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The Impact of Athletics at Washington and Lee University: A Sociological Study

Background

Aside from the educational curriculum, building community is one of the major aspects of the college experience. During orientation week, students are encouraged to join as many groups and organizations as possible in order to develop friendships and get involved in the community. Ideally, a prospective member of a group is interested in joining due to the subject or motivation that other members enjoy. For example, a student that loves fly-fishing would want to join the fly-fishing club due to a common interest between the student and the rest of the club members. Once in the club, the student has the ability to bond over that shared interest and develop community and friendships. Athletics are no different.

In order to participate in collegiate athletics, one must devote a significant portion of their lives to training and practice. Therefore, in order for an athlete to participate in their respective sport in college, they must have a deep interest in that sport. It would be impossible for an athlete with a more casual interest in their sport to dedicate themselves to improvement at the level that it takes to participate in college athletics. When athletes are selected by their coach in order to participate at a school, they are offering a chance to join a group of like-minded individuals that all have a shared deep interest in that sport.

In a perfect world, these athletic teams would also offer members a deep feeling of belonging. Working together and striving towards a common goal should give all members,

regardless of individual contributions, feelings of belonging and acceptance. With proper leadership, this goal of overall belonging should be easily achievable. However, athletics can also take up a considerable amount of a students time, restricting them from being involved in other activities and feeling belonging in different aspects of college life. There is no question that athletics are a focus on college campuses, however whether or not they can create positive outcomes through friendship and feelings of belonging is yet to be determined.

Scott Feld wrote "The Focused Organization of Social Ties" to dive deeper into the sociological effects of these focused ties. Feld is determined to discover structures that create patterns within networks, and he believes that focused organizations are a primary reason. He defines focus organizations as "as a social, psychological, legal, or physical entity around which joint activities are organized." While this definition is broad, he also mentions that these are groups in which people tend to cluster around due to their shared interests and activities. Feld argues that foci are usually positive, mutually rewarding groups for all parties involved. He also argues that the most constraining activities create stronger ties among members. In order to fully determine the extent of the effects of foci on social networks, Feld says that information is required about the distribution of individuals and their relationship to the foci, and also the amount of "valued social interaction" the foci organizes. Foci should ideally have positive benefits, one of which would be to deepen the sense of belonging experienced by group members. Fortunately, for athletic teams at Washington and Lee University, we have the network data in order to determine their success as a foci.

Theory

With the network data provided by an extensive interview process that included a random sample and convenience sample, we have the ability to determine the effect of athletic groups on patterns within social networks and their overall impact on personal wellbeing. This paper will seek to determine whether athletics as a focus at Washington and Lee University, specifically athletic homophily within networks, creates valued social interaction through regression analysis. Based on Feld's arguments, since athletics are one of the most constrained focuses at the school, I theorize that athletics will clearly predict positive outcomes in terms of valued social interaction. In other words, athletes with a large proportion of their network being in the same sport as they are will experience higher levels of belonging than non-athletes with other non-athletes in their network. I will seek to prove this theory through regression analysis, where an athlete's homophily in their own network will have a large, positive impact on an athlete's sense of belonging.

Methodology

Thanks to Washington and Lee University, we were able to receive a random sample of W&L students, stratified by class year and gender, as well as over-sampled for international students and students of color. In order to determine the personal networks of each individual in the sample, we created a survey that would not only generate ego characteristics, but also their alters and the alters' characteristics. The survey gathered this information by asking the ego first individual questions, like their class year, race, and athletic involvement, but then to name their alters by asking them questions about peer to peer social support. The goal of these questions was to eliminate burden while also creating an expansive network, so asking questions that W&L

students would immediately know the answer to was especially pertinent. The questions also needed to span all kinds of social support in order to elicit an ego's personal network at school. In the final draft of the survey, these questions asked egos whom they choose to socialize with, to whom they reach out to for help, and with whom they celebrate achievements. Egos were then asked to draw connections between their alters, symbolizing alter-alter connections in order to determine network density. Then, the ego was asked to answer the same personal information questions about the alters they named to further gather network information. Once complete, we had a full picture of the ego's personal network.

The primary issue, however, was response rate for the survey. Including an incentive was difficult, since requiring volunteers for the survey is the most ethical way to conduct it. Incentives could potentially encourage students of low income to respond at higher rates, which would create biases within the data. Therefore, a convenience sample was created, bringing the ego total to 62.

One issue with the convenience sample is that sample selection was not perfectly random, therefore raising the probability of some sort of bias. Because the convenience sample was selected by members of SOAN 244, there is an increased chance that the effect of key variables impacts the chance of selection into the sample. However, in this study, the impact of athletic homophily on belonging does not seem to make certain individuals more likely to be included in the survey, however it needs to be mentioned that randomness was not achieved and therefore limits statistical power.

Another issue was that some of the respondents didn't answer all of the questions, and one of the main unanswered questions was whether the alter listed was on the same team as the ego. Removing these egos from the sample was necessary for my study since they didn't answer

one of my key questions, which brought the sample total to 50. Although a simple random sample was not achieved, we at least got a large enough sample size to conduct statistical procedures and make estimates.

The distribution of egos across the sample in terms of key statistics was also relatively standard in terms of Washington and Lee University demographics.

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
team_1	1	52	0.15	0.36	0	0.07	0.00	0.00	1.00	1.00	1.86	1.50	0.05
belonging	2	50	3.95	0.57	4	3.97	0.64	2.43	4.86	2.43	-0.45	-0.04	0.08
class_year_2025	3	52	0.35	0.48	0	0.31	0.00	0.00	1.00	1.00	0.63	-1.64	0.07
class_year_2026	4	52	0.27	0.45	0	0.21	0.00	0.00	1.00	1.00	1.01	-1.00	0.06
class_year_2027	5	52	0.15	0.36	0	0.07	0.00	0.00	1.00	1.00	1.86	1.50	0.05
class_year_2028	6	52	0.21	0.41	0	0.14	0.00	0.00	1.00	1.00	1.37	-0.12	0.06
gender_man	7	52	0.38	0.49	0	0.36	0.00	0.00	1.00	1.00	0.46	-1.82	0.07
gender_woman	8	52	0.60	0.50	1	0.62	0.00	0.00	1.00	1.00	-0.38	-1.89	0.07
race_ethn_Indigenous	9	52	0.04	0.19	0	0.00	0.00	0.00	1.00	1.00	4.66	20.12	0.03
race_ethn_Asian	10	52	0.29	0.46	0	0.24	0.00	0.00	1.00	1.00	0.91	-1.20	0.06
race_ethn_Black	11	52	0.06	0.24	0	0.00	0.00	0.00	1.00	1.00	3.69	11.81	0.03
race_ethn_Latinx	12	52	0.13	0.34	0	0.05	0.00	0.00	1.00	1.00	2.08	2.37	0.05
race_ethn_White	13	52	0.48	0.50	0	0.48	0.00	0.00	1.00	1.00	0.07	-2.03	0.07
race_ethn_Multi	14	52	0.10	0.30	0	0.00	0.00	0.00	1.00	1.00	2.66	5.18	0.04

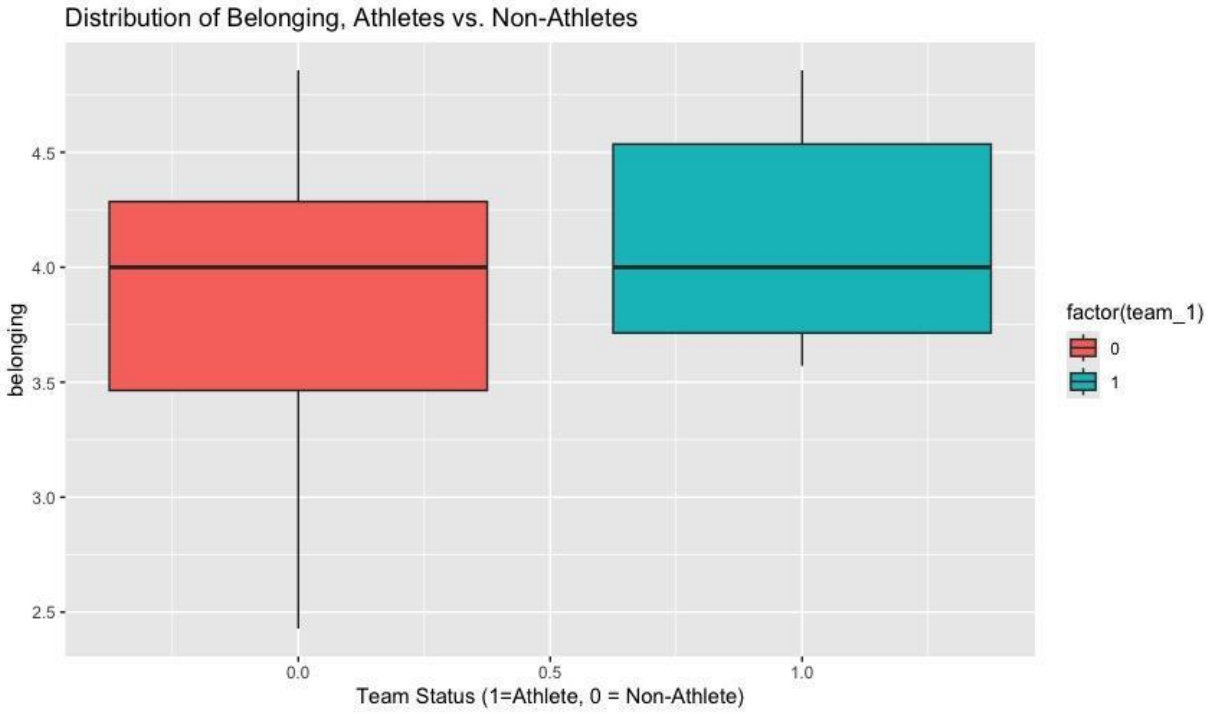
There were a few discrepancies in the data in terms of sampling, one being class year. Even though the random sample was stratified for class year, the sample skews towards older students, which makes sense based on the convenience sample and the demographics of SOAN 244. There aren't many freshmen and sophomores in the class, so it makes sense that members didn't survey younger classes for the convenience sample.

Because this study is about athletes, the underrepresentation of athletes is also worth noting, as only 15% of the sample consisted of athletes, but 34% of the population at W&L is involved in athletics.[1] Underrepresentation of athletes will certainly inhibit the statistical power of this study, however with proper regression analysis and interpretation, an estimate of the

[1]"At a Glance." *Wlu.edu*, 2024, www.wlu.edu/the-w-l-story/at-a-glance. Accessed 10 Dec. 2024.

intended effects will be possible. The intended over sampling of students of color was achieved, as the proportion of white students in the sample is smaller than the entire school.

In terms of belonging, students responded with a fairly even distribution of belonging responses with a mean belonging score of 3.95 and standard deviation of 0.57. The range also demonstrates that there are no outliers within the data set, which is positive for the validity of the regression results. The belonging variable was meant to capture all aspects of belonging at W&L, including questions about faculty and staff, as well as fellow students.

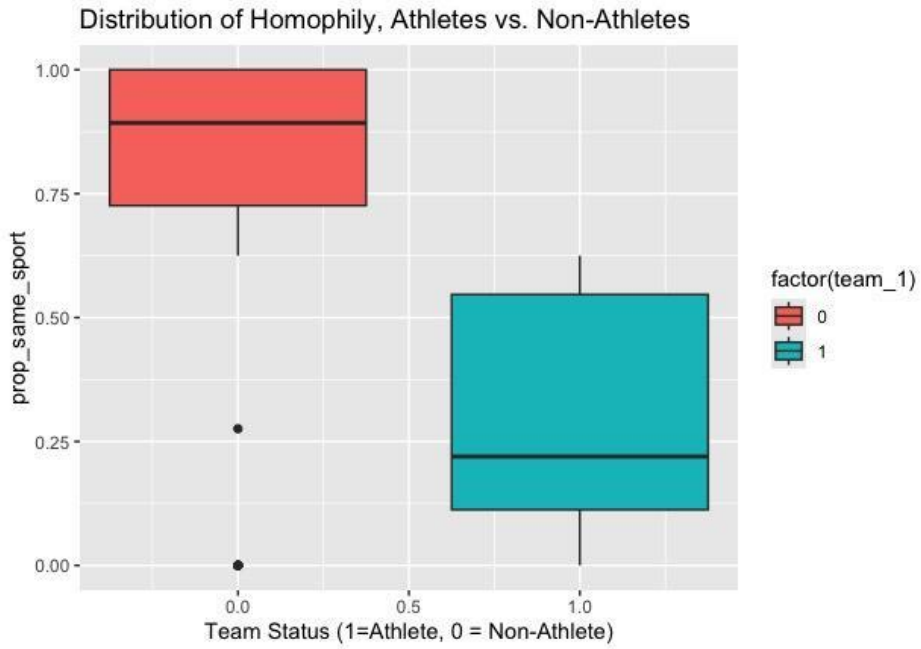


Athletes in the sample also tend to have slightly higher belonging scores than non-athletes. Demonstrated by the box plot above, the sample is also clustered around the mean score, with no significant outliers. Overall, even though we could not achieve a simple random

sample to estimate the effects of random distribution, we do have a satisfactory sample that will be sufficient to conduct statistical analysis.

In order to determine the homophily of one's network in terms of athlete status, I needed to construct a variable called same sport. This variable was relatively simple, and used the already given variable of whether an alter was on the same athletic team as the ego. The same sport variable is the proportion of alters in an ego's network that are a part of the same sport as they are. Using an interaction term to estimate the effects of an athlete's homophilous network would allow estimation solely of the athlete's homophily in their own networks.

As demonstrated by the box plot below, athletes have a much lower homophily score on average than non-athletes. While it seems to be more likely based on the proportion of students that are actually athletes, the constraint of the focus of athletics makes this result more surprising, and begins to refute the theory. If the theory held true, I would expect a more even distribution of athletes and homophily of their networks, as well as more similarity between athletes and non-athletes.



Regression

In order to properly estimate the effects of athletics being a focused organization at W&L, an OLS regression analysis is necessary. I used the following equation:

$$\widehat{belonging} = \beta_0 + \beta_1\, team + \beta_2 same\ sport + \beta_3 team * same\ sport + \beta_4 race + \beta_5 class\ year + \beta_6 gender$$

Team is simply a dummy variable that equates to 1 if the ego is on a sports team and 0 if not. *Same sport* was discussed above as the proportion of alters in an ego's network that are on the same team as the ego. *Race*, *class year*, and *gender* were the three controls I selected, and in my regression I omitted White, 2025, and female. There could be potential for certain races, class years, and genders to be correlated with athletics and homophily, and have some effect on belonging, so it is best to control for these variables. The interaction term *team * same sport* is the focal variable of this regression. Based on the theory, athletes with many athletes on the same team in their network should increase feelings of belonging, making β_3 large and positive. The linear model populated the following regression results:

MODEL INFO:
Observations: 50 (2 missing obs. deleted)
Dependent Variable: belonging
Type: OLS linear regression

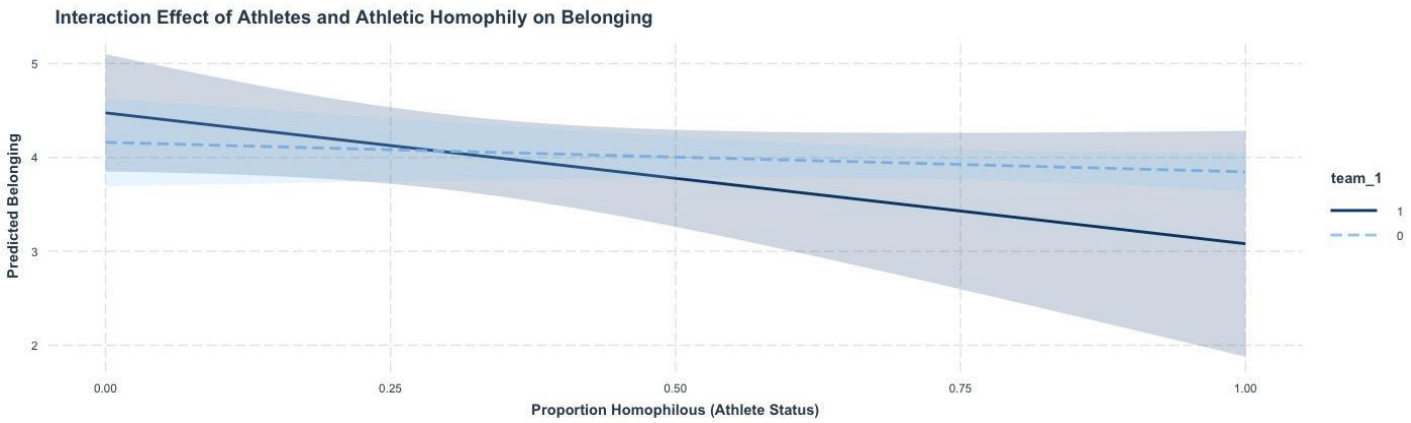
MODEL FIT:
$F(12,37) = 2.082$, $p = 0.044$
$R^2 = 0.403$
Adj. $R^2 = 0.210$

Standard errors:OLS

	Est.	2.5%	97.5%	t val.	p
(Intercept)	4.008	3.462	4.553	14.884	0.000
team_1	0.314	-0.519	1.148	0.764	0.450
prop_same_sport	-0.314	-0.885	0.258	-1.113	0.273
class_year_2026	-0.073	-0.459	0.313	-0.382	0.705
class_year_2027	0.675	0.200	1.150	2.880	0.007
class_year_2028	0.219	-0.244	0.683	0.959	0.344
gender_man	0.178	-0.174	0.529	1.024	0.313
race_ethn_Indigenous	-0.533	-1.494	0.428	-1.123	0.269
race_ethn_Asian	-0.223	-0.579	0.133	-1.270	0.212
race_ethn_Black	0.368	-0.343	1.080	1.049	0.301
race_ethn_Latinx	0.011	-0.497	0.519	0.043	0.966
race_ethn_Multi	0.096	-0.474	0.666	0.342	0.734
team_1:prop_same_sport	-1.081	-2.838	0.677	-1.246	0.221

Immediately, the fact that none of the variables besides the control for class of 2027 are statistically significant is concerning, however with the limited sample size, this was to be expected. We may not be able to completely reject the null, but our estimates can be made to a lower degree of confidence.

On the focal variable *team * same sport*, the sign on the estimate is negative, which would initially be cause for concern and potentially refute the theory. The interpretation of the coefficient on the interaction term would be that on average, perfect homophily in an athlete's network would lead to a decrease in their belonging score by 1, almost 2 standard deviations away from the sample mean. Upon further analysis of the confidence interval and p-values though, this regression is an example of why having a large random sample size is so important. Based on the p-value of 0.22, it is difficult to reject the null hypothesis; however, we can still estimate the effect of the interaction term on belonging. If the null hypothesis were true, and athletic homophily among athletes had no effect on belonging, we would have a 22% chance of getting an interaction coefficient at least as extreme as -1.



As seen in the visualization above, being on a team and having a homophilous network does seem to predict lower belonging scores, but the confidence band is wide. While we fail to reject the null, based on the standard errors and confidence interval there still seems to be potential for a negative effect of athletic homophily among athletes on belonging. The failure to either reject or accept the null provides motivation to continue this study further. It would be worth pursuing this same question with a larger data set and random sample in order to truly estimate the effect of this interaction term. We can say with some certainty that on average, increased homophily in an athlete's network will decrease belonging scores in our sample, however the extent to which belonging actually decreases and how often is the larger question.

Conclusion

It is unreasonable to say that athletics are not a focus group by Feld's definition in terms of positive social interaction, however the perceived negative effect of the focus group on belonging does raise some concern. One theory could be that athletics are too constrained. Perhaps foci are supposed to be more casual in nature, not detracting from time otherwise spent investing in relationships within the community. If sports isolate someone from the community outside of athletics, perhaps that would be a detriment to overall belonging. Since the belonging

variable is encompassing all kinds of belonging at W&L, perhaps athletics would increase belonging in some aspects, but detract from others. For example, maybe athletic commitments prevent students from getting involved in other organizations that would decrease their network homophily, but also increase their sense of overall belonging. Athletics could provide valuable social interaction within the sport as a result of constraint, but could also be too constrained to promote an overall sense of belonging across the team.

Athletes who only associate with athletes in the same sport may not be as well rounded in their sense of belonging at W&L as other students. The massive constraint that athletics imposes on social life may detract from the overall sense of belonging. If athletes have high levels of homophily in their network, they would be vulnerable to feeling isolated from the rest of the community outside of athletics. While this study was not able to conclusively accept or reject the proposed theory, it raises enough concern to the point where further research may need to be conducted. Washington and Lee University may want to conduct a similar experiment to make sure athletes feel the same sense of belonging that other students do, ensuring well-being of students across campus.