

Predictors of Alumni Association Membership

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Abstract The authors examined factors associated with membership of university graduates in the dues-based alumni association of their alma mater. Logistic regression was used to analyze variables that came from survey responses and from an existing database. All participants had attended a public doctoral-granting research university in the South. Graduates were more likely to be alumni association members if they: (a) were donors, (b) had a telephone number on record, (c) were relatively older, (d) had positive experiences as alumni, (e) had positive perceptions of the alumni association, (f) were more frequently involved with the alma mater, and (g) were aware of other members of the alumni association. Alumni were less likely to be alumni association members if they were: (a) employed at the alma mater, (b) had a higher level of degree attainment, (c) had positive feelings about student experiences, and (d) had positive university perceptions. Empirical testing confirmed the utility of several variables of the prediction model in identifying the best prospects for alumni association membership.

Keywords Alumni association · Membership · Members · Dues · Dues-based · Alumni giving · Fundraising · Friend-raising · Alumni · Alma mater

State appropriations for higher education have drastically decreased in recent years (Weerts and Ronca 2006), with aggregate state contributions having fallen by 30% since the late 1970s (Archibald and Feldman 2006). Eroding state and local funding along with substantial declines in endowment funding (Haurwitz 2008) have resulted in funding decreases for most university departments, and alumni associations are no exception. Interdependent dues-based alumni associations that rely on their institutions for partial funding must turn to membership dues revenue to fill the funding gap. The same economic challenges that contribute to decreasing institutional funding, however, also impact

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membership and alumni association practitioners are finding the recruitment and retention of members to be a struggle.

According to the 2008 Voluntary Support of Education survey by the Council for Aid to Education (CAE), donations to higher education institutions totaled nearly \$32 billion. Whereas overall voluntary support of higher education increased in 2008, the alumni giving category declined by 0.3% and alumni participation fell from 11.7 to 11% (Council for Aid to Education 2009). Several studies examining alumni giving have been published in recent years, but little to no published research exists which describes alumni giving as it pertains to membership in a university's dues-based alumni association.

Alumni programs:

build and strengthen relations with students, former students, faculty, friends and others.

Advancement professionals in alumni relations:

- Build life-long relationships with alumni in support of the institution
- Facilitate two-way communication between the institution and alumni
- Leverage a powerful alumni voice on behalf of the institution
- Maintain history and traditions and help secure a bright future for the institution

(Council for Advancement and Support of Education 2009, p. 1).

Functioning as “friend-raisers,” in contrast to the fundraising function of development offices, alumni associations serve an important role in engaging alumni and providing a connection to and from the alma mater (Arnold 2003; Gill 1998). To that end, a robust alumni association membership base not only provides much-needed funding to the alumni association itself, but also is of value to the higher education institution that is the source of its members.

In a time in which membership marketing staff are expected to increase membership dues revenues with fewer dollars, empirically-based findings would be of great value to practitioners in dues-based alumni associations. Such research can maximize the use of scarce resources toward the most effective recruitment of prospective alumni members. This research also helps fill a void in the existing body of research by examining the understudied area of alumni association membership—a topic with ramifications for understanding the enduring impact of higher education on graduates.

In this paper, survey data from a large public doctoral-granting research university in the South were used to study factors associated with university graduates joining the dues-based alumni association. Both demographic and attitudinal factors were examined. Survey data were combined with extant database information to provide a comprehensive set of variables.

While that there are few known published studies of predictors of alumni association membership, there exists a wide body of research examining predictors of alumni giving. Studies in the latter area were used as guidance for this study. The reviewed literature demonstrates the complex and diverse set of factors that comprise the predictors of alumni giving. The most compelling reason for citing this literature is our judgment that the factors leading an individual to contribute to a university are likely to be similar to those leading the person to membership in an alumni association. Both alumni giving and alumni membership are behavioral outcomes that assume a level of commitment and positive regard for the alma mater. In this study, potential variables for predicting membership were classified into one of four categories: alumni involvement, student experiences, institutional characteristics, and alumni characteristics. Researchers have found each of these areas contain variables that predict financial support for higher education institutions.

Alumni Involvement

Prior research indicates that alumni with family ties are good donor prospects (Clotfelter 2003a; Holmes 2008; Okunade and Berl 1997; Wunnava and Lauze 2001), as are alumni who are more frequently involved with university activities. Specifically, attendance at university reunions, which are typically planned and implemented by alumni associations, is positively related to alumni giving (Grant and Lindauer 1986; Hanson 2000; Holmes 2008; Olsen et al. 1989; Willemain et al. 1994; Wunnava and Lauze 2001). A study by Harrison (1995) reported that the single most significant factor in explaining fundraising success within the sampled schools was institutional expenditures on alumni activities, which included not only events but also efforts at communications and other programs.

Other factors related to alumni involvement that have a positive impact upon giving include loyalty and emotional attachment to the alma mater (Beeler 1982), willingness to recommend the alma mater to others (Okunade and Berl 1997), reading alumni publications (Taylor and Martin 1995), knowledge of other donors (Okunade and Berl 1997), and seeking information about fellow alumni (Beeler 1982). Lindahl and Winship (1994) and Okunade and Berl (1997) found that a significant predictor of alumni giving was past giving, with the best prospects being alumni who had made more frequent and recent gifts.

Student Experiences

Numerous studies have found undergraduate student experiences to have a significant impact upon alumni giving behavior (Beeler 1982; Belfield and Beney 2000; Bruggink and Siddiqui 1995; Clotfelter 2003b; Hanson 2000; Mael and Ashforth 1992; Monks 2003; Stutler and Calvario 1996), with positive experiences translating to greater alumni giving. Financial aid is another well-studied student experiences factor, with several researchers (Beeler 1982; Marr et al. 2005) finding that receipt of scholarships or grant awards as an undergraduate results in greater levels of giving after graduation. Contrary to these findings, however, Cunningham and Cochi-Ficano (2002) reported no relationship between non-need-based scholarships and alumni giving. While alumni who received scholarships and grant awards were better donor prospects, Clotfelter (2003a) and Monks (2003) discovered that individuals with undergraduate need-based loans tended to give less to their alma mater than alumni who did not receive student loans.

Student involvement within nonacademic campus groups as an undergraduate has been found to be a positive predictor of alumni giving (Bruggink and Siddiqui 1995; Clotfelter 2003b; Haddad 1986; Harrison 1995; Holmes 2008; Keller 1982; Marr et al. 2005; Harrison et al. 2006; Monks 2003; Wunnava and Lauze 2001), with one exception. Holmes (2008) discovered that students involved with “affinity” groups are less likely to give, hypothesizing that these are typically members of minority groups who may feel less integrated into the campus community and therefore be less attached to the alma mater.

In several studies, academic success shares a positive relationship with alumni giving, as measured both by GPA (Marr et al. 2005) and SAT scores (Clotfelter 2003b; Cunningham and Cochi-Ficano 2002).

Institutional Characteristics

Previous research indicates that characteristics of institutions play a role in evaluating determinants of alumni giving. According to Harrison (1995), the type of university is a factor, with graduates of private institutions being more willing to make a donation than graduates of public institutions, and graduates of doctoral-granting institutions being more willing to make a donation than graduates of institutions that do not grant doctoral degrees. Cunningham and Cochi-Ficano (2002) reported that alumni of 4-year colleges or universities are more willing to make a donation than alumni of 2-year institutions. Research from Clotfelter (2003a) indicated that alumni of private liberal arts colleges are more likely to donate than alumni from other private universities, and alumni of more selective private institutions are more likely to give than alumni from less selective colleges or universities.

Perception of the academic quality and prestige of the alma mater is another factor of alumni giving found by researchers, with greater perceived quality and prestige leading to greater levels of alumni giving (Baade and Sundberg 1996; Belfield and Beney 2000; Clotfelter 2003b; Hanson 2000; Leslie and Ramey 1988; Mael and Ashforth 1992). In a study of alumni of a liberal arts institution, Holmes (2008) found an opposite relationship and hypothesized that alumni donated as a means to prevent additional declines in quality rankings in an effort to maintain the reputation of their alma mater and thereby preserve the quality of their degree.

Alumni Characteristics

Characteristics of alumni that predict alumni giving include demographic factors such as age, ethnicity, income, gender, residence and marital status. Many researchers have found that age, or its related counterpart, years since graduation, predict alumni giving, with results generally indicating that older alumni are more likely to give than younger alumni (Beeler 1982; Bruggink and Siddiqui 1995; Haddad 1986; Hanson 2000; Holmes 2008; Keller 1982; Okunade and Berl 1997; Olsen et al. 1989; Wunnava and Lauze 2001; Yankelovich 1987).

Like age, income is a determinant of alumni giving commonly found in research, with higher rates of giving for wealthier alumni (Bruggink and Siddiqui 1995; Clotfelter 2003b; Hanson 2000; Holmes 2008; Lindahl and Winship 1994; Okunade and Berl 1997). Type of degree, and its related variable college major, is also a predictor of alumni giving, with alumni who earned degrees in social science fields being more likely to donate than alumni who majored in the arts (Haddad 1986; Holmes 2008; Hueston 1992; Marr et al. 2005; Monks 2003; Okunade and Berl 1997). As Okunade and Berl explain, this finding is not unexpected, given that social science degrees typically lead to employment in higher paying fields.

Evidence regarding the impact of marital status upon alumni giving has not been studied as frequently as other demographic variables such as age and income, and the results are inconsistent. Holmes (2008) and Okunade and Berl (1997) reported that married alumni are more likely to donate than nonmarried alumni, and they also found that alumni who are married to a fellow alumna or alumnus are the most likely to donate. Other researchers, however, have found that unmarried alumni are better prospects than those who are married (Belfield and Beney 2000; Bruggink and Siddiqui 1995; Monks 2003).

In regard to gender, results also are mixed. Most studies indicate no statistically significant difference in average contributions by gender (Clotfelter 2003b; Marr et al. 2005;

Monks 2003; Okunade 1996; Wunnava and Lauze 2001), but a study of alumni from a private institution found that men are more likely donors than women (Lindahl and Winship 1994). Other research, however, indicates that women are more likely to donate than men (Bruggink and Siddiqui 1995). In a study of alumni giving to private colleges and universities, Clotfelter reported that there was no statistically significant difference between frequency of gifts from men and women, but the average size of gifts from men was twice that from women. Belfield and Beney (2000) and Holmes (2008) found that women make more frequent gifts than men, but the size of donations from women are smaller than those from men.

Aside from limited research available from Monks (2003) and Okunade (1996), which suggested that Caucasians are more likely to make a contribution to their alma mater than minority alumni, very little research has been reported on the impact of ethnicity upon alumni giving. Location of residence is a factor in alumni giving, with alumni living in close proximity to the alma mater being more likely to make a contribution (Bruggink and Siddiqui 1995; Hueston 1992; Lindahl and Winship 1994). Monks (2003) reported that alumni who are citizens of the United States are much more likely to make a contribution than noncitizens.

In summary, demographic variables like age and income have been found to predict alumni giving, as well as variables that measure characteristics of institutions, like their size and mission. Some variables have been little studied (e.g., ethnicity) or have yielded inconclusive evidence about their effects (e.g., gender). While these variables have not been studied as predictors of alumni association membership, they are plausible candidates for inclusion in such a study.

The purpose of this study was to describe differences and similarities between alumni association members and non-members and also to identify predictors of membership in a dues-paying university alumni association. There are several reasons why the study was worthwhile. Namely, while numerous published studies examine the predictors of alumni giving, there is little to no research which relates to predictors of alumni association membership. With a large number of dues-based alumni associations in existence within the field of higher education, there are many professionals who can benefit from such a study, as understanding what variables work as predictors can make membership-building a more successful enterprise. While alumni giving is related to alumni association membership and, as such, prior studies that examine predictors of alumni giving are used as the basis of this study, the two are quite different and therefore, it is important to specifically study predictors of alumni association membership separately from alumni giving. Alumni giving relates specifically to a tax-deductible financial contribution of any amount that a graduate makes to the alma mater. Alumni association membership, on the other hand, is a set-amount purchase that a graduate makes to become a member of a dues-based alumni association at their alma mater and which, in turn, affords them a variety of specific member benefits. At the university studied, alumni association membership is not tax-deductible.

Additionally, research in this area has theoretical value for its illumination of the social and psychological factors associated with alumni loyalty. What would account for a graduate who wishes to attach to an organization made up of other graduates? Understanding alumni affiliation casts light on the larger issue of support for higher education—a topic of increasing interest as universities and colleges are under financial duress and under increased scrutiny from policy-makers.

The literature review, along with the first author's direct experience as an alumni association administrator, led to the hypothesis that there would be positive relationships between alumni membership and the variables age, donor status, involvement as a student

as measured by number of extracurricular activities, number of legacy relationships (i.e., relatives or spouse's relatives who are alumni), proximity to campus, awareness of other alumni association members, and higher rankings for five attitudinal scales included in a survey of graduates. Negative relationships were expected for graduates with level of degree attainment, status as an employee of the alma mater, and receipt of financial aid as a student of the university.

Method

Participants

Participants were graduates of a public doctoral-granting research university in the South. It is the largest university in the state, and has a full-range of undergraduate, graduate and professional programs. Enrollment in 2008 consisted of about 19,000 undergraduates and 8,000 graduate or professional students. There are approximately 2,000 faculty members. The university characterizes itself as the state's "flagship institution" and has strong ties to many communities in the state due to its status as a land-grant university. Its successful athletic programs positively contribute to its statewide image.

Persons responded to a survey in one of two ways: (a) they completed an online questionnaire, or (b) they returned a hard-copy questionnaire by U.S. mail. (A copy of the instrument is available on request to the first author.) Survey responses were merged with additional variables that were available in a database of university alumni. Average age of participants was 46 years. A larger percentage of participants were male (53%) rather than female (48%). A complete description of the sample is described in the Results section.

Sampling

The survey was implemented using both e-mail and direct mail methods. On April 2, 2009, an e-mail invitation was distributed to 56,859 recipients, which represented the entire population of university graduates with an e-mail address on record. The e-mail invitation and subsequent follow-up e-mail resulted in 7,298 usable responses. On April 10, 2009, the hard copy paper version of the survey instrument was mailed to 1,250 recipients who represented a randomly selected sample drawn from the entire population of university graduates *without* an e-mail address on record. Responses to this mailing were 237, representing a 19% response rate. Responses from both survey versions totaled 7,535, which represented an overall response rate of 13%. All responses were merged into one comprehensive data file with data from the university's alumni database appended to each response matched by each respondent's unique identification number. Identifying information was removed from the data file prior to statistical analysis. It is important to note that most institutions have various definitions of the word "alumni" and in most cases graduation is not required for one to be considered an alumna or alumnus. In this study, only graduates of the university were included.

Measures

Variables analyzed in the study were a combination of extant information from a database and responses gathered from a questionnaire. The extant information consisted of factual

information, such as the age of the participant and his or her history of alumni giving. The questionnaire included closed-ended response questions (e.g., marital status) as well as questions presented on five-step scales. The first section of the survey solicited responses related to alumni involvement, the second section asked about student experiences, the third section included questions related to institutional perceptions, and the final section was comprised of demographic and other questions pertaining to characteristics of the respondent. The survey instrument is available from the researchers upon request. The survey instrument used in this study had not previously been used, so the researchers implemented a pilot test to assess its feasibility and reliability. The latter was particularly important related to the internal consistency reliability of five attitude scales. The pilot study consisted of volunteers ($n = 155$) who were solicited from the same population as the main study.

The questionnaire included items measuring five factors that were likely to be associated with alumni association membership. Frequency of Involvement measured how often the respondent reported participating in university-related activities, ranging from 1 (*never*) to 5 (*very frequently*). One of the 12 items was: Return to campus when possible. Positive alumni feelings measured positive affect toward the institution, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). One of the six items was: I am proud to be an alum of [the university]. Positive student feelings measured positive affect about student experiences, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). One of the six items was: I really enjoyed the time I spent at [the university]. University perceptions measured attitudes about the quality of the institution, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). One of the eight items was: [The university] is an institution that provides quality learning. Finally, alumni association perceptions measured attitudes toward the alumni association, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). One of the four items was: [The university] alumni association is a valuable organization. Using 0.70 as the criterion for acceptable reliability (Nunnally and Bernstein 1994), the researchers concluded that the scales would be reliable, since Cronbach's α coefficients for the five scales used in the pilot study ranged from 0.81 to 0.95.

Research Design

The design was a combination of descriptive and correlational/predictive methods. A major interest was in predicting the dichotomous outcome variable group membership, either member or nonmember of the alumni association. Logistic regression was used for the latter analysis, since it is an appropriate statistical method for prediction of dichotomous outcome variables (Tabachnick and Fidell 2007).

Analysis of the sample revealed that 52% of respondents were current alumni association members, which was substantially higher than the percentage of members (17%) within the entire database of all alumni. This represented a potential self-selection bias among respondents. The potential problem was corrected through stratification of the sample so the proportion of members to nonmembers reflected the population. The researchers retained all 3,588 nonmember cases and performed a random selection of 744 member cases. The resulting dataset ($N = 4,332$) was proportionally representative of the population in regard to the percentages of alumni association members and nonmembers. Descriptive and inferential statistics reported in the results are based on this dataset. The size of the sample assured the ability to detect small-to-medium effects with a statistical significance level of 0.05 and a power of 0.80.

Results

Descriptive Statistics

Descriptive statistics were calculated for those variables subsequently used in the logistic regression. Data are presented separately for respondents to the online survey and the mail survey. In addition, results are shown for non-respondents when data were available.

Table 1 shows results for several variables measuring aspects of alumni involvement. Relatively high percentages of respondents (over 80%) had a phone number on record and resided in the area of an alumni club. Only 2% of participants were classified as fellows donors (who had donated more than \$10,000), with a larger percentage, about 20%, classified as current donors (who had made a university contribution in the year when the study was performed).

Table 2 shows student experiences variables. A third or more of participants reported receiving either a scholarship or financial aid when they were a student. About 60% stated

Table 1 Frequency distributions for categorical alumni involvement variables

Variable	Online		Mail		Non-respondents	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Phone number on record						
Yes	3,092	80.5	112	74.7	35,703	70.6
No	748	19.5	38	25.3	14,849	29.4
Resides in club area						
Yes	3,137	81.7	130	86.7	42,462	84.0
No	707	18.3	20	13.3	8,095	16.0
Proximity to campus						
>1,000 miles	385	10.0	11	7.3		
500–1,000 miles	587	15.3	25	16.6		
100–499 miles	1,050	27.4	36	24.0		
16–99 miles	918	23.9	53	35.3		
0–15 miles	900	23.4	25	16.7		
Fellows donor						
Yes	75	2.0	2	2.0	1,028	2.0
No	3,765	98.0	147	98.0	49,529	98.0
Current donor						
Yes	804	20.9	20	13.3	7,486	14.8
No	3,036	79.1	130	86.7	49,529	85.2
Aware of other alumni members						
Yes	1,919	50.0	54	36.0		
No	1,921	50.0	96	64.0		

Note. Phone number on record (1 = Yes, 0 = No), Resides in club area (1 = Yes, 0 = No), Proximity to campus was measured in eight steps (1 = 0–15 miles to 8 = more than 1,000 miles) (frequency distribution in the table was compressed to five categories), Fellows donor meant someone whose contribution total was at least \$10,000 (1 = Yes, 0 = No), Current donor meant someone who made a contribution in the last year (1 = Yes, 0 = No), Aware of other alumni members meant having an acquaintance with other alumni (1 = Yes, 0 = No)

Table 2 Frequency distributions for categorical student experiences variables

Variable	Online		Mail		Non-respondents	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Received scholarship						
Yes	1,545	40.2	43	28.7		
No	2,295	59.8	107	71.3		
Received financial aid						
Yes	1,318	34.3	40	26.7		
No	2,522	65.7	110	73.3		
Semesters living on campus						
7 or more	484	12.6	16	10.7		
5–6	399	10.4	18	12.0		
3–4	707	18.4	32	21.3		
1–2	737	19.2	28	18.7		
0	1,513	39.4	56	37.3		
Semesters as a student						
13 or more	401	10.5	24	16.0		
9–12	1,308	34.0	46	30.6		
5–8	1,766	46.0	66	44.0		
1–4	365	9.5	14	9.3		
Grade point average (GPA)						
3.80–4.00	727	18.9	24	16.0		
3.40–3.79	1,198	31.2	58	38.7		
3.00–3.39	1,120	29.2	38	25.3		
2.50–2.99	702	18.3	24	16.0		
<2.50	93	2.4	6	4.0		
Highest university degree						
Doctoral or professional	507	13.2	20	13.3	4,543	9.0
Master's	835	21.7	42	28.0	7,272	14.4
Bachelor's	2,484	64.7	88	58.7	38,624	76.6

Note. Received scholarship (1 = *Yes*, 0 = *No*), Received financial aid (1 = *Yes*, 0 = *No*), Semesters living on campus was measured in six steps (0 = *none* to 5 = *more than eight*) (frequency distribution in the table was compressed to five categories), Semesters as a student was measured in eight steps (1 = *one to two* to 8 = *more than 14*) (frequency distribution in the table was compressed to four categories), Grade point average (GPA) was measured in five steps (1 = *below 2.50* to 5 = *3.80–4.00*), Highest university degree was measured in three steps (1 = *bachelor's* to 3 = *doctoral or professional*)

they lived on campus for at least one semester, and over 40% reported living on campus for nine or more semesters. The average number of extracurricular activities reported by respondents was about one. Most participants had a grade point average in the range between B to A, and about 64% reported that a bachelor's degree was the highest degree they earned.

Variables related to alumni characteristics are shown in Table 3. The alumni characteristics revealed that participants responding to the online survey were slightly more likely to be male than female. Most respondents were married, and most had children. About 11% of the online respondents were university faculty or staff members, with a smaller percentage for persons responding by mail.

Table 3 Frequency distributions for categorical alumni characteristics variables

Variable	Online		Mail		Non-respondents	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Gender						
Female	1,834	47.8	74	49.3	24,275	48.0
Male	2,006	52.2	76	50.7	26,268	52.0
Marital status						
Married	2,627	68.4	107	71.3	20,029	61.3
Not married	1,213	31.6	43	28.7	12,628	38.7
Have children						
Yes	2,352	61.3	114	76.0		
No	1,488	38.8	36	24.0		
Have children under 18						
Yes	1,172	30.5	113	75.3		
No	2,668	69.5	37	24.7		
University faculty or staff						
Yes	435	11.3	5	3.3	3,166	6.3
No	3,405	88.7	145	96.7	47,406	93.7

Note. Gender (1 = *Female*, 0 = *Male*), Marital status (1 = *Married*, 0 = *Not married*), Have children (1 = *Yes*, 0 = *No*), Have children under 18 (1 = *Yes*, 0 = *No*), University faculty or staff (1 = *Yes*, 0 = *No*)

Statistics on continuous variables are shown in Table 4. Several were attitude scales that were averages of items rated on five-step scales. Most of these had mean scores above 4.00, indicating relatively positive attitudes. Participants to the online survey averaged 45 years old; considerably younger than the average age of 56 for the mail survey.

Inferential Statistics

In total, 26 variables were used in the logistic regression, including the control variable (online response or mail response). The researchers conducted and evaluated results from diagnostic procedures, including the analog of Cook's influence statistics, leverage values, and normalized residuals for the dataset. Some statistical outliers existed, but these pertained to a very small proportion (less than 2%) of the data, so the researcher did not perform any data transformations or manipulations.

Prior to the final analysis, the researchers eliminated several potential predictor variables that were highly correlated with other predictors. In evaluating the descriptive statistics, the researchers noted a great number of missing cases for the variables *household income* and *hours worked as a student at the university*. After performing preliminary logistic regression analyses, the researchers determined that the *hours worked* variable was not statistically significant and that *household income*, although significant, did not have a strong relationship with the dependent variable. Subsequently, both variables were removed from further analyses. The researchers opted to use the nominal and dichotomous *current donor* variable as opposed to the interval level *total university giving* variable because the distribution of the total giving variable was highly skewed.

Table 4 Descriptive statistics for continuous variables

Variable	Online		Mail	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive alumni feelings scale	4.47	0.64	4.42	0.57
Positive student feeling scale	4.20	0.62	4.13	0.57
University perceptions scale	4.13	0.58	4.14	0.55
Alumni association perceptions scale	4.02	0.60	3.82	0.55
Frequency of involvement scale	2.85	0.66	2.45	0.61
Number of extracurricular activities	1.09	1.14	0.83	1.16
Age	45.1	15.0	56.2	16.5
Number of legacy relationships	0.92	1.00	1.06	1.03

Note. For online respondents, $n = 3,840$; for mail respondents, $n = 150$. Positive alumni feelings scale measured positive feelings expressed about being an alumna or alumnus (6 Likert scale items, Cronbach $\alpha = 0.94$). Positive student feelings scale measured feelings expressed about student experiences (6 Likert scale items, Cronbach $\alpha = 0.90$). University perceptions scale measured overall perceptions of the university (8 Likert scale items, Cronbach $\alpha = 0.89$). Alumni association perceptions scale measured perceptions of the alumni association (4 items, Cronbach $\alpha = 0.87$). Frequency of involvement scale measured how much involvement the person had with the university (12 scale items from 1 = *never* to 5 = *very frequently*, Cronbach $\alpha = 0.85$). Number of extracurricular activities was the sum of such activities during student years. Age was age in years (age for non-respondents was $M = 41.4$, $SD = 14.4$). Number of legacy relationships meant how many relatives (e.g. siblings, parents) of the respondent or the respondent's spouse were university alumni

Prior to the logistic regression, each variable was analyzed for its relationship to the dependent variable, *membership in the alumni organization*. Table 5 shows the correlation of the predictor variables with the dependent. In addition, each variable was identified as binary or continuous and was labeled as linear or non-linear. The latter designations were made on the basis of inspection of cross-tabulations of categories of the variable with the two categories of the dependent variable. If the percentages of cases that were members of the alumni association steadily increased or decreased across the categories of the continuous variable, it was designated *linear*. If not, it was designated *not linear*. For example, one variable classified not linear was *highest university degree*. For the lowest category of the variable (bachelor's degree), 21% of respondents were alumni association members. For the intermediate category (master's degree), 11% were members. However, for the highest category (professional degree), the percentage was 13%. This fluctuation in percentage was evidence of possible non-linearity.

Predictor variables used in the regression were three types: (a) binary, (b) continuous variables that were designated linear, and (c) continuous variables that were not linear and were entered as dummy coded variables. Each k -level non-linear variable was represented by $k - 1$ dummy code contrasts. Contrasts were used to compare the first category of the variable and each subsequent category. Of the 13 continuous variables, 6 were designated as not linear and were analyzed by dummy code contrasts.

Logistic regression estimates appear in Table 6. The Nagelkerke pseudo R^2 indicated that the model accounted for 36.3% of the variance in alumni association member status. This suggests that the set of predictors discriminated between members and nonmembers. The Hosmer and Lemeshow chi-square was statistically nonsignificant $\chi^2 (8, N = 3,990) = 10.52$, $p = 0.23$, which is indicative of an acceptable model (Tabachnick and Fidell 2007) since it suggested that the predicted probabilities did not significantly differ from the observed probabilities (Meyers et al. 2006).

Table 5 Correlations between predictor variables and alumni association member status (nonmember = 0, member = 1) and linearity of continuous predictor variables ($N = 3,990$)

Variable	Correlation coefficient	Variable type	Linearity of variable
Control			
Response method	-0.058**	Binary	
Alumni involvement			
Phone number on record	0.155**	Binary	
Resides in club area	0.064**	Binary	
Proximity to campus	-0.020	Continuous	Not linear
Number of legacy relationships	0.130**	Continuous	Not linear
Fellows donor	0.166**	Binary	
Current donor	0.261**	Binary	
Aware of other alumni members	0.258**	Binary	
Frequency of involvement scale	0.255**	Continuous	Linear
Positive alumni feelings scale	0.176**	Continuous	Linear
Student experiences			
Received scholarship	-0.051**	Binary	
Received financial aid	-0.076**	Binary	
Semesters on campus	0.119**	Continuous	Not linear
Semesters as student	0.002	Continuous	Not linear
Extracurricular activities	0.126**	Continuous	Linear
GPA	-0.085**	Continuous	Linear
Highest university degree	-0.092**	Continuous	Not linear
Positive student feelings scale	0.120**	Continuous	Not linear
Institutional characteristics			
University perceptions scale	0.134**	Continuous	Linear
Alumni association perceptions scale	0.280**	Continuous	Linear
Alumni characteristics			
Age	0.143**	Continuous	Linear
Gender	-0.025	Binary	
Marital status	0.045**	Binary	
Have children	0.061**	Binary	
Have children under 18	-0.055**	Binary	
University faculty or staff	-0.082**	Binary	

* $p < 0.05$, ** $p < 0.001$

Classification table results indicated that membership type was correctly predicted 82.5% of the time without any of the included variables, and when the 26 variables were included in the model, correct membership type classification occurred 85.4% of the time. Although an overall improvement from 82.5 to 85.4% in correct classifications might seem small, it is important to consider the proportion of nonmembers within the dependent membership variable. The percentage of nonmembers within the dataset was approximately 83%, which left little room for correct classification improvement over what would have occurred merely by chance. Therefore, it is also useful to make model comparisons with the Nagelkerke R^2 value and the Hosmer–Lemeshow statistic (Hosmer and Lemeshow 2000).

Table 6 Logistic regression estimates for prediction of alumni association member status (nonmember = 0, member = 1) ($N = 3,990$)

Variable	Parameter estimate	Standard error	Odds ratio
Control			
Response method	-0.830*	0.411	0.436
Alumni involvement			
Phone number on record	0.983**	0.197	2.674
Resides in club area	0.167	0.161	1.182
Proximity to campus			
Contrast 1	0.194	0.145	1.214
Contrast 2	0.164	0.226	1.178
Contrast 3	-0.135	0.276	0.874
Contrast 4	0.045	0.235	1.046
Number of legacy relationships			
Contrast 1	0.138	0.135	1.148
Contrast 2	-0.072	0.168	0.931
Contrast 3	0.460*	0.205	1.584
Fellows donor	1.240**	0.326	3.455
Current donor	1.044**	0.126	2.842
Aware of other alumni members	0.942**	0.129	2.566
Frequency of involvement scale	0.268**	0.053	1.308
Positive alumni feelings scale	0.340*	0.149	1.404
Student experiences			
Received scholarship	-0.209	0.126	0.812
Received financial aid	-0.017	0.125	0.983
Semesters on campus			
Contrast 1	0.131	0.171	1.140
Contrast 2	0.241	0.171	1.272
Contrast 3	0.504*	0.200	1.655
Contrast 4	0.682**	0.205	1.977
Contrast 5	0.074	0.333	1.077
Semesters as student			
Contrast 1	0.244	0.267	1.277
Contrast 2	0.085	0.257	1.089
Contrast 3	0.129	0.263	1.138
Contrast 4	0.021	0.300	1.021
Contrast 5	-0.361	0.396	0.697
Contrast 6	-0.167	0.347	0.846
Extracurricular activities	0.002	0.054	1.002
GPA	0.116	0.062	1.123
Highest university degree			
Contrast 1	-0.329	0.170	0.720
Contrast 2	-0.411*	0.198	0.663
Positive student feelings scale			
Contrast 1	-0.336	0.266	0.715
Contrast 2	-0.369	0.231	0.691
Contrast 3	-0.342	0.235	0.711

Table 6 continued

Variable	Parameter estimate	Standard error	Odds ratio
Contrast 4	-0.611*	0.268	0.543
Institutional characteristics			
University perceptions scale	-0.319*	0.150	0.727
Alumni association perceptions scale	1.080**	0.125	2.944
Alumni characteristics			
Age	0.224**	0.077	1.252
Gender	0.026	0.121	1.026
Marital status	0.119	0.147	1.127
Have children	-0.107	0.191	0.898
Have children under 18	-0.290	0.168	0.748
University faculty or staff	-1.101**	0.248	0.333
Constant term	-9.732	0.805	

* $p < 0.05$, ** $p < 0.001$

The observation-to-predictor ratio was 153.46:1 (approximately 153 subjects per predictor) with the sample selectivity correction. Although there is no precise standard regarding a minimum observation-to-predictor ratio, the ratio for this model exceeded the minimum 10:1 ratio recommended by Long (1997) and was in the middle range when compared to an evaluation of logistic regression studies (Peng et al. 2002).

Comparison of Respondents with Non-respondents

As previously stated, the response rate to the survey was 13%, and the majority of these were alumni association members. To help reduce bias, the sample used for the logistic regression was selected to accurately represent the population on the variable *alumni association membership*. However, there remained the issue of representativeness on other variables that were measured. Therefore, several analyses were undertaken to address whether respondents systematically differed from non-respondents in ways that would affect the results of the logistic regression. A data file was constructed that contained cases that were analyzed for the logistic regression ($n = 3,990$) and also those cases that did not respond to either the online or the mail version of the survey ($n = 52,869$).

It was impossible to compare the groups on many variables, since many of them came from the survey. By definition, the non-respondents provided no responses on attitude scale items and self-report items on the survey. However, several background variables were available. In the first set of comparisons, correlations were calculated between background variables and the dependent variable in the logistic regression, *alumni association membership*. Then the partial correlations were calculated, using the same two variables but controlling for the variable *respondent status* (i.e., respondent or non-respondent). If respondent status were affecting the relationship between a predictor variable and the dependent variable, there would be a discrepancy between the bivariate correlation (predictor variable with dependent variable) and the partial correlation (predictor variable with dependent variable controlling for respondent status).

Inspection of bivariate correlations and partial correlations revealed that discrepancies between the two were slight. For example, for there was a positive relationship between age and alumni association membership, $r = 0.195$ ($p < 0.01$). When respondent status (non-respondent or online respondent) was used as a control, the partial correlation was

$r = 0.197$. A similar phenomenon occurred with five other variables that were tested (gender, marital status, phone number on record, resides in club area, and current donor). Differences between bivariate correlations and partial correlations never exceeded 0.003 and the algebraic signs of the correlations never changed. The same pattern of similar values for bivariate and partial correlations occurred when respondent status was defined as non-respondent/mail survey respondent.

A second set of comparisons was made using logistic regression. A logistic regression was calculated with six background variables used as predictors and *alumni association membership* the dependent variable. The six predictors were the same used for the partial correlation analysis. The regression was repeated, but with the addition of the predictor variable respondent status (non-respondent or online respondent). The sizes of the regression coefficients for both analyses were similar, varying less than 2% in magnitude. There were no changes in directionality of relationships. When logistic regressions involving mail survey respondents were calculated, similar results were obtained—the addition of respondent status did not markedly change the size and direct of regression coefficients.

The results suggest that respondents did not differ from non-respondents in ways that affected the relationship between predictor variables and the dependent variable. However, the important caveat to this conclusion is that a number of variables could not be compared since no data were available from non-respondents. These include responses to scales measuring frequency of involvement (with the university) and perceptions of the alumni association. Table 7 shows the items contained within all of the scales in the questionnaire.

Empirical Test of Demographic Variables from the Prediction Model

The logistic regression model was intended to predict alumni association membership among the current population of alumni members and nonmembers. A test was made of the predictive utility of several variables used in the model when applied to potential membership prospects. This involved solicitation of university graduates who were not current alumni association members.

On June 7, 2009, the first author sent an alumni association membership solicitation to 3,600 university graduates who were not alumni association members. Of this group of recipients, 1,800 were the prospects drawn from the entire population of alumni nonmembers who were ranked as higher prospects by a logistic regression model. The ranking was based upon database demographic variables only, as those were the only variables from the model that were available and accessible. Variables in the model included: (a) gender, (b) marital status, (c) phone number on record, (d) resides in club area, (e) university faculty or staff member, (f) fellows donor (i.e., large contributor), (g) current donor (i.e. in the past year), and (h) highest degree obtained (i.e., from bachelor's = 1 to graduate/professional = 3). The other 1,800 recipients of a solicitation were randomly selected from the population of university graduates who were not current alumni association members. The researcher ensured that no duplicate records existed between the two groups and also double-checked to verify that all prospects were in fact alumni association nonmembers before mailing the solicitation.

Each of the two mailings were identical except for a separate solicitation code printed on the response device, which was used to identify the group to which each returned paid membership corresponded: either the “higher prospects” group or the “random selection” group. After 30 days, the researcher evaluated the results from each solicitation, as tracked by each group's unique solicitation code. The solicitation segment mailed to the higher prospects group resulted in a significantly better response rate (2.33% compared to 0.83%)

Table 7 Items in scales used in alumni survey

Scale name and items	Range
Frequency of involvement	Never = 1 to very frequently = 5
Return to – campus when possible	
Attend – athletic events	
Wear – apparel	
Read alumni publications	
Attend – event	
Wear – apparel	
Volunteer for –	
Seek out information about fellow – alumni	
Visit a – website	
Wear a – class ring	
Interact with fellow – alumni (excluding family members)	
Speak positively about – to others	
Positive alumni feelings	Strongly disagree = 1 to strongly agree = 5
I find value in my education from –	
I am proud to be an alum of –	
I would recommend – to others	
I have positive feeling about –	
I want others to know I am a – alum	
My – education has improved my life	
Positive student feelings	Strongly disagree = 1 to strongly agree = 5
I really enjoyed the time I spent at –	
As an – student, – faculty cared about me	
I have positive memories of my time at –	
I learned much at my time at –	
As a – student, – staff cared about me	
I am satisfied with my experience as a – student	
University perceptions	Strongly disagree = 1 to strongly agree = 5
– is an institution that provides quality learning	
My peers respect my – education	
My education from – is valuable	
– is a prestigious academic institution	
– provides a good value for higher education	
– has a good reputation as an academic institution	
The athletic program at – is prestigious	
The – athletics program has a good reputation	
I want others to know I am a – alum	
My – education has improved my life	
Alumni association perceptions	Strongly disagree = 1 to strongly agree = 5
– does a good job of communicating with alumni	
I am aware of the – alumni association	
The – alumni association is a valuable organization	
The – alumni association connects alumni with –	

Note. The designation “–” indicates where the acronym for the university appeared

and generated \$1,145 more in dues income than the solicitation segment mailed to the randomly selected group. Income from each member from the higher prospect group was \$40.00 compared to \$35.67 from the randomly selected group.

Discussion

Most of the unscaled variables derived from the survey were not statistically significant. Awareness of members and semesters spent on campus as a student were the only significant demographic survey variables. Graduates who were aware of other alumni association members were 2.45 times more likely than graduates who were not aware of members to be alumni association members themselves. Graduates who spent a greater amount of time living on campus were more likely to be alumni association members.

Among demographic database variables, age was statistically significant, with graduates being 1.01 times more likely to be an alumni association member with each additional year of age. This result is not surprising given the increased likelihood that older individuals have a higher level of discretionary income than their younger counterparts. Further, recent graduates who represent the younger population of graduates are likely to still owe student loans. This result was consistent with the existing alumni giving research (Beeler 1982; Bruggink and Siddiqui 1995; Haddad 1986; Hanson 2000; Keller 1982; Okunade and Berl 1997; Olsen et al. 1989; Yankelovich 1987).

Other statistically significant demographic database variables, and those of the greatest magnitude, included fellows donor, current donor, and phone number on record, all with odds ratios nearing 3.0. It was no surprise that the presence of a phone number in a university graduate's alumni record indicated a more likely member, because the number provides the alumni association with another avenue through which to solicit membership. In addition, members were likely to have more up-to-date records because they were in more frequent contact with the alumni association through inquiries and membership renewals.

The researchers also expected the result of a positive relationship between donor status (both current donor and fellows donor) and alumni association membership, given graduates who were donors would probably have more discretionary income, be more philanthropic, and have greater loyalty to their alma mater as demonstrated by their past financial contributions to the university. This concurs with research that concluded that a significant predictor of alumni giving was past giving (Lindahl and Winship 1994; Okunade and Berl 1997).

Highest university degree had a negative regression coefficient, with graduates being 0.79 times as likely to be an alumni association member for each additional level of degree attainment, in order as follows: bachelor's, master's, doctoral/professional. This finding might be surprising given that one would expect that a graduate with a higher degree is likely to have a higher level of income and would therefore be more likely to be an alumni association member than graduates with just a bachelor's degree. A likely explanation for this phenomenon is that the higher degree variable was highly correlated with the variables *graduate-degree-only* and *degree-from-another university*. An undergraduate degree typically takes more years to complete than a graduate degree, and more years spent on campus, particularly in the formative years as a new college student, and this might translate into a greater degree of loyalty to the alma mater. In addition, graduates who have a degree from another university likely have split loyalties across multiple higher education institutions from which he or she obtained degrees.

Employment as university faculty or staff was also negatively associated with membership, with graduates who were employed at the university being 0.35 times less likely to be a member compared to a graduate who was not employed at the university. Graduates who were employed at the university were probably less likely to become alumni association members because they enjoy many of the benefits provided to alumni association members, such as on-campus discounts, access to affiliate partners, and ready availability of information, by virtue of being a university employee. Further, employees may already feel as though they “give back” to the university through their work and are therefore not as inclined to make a financial contribution.

The only two statistically significant demographic survey variables, awareness of other members and semesters spent on campus as a university student, were both positively associated with alumni association membership. In the case of the awareness variable, peer pressure may play a role in a graduate’s decision to join the alumni association. Okunade and Berl (1997) found a similar result in a study of alumni giving. Another explanation for this relationship might be the fact that membership in the alumni association brings an alumnus or alumna into contact with other association members through, for instance, involvement in alumni association programs, events and activities. The fact that graduates who spent more time on campus as a student were more likely to be members is not surprising, as more time spent on campus likely increased the level of commitment and loyalty to the alma mater by virtue of time invested in studies at the institution.

All five of the attitudinal survey variables were statistically significant. The variable of the highest magnitude was the scale related to perception of the alumni association, with graduates who indicated greater levels of satisfaction with the alumni association being more likely to be members. This finding is not surprising given that greater satisfaction relates to greater awareness of the alumni association and perceptions of the effectiveness, value, and quality of the alumni association. It stands to reason that alumni who are satisfied with the association feel more compelled to join as a dues-paying member. Further, alumni who are members of the alumni association receive more frequent communications from the association and have greater opportunities to learn about association activities and programs, which might lead to findings of greater satisfaction among members. Similarly, the attitudinal survey variable related to positive alumni feelings, which corresponded to pride in the university degree, willingness to recommend the alma mater, and perceived improvement of life as a result of the university degree, was positively associated with alumni association membership. As with the perception variable, it makes sense that alumni who report more favorable alumni feelings are more likely to become alumni association members. Conversely, alumni who are association members are likely to more frequently hear about association activities and accomplishments through the communications received through of their membership and, as a result, realize a corresponding increase in positive alumni feelings.

The frequency of involvement scale indicated that graduates who were more involved with both university and alumni association events and programs were more likely to be members. This is to be expected because a greater level of involvement likely means that a graduate is more committed to the institution and therefore more inclined to demonstrate their loyalty through alumni association membership. This is consistent with findings from the field of alumni giving research, which has found that alumni involvement, particularly through reunion participation, corresponds to alumni giving (Grant and Lindauer 1986; Holmes 2008; Olsen et al. 1989; Wunnava and Lauze 2001). Another explanation is the fact that alumni association members receive more frequent invitations and notifications of

association and university events as a benefit of membership and therefore are more likely to be more frequently involved than nonmembers.

Two of the attitudinal survey variables were negatively associated with alumni association membership. These included positive student feelings and university perceptions. The university perceptions scale related to measures of perception and satisfaction for institutional characteristics such as prestige, value, quality, and overall reputation. One potential explanation for the negative relationship between this attitudinal measure and alumni association membership is that university graduates who perceive their alma mater as being in a good state of affairs may believe that because the university is doing well, it is not in need of donations. Similarly, in a study of alumni giving, Holmes (2008) found that an increase in academic prestige had a negative impact on giving.

The positive student feelings scale related to measures of perception and satisfaction of student experiences at the institution, and this scale was negatively associated with alumni association membership. Although there is a feasible explanation based on the existing literature for this counterintuitive finding of a negative relationship with university perceptions and membership, there is no apparent explanation for the result that the positive student feelings scale was negatively associated with alumni association membership. In this case, the researchers concluded that a reversal paradox existed, whereby the direction of the relationship between the two variables, positive student feelings and alumni association membership, was reversed as a result of the addition of several other variables within the logistic regression model (Tu et al. 2008). The univariate correlation between the two variables was positive, confirming the reversal paradox that occurred at the multivariate level.

The fact that the attitudinal measures related to alumni factors were statistically significant positive predictors for both membership status and type indicate that the experiences that alumni undergo after graduation have an impact on the motivation to become an alumni association member. This is good news for alumni association practitioners because their work can contribute toward improvement in alumni perceptions, which in turn contributes to an increase in the number of members.

Conclusions and Implications

Results from this research have many implications for practitioners in alumni relations and development. The predictors of alumni association membership can be used by membership professionals within alumni relations who are charged with targeting membership solicitations to the most likely prospects. By targeting solicitations to the groups that are the most likely to become members, these professionals can best use marketing dollars, which is of paramount importance in a time of declines in various forms of higher education funding. The value of statistical modeling in identifying top membership prospects was demonstrated through empirical testing, whereby a solicitation to top ranked nonmembers based solely upon demographic data available in the university's alumni database outperformed a solicitation to a randomly selected group of nonmembers by almost 3-to-1. These variables included (a) gender, (b) marital status, (c) phone number on record, (d) resides in club area, (e) university faculty or staff member, (f) fellows donor (i.e., large contributor), (g) current donor (i.e. in the past year), and (h) highest degree obtained (i.e., from bachelor's = 1 to graduate/professional = 3).

Research results may also motivate managers of alumni databases to obtain or enhance database information to capture additional data, which can be used for the aforementioned

marketing purposes. For example, data on the awareness of other members were not available in the university's alumni database, yet was a predictor of membership status. As a result, data managers may want to make an effort to cultivate this information in the future. This applies to both demographic information as well as attitudinal measures, although the latter may require more effort to collect. The empirical test was based upon a statistical model that used only demographic variables available in the alumni database. Had attitudinal variables been available, the results would have likely been even more impressive.

If an alumni association membership professional would like to enact data-selection measures in an effort to improve response but does not have the means necessary to develop a regression model and score nonmember prospects, he or she can still do so through simple selective prospecting based upon the results from this research. This prospecting is based upon simple data selection criteria of nonmembers as follows: exclude graduates employed at the university, exclude graduates who obtained only a graduate degree from the university, and specifically target graduates who are donors, particularly donors with higher cumulative total giving and who are older.

Alumni association professionals may feel encouraged to learn that the psychological factors pertaining to alumni experiences and alumni association perceptions are positively associated with membership, as these factors can be controlled at least partially by programs, events, and communications. In the present study, the most significant attitudinal variable associated with alumni association membership was alumni association perceptions. This finding might motivate alumni professionals to work to bolster positive goodwill and perceptions, as this translates into increased membership support from graduates. In addition, frequency of involvement was an important measure associated with alumni association membership. This may inspire alumni professionals to expand or enhance alumni events and programs in order to positively impact membership.

Implications from this research also extend from the practical side to the realm of research. This study can aid researchers in additional studies of alumni association membership, which is of particular importance given the existing research pertaining to the specific topic of alumni association membership is very limited. Future research on alumni association membership could be enhanced to examine the relationship between membership and athletic success, which is one of the most commonly studied variables related to alumni giving. Qualitative research pertaining to alumni association membership would be illuminating, particularly because many of the significant variables within this research were attitudinal in nature. Replication studies could provide additional insight, particularly if held at other types of institutions than the one studied within this paper.

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