the post graduate world would have made the alumni realize the excellent quality of education received at the University of Illinois, which in turn strengthens positive reactions to major field of study over a period of time.

This finding is contrary to what past research indicates in general about alumni behavior (Rich & Jolicoeur, 1978; Spaeth, 1970). These studies on student attitudes toward academic environment indicate that in general, even though students are satisfied with their college, there is an erosion of strong positive feelings over time toward the university. It is interesting to note that one group of scholars (Rich & Jolicoeur, 1978) has indicated that students at public colleges rate their schools less highly than those at private institutions. In this respect, our finding is significant because the University of Illinois is a major public University.

Table 3

REPEATED MEASURES ANALYSIS OF ATTITUDE TOWARD MAJOR PROGRAM OF STUDY FOR THE CLASS OF 1976 OVER FIFTEEN YEARS

Dependent Variables	Mean	Standard Deviation	Test of Contrast (1)
Attitude Towards Program Major			
1977	3.345 (N=2284)	0.704	
1981	3.360 (N=2294)	0.708	F=.84, df=1, p=.359
1986	3.408 (N=2292)	0.688	F=15.53, df=1, p=.0001*
1991	3.399 (N=2296)	0.682	F=10.13, df=1, p=.001*

Multivariate Test	Univariate Test
Hotelling Trace=0.00929 F=6.955, df=3, p=.0001* (N=2249)	F=7.97, df=3, p=.0001,* Greenhouse-Geisser I=.9563 (2) (N=2249)

1 The last column indicates the contrasts which represent the difference of means in 1977 with subsequent time periods.
2. The assumption of sphericity is tenable.
* Significant at .001 level.

Alumni Perceptions of Academic Quality

Is the favorable disposition toward one's alma mater the result of the college's contribution to the intellectual development of the alumnus? Two indexes were created to gauge students' rating of the educational institution.

The first index consists of five items asking students the extent to which they were challenged by their program, the variety of course offerings, the quality of instruction, the usefulness of the program, and the satisfaction with the Program of Study. Cronbach's alpha was computed on these five sets of items for the four time periods, and the index entitled "program satisfaction" was constructed. The program satisfaction index score for 1977, 1981, 1986, and 1991 ranged from 4 to 25. Those who were dissatisfied with the quality of academic program scored low on the scale, and those who were satisfied were on the higher end of the continuum. Cronbach's alpha and the means for all four time periods for the scale constructed is provided in Table 4. The high coefficient associated with Cronbach's alpha for all four years indicates that the items can be reliably summed up to construct a scale to measure program satisfaction (Table 4).

Table 4

RELIABILITY MEASURE FOR PROGRAM SATISFACTION INDEX

Variables (1)	Mean	Standard

		Deviation
Challenged by your program of study(1977)	3.920	0.960
Program provided a well integrated set of courses (1977)	3.660	1.021
Quality of instruction in major department (1977)	3.768	0.943
Program of study was worthwhile (1977)	4.020	0.960
Satisfaction with your major program (1977)	3.869	0.902
Cronbach's Alpha (1977) = 0.837, (N=2264)*	19.16	3.77
Challenged by your program of study (1981)	3.977	0.923
Program provided a well integrated set of courses (1981)	3.758	0.983
Quality of instruction in major department (1981)	3.872	0.887
Program of study was worthwhile (1981)	4.000	0.973
Satisfaction with your major program (1981)	3.883	0.895
Cronbach's Alpha (1981) = 0.840, (N=2279)*	19.44	3.67
Challenged by your program of study (1986)	4.046	0.896
Program provided a well integrated set of courses (1986)	3.833	0.942
Quality of instruction in major department (1986)	3.910	0.859
Program of study was worthwhile (1986)	4.037	0.907
Satisfaction with your major program (1986)	3.932	0.870
Cronbach's Alpha (1986) = 0.875, (N=2285)*	19.72	3.70
Challenged by your program of study (1991)	4.253	0.800
Program provided a well integrated set of courses (1991)	3.950	0.882
Quality of instruction in major department (1991)	3.980	0.808

Program of study was worthwhile (1991)	4.038	0.881
Satisfaction with your major program (1991)	3.948	0.847
Cronbach's Alpha (1991) = 0.866, (N=2283)*	20.13	3.42

1 Item scale ranged from 1 to 5, i.e., "low satisfaction" to "high satisfaction."
* Items were summed up to construct program satisfaction index.

The second index is called "quality of faculty guidance", and consists of three items asking students to rate the quality of academic guidance, vocational advice and the extent of communication between faculty and students regarding student needs, concerns and suggestions. Cronbach's alpha was computed on these three items for the four time periods. The faculty guidance scale for the four time periods ranged from 1 to 15. Respondents who thought that intellectual guidance was unsatisfactory were on the lower end of the spectrum and those who rated it highly were on the higher end of the scale. Cronbach's alpha and the means for all of the four time periods is provided in Table 5. The reliability coefficient was very high for these three items and the items were summed up to construct the scale.

Table 5

RELIABILITY MEASURE FOR FACULTY GUIDANCE INDEX

Variables (1)	Mean	Standard Deviation
Quality of academic guidance (1977)	3.154	1.215
Quality of vocational guidance (1977)	3.744	1.238
Channels of communication between faculty and students regarding student needs, concerns and suggestions (1977)	3.217	1.107
Cronbach's Alpha (1977) = 0.803, (N=2234)*	9.03	3.04
Quality of academic guidance (1981)	3.210	1.175
Quality of vocational guidance (1981)	2.720	1.187
Channels of communication between faculty and students regarding student needs, concerns and suggestions (1981)	3.266	1.052
Cronbach's Alpha (1981) = 0.828, (N=2253)*	9.14	2.97
Quality of academic guidance	3.243	1.107

(1986)		
Quality of vocational guidance (1986)	3.805	1.149
Channels of communication between faculty and students regarding student needs, concerns and suggestions (1986)	3.270	1.040
Cronbach's Alpha (1986) = 0.841, (N=2241)*	9.24	2.90
Quality of academic guidance (1991)	3.138	1.110
Quality of vocational guidance (1991)	2.741	1.200
Channels of communication between faculty and students regarding student needs, concerns and suggestions (1991)	3.254	1.040
Cronbach's Alpha (1991) = 0.836, (N=2232)*	9.05	2.86

1 Item scale ranged from 1 to 5, i.e., "low satisfaction" to "high satisfaction".
* Items were summed up to construct faculty guidance index.

Impact of Faculty Excellence and Program Satisfaction on Attitude Toward the University

In this section of the article, we use the two indexes as predictors to explain students' attitude towards the alma mater (See Note 2). The attitude towards the University for the four time periods was regressed on a set of demographic variables and the two indexes, and the results are displayed in Table 6. Although it makes stringent demands on the data, OLS regression estimates the collective capability of a set of independent variables to predict the values of a dependent variable, and indicates the relative predictive power of one factor net of other predictor effects. Included in the model were gender, age, degree received, campus site (Note 3), geographical location, employment status, salary earned, and the two indexes related to program satisfaction and faculty excellence. Age, salary earned and the two indexes related to program satisfaction and faculty excellence were interval scale variables and the other five predictors were coded as dichotomous (Note 4).

Table 6 reports the standardized regression estimate and standard error for each significant predictor, the critical value for each as estimated by a one-tailed T-test, the overall adjusted R2 , and the number of cases on which the model is estimated. The p values that are given in the last column of Table 6 represent the significance of each predictor in explaining the overall model. To be conservative in our estimate, the decision was made to judge the strength of each predictor at the critical value of .0015.

An inspection of data in Table 6 demonstrates that in all four waves, baccalaureate degree holders, campus location and the two scales related to program satisfaction and faculty guidance emerged as significant predictors of attitude towards the University. The data depicts that in all four waves, baccalaureates had a more positive outlook than the professionals in their attitude towards the University. In other words, one year after graduation, women baccalaureates from the Urbana campus who scored high on the program satisfaction and faculty guidance indexes had a

more positive attitude toward the University. However, gender appeared as a significant variable in predicting attitude towards the University only one year after graduation. The pattern which emerges after ten years revealed that bachelor degree holders from the Urbana campus who scored high ratings on the program satisfaction and faculty guidance indexes proclaim positive feelings towards their educational institution. Interestingly, salary emerged as a significant predictor after an interval of five and fifteen years in predicting positive attitude toward the university. The data seems to indicate that satisfaction with the university is correlated with the success of baccalaureate graduates in their transition to work. How well does the first model fit the data? The overall adjusted R2 indicates a moderate fit. Measurement error undoubtedly sapped predictive potency. However, the data provides good information on factors that shape and mold attitude towards the educational institution.

Table 6

OLS REGRESSION OF ATTITUDE TOWARDS THE UNIVERSITY IN FOUR TIME PERIODS

Predictors	Standadrdized Estimate	Standard Error of Beta	T value	Significance Level
Program satisfaction index				
1977	0.347	0.004	15.63	0.0001
1981	0.350	0.003	15.03	0.0001
1986	0.369	0.003	16.16	0.0001
1991	0.396	0.003	16.93	0.0001
Faculty guidance Index				
1977	0.170	0.004	7.59	0.0001
1981	0.098	0.004	4.02	0.0001
1986	0.099	0.004	4.23	0.0001
1991	0.096	0.006	4.04	0.0001
Campus (1=Urbana)				
1977	0.196	0.030	10.26	0.0001
1981	0.201	0.028	9.68	0.0001
1986	0.174	0.027	8.85	0.0001
1991	0.146	0.028	7.56	0.0001
Bachelors (1=Bachelors)				
1977	0.104	0.028	4.71	0.0001
1981	0.208	0.053	4.49	0.0001
1986	0.136	0.039	3.79	0.0002

1991	0.146	0.034	4.92	0.0001
Salary				
1981	0.082	0.000	3.54	0.0004
1991	0.076	0.000	3.66	0.0003
Gender (1=Male)				
1977	-0.069	0.028	-3.15	0.001

Adjusted R2=0.264 (1977) (N=2116)	Adjusted R2=0.227 (1981) (N=2115)	AdjustedR2=0.217 (1986) (N=2119)	Adjusted R2=0.233 (1991) (N=2122)

Conclusion

Alumni surveys have been used by colleges and universities for a number of years and for a variety of reasons. This article is a penetrating study of alumni attitudes towards the University of Illinois over a period of fifteen years. The extended period involved in this analysis helped us to appreciate the enduring influence of higher education in students' lives and the important role of a good university education. This panel data on alumni attitudes towards the academic environment indicates that contrary to evidence from past research, students develop a stronger attachment towards the educational institution with the passage of time. A similar positive pattern was evident when examining the attitude towards program major. It is possible that better experience in the real world has made the alumni evaluate the quality of education they received at the University of Illinois. Also, favorable disposition toward one's institution seems to be, to a very considerable extent, the result of the college's contribution to the intellectual development of the student. This fact was reinforced by students' high ratings on the "program satisfaction" and "faculty guidance" indexes in predicting a positive attitude toward the university.

It is evident from this analysis that the focus of colleges and universities should be on efforts to improve the quality of education through academic advising, mentoring programs and career exploration, and planning. Notably, follow up studies of graduates' employment experiences, and satisfaction with the institution and major program of study would provide valuable feedback to the University to help assess and monitor student and institution performance. Systematic graduate follow-up survey information helps set the stage for universities to review programs within different disciplines. The information obtained from the alumni survey can be used as a standard against which the university can compare the employment and satisfaction of its graduates in order to identify programs for additional review and for making program improvements. In addition, the universities can use the follow-up information in assisting currently enrolled students in program selection and career planning. At both campus and state levels, systematic information on the employment, further education, and satisfaction of graduates is important to documenting educational accountability.

It is important to study college graduates to understand the evaluation of their own educational experiences and how they envision higher education as a major social institution. Alumni research, along with other outcome measures, can be used for a variety of purposes. Applications include academic program review and evaluation, student retention, institutional planning, marketing, and public relations. Alumni outcomes can be used for assessing the effectiveness of the general education program. Information on student outcomes can be used in

institutional planning and budget review at several levels. The insights derived from these surveys on students progress could be provided to employers and public on how well educational programs address labor market needs. For administrators, alumni information provides guidance about the strengths and weaknesses of various aspects of the whole university. In a broader perspective, this research has great relevance to the University's image, which affects future development in terms of public relations and student recruitment. The results of this study were intended to assist universities in program reviews and in providing a basis for improving graduates' educational experiences.

Appendix

Repeated measures analysis is a powerful statistical design, since the variability due to individual differences is removed from the error term which causes error variances (Stevens, 1986). The three assumptions for a single group Univariate repeated measures analysis are:

- independence of observations
- multivariate normality
- sphericity

All of the above assumptions were met in our analysis. The independence of observation is by far the most important assumption, for even a small violation of it produces a substantial effect on both the level of significance and power of the F statistics (Stevens, 1986). It has been argued by some scholars that under certain conditions, independence of observations may or may not be tenable (Glass & Hopkins, 1984, p. 353):

> Whenever the treatment is individually administered, observations are independent. But where treatments involve interaction among persons, such as "discussion" method or group counseling, the observations may influence each other.

In our case, the implementation of survey questionnaire excludes any possibility of dependence among the observations.

The sphericity assumption requires that variances of the differences for all pairs of variables be equal (Stevens, 1986). In other words, the sphericity assumption states that the covariance matrix for the difference variables is a diagonal matrix, with equal variances on the diagonal. The extent to which the covariance matrix deviates from sphericity is reflected in a parameter called I (epsilon), and if sphericity is met, then I=1. The assumption of sphericity was tenable in our two repeated measures design.

Also, repeated measures analysis of variance is fairly robust (Note 6) against violation of multivariate normality. A scholar notes that "even for distributions which depart markedly from normality, sums of 50 or more observations approximate to normality" (Bock, 1975, p. 25). In our analysis, the first repeated measures design was based on 2290 observations and the second analysis had 2249 observations.

Notes

1. There are some limitations in panel research like panel mortality, contamination through repeated measurements, and the changing meanings of instrument items (Markus, 1979). Since the research relies on data collected through a mail survey, the length of the instrument becomes a matter of concern. This constraint makes it difficult for the researcher to ask respondents all the questions one wishes to ask, e.g., those related to the

life-experiences of alumni after graduation.

2. Attitude towards the University was a close-ended scale which ranged from 1 to 4, from "strongly negative" to "strongly positive."
3. The University of Illinois has two campuses at Chicago and Urbana-Champaign. The overall quality of the University places it among the nation's top institutions of higher education. However, the Urbana campus ranks much higher in terms of academic achievement than Chicago.
4. Age and Salary were coded as an open-ended scale. The two indexes related to program satisfaction and faculty guidance were created after computing Cronbach's Alpha, and then summing up the relevant items. Gender, campus, geographical location and employment status were coded as dichotomous variables, 0 or 1. The value of 1 for gender represents male students. The Urbana-Champaign campus was coded as 1. Respondents from Illinois were coded as 1 for the geographical location variable, and people who were currently employed were coded 1 for employment status. For the degree level, we created three dummy variables, Bachelors, Masters and Doctoral, and the Professional degree holders were treated as the reference group.
5. The model is being tested at a tighter alpha level to control for positive bias and to prevent any occurrence for capitalizing on chance.
6. Robust means that the actual alpha is close to the nominal alpha.

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