

Preference or Propinquity? The Relative Contribution of Selection and Opportunity to Friendship Homophily in College

Jenny Godley

Department of Sociology, University of Calgary, Alberta, Canada

Abstract

This paper examines the relative importance of preference and propinquity as determinants of socio-demographic homophily in friendship choice among students at a small college in the Northeastern United States. Using unique retrospective data, the paper first assesses friendship homophily over the four years of college. Friendship is homophilous across gender and race. QAP regression is used to determine the impact of both preference and propinquity (measured by participation in joint extra-curricular activities and shared academic major) on friendship choice. While preference predicts friendship choice in the freshman year, propinquity remains the strongest determinant of friendship choice over the four years.

Keywords: *Friendship networks; college students; homophily; preference and propinquity*

Acknowledgments: The author acknowledges the invaluable enthusiasm and research assistance of the members of the social networks class at Arbor College during the spring 2002 semester. Mark Gould, James Moody and Martin Ruef provided assistance with survey design, project implementation, and statistical analysis. Participants at the XXIV International Sunbelt Social Network Conference in Portorož, Slovenia in 2004 provided feedback on the first draft of this paper. Valerie A. Haines provided keen input and immeasurable support during the most recent rounds of analyses and writing. All mistakes are the sole responsibility of the author.

Jenny Godley is an Assistant Professor of Sociology at the University of Calgary. As well as studying the friendship patterns of adolescents and young adults, she uses social network analysis to understand the effects of social ties on demographic and health behavior across the life course and internationally. Additional research interests include the social patterning of body weight, physical activity and obesity, gender stratification cross culturally, and international education.

For correspondence, please contact Jenny Godley, PhD, Department of Sociology, University of Calgary, 2500 University Dr., NW, Calgary, AB T2N 1N4 Canada, Tel. (403) 220 7566, Fax (403) 282 9298 , Email: jgodley@ucalgary.ca.

Introduction

Friendship choice has long interested sociologists as an example of a micro-level decision that is constrained by macro-level features of social structure such as population size, composition, and distribution (Adams and Allan, 1998). Sociological studies of friendship choice tend to focus on three areas: the patterning of friendship choices within a particular environment; how individuals make friendship choices; and the impact of friendship choices on behaviors, opinions, or attitudes. This paper contributes to the literature on the patterns and determinants of friendship choice by using unique retrospective whole network data to examine the determinants of socio-demographic homophily in friendship choice among the members of the 2002 graduating class of a small liberal arts college in the Northeastern United States.

The whole network data are analyzed descriptively first to assess the socio-demographic homophily of friendship over the four years of college. Next, data on choice of academic major and comprehensive retrospective data on club and team membership are used to determine the relative importance of preference and propinquity on overall cross-year friendship homophily. Finally, the data are analyzed separately by year to examine the changing relative influence of preference and propinquity on friendship homophily over the four years.

Literature Review

One of the most resilient findings in the sociological literature on friendship is that friends tend to be similar across socio-demographic characteristics, opinions and

attitudes, and even behaviors. In one of the earliest studies on homophily, reporting on a set of interviews conducted from 1976-1980, Bell concluded that adult friendship is homogeneous on age, sex, and religion (Bell, 1981). McPherson et al.'s (2001) review of the literature on homophily in several types of relationships, including friendship, concludes that in the United States, "homophily in race and ethnicity creates the strongest divides in our personal environments, with age, religion, education, occupation, and gender following in roughly that order" (p. 415). Much of the literature on adult friendship in the United States has focused on homophily across these same characteristics.

A multitude of descriptive reports show that friends tend to be homogeneous with regards to age, gender, ethnicity, as well as behaviors and ability (Hartup and Stevens, 1997; Adams and Allan, 1998). With regard to similarity across behaviors, opinions, and attitudes, there is an ongoing debate as to whether people become friends with those who are similar to them ('selection'), or whether they change to become more like their friends ('influence').¹

In the literature on socio-demographic homophily, researchers debate whether people pick friends based on similar demographic traits ('preference,' also referred to as 'selection'), or whether they pick friends based on the opportunity for contact ('propinquity,' also referred to as 'opportunity'). Choosing friends based on propinquity will result in demographically homophilous friendship choices in a society

¹ This paper does not address behavioral or attitudinal similarity. For examples of the literature addressing this 'selection versus influence' debate, see Kandel, 1978 and more recently Crosnoe et al, 2004.

that is segregated by social characteristics such as gender and race/ethnicity. The relative contribution of preference and propinquity to the segregation of friendship groups in school and college settings has been the subject of much educational research.

Research at all levels of education, including elementary schools, high schools and post-secondary institutions, has shown a strong tendency towards homophily in friendship choices based on gender and race/ethnicity (Kupersmidt et al., 1995). Most researchers conclude that within the educational setting, both preference and propinquity probably play a role in creating homophilous friendship choices; it is often hard to tease apart the independent effects of each. For example, educational tracking may result in students of similar socio-demographic backgrounds being placed in classes together. Thus, when students in these classes befriend one another, preference and propinquity are conflated.

Responding to desegregation policies implemented during the 1960's and 70's, many US researchers analyze friendship homophily by race/ethnicity in public educational settings (Baerveldt et al., 2004). Most find that race is stronger than socio-economic class in predicting friendships, but find it hard to assess whether this is due to preference or propinquity. Using data from the 1980 High School and Beyond Study, Hallinan (1989) and Kubitscheck and Hallinan (1998) claim that preference (across race and gender) and propinquity are both determinants of friendship choice. They demonstrate that same-race friendships are far more common than interracial friendships, and argue that tracking reinforces similarity. Provocatively, they claim that in the United States, tracking can effectively re-segregate a desegregated school.

Fifteen years later, using the Add Health data, Quillian and Campbell (2002) examined multiracial friendship segregation. Arguing that cross-race friendships other than just black-white should be examined, they looked at four racial/ethnic groups: black, white, Asian and Hispanic. They found that while relative group size was important, there were racially segmented patterns of assimilation in almost all schools. In particular, students in small racial minorities tend to have own-race friends. They also conclude that both preference and propinquity play a role in racial homophily.

Several US researchers have examined racial homophily in the friendship networks and peer groups of college students (Newcomb and Wilson, 1966; Salzinger et al, 1988; Portnova, Lock, Ladd and Zimmerman, 2006). Some researchers have argued that contact between racial groups is higher in college than in other educational settings (in residence halls for example), and thus interracial friendships are more likely at the college level (Stearns et al., 2004; Levin et al., 2002).

A few educational researchers have looked at both friendship and participation in shared activities, which may provide opportunities for mixing (Feld and Carter, 1998). Clotfelter (2002) examined high school yearbooks to assess interracial contact in high school extracurricular activities, although he did not have specific data on friendship ties. He found that in most high schools, organizations were not racially balanced. He found lower rates of participation of non-whites, and evidence for selection into clubs/organizations by race. However, he does argue that these memberships may provide a way to meet people interracially, outside of friendship.

Using the nationally representative Add Health data from the 1990's, Moody (2001)

found that both individual preferences and segregated activities lead to racial homophily in friendship choice in high schools. He found that both student behavior and the organization of schools influenced homophily. While there was a preference for similarity across social class, popularity, academic performance, gender, and delinquent behavior at the individual level, student mixing opportunities and the climate at the school level also affected friendship choice, leading to more homophily. Moody found that mere exposure did not promote integration, and that interracial mixing only happened in activities where people of equal status were mixing, such as extracurricular activities.

While longitudinal friendship network data is becoming more common, most longitudinal datasets are not designed to test preference versus propinquity (Hallinan and Williams, 1987; Leenders, 1996; and articles in the recent issue of *Social Networks* (Volume 27, 2005)).

To summarize, data limitations have prevented previous researchers from assessing the relative importance of preference and propinquity on friendship homophily. This paper employs a new dataset, with retrospective data on friendship and joint memberships, to explore the following:

- A. *The socio-demographic homophily of friendship over four years.*
- B. *The relative influence of preference and propinquity on friendship homophily.*
- C. *The changing relative influence of preference and propinquity on friendship homophily over the four years of college.*

Setting

Arbor College² is a small, residential liberal arts college in the suburbs of a major city in the Northeastern United States. An academically elite institution, Arbor attracts high achieving students. While most of the students come from the Northeastern states and California, students also come from all regions of the US and from abroad. In 2002, Arbor had 1,702 students enrolled; 283 were enrolled in their senior (final) year.

Descriptive information on the population of Arbor College is available via the Common Data Set Initiative at <http://www.commondataset.org/>. The following information was compiled and published online for the school year 2004-2005. Figures for the graduating class of 2002 are no longer available online or from the college. The 2004-2005 figures should reflect the 2002 graduating class, as there have been no changes in admission requirements or retention rates.

Most of the students at Arbor College live on campus in co-ed dorms and apartments. In 2004-5, 100% of the freshmen students lived in on-campus housing, and 99% of all students lived in on-campus housing. Arbor has a very high retention rate, at over 90% of freshmen graduating four years later. Transfers made up 10% of the graduating class in 2005, with most students transferring at the beginning of their sophomore year.

Thus, this survey takes place in a small, exclusive, insular setting, where most students spend four years in the same graduating class. While the students do have the opportunity to take classes at other institutions of higher education in the area, most take the majority of their classes on the Arbor campus. Although the campus is not far from a major city (accessible by public

² Arbor College is a pseudonym, as required by the Institutional Review Board which approved this research.

transportation), many of the students do the majority of their socializing on campus (Newshel and Author, 2004); therefore, opportunities for contact with other students are extremely high. This is a very insular campus, thus the focus on internal friendship ties among students on campus is not as problematic as it would be at a college where students had (or retained) off-campus friends.

Data Collection

The friendship network survey targeted all the members of the senior (graduating) class at Arbor College in 2002. It was designed and conducted by students in an undergraduate sociology class taught by the author. Nine students assisted the author with the survey design and implementation. The survey was approved by the Institutional Review Board at Arbor College.

The survey was conducted online in February, 2002. An email was sent to all the members of the 2002 graduating class, with a link to the survey. As an incentive to take the survey, we offered a \$300 prize awarded by lottery. In order to respond to the survey, students had to check their email (a requirement for most classes at Arbor College) and have access to a computer. Most students had their own personal computer in 2002; public computers were also available across campus. Once they clicked on the link to the survey, respondents were taken through the informed consent process before accessing the survey. The survey took 15-20 minutes to complete, and students had to complete the survey in one sitting.

Respondents were asked to choose their five best friends in the senior class from a list of all the members of the senior class organized alphabetically by last name and obtained from the Registrar's Office at the

beginning of January, 2002. Respondents were instructed to include friends of both genders, and to include romantic partners as friends. Respondents were asked when they had met each friend (before college, freshman, sophomore, junior, or senior year).

They were also asked their academic major (chosen at the end of their sophomore year) and to list every club they had belonged to each year of their time at Arbor College. The list of clubs was obtained from the student's union and from the student's activity coordinating office. Arbor is a very active campus; there were over 125 clubs listed in the survey for each year. This club membership data were used to construct a joint membership matrix for each year and an overall joint membership matrix.

Finally, respondents were asked to provide their own demographic information. They were asked their gender, age, educational level of their parents, religion, and how they identified in terms of race/ethnicity.

While the data on club memberships are fully retrospective, the friendship network data are only partially retrospective. Respondents were asked to nominate their five best friends at a particular point in time (halfway through their senior year). They were asked when they met each of these friends, but they were not able to list all of the friends they had during each year of college. Thus only friendships which have endured through to the senior year are included in the friendship network. We have no data on friendships that were made earlier in the four years at college and then dissolved, or became less important. The benefit to asking retrospectively about friendship this way is that we gather data on strong friendships; the downside is that we do not have a full picture of the composition

of respondents' friendship networks over time.

Also importantly, respondents were only allowed to nominate other members of the senior class as friends. Thus, we have no information on friends who are not members of Arbor College, or indeed friends within Arbor College who were not members of the 2002 graduating class. This may create some bias in the data, especially if certain groups are more likely to have cross-class or outside-college friendships. I speculate about the effects of bounding the network this way in the limitations section of the paper.

Sample

We had 218 respondents out of a total senior class of 283 – a response rate of 77%. Due to the nature of whole network data, where socio-demographic characteristics are gathered from individuals themselves and not from their friends, we had to eliminate all nominated friends who did not respond to the survey. Thus, the final full friendship network consists of the 218 students who responded to the survey.

On average, students who answered the survey listed 4.5 friends. Once we eliminated those friends who did not take the survey, students were left with an average of 3.7 friends. By eliminating the 65 members of the senior class who did not take the survey, we lost information on 18% of the respondents' friendship ties. Thus 82% of the data on friends was retained, providing enough information to proceed with whole network analysis. Descriptive statistics for the sample are shown in Table 1, below

Table 1. Sample Demographics

	Variable	Percent
Gender:	Male	44
	Female	56
Race:	White	85
	Non-white	15
Parents' Education:	Less than college	22
	College Graduate	26
	Master's Degree	24
	Doctoral Degree	28
Religion:	Catholic	14
	Other Christian	22
	Jewish	15
	Multiple / Other	10
	Spiritual, but not religious	8
	No religion	31

Just over half the respondents were female. Respondents were asked to report on the educational level of the parent(s) they lived with during high school. The highest level of parental education was taken as a proxy for social class. As Table 1 shows, these students come from highly educated families; almost a third have at least one parent with a PhD. For all analyses, sensitivity tests were conducted on the social class measure. The measure was included as a four category variable, as a dichotomous variable coded 'college and less than college' versus 'post graduate degree,' and as a dichotomous variable coded 'less than college' versus 'college graduate and above.' Across all analyses, the three different measures of social class produced almost identical results. Thus, only results using the four-category variable are presented in the paper.

Respondents self-reported on their race/ethnicity, and were allowed to pick more than one category from the following list: Hispanic/Latino; White/Caucasian; Black/African American; American Indian/Alaskan Native; Asian; Native Hawaiian/Pacific Islander; and Other. The number of respondents who chose any non-white category was low (32). Because of the risk of deductive disclosure, it was necessary to collapse all the non-white categories into one category. Any respondent who checked at least one non-white category (even if they also checked white) was counted as ‘non-white.’ All analyses concerning race/ethnicity in this paper will focus on the difference between whites and non-whites.

The only socio-demographic data available for Arbor College as a whole is the distribution of students by gender and race/ethnicity. As mentioned above, this data is not available for the graduating class of 2002. However, data from the CDI show that in 2004-2005, students at Arbor College were 53% female, and 71% White/Caucasian (the non-white category was broken down into 6% Black, 13% Asian, 6% Hispanic, and 3% foreign-born). Thus, while the gender distribution of our sample is close to the overall distribution at Arbor, we can see that non-whites are under-represented among our survey respondents.

It is important to remember that because non-whites are under-represented as respondents, they are also under-represented as friends. One way to examine this issue is to look at the percentage of friendship ties lost when we eliminate the non-respondents as potential ties. As mentioned above, overall we lost 18% of friendship ties with this elimination. For non-whites, though, we lost 30% of friendship ties. The difference between the percentage of ties lost for whites and non-whites is statistically significant, indicating that non-whites were more likely to nominate people who did not answer the survey. Although we don’t know anything about the characteristics of these non-respondents, we can speculate that they may be non-white, too. As I discuss below, given differential response rates, we may be under-estimating racial homophily for non-whites, and over-estimating racial homophily for whites.

Arbor College students are very active in clubs and teams. On average, students participate in approximately 2.5 clubs a year. Over the four years of college, club memberships for the 2002 graduating class were distributed as follows: academic clubs 12%; student government 13%; activist / political clubs 40%; theatre / music 29%; team sports 45%. Table 2, below, shows the distribution of club membership by gender, both with and without team sports (which are gender-segregated).

Table 2. Club Membership by Gender and Year

	Freshman Year	Sophomore Year	Junior Year	Senior Year	Total over four years
All Clubs					
Total	2.4	3.1	2.2	2.2	9.9
Boys	2.7	3.1	2.2	2.4	10.4
Girls	2.3	3.1	2.1	2.0	9.5
Clubs without sports teams					
Total	1.8	2.6	1.8	1.8	8.0
Boys	2.2	3.0	2.2	2.3	9.7
Girls	1.5	2.3	1.4	1.4	6.6

As Table 2 illustrates, club membership is highest in year two. There is no gender difference in club membership. Because team sports' membership is gender constrained, it will be important to examine the effects of club membership on friendship homophily by gender both with and without sports teams included. Club membership does not vary significantly by white/non-white status, social class, religion, or major.

Arbor students choose their academic major at the end of their sophomore year. In the 2002 graduating class, 28% of the students were social science majors, 26% were natural science majors, and 46% were humanities/arts or double majors. For the purposes of this paper, shared academic major is used to represent propinquity rather than preference for an academic subject. Students taking the same majors are likely to meet in classes, academic departments, laboratories, and libraries, especially during their junior and senior years. Thus, shared academic major will be tested along with joint club membership to assess the influence of propinquity on friendship selection.

Data Analysis and Results

There are 808 friendship ties reported in the data. On average, students met 64% of the

friends they listed in their senior year during their freshman year at Arbor College (519 ties). An average of 2% (23 ties) were met before college, 17% (135 ties) in their sophomore year, 11% (84 ties) in their junior year, and 5% (47 ties) in their senior year (the survey was taken half way through the senior year). There were no significant differences in the percent of friends met each year by any of the socio-demographic characteristics.

The Socio-Demographic Homophily of Friendship Over Four Years

Friendships ties among the members of the 2002 senior class at Arbor College are disproportionately homophilous by gender and race, but not by social class or religion. On average, respondents nominated 67% same gender friends. Girls were more likely to nominate same gender friends than boys (74% versus 59%), but this difference was not statistically significant. While this gender homophily is not as high as reported elsewhere amongst college students, the inclusion of romantic partners in the friendship roster may have reduced gender homophily for heterosexual students.

In terms of white/non-white status, 83% of friendship nominations were to same race friends. Among non-white students, 34% of friendship ties were to other non-white

students. Among white students, 91% of friendship ties were to other white students. While both whites and non-whites are disproportionately likely to choose same race friends, whites are significantly more likely to choose same race friends. However, as mentioned above, non-white students were less likely to answer the survey than white students. Thus, we may be over-estimating whites' racial homophily, and under-estimating non-whites' racial homophily.

With reference to the other demographic variables, on average 24% of the students' friends were from the same social class and 23% had the same religion. Neither of these homophily figures is disproportionate, given the distribution of social class and religion in the sample. There were no significant differences between the social classes or

between religious groups in terms of homophily on these variables.

To assess the relative importance of socio-demographic homophily over time, Table 3, below, examines friendship homophily by year met. When examining Table 3, it is important to remember the nature of the retrospective friendship data. Table 3 does not indicate the socio-demographic characteristics of all the friends each respondent met each year. Instead, Table 3 indicates the socio-demographic characteristics of all friends whom the respondent still considers important friends in his/her senior year by the year they met those friends. So we can say, for example, that of all the friends met during freshman year whom respondents still consider friends during their senior year, 85% are the same race, and 69% are the same gender.

Table 3. Socio-demographic Homophily of Friendship Ties Reported in Senior Year by Year Met

	Before College	Freshman	Sophomore	Junior	Senior
% met that year	2	64	17	11	5
% same gender	75	69	63	72	67
% same social class	6	22	35	26	26
% same religion	19	21	32	20	33
% same race	81	85	83	80	58

The homophily figures are remarkably similar across the years met, with respondents disproportionately choosing same-race and same-gender friends, but not same-class or same-religion friends. There is only one statistically significant difference over time in Table 3. The percent of friends met during the senior year who are the same

race (58%) is significantly lower than all other years.

The Relative Influence of Preference and Proximity on Friendship Homophily

To assess the relative influence of preference and proximity on friendship choice, this section of the paper will test whether joint club membership and shared

academic major determines friendship, net of socio-demographic similarity. First, I will examine the overall cross-year friendship network (i.e. all the friends reported by respondents during their senior year, regardless of when they met). In the next section, I will look separately at the network of friendships formed each year.

Following Carley and Krackhardt (1996), Brewer and Webster (1999), and Burris (2005), I use the Quadratic Assignment Procedure (QAP) regression technique to model the independent effects of preference and propinquity on friendship choice. This procedure is implemented in UCINET 6 (Borgatti et al., 2002). There are 23,653 dyads created by multiple relations among the 218 students. These dyadic observations are not statistically independent, thus the data violates the assumptions of Ordinary Least Squares (OLS) regression.

The QAP regression procedure, which overcomes the limitations of autocorrelation, is best understood as a form of simulation (Burris, 2005). First, OLS coefficients are calculated for the independent variables in the regression. Next, the rows and columns of the dependent variable matrix are randomly permuted and the OLS regression coefficients are re-calculated. The simulation is repeated 2,000 times in UCINET 6. The initial regression coefficients are then compared with the distribution of all possible coefficients, and significance tests are based on these distributions.

Burris (2005) argues that when interpreting QAP regression results, the focus should be on the comparative magnitude of the coefficients, rather than on the overall model R² or the level of statistical significance for each coefficient. In Tables 4 and 5 (below), I report the standardized coefficients for each

independent variable, and their significance level. Discussion will focus on the comparative magnitude of those coefficients which are significant.

Examining the overall cross-year friendship network, Table 4, below, illustrates the effects of the demographic variables on friendship choice (Model I), the effects of shared academic major and joint club membership including all clubs and teams on friendship choice, controlling for the demographic variables (Model II), and the effects of shared academic major and joint club membership excluding sports teams on friendship choice, controlling for the demographic variables (Model III).

The dependent variable for all these models is the complete friendship choice network coded as a valued network where 0 represents no tie, 1 represents a non-reciprocated tie, and 2 represents a reciprocal tie (just over half of the ties in the whole network were reciprocated).

All models reported in this section were also run on the binary networks containing simple outties. Results did not differ substantially between the binary and the valued friendship matrices for any of the models. The valued networks are theoretically more interesting, as reciprocal ties are theoretically stronger than non-reciprocated ties. Thus, I present the results using the valued networks here. Results using the non-valued networks are available from the author.

The independent variables are the similarity matrices for the demographic variables (same gender, same race, same religion, same social class, and same major) and the affiliations matrix for club membership. The affiliations matrix is valued, with the value of (X,Y) as the number of shared club memberships between X and Y cumulated over the four years of college.

Table 4. Overall Cross-Year Friendship Network QAP Regression Results

	Model I	Model II	Model III
Same gender	0.047 ** (0.000)	0.032 ** (0.000)	0.040 ** (0.000)
Same race/ethnicity	0.030 ** (0.000)	0.021 ** (0.000)	0.022 ** (0.000)
Same social class	-0.002 (0.385)	-0.002 (0.403)	-0.002 (0.390)
Same religion	0.013 (0.028)	0.010 (0.051)	0.011 (0.049)
Same major	-----	0.012 (0.026)	0.012 (0.029)
Number of shared clubs including sports teams	-----	0.157 * (0.000)	-----
Number of shared clubs NOT including sports teams	-----	-----	0.121 ** (0.000)
R2	0.003	0.028	0.018

* significant at the 0.001 level

Table 4 shows standardized coefficients and proportion significance in parentheses. The values represent the effects of demographic similarity, shared academic major, and number of joint club memberships on the valued friendship choice network

Model I in Table 4 indicates that controlling for religious, social class, and major similarity, gender and racial homophily are significantly predictive of friendship ties. Models II and III demonstrate that gender and white/non-white status similarity remain significantly predictive of friendship ties, controlling for joint club and team membership. Joint club and team membership (both with and without sports teams included) are also significantly predictive of overall friendship ties, net of demographic similarity.

One complicating factor in examining the effect of joint affiliations and the effect of demographic similarity on friendship is that demographically similar individuals may join the same clubs. Comparing

Models II and III in Table 4 shows the effect of excluding the sports teams from the affiliations matrix. As sports teams are gender exclusive, they are one activity that is selective on one of the demographic variables (gender). As we would expect, excluding sports teams from the affiliations matrix (Model III) increases the effect of gender similarity on friendship. However, it is important to note that gender similarity remains a significant predictor of friendship, even when sports teams are included in the affiliations matrix (Model II). Thus the effect of gender homophily on friendship operates over and above the impact of gender on participating in joint activities. There may be other types of clubs where membership is selectively based on

demographic variables (for example, clubs focused on the politics of race/ethnicity may attract mostly non-white students). However, the sports teams are the only clubs which are officially segregated, and thus the only clubs where demographic variables are a known prerequisite for membership.

The Changing Relative Influence of Preference and Propinquity on Friendship Homophily Over the Four Years of College

To determine whether the relative influence of selection versus propinquity changes over the four years of college, this section of the paper examines the friendship networks separately by year. Table 5 contains the full model for each of the four years of college. Only two percent of friendship ties reported by Arbor College students in their final year were formed before college. Looking at the network of friendship ties formed before college, none of the demographic variables is a statistically significant predictor of friendship. The models for friends met before college are not included in the paper; results are available from the author.

The dependent variable for each of these models is the friendship choice network by

year coded as a valued network where 0 represents no tie that year, 1 represents a tie that was not reciprocated that year (52% of the ties were reciprocated and 78% of those were reciprocated in the same year), and 2 represents a tie that was reciprocated in that year. All models reported in this section were also run on the binary networks containing simple outties. Results did not differ substantially between the binary and the valued friendship matrices for any of the models.

The independent variables are the similarity matrices for the demographic variables (same gender, same race, same religion, same social class, and same major) and the affiliations matrices for club membership separately for each year. The affiliations matrices are valued, with the value of (X,Y) as the number of shared club memberships between X and Y during that year of college.

Table 5, below, shows the QAP regression model results indicating the effect of shared demographic variables and shared club membership each year on friendships formed during that year.

Table 5. Friendship Network by Year QAP Regression Results:

	Freshman	Sophomore	Junior	Senior
Same gender	0.036 ** (0.000)	0.009 (0.075)	0.025 ** (0.000)	0.009 (0.079)
Same race/ethnicity	0.023 ** (0.000)	0.010 (0.044)	0.004 (0.260)	0.010 (0.037)
Same social class	-0.004 (0.247)	0.009 (0.073)	-0.004 (0.230)	0.004 (0.280)
Same religion	0.003 (0.312)	0.018 * (0.003)	0.004 (0.223)	0.014 (0.020)
Same major	0.007 (0.122)	0.001 (0.438)	0.003 (0.286)	0.018 * (0.003)
Number of shared clubs, not including sports teams	0.056 ** (0.000)	0.043 ** (0.000)	0.018 * (0.010)	0.017 * (0.010)
R2	0.002	0.002	0.001	0.001

* significant at the 0.001 level

Table 4 shows standardized coefficients and proportion significance in parentheses. The values represent the effects of demographic similarity, shared academic major, and number of joint club memberships each year on the valued friendship choice network

Not surprisingly, since most of the friendship ties were made during freshman year, the results for the freshman year models are very similar to the results for the overall friendship network, as reported in Table 4, above. Gender and racial similarity have a positive influence on friendships started in during freshman year, while social class and religion do not significantly impact friendship choice. The number of shared clubs in freshman year also significantly impacts friendship choice, net of demographic homophily.

Seventeen percent of friendship ties reported by students in their senior year were formed in the sophomore year at Arbor College. Results for the models run on the sophomore year friendship network indicate a shift from the freshman year. In the sophomore year, religious similarity

becomes an important predictor of friendship choice. Racial and gender similarity are no longer important. Membership in shared clubs during the sophomore year also has a significant impact on friendship ties. Thus, it appears that religious preference and propinquity influence friendship choice during the sophomore year. Interestingly, the sophomore year is also the year when students are the most active in clubs and teams (see Table 2, above).

Eleven percent of friendship ties reported in the senior year were formed in the junior year of college. Results from the models run on the junior year friendship network indicate another shift in the determinants of friendship choice. Gender similarity is the only socio-demographic variable in the models which influences

friendship choice. Joint club membership is also a significant predictor of friendship choice junior year. Choice of academic major still has no significant impact on friendship choice.

Only five percent of friendships reported mid way through the senior year were formed during the senior year. In the senior year, socio-demographic preference does not predict friendship choice. Instead, shared academic major and joint club and team membership during the senior year of college impacts friendships formed that year. Proximity, particularly in regards to academic activities, matters more than preference during the senior year.

Discussion, Limitations, and Conclusions

Descriptive statistics indicate that friendship at Arbor College is remarkably stable over time. Almost two-thirds of friendships listed during the senior year of college began in freshman year. Examining univariate results, gender and racial homophily appear to be an important feature of friendships formed during the first three years of college.

By the senior year, while gender homophily is still an important factor in choosing friends, racial homophily becomes less important.

Examining the multi-variate models, friendships appear to be determined by both preference in terms of gender and white/non-white status *and* proximity in terms of shared major and joint activity memberships. The number of shared activities has a greater impact than shared gender or race on overall friendship ties, but gender and race still matter, net of joint memberships and shared academic major, and controlling for shared religion and social class.

The models for friendships formed in the freshman year look very similar to the models for the overall friendship network. In the sophomore year, shared religion becomes important, while joint club membership continues to influence friendship choice. In the junior year, shared gender is the only socio-demographic variable tested that has a significant impact on friendship choice. Interestingly, even though almost a third of Arbor College students study abroad during their junior year (Newshel and Godley, 2004), with most of these students away from campus for at least one semester, and many away for the whole year, opportunities to participate in joint activities are significantly reduced, and yet joint activities remain a significant predictor of friendship choice during junior year. In the senior year, joint activities are again a significant predictor of friendship, and shared academic major becomes important.

Thus we can conclude that while both preference and proximity influence friendship choice at Arbor College, the influence of preference declines over time. Preference based on gender and race is an important determinant of friendships formed during the freshman year at Arbor College. As almost two-thirds of friendships are formed during the freshman year, homophily across gender and race remain important for the whole friendship network examined in the senior year. Religious preference becomes important during sophomore year, and gender similarity is again important during junior year.

Proximity is a determinant of friendship formation throughout the college years, controlling for demographic homophily. Across all four years of college, joint club and team membership has a stronger impact than socio-demographic preference on friendship choice. By the

senior year, joint club and team membership and shared academic major are the only significant determinants of friendship choice, controlling for socio-demographic similarity. Therefore, it appears that over time the effect of preference on socio-demographic homophily in friendship choice declines, while the effect of propinquity increases.

Arbor College is a unique setting, thus it is difficult, if not impossible, to apply the findings in this paper to any other college setting. In particular, the student body at Arbor College is extremely homogenous across race and social class. Thus the findings may underestimate the impact of selection on friendship formation in other settings. As mentioned, the differential non-response rate between whites and non-whites is also potentially problematic for the analysis of the impact of race on friendship ties.

The method of data collection, where students were asked about their five closest friendships in the senior class at Arbor, may have created other biases in the data. We have no data on friendships outside of the college, or friendships with members of another class at Arbor. Certain groups of students may be more likely to make or maintain friendships outside the college (for example, students who do not feel that they

are part of the college environment might rely more on friendships they made in high school), and certain groups may be more likely to have friendships with students in other years at Arbor. The data cannot capture these variations.

Students were asked to report retrospectively on when they formed their friendships, and on their club and team membership. We know that some of the data on when the friendships formed is inaccurate, as 22% of reciprocated ties were mis-matched in terms of year met. Some of the retrospective club and team membership data may be inaccurate, also. We have no data on friendships, which were formed in previous years and dissolved, or friendships formed in previous years that became less important than the top five friendships they were able to nominate.

The current project demonstrates that within a small, academically elite, residential college environment, shared activities and club memberships are a stronger and more consistent predictor of friendship choice than socio-demographic similarity across all four years of college. In the Arbor College setting, propinquity trumps preference in accounting for socio-demographic homophily in friendship choice.

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