

The Lasting Effect of Civic Talk on Civic Participation: Evidence from a Panel Study

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Extant research shows that individuals who discuss politics and current events with their peers also participate more actively in civil society. However, this correlation is not sufficient evidence of causation due to a number of analytical biases. To address this problem, data were collected through a panel study conducted on students who were randomly assigned to dormitories during their first year of college. In addition, the data were preprocessed before analysis with a matching procedure. These data show that discussing politics and current events caused these students to participate in civic activities during their first year of college. A follow-up study conducted on the same population during their fourth year of college shows that the positive effect of civic talk on civic participation still exists despite the passage of three years. Further analysis shows that the boost in civic participation initially after engaging in civic talk is the mechanism by which the effect of civic talk lasts into the future.

Because civic participation is integral to the performance of democracy, the question of what causes a person to step out of his or her private life and enter the public sphere has been a subject of constant study in the social sciences. Within this research tradition, a growing number of political scientists have focused their work on the sociological antecedents of civic participation. More specifically, a number of studies have shown a positive correlation between “civic talk”—informal discussion of politics and current events that occurs in an individual’s “peer group” or “social network”—and civic participation. However, it is challenging to analyze this phenomenon with precision because it is difficult to determine if our peers influence us, or if our own patterns of behavior influence how we select and act with our peers (Klobstad 2007, 2009; Laver 2005; Nickerson 2008). Consequently, political scientists largely ignore the role of social-level antecedents of civic participation, and instead focus on individual-level factors (e.g., strength of political preferences, psychological engagement with politics and the like).¹

To address this problem new data were collected over three points in time from a panel of undergraduate students at a large public university in the Midwestern United States. This study allows for a more precise examination of civic talk be-

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cause it more closely resembles a controlled experiment than previous studies; the study is quasi-experimental because the students who participated in it were randomly assigned to their first year dormitory roommates. In addition, the panel aspect of this study allows for examination of whether the effect of civic talk on civic participation lasts beyond the initial point of exposure.

The results generated from this study show that there is a meaningful causal relationship between civic talk and participation in civil society. Initially after engaging in civic talk with their roommates, the population under study increased their participation in voluntary civic organizations by 38 percent. Moreover, the effect of civic talk is lasting. Study subjects who engaged in civic talk during their first year of college continued to participate in more voluntary civic organization activities during their fourth year of college. Further analysis shows that the initial boost in civic participation caused by civic talk is the mechanism by which the effect of civic talk lasts into the future. These findings illustrate that social scientists need to consider both individual- and social-level antecedents of civic participation in order to gain a comprehensive understanding of how participatory democracy functions.

Sociological Explanations of Civic Participation

A number of different lines of social science research assert that the individuals in one's social environment have an effect on one's opinions and behaviors. For example, works in sociology and social psychology show that individuals emulate the attitudinal and behavioral norms of their social network (e.g., Festinger et al. 1950; Latané and Wolf 1981; Michener and DeLamater 1999). Economists and sociologists have shown that one's college roommate can influence a variety of behaviors, such as educational attainment (Sacredote 2001) and binge drinking (Duncan et al. 2005). Research on households shows that people living under the same roof can influence each other to vote (e.g., Nickerson 2008). The literature on public deliberation shows that individuals become more informed about politics through the process of formulating public policy options with other citizens (Barabas 2004; Delli Carpini, Cook and Jacobs 2004; Page and Shapiro 1992; Mendelberg 2002). Works on social capital and cooperation illustrate that interacting with fellow citizens causes individuals to have a greater sense of attachment to their communities, which leads to more frequent participation in civic activities (Dawes, van de Kragt and Orbell 1990; Putnam 2000; Sally 1995). Research on political communication, opinion formation, the mass media and political socialization shows that the individuals around us influence how we learn about politics because civically-engaged individuals provide the rest of us with information (Barker 1998; Dawson, Prewitt and Dawson 1977; Downs 1957; Lazarsfeld, Berelson and Gaudet 1968; Silbiger 1977; Stimson 1990; Zaller 1992).

With regard to civic talk among peers—the specific focus of this article—the literature on social networks contends that talking about politics with the people

in our immediate social environment leads us to participate in civic activities (e.g., Campbell and Wolbrecht 2006; Huckfeldt and Sprague 1991, 1995; Huckfeldt et al. 1995; Kenny 1992, 1994; Klostad 2007; Lake and Huckfeldt 1998; McClurg 2003, 2004; Mutz 2002). For example, Lake and Huckfeldt show that the amount of political discussion occurring in an individual's network of friends correlates with his or her level of political participation. More recent research has also begun to identify the mechanisms that allow individuals to translate discussion into action (Klostad 2007; McClurg 2003). These studies suggest that civic talk causes civic participation because such discussions provide individuals with the motivation and resources that are necessary in order to participate in civil society. For example, McClurg (2003) shows that peers are an important source of information on politics and current events. Information motivates participation because it increases civic competence (the ability to participate) and civic engagement (having an interest in participating in the first place). Klostad (2007) comes to a similar conclusion on the role of information.

Civic Participation as a Self-Reinforcing Process

While there is a growing literature concerned with social networks, the question of whether the influence of civic talk on civic participation lasts beyond the initial point of exposure has not been answered. Nonetheless, the political science literature on civic participation suggests that the effect of civic talk could be lasting because civic participation is a self-reinforcing phenomenon. For example, Gerber and colleagues (2003) show that individuals who have been induced to vote in the past are more likely to vote in the future (also see Fowler 2006; Plutzer 2002). Additional research suggests that other forms of civic activity may also be self-reinforcing (e.g., Brady, Schlozman and Verba 1999; Burns, Schlozman and Verba 2001; Putnam 2000; Rosenstone and Hansen 1993; Verba, Schlozman and Brady 1995). For example, Verba and colleagues (1995) find that individuals who participate in civic activities through their churches or voluntary civic organizations also tend to be active in other civic activities such as political campaign voluntarism. Research on political socialization also shows that past patterns of civic participation, especially the experiences a person has during adolescence and young adulthood, are highly influential in determining how civically active he or she will be in the future (e.g., Campbell 2006; Jennings and Niemi 1981).

Civic participation is self-reinforcing because the more civically active an individual is today, the easier it becomes for him or her to participate in the future. Individuals are not automatically equipped to participate in civil society. Instead, we require resources (e.g., knowledge on how to participate) and psychological motivations (i.e., civic engagement) in order to participate in civic activities (Verba et al 1995). These prerequisites can be obtained as individuals take the resources and motivations they acquire through participating in civic activities today and apply them to participation in the future (Verba, Schlozman and Brady 1995).

For example, a person can apply the experience he or she gained organizing a public service project for his or her church to organizing a partisan “get out the vote” drive. Citizens who are mobilized to participate in civic activities also tend to already be civically active because agents of civic mobilization (e.g., political parties and other civic organizations) are “rational prospectors.” (Brady, Schlozman and Verba 1999) These agents want their mobilization efforts to result in civic activity, so they target individuals who are already participating in civil society. Also, in a recent study Campbell (2006:5) finds that “...the civic norms within one’s adolescent social environment have an effect on civic participation well beyond adolescence...”

If we assume that civic participation is a self-reinforcing behavior, as the extant literature suggests, past patterns of participation will help determine future patterns of participation. Consequently, if engaging in civic talk causes an individual to become more active in civil society, that effect could still be felt after the initial point of exposure to civic talk as the individual parlays his or her past participatory experience into future participation in civic activities. In other words, causing an initial increase in civic participation could be the mechanism by which the effect of civic talk lasts into the future.

The Collegiate Social Network Interaction Project

Despite the growing list of scholars who are concerned with social-level antecedents of civic participation, research on peer networks has been heavily criticized because it is difficult to provide evidence of a causal relationship between civic talk and civic participation. Existing works struggle to produce definitive results because it is difficult to determine if our peers influence us, or if our own patterns of behavior influence how we select and interact with our peers (Klofstad 2007, 2009; Laver 2005; Nickerson 2008). For example, the central argument made in this literature is that talking about politics and current events with our peers leads us to become more active in civil society. However, an equally plausible explanation is that being active in politics causes you to talk about politics with your peers (reciprocal causation). Individuals who are more active in politics may also explicitly choose to associate with peers who are more interested in talking about politics (selection bias). Finally, some factor that has not been accounted for could be causing people to have political discussions with their peers and participate in civic activities (endogeneity bias).

Traditionally, non-recursive regression models are used to overcome analytical biases such as these. Specifically, the independent variable of interest (in this case, the amount of conversation about politics and current events an individual has with his or her peers) is modeled with instrumental variables that do not correlate with the outcome variable being predicted (in this case, the amount of civic participation an individual engages in). However, it is difficult to think of any variable that could reliably predict the level of civic talk occurring in an

individual's peer group, yet not be correlated with how civically active he or she is. Instrumental variables like these have not been identified.²

An ideal method to ameliorate these analytical problems would be to randomly assign one group of individuals to engage in civic talk (the treatment group), and another group of like individuals to not engage in civic talk (the control group). Under random assignment, treated and untreated subjects are identical to one another, save that one is exposed to the treatment while the other is not. This research design would allow us to be confident that the outcomes of the study are actually being caused by civic talk instead of any other observed or unobserved factors.³

With this ideal research design in mind, data were collected from first-year college students who lived in university housing at the University of Wisconsin-Madison during the 2003-2004 academic school year. Random assignment is incorporated into the Collegiate Social Network Interaction Project Panel Survey design because study participants were assigned to their first-year college dormitory roommate based on a lottery. Incoming first year dormitory residents ranked the 16 dormitories on campus in order of where they wanted to live. Subjects were then randomly sorted by a computer in order to determine the order in which they would be assigned to dormitories. If space was available in the student's first housing choice at the time that his or her name was reached in the randomly-sorted list, the student was placed in a room in that dormitory. If space was not available, an attempt was made to place the student with a roommate in his or her second-choice dormitory, and so on.

C-SNIP participants initially completed two survey questionnaires: one at the beginning of the 2003-2004 academic year before they were affected by their randomly-assigned roommate, and a second at the end of the 2003-2004 school year. During the first wave of the study, students were asked about their patterns of civic participation during high school. During the second wave of the study students were asked about their patterns of civic participation during their first year of college, as well as about their roommate. In the spring of 2007, during their fourth year of college, this same population was re-interviewed. The 2007 questionnaire repeated most of the questions asked in the 2003-2004 studies. This additional data point allows for an assessment of whether the effect of civic talk felt by these students during their first year in college lasted into their final year of college. These data also further reduce problems associated with reciprocal causation, the possibility that civic participation causes civic talk, since the two phenomena are temporally separated from one another by three years (with talk occurring before participation).

Because these data are collected from a sample of college students they are not representative of the wider public. This is, however, the inevitable tradeoff between internal and external validity.⁴ In order to obtain a more accurate estimate of the causal relationship between civic talk and civic participation, it was necessary to study a more controlled, and subsequently less representative, population. In ad-

dition to increased internal validity, college is a uniquely useful setting in which to study civic talk because it represents a “crucial” case of peer influence (Eckstein 1975; Gerring 2001). When young people leave their families to begin life as an independent adult, peers are likely to be become highly influential (Beck 1977; Campbell et al. 1960). Thus, if we do not find evidence of a causal relationship between civic talk and civic participation in this environment, we are less likely to find it in other contexts where peers may be less influential. An individual’s first year of college is also a crucial case because it is a “paradigmatic” case of peer influence (Gerring 2001). Collegiate peers are a paradigm of peer influence because peers are a central facet of the individual’s life as he or she begins adulthood. Moreover, collegiate peers illustrate the importance of peer influence because they are likely to influence the patterns of civic participation that young people carry with them throughout life.

Measures

Dependent Variable: Civic Participation

Civic participation is measured based on how active students reported being in voluntary civic organizations during their first and fourth years of college. In total, seven different types of group affiliations are accounted for: charitable and voluntary service, leadership and civic training, groups that “take stands on political issues or current events,” partisan groups, student government, student publications (e.g., newspaper), and speech clubs and teams (e.g., forensics, debate). For each organization, students were asked to rate how active they were in that organization on a four-point scale, ranging from “not at all active” to “very active.” Civic participation is operationalized as the total amount of organizational activity that each student engaged in (the sum of the seven four-point scales).⁵

Independent Variable: Civic Talk

The independent variable of interest in this analysis is the amount of civic talk that occurred between college roommates. Specifically, in the C-SNIP questionnaire each student was asked, “When you talk with your roommate, how often do you discuss politics and current events: often, sometimes, rarely, or never?”

Two features of this measure are necessary to explain in greater detail. First, while use of self reports is standard practice in studies of social networks (e.g., Campbell and Wolbrecht 2006; Huckfeldt and Sprague 1991, 1995; Huckfeldt, Beck, Dalton and Levine, 1995; Kenny 1992, 1994; Lake and Huckfeldt 1998; McClurg 2003, 2004; Mutz 2002), an alternative approach would be to use a more exogenous measure, the report supplied by each subject’s roommate. Based on the small number of subjects who were willing to report their dormitory address, however, only 84 roommate pairs were identified. That said, this small amount of data shows that roommates agreed about the amount of civic talk that they engaged in ($t = -1.14$, p

= .16). As such, in this population self reports of civic talk behavior are likely to be observationally equivalent to an exogenous measure of civic talk.

Second, one might question what types of conversations the subjects in this study recalled when asked to report how often they discussed “politics and current events.” This question was worded broadly in order to prompt study participants to report on a wide variety of relevant discussions. For example, if the C-SNIP questionnaire were to have only asked for a report of conversations about “politics,” study participants may not have been cued to recall conversations about events on campus that motivated them to participate in campus-based voluntary civic organizations. Moreover, focus group data collected from the 2007-2008 cohort of first-year students⁶ give greater insight into what types of conversations are recalled when subjects are asked to recall discussions they had about “politics and current events.” These data show that the majority of conversations about “politics and current events” are centered on sharing information about civically-relevant events that are happening on campus and/or that are covered in the news.

Control Variables

Based on data collected in the first C-SNIP survey, the analysis controls for how active each subject was in voluntary civic organizations during high school, before they engaged in civic talk in college (i.e., a lag of the dependent variable). This allows for an assessment of the effect of civic talk on civic participation, given the subject’s *a priori* predilection to participate in civic activities. To increase the precision of the analysis, the analysis also uses fixed effects to account for how the dormitory assignment process was executed (i.e., a dichotomous indicator variable for each dormitory).

Method: Data Preprocessing

While the process of assigning C-SNIP participants to dormitory roommates was random, subjects were allowed to discuss politics and current events with their roommates as much or as little as they wished. Because of this deviation from random assignment, exogenous factors could be affecting both the treatment (the amount of civic talk each student was exposed to) and the outcome of interest (civic participation) in this study (Dunning 2008; Achen 1986).⁷ This feature of the C-SNIP study can be accounted for, however, by preprocessing the data with a “matching” procedure (Dunning 2008; Ho, King and Stuart 2007a, 2007b). Under this procedure the effect of civic talk is measured by comparing the civic participation habits of subjects who are similar to one another, save the fact that one engaged in civic talk with his/her roommate and the other did not. By comparing the participatory habits of similar subjects who did and did not engage in civic talk, we can be confident that any observed difference in civic participation between them is unrelated to the factors that the subjects were matched on, and as such is a consequence of civic talk.⁸ A full description of how this procedure was conducted is included in the appendix.

Table 1: The Effect of Civic Talk on Civic Participation

Year in College	1st	4th
Peer Influence		
Civic talk among roommates	.81** (2.70)	.62* (2.00)
Pre-Treatment Level of Civic Participation		
Participation in civic organizations in high school	.22*** (7.33)	.17*** (5.67)
Treatment Assignment Controls: Dormitories		
1	-.32 (-.13)	-1.27 (-.51)
2	-1.04 (-.55)	-.77 (-.31)
3	-.30 (-.16)	-1.03 (-.43)
4	-1.66 (-.89)	-.19 (-.09)
5	-1.44 (-.80)	-.32 (-.16)
6	-.88 (-.51)	-.87 (-.40)
7	-.14 (-.08)	-.91 (-.44)
8	-.79 (-.45)	-.19 (-.09)
9	-.87 (-.51)	-.58 (-.29)
10	-1.20 (-.68)	-.48 (-.23)
11	-1.22 (-.64)	-.41 (-.20)
12	-1.60 (-.91)	-1.07 (-.53)
13	-2.44 (-.26)	-1.23 (-.14)
14	-1.44 (-.84)	-.29 (-.14)
15	-1.51 (-.87)	-.56 (-.28)
Constant	1.67 (.95)	2.50 (1.16)
Adjusted R ²	.13	.09
N	1,044	1,044

Source: Collegiate Social Network Interaction Project Panel Study

Model Type: Ordinary Least Squares (Imai, King and Lau 2007c)

*p < .10 **p < .05 ***p < .01 (t-values in parentheses)

Results

Civic Talk Has a Lasting Effect on Participation in Voluntary Civic Organizations

To what extent does civic talk influence how active a person chooses to be in civil society? I start to answer this question by examining how active subjects were in voluntary civic organizations during their first year of college. The results of a multivariate regression analysis of participation in voluntary civic organizations are presented in Table 1.

In the first column of Table 1 the data show that subjects who reported engaging in civic talk when conversing with their roommate were more likely to participate in voluntary civic organizations during their first year of college. All other factors equal, participation for treated subjects was 38 percent higher than that of untreated subjects (an increase from 2.1 to 2.9 on the voluntary organization participation scale).⁹ Similar results appear in the second column. Here, instead of estimating the immediate influence of civic talk on civic participation, the effect of the treatment is estimated three years after the subject engaged in civic talk. Regardless of this multi-year gap between treatment and outcome, the influence of civic talk is still statistically significant and substantively meaningful. All else equal, exposure to civic talk during the 2003-2004 academic school year increased civic participation by 20 percent in 2007 (an increase from 3.0 to 3.6 on the voluntary organization participation scale).¹⁰

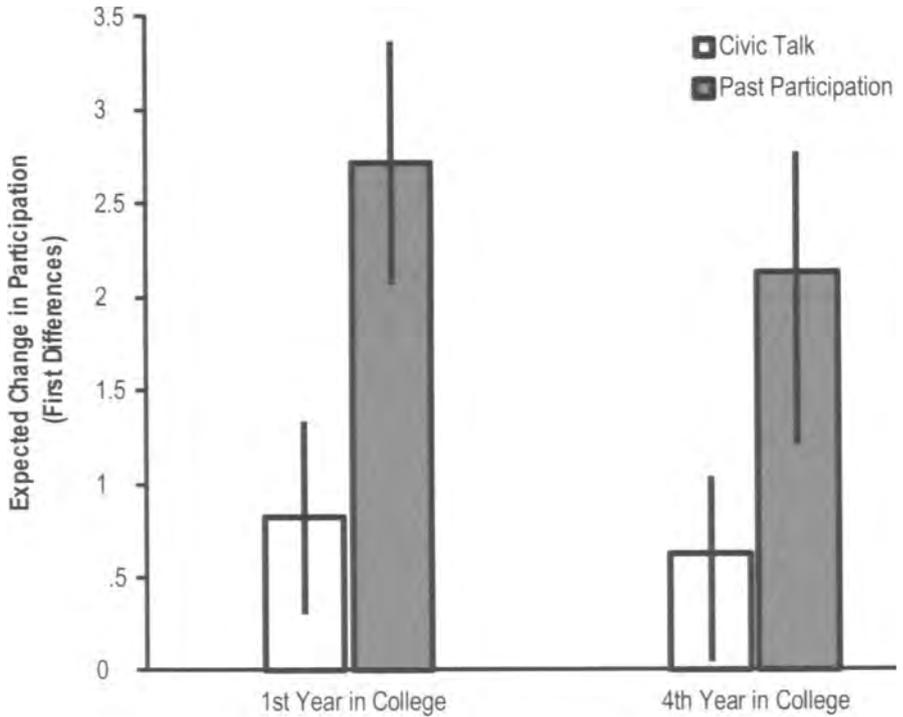
While the results in Table 1 show that the influence of civic talk is lasting, they also suggest that the effect might diminish over time; the treatment effect estimated from the matched data set drops from a 38 percent increase in participation in voluntary organizations in 2004 to a 20 percent increase in 2007. However, Figure 1 shows that this difference is not statistically significant. The light-colored bars in this figure represent the estimated increase in civic participation due to engaging in civic talk. While the estimated effect declines between 2004 and 2007, the confidence intervals around the 2004 and 2007 estimates (represented by the vertical lines running through each bar) overlap. This suggests that the positive impact of civic talk on participation in voluntary civic organizations did not decrease even after the passage of three years.

In order to assess the magnitude of the effect that civic talk has on participation in voluntary civic organizations, Figure 1 also compares the effect of civic talk to the effect of having participated in voluntary civic organizations in high school before engaging in civic talk in college. These results illustrate that while the effect of civic talk is statistically significant and lasting, the effect is not as large as that of prior participatory experience. In both 2004 and 2007, the effect of engaging in civic talk is less than the effect of having above average prior participatory experience.

Why Does the Effect Last?

What explains the lasting effect of civic talk on civic participation? It was hypothesized that the effect of civic talk would last into the future by having an effect on

Figure 1. Comparing the Effects of Civic Talk and Past Participation on Civic Participation



Source: Collegiate Social Network Interaction Project Panel Study

Notes: The line on each bar represents the 95 percent confidence interval about the estimate. Figures are based on the regression analysis presented in Table 2. The civic talk first difference is calculated between treated and untreated subjects. The past participation first difference is calculated by comparing the expected levels of participation for subjects with average levels of prior experience to those with the maximum level of prior experience.

patterns of civic participation in the present. In other words, causing an initial increase in civic participation is the mechanism by which the positive effect of civic talk on civic participation lasts into the future.

Table 2 offers two tests of this hypothesis. In Table 1, the lasting effect of civic talk on civic participation was estimated while controlling for the amount of civic participation subjects engaged in during high school. In the first column of Table 2, the analysis now also accounts for the amount of civic activity subjects engaged in during their first year of college. The goal of adding this variable to the analysis is to “explain away” the peer effect. If the boost in civic participation caused by civic talk during one’s first year in college explains why the effect of civic talk lasts

Table 2: Explaining the Lasting Effect of Civic Talk on Civic Participation

	One-Stage Model ^a	Two-Stage Model ^b
Peer Influence		
Civic talk among roommates	.33 (1.06)	—
Pre-Treatment Level of Civic Participation		
Participation in voluntary civic organizations in high school	.09** (2.25)	-.04 (-.50)
Level of Civic Participation Initially After Treatment		
Participation in voluntary civic organizations/1st year of college	.36*** (9.00)	.94*** (3.36)
Treatment Assignment Controls: Dormitories		
1	-1.14 (-.49)	-2.36 (-1.10)
2	-.38 (-.17)	-1.20 (-.81)
3	-.91 (-.43)	-1.71 (-1.18)
4	.43 (.23)	.62 (.38)
5	.20 (.12)	-.17 (-.12)
6	-.55 (-.28)	-1.03 (-.73)
7	-.86 (-.46)	-1.63 (-1.14)
8	.10 (.06)	-.33 (-.24)
9	-.26 (-.15)	-.97 (-.66)
10	-.03 (-.02)	-.31 (-.22)
11	.04 (.02)	-.12 (-.08)
12	-.48 (-.27)	-.83 (-.59)
13	-.34 (-.01)	.12 (.05)
14	.24 (.13)	.01 (.007)
15	-.004 (-.002)	-.46 (-.33)
Constant	1.88 (.98)	1.88 (1.33)
Adjusted R ²	.24	n/a
N	1,044	1,044

Source: Collegiate Social Network Interaction Project Panel Study. Model Type: ^aOrdinary Least Squares (Imai, King and Lau 2007c); ^bTwo Stage Least Squares (Alimadhi, Lu and Villalon 2007) *p < .10 **p < .05 ***p < .01 (t-values in parentheses)

into one's fourth year in college, the civic talk coefficient should no longer be statistically significant after a measure of the subject's level of civic participation during his or her first year in college is added to the model. This will only occur if participation during one's first year in college accounts for the variance in civic participation during one's fourth year in college that was originally accounted for by civic talk. The results in the first column of Table 2 show that this is the case. Once civic participation during one's first year in college is added to the analysis, the civic talk coefficient is no longer statistically significant.

A second examination of why the effect of civic talk lasts appears in the second column of Table 2. These results are the final outcome of a two-stage least squares analysis of civic participation during one's fourth year in college. The first stage of the analysis uses civic talk to estimate the amount of civic activity that each subject participated in during his or her first year in college. The second stage of the analysis uses the estimate of civic participation during one's first year in college from the first stage of the model to estimate civic participation during one's fourth year in college. The results of this analysis show that civic participation during one's first year in college is the only variable in the model that can account for civic participation during one's fourth year in college. What these results show, as expected, is that civic talk has an immediate effect on how civically active an individual chooses to be. This initial effect on an individual's patterns of behavior then has a direct effect on patterns of behavior in the future.

Discussion and Conclusion

Of the myriad explanations for why individuals choose to participate in the processes of democratic governance, no one theory has a monopoly on the truth. However, one thing we do know is that the people in our immediate social environment have a place on this list of explanations. Human beings may not be Aristotelian political animals, but we are social animals. We experience politics with and through our peers.

Against this logical presumption, political science research on civic participation has been dominated by theories that focus on individual-level characteristics and largely ignore the role of social context. A number of studies assert that an individual's peers have an impact on whether he or she decides to participate in civic activities. However, this argument has been heavily criticized because researchers have been unable to accurately measure the causal relationship between peer influence and individual-level civic participation. As such, the question of how much influence civic talk has on participatory democracy has remained largely unresolved.

I have addressed this important methodological and substantive question with new evidence. Using quasi-experimental panel data, in concert with a matching data preprocessing procedure, this research shows that civic talk can have a causal influence on how citizens participate in the processes of self gov-

ernance. This is the case even after accounting for how civically active subjects were before they engaged in civic talk, arguably one of the best measures of an individual's predilection to participate in civic activities. Moreover, the effect of civic talk is substantively meaningful because it is lasting. The evidence shows that subjects were still more likely to participate in voluntary civic organizations three years after they engaged in discussions of politics and current events. Further analysis shows that the initial boost in civic participation caused by civic talk is the mechanism by which the effect of civic talk lasts into the future. In other words, engaging in civic talk early in their college careers placed the subjects in this study on a self-reinforcing path of higher levels of civic participation compared to those who did not engage in civic talk.

Despite the significant and meaningful effect that peers have on civic participation, however, the results of this study do not suggest that sociological explanations of civic participation should supplant individual-level explanations. To the contrary, the estimated effect of civic talk on civic participation is less than that of having prior participatory experience. As such, the results presented in this analysis show that in order to more comprehensively understand how contemporary participatory democracy functions, both social- and individual-level antecedents of civic participation need to be considered. Neither factor on its own is a sufficient explanation for why an individual chooses to participate in civil society.

While these results add to our understanding of participatory democracy, further research is needed in order to understand the relationship between civic talk and civic participation. The data utilized in this study come from one group of college students at one university. As such these results should be verified in other contexts. Future studies should make further use of methods that allow for more effective study of complex causal relationships, such as the quasi-experimental panel study described in this article, fully-controlled experiments (e.g., Nickerson 2008), participant observation (e.g., Eliasoph 1998; Harris-Lacewell 2004; Walsh 2004), focus groups (e.g., Hibbing and Theiss-Morse 1995), and agent-based modeling (e.g., Johnson and Huckfeldt 2004).

Future research should also give consideration to the complex mechanisms that govern the relationship between civic talk and civic participation. Extant research on civic talk shows that the mechanism that links talk to action is information transfers (Klofstad 2007; McClurg 2003). The analysis presented in this article, however, did not account for whether the quantity and/or quality of information being exchanged during civic talk discussions affects how active one chooses to be in civic activities. For example, is one conversation sufficient to encourage participation, or is more sustained interaction necessary? Does the answer to this question change if we are talking about the long-term effects of civic talk? In a similar vein, future studies should also address the potentially dynamic relationship between civic talk and civic participation. The initial positive effect of civic talk on civic participation is the mechanism which governs the lasting relationship

between these two variables (i.e., talk begets participation today, which begets participation in the future). However, it could also be the case that civic talk encourages more civic talk, which in turn encourages civic participation in the future. Data on subsequent civic talk interactions, as well as a more complex modeling approach, would be necessary to test this proposition.

In conclusion, I note that there is currently a great amount of concern over the strength of participatory democracy, largely because of declines in civic participation that have occurred over the past half-century (e.g., Putnam 2000; but, also see McDonald and Popkin 2001). As such, it is incumbent upon social scientists to continue to examine why individuals choose to participate in the processes of democratic governance. Social-level factors such as peer networks deserve a meaningful place in this agenda.

Notes

1. A quintessential example is the seminal “Michigan School” of political behavior. The founders of this research tradition, Campbell et al. 1960:27, went so far as to say that “[b]y and large we shall consider external conditions as exogenous to our theoretical system.”
2. Non-recursive models have been used when the independent variable of interest is peer behavior (e.g., vote choice), not political discussion (Kenny 1992).
3. Nickerson (2008) utilizes this type of research design to test whether individuals living in the same household influence each other to vote. However, this study does not examine whether civic talk is the causal agent behind civic participation. Moreover, the study does not examine whether the influence of peers lasts beyond the initial point of exposure to treatment.
4. See Kam et al. 2007 for a detailed discussion of this issue.
5. Alternatively, one could operationalize this variable as a count of the number of organizations that each subject was active in. The dependent variable was coded as the sum of the full activity scales, however, for two reasons. First, the full scales were used in order to avoid discarding information provided by respondents. Second, there are substantive differences between individuals who are passive and active participants in voluntary civic organizations (e.g., Putnam’s 2000). This said, Poisson and Negative Binomial analyses of the event count version of the dependent variable yielded results that are comparable to those presented in this study.
6. With regard to case comparability with the C-SNIP panel survey data, the focus group participants were also randomly assigned to their dormitories.
7. For example, students who were civically active before they came to college were more likely to discuss politics and current events with their new roommates ($r = .17$, $p < .01$), and more likely to participate in civic activities in college ($r = .37$, $p < .01$).
8. Matching is less precise than a controlled experiment because the procedure does not account for unobserved differences between treated and untreated subjects (e.g., Arceneaux et al. 2006). However, given the extensive set of pre-treatment covariates that were used in the matching procedure, it is difficult to think of any meaningful unobserved factors that are not accounted for in the analysis. Moreover, unobserved differences between treated and untreated subjects are likely to correlate with observed

- differences (Stuart and Green 2008). Also, given the fact that a true experiment is an extremely difficult (if not impossible) research design to execute for this research question, matching (in concert with quasi-random assignment to treatment and controlling for a lag of the dependent variable) is a next-best alternative.
9. Substantive interpretations of regression coefficients were calculated with the “setx” and “sim” procedures in the “Zelig” package for R (Imai et al. 2007a and b). The estimated treatment effect in the unmatched data set is a 45 percent increase in participation, suggesting that I would have slightly overestimated the influence of civic talk if I had not matched the data.
 10. The treatment effect in the unmatched data set is estimated to be a 29 percent increase in participation.
 11. ASM (The Associated Students of Madison) is the student government body.

References

- Achen, Christopher. 1986. *The Statistical Analysis of Quasi-Experiments*. University of California Press.
- Arceneaux, Kevin, Alan S. Gerber and Donald P. Green. 2006. “Comparing Experimental and Matching Methods Using a Large-Scale Voter Mobilization Experiment.” *Political Analysis* 14(1):37-62.
- Alimadhi, Ferdinand, Ying Lu and Elena Villalon. 2007. “twosls: Two Stage Least Squares.” *Zelig: Everyone’s Statistical Software*. Kosuke Imai, Gary King and Olivia Lau, editors. Available at: <http://gking.harvard.edu/zelig>.
- Barabas, Jason. 2004. “How Deliberation Affects Policy Opinions.” *American Political Science Review* 98(4):687-701.
- Barker, David C. 1998. “Rush to Action: Political Talk Radio and Health Care (un) Reform.” *Political Communication* 15(1):83-97.
- Beck, Paul Allen. 1977. “The Role of Agents in Political Socialization.” Pp. 115-41. *The Handbook of Political Socialization*. Stanley Allen Renshon, editor. Free Press.
- Brady, Henry E., Kay Lehman Schlozman and Sidney Verba. 1999. “Prospecting for Participants: Rational Expectations and the Recruitment of Political Activists.” *American Political Science Review* 93(1):153-68.
- Campbell, David E. 2006. *Why We Vote: How School and Communities Shape Our Civic Life*. Princeton University Press.
- Campbell, David E., and Christina Wolbrecht. 2006. “See Jane Run: Women Politicians as Role Models for Adolescents.” *Journal of Politics* 68(2):233-45.
- Campbell, Angus, Philip E. Converse, Warren E. Miller and Donald E. Stokes. 1960. *The American Voter*. John Wiley & Sons.
- Dawes, Robyn M., Alphons J.C. van de Kragt and John M. Orbell. 1990. “Cooperation for the Benefit of Us—Not Me, or My Conscience.” Pp. 97-110. *Beyond Self-Interest*. Jane Mansbridge, editor. University of Chicago Press.
- Dawson, Richard E., Kenneth Prewitt and Karen S. Dawson. 1977. *Political Socialization, Second Edition*. Little, Brown and Co.
- Delli Carpini, Michael X., Fay Lomax Cook and Lawrence R. Jacobs. 2004. “Public Deliberation, Discursive Participation, and Citizen Engagement: A Review of the Empirical Literature.” *Annual Review of Political Science* 7:315-44.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. Harper & Row.

- Duncan, Greg J., Johanne Boisjoly, Michael Kremer, Dan M. Levy and Jacque Eccles. 2005. "Peer Effects in Drug Use and Sex Among College Students." *Journal of Abnormal Child Psychology* 33(3):375-85.
- Dunning, Thad. 2008. "Improving Causal Inference: Strengths and Limitations of Natural Experiments." *Political Research Quarterly* 61(2):282-93.
- Eckstein, Harry. 1975. "Case Studies and Theory in Political Science." Pp. 79-138. *Handbook of Political Science, Scope and Theory*. Fred I. Greenstein and Nelson W. Polsby, editors. Addison-Wesley.
- Festinger, Leon, Stanley Schachter and Kurt Back, with chapters by Catherine Bauer and Robert Woods Kennedy. 1950. *Social Pressures in Informal Groups: A Study of Human Factors in Housing*. Harper and Brothers.
- Fowler, James. 2006. "Habitual Voting and Behavioral Turnout." *Journal of Politics* 68(2):335-44.
- Gerber, Alan, Donald Green and Ron Shachar. 2003. "Voting May Be Habit-Forming: Evidence from a Randomized Field Experiment." *American Journal of Political Science* 47(3):540-50.
- Gerring, John. 2001. *Social Science Methodology: A Criterial Framework*. Cambridge University Press.
- Gu, Xing Sam, and Rosenbaum, Paul R. 1993. "Comparison of Multivariate Matching Methods: Structures, Distances, and Algorithms," *Journal of Computational and Graphical Statistics* 2(4):405-20.
- Hansen, Ben B. 2004. "Full Matching in an Observational Study of Coaching for the SAT." *Journal of the American Statistical Association* 99(467):609-18.
- Harvard University Institute of Politics. 2000. *Attitudes Toward Politics and Public Service: A National Survey of College Undergraduates* (Top Line Data From the 2000 National Survey of College Undergraduates). Available at http://www.iop.harvard.edu/pdfs/survey/2000_topline.pdf.
- Ho, Daniel, Kosuke Imai, Gary King and Elizabeth Stuart. 2004. "Matchit: Matching as Nonparametric Preprocessing for Parametric Causal Inference." Available at: <http://gking.harvard.edu/matchit/>.
- _____. 2007a. "Matchit: Matching as Nonparametric Preprocessing for Parametric Causal Inference (Technical Manual)." Available at: <http://gking.harvard.edu/matchit/>.
- _____. 2007b. "Matching as Nonparametric Preprocessing for Reducing Model Dependence in Parametric Causal Inference." *Political Analysis* 15(3):199-236.
- Honaker, James, Gary King and Matthew Blackwell. 2007. "Amelia II: A Program for Missing Data." Available at: <http://gking.harvard.edu/amelia/>.
- Huckfeldt, Robert, and John Sprague. 1991. "Discussant Effects on Vote Choice: Intimacy, Structure, and Interdependence." *The Journal of Politics* 53(1):122-58.
- _____. 1995. *Citizens, Politics, and Social Communication: Information and Influence in an Election Campaign*. Cambridge University.
- Huckfeldt, Robert, Paul Allen Beck, Russell J. Dalton and Jeffrey Levine. 1995. "Political Environments, Cohesive Social Groups, and the Communication of Public Opinion." *American Journal of Political Science* 39(4):1025-54.
- Imai, Kosuke, Gary King and Olivia Lau. 2007a. *Zelig: Everyone's Statistical Software*. Available at: <http://GKing.harvard.edu/zelig/>.
- _____. 2007b. "Toward A Common Framework for Statistical Analysis and Development." Available at <http://gking.harvard.edu/files/abs/z-abs.shtml>.

- _____. 2007c. "ls: Least Squares Regression for Continuous Dependent Variables. *Zelig: Everyone's Statistical Software*." Available at: <http://gking.harvard.edu/zelig>.
- _____. 2007d. "logit: Logistic Regression for Dichotomous Dependent Variables." Available at: <http://gking.harvard.edu/zelig>.
- Jennings, M. Kent, and Richard G. Niemi. 1981. *Generations and Politics: A Panel Study of Young Adults and Their Parents*. Princeton University Press.
- Kam, Cindy, D. Jennifer R. Wilking and Elizabeth J. Zechmeister. 2007. "Beyond the 'Narrow Data Base': Another Convenience Sample for Experimental Research." *Political Behavior* 29(4):415-40.
- Kenny, Christopher. 1992. "Political Participation and Effects for the Social Environment." *American Journal of Political Science* 36(1):259-67.
- _____. 1994. "The Microenvironment of Attitude Change." *The Journal of Politics* 56(3):715-28.
- Klofstad, Casey A. 2007. "Talk Leads to Recruitment: How Discussions About Politics and Current Events Increase Civic Participation." *Political Research Quarterly* 60(2):180-91.
- _____. 2009. "Civic Talk and Civic Participation: The Moderating Effect of Individual Predispositions." *American Politics Research* 37(5):856-78.
- King, Gary, James Honaker, Anne Joseph and Kenneth Scheve. 2001. Analyzing Incomplete Political Science Data: An Alternative Algorithm for Multiple Imputation, *American Political Science Review* 95(1):49-69.
- Lake, R.L., and Robert Huckfeldt. 1998. "Social Capital, Social Networks, and Political Participation." *Political Psychology* 19(3):567-83.
- Latané, Bibb, and S. Wolf. 1981. "The Social Impact of Majorities and Minorities." *Psychological Review* 88(5):438-53.
- Laver, Michael. 2005. Book review of *The Social Logic of Politics. Perspectives on Politics* 3(4):933-34.
- Lazarsfeld, Paul F., Bernard Berelson and Hazel Gaudet. 1968. *The People's Choice: How the Voter Makes Up His Mind in a Presidential Election, 3rd Edition*. Columbia University.
- Mendelberg, Tali. 2002. "The Deliberative Citizen: Theory and Evidence." Pp. 151-93. *Political Decision Making, Deliberation, and Participation*. M.X. Delli Carpini, L. Huddy and R. Shapiro, editors. JAI Press.
- McClurg, Scott D. 2003. "Social Networks and Political Participation: The Role of Social Interaction in Explaining Political Participation." *Political Research Quarterly* 56(4):449-64.
- _____. 2004. "Indirect Mobilization: The Social Consequences of Party Contacts in an Election Campaign." *American Politics Research* 32(4):406-43.
- McDonald, Michael, and Samuel Popkin. 2001. "The Myth of the Vanishing Voter." *American Political Science Review* 95(4):963-74.
- Michener, H. Andrew, and John D. DeLamater. 1999. *Social Psychology*. Harcourt Brace.
- Mutz, Diana C. 2002. "The Consequences of Cross-Cutting Networks for Political Participation." *American Journal of Political Science* 46(4):838-55.
- Nickerson, David W. 2008 "Is Voting Contagious?: Evidence from Two Fields Experiments." *American Political Science Review*: 102(1):49-57.
- Page, Benjamin, and Robert Shapiro. 1992. *The Rational Public*. University of Chicago Press.
- Plutzer, Eric. 2002. "Becoming a Habitual Voter: Inertia, Resources, and Growth in Young Adulthood." *American Political Science Review* 96(1):41-56.

- Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.
- Rosenbaum, P. 1991. "A Characterization of Optimal Designs for Observational Studies." *Journal of the Royal Statistical Society* 53(3):597-610.
- Sacerdote, Bruce. 2001. Peer Effects with Random Assignment: Results for Dartmouth Roommates." *Quarterly Journal of Economics* 116(2):681-704.
- Sally, David. 1995. "Conversation and Cooperation in Social Dilemmas: A Meta-Analysis of Experiments from 1958 to 1992." *Rationality and Society* 7(1):58-92.
- Silbiger, Sara L. 1977. "Peers and Political Socialization." Pp. 172-89. *The Handbook of Political Socialization*. Stanley Allen Renshon, editor. Free Press.
- Stimson, James A. 1990. "A Macro Theory of Information Flow." Pp. 345-68. *Information and Democratic Processes*. James Kuklinski and John Ferejohn, editors. University of Illinois Press.
- Stuart, Elizabeth A., and Kerry M. Green. 2008. "Using Full Matching to Estimate Causal Effects in Nonexperimental Studies: Examining the Relationship Between Adolescent Marijuana Use and Adult Outcomes." *Developmental Psychology* 44(2):395-406.
- Verba, Sidney, Kay Lehman Schlozman and Henry E. Brady. 1995. *Voice and Equality*. Harvard University Press.
- Zaller, John. 1992. *The Nature and Origins of Mass Opinion*. Cambridge University Press.
- Zuckerman, Alan S. 2004. "Returning to the Social Logic of Politics." Pp. 3-20. *The Social Logic of Politics: Personal Networks as Contexts for Political Behavior*. Alan S. Zuckerman, editor. Temple.

Appendix

Descriptive Statistics and Survey Questions

Table A1: Descriptive Statistics

	Min	Max	Mean	Standard Deviation	N
Civic Talk Among Roommates					
Full Scale	-.55	4.26	1.40	.89	1,044
Dichotomous Treatment Coding	.00	1.00	.47	.50	1,044
Civic Participation					
High School	-.76	19.00	6.60	3.96	1,044
1st Year of College	-6.54	21.00	2.43	2.91	1,044
4th Year of College	-4.98	14.00	3.20	2.66	1,044
Dormitory Assignment					
1	.00	1.00	.002	.05	1,044
2	.00	1.00	.06	.23	1,044
3	.00	1.00	.09	.28	1,044
4	.00	1.00	.02	.12	1,044
5	.00	1.00	.08	.26	1,044
6	.00	1.00	.11	.32	1,044
7	.00	1.00	.10	.30	1,044
8	.00	1.00	.10	.30	1,044
9	.00	1.00	.07	.25	1,044
10	.00	1.00	.07	.26	1,044
11	.00	1.00	.04	.21	1,044
12	.00	1.00	.06	.23	1,044
13	.00	1.00	.001	.04	1,044
14	.00	1.00	.11	.32	1,044
15	.00	1.00	.09	.29	1,044

Source: Collegiate Social Network Interaction Project Panel Study

Notes: The values presented in this table are means calculated from five imputed data sets. The minimums of some variables are negative because a range prior was not specified for ordinal variables.

Participation in Voluntary Civic Organizations

“How active were you in the following types of organizations (during high school/ during your first year here at the University of Wisconsin/ at the University of Wisconsin this year]: very active, somewhat active, not very active, or not at all active?”

- Student government (for example, student council/ASM,11 etc.)
- Partisan political groups (for example, Young/College Republicans or Democrats, etc.)

- Organizations that take stands on political issues or current events (for example, a group interested in protecting the environment, etc.)
- Charitable or voluntary service organizations (that is, working in some way to help others without pay and not for course credit)
- Leadership training or civic organizations (for example, community service organizations, etc.)
- Student publications (for example, yearbook, newspaper, etc.)
- Forensics, debate, or other speech clubs or teams

Civic Talk

“When you talk with your roommate, how often do you discuss politics and current events: often, sometimes, rarely, or never?”

The Collegiate Social Network Interaction Project Panel Survey (C-SNIP)

The population surveyed was all 4,358 first-year students at the University of Wisconsin-Madison living in university housing during the 2003-2004 academic year (82% of the 5,322 first year students who entered the University in 2003). Study participants initially completed two questionnaires over the internet during the 2003-2004 academic year: one at the beginning of the year (October-November, 2003), and a second at the end of the year (March-April, 2004). A third questionnaire was administered April-May of 2007. During each wave of the study, three attempts were made by email to recruit the population to fill out a questionnaire. Email addresses were obtained from the University of Wisconsin-Madison Office of the Registrar and from publicly accessible student directories. Unique login names and passwords were assigned to each respondent to prevent subjects from completing more than one questionnaire. To increase participation from a broad cross-section of the population under study, each student who completed a questionnaire was entered into a prize drawing for 1 of 50 \$20 prizes. The recruitment emails also were worded to make the prospect of participating in the study appealing to a wide audience.

In total, 23 percent of the population fully completed the first two questionnaires in 2003-2004 ($N = 999$). Just under 24 percent of the eligible population completed at least some portion of both questionnaires ($N = 1044$). Of the 1,044 students who at least partially completed both questionnaires in 2003-2004, 53 percent of subjects ($N = 557$) fully completed, and more than 57 percent of subjects ($N = 598$) at least partially completed, the 2007 questionnaire. These response rate figures exclude subjects who were eliminated from the analysis to reduce bias: subjects who moved from the dormitory room they were initially assigned to, subjects who chose their own roommate, and subjects who had no roommates. To account for missing data, the data set was preprocessed using the Amelia II multiple imputation package for R (Honaker, King and Blackwell 2007; see also King et al. 2001). The data were imputed five times. To aid the imputation

process, the tolerance level was set to .001, and a ridge prior of 5 percent of the cases in the dataset was used. All dichotomous variables were imputed using the nominal transformation; no other transformations were used.

Table A2: Characteristics of Respondents and Non-Respondents

	Survey 1 (High School)		Survey 2 (1st Year of College)		Survey 3 (4th Year of College)	
	Respondents	Non-Respondents	Respondents	Non-Respondents	Respondents	Non-Respondents
ACT Score	27.76	27.18	27.91	27.29	28.12	27.21
Gender (Female)	> .60	> .44	> .62	> .48	> .60	> .50
Race (Non-White)	< .10	< .13	< .09	< .12	< .07	< .13
Civic Participation: High School	—	—	6.48	6.41	6.47	6.43
Civic Participation: 1st Year of College	—	—	—	—	2.39	2.21

Source: Collegiate Social Network Interaction Project Panel Study

Note: > or < indicates a significant difference of means at $p \leq .10$, = indicates an insignificant difference of means at $p < .10$ (two-tailed t-tests)

While imputation compensates for missing data, it is still important to address the issue of response rate. While the C-SNIP study recruitment procedures were designed to attract a broad cross-section of participants, it could be the case that certain types of individuals, say those who are more interested in the subject of the study, choose to participate at higher rates. For example, after participating in the first survey, each respondent knew that subsequent waves of the study would address politics and current events. This might prompt individuals who are more interested and active in these matters to complete the study. If this is the case, the civic talk effects could be inflated.

Table A2 offers a test of this proposition by examining the characteristics of respondents and non-respondents in each of the three waves of the C-SNIP panel study. The top portion of the table examines the demographic characteristics of respondents and non-respondents. Fortunately these three measures were available for the entire population that was surveyed, and as such they can be used to assess response bias in all three waves of the study. These data show that when compared to non-respondents, respondents scored higher on their ACT college entrance exams, were more likely to be female, and were less likely to belong to a racial or ethnic minority group. However, while these differences are statistically significant, in the case of ACT score and race the substantive differences between respondents and non-

respondents is small. Moreover, all three of these demographic characteristics were included in the matching data pre-processing procedure. Consequently, any differences between respondents and non-respondents on these variables are automatically accounted for in the analysis. The bottom portion of Table A2 shows survey responses provided by respondents in previous waves of the C-SNIP study to gauge differences between respondents and non-respondents in subsequent waves of the study. No differences are found between these two subsets of the population in either Wave 2 or Wave 3 of the study.

Matching Procedure

For this analysis a “full matching” procedure was used (Gu and Rosenbaum 1993; Hansen 2004; Ho, King and Stuart 2007a; Ho, King and Stuart 2007b; Rosenbaum 1991; Stuart and Green 2008). The procedure was conducted using the “MatchIt” package for R (Ho, Imai, King and Stuart 2007a; Ho, Imai, King and Stuart 2007b), which makes use of the “optmatch” package (Hansen 2004). The C-SNIP panel data set is tailor-made for matching because subjects were surveyed about their characteristics before they engaged in civic talk with their college roommate (i.e., before they were exposed to the civic talk “treatment”). In total, 109 pre-treatment variables were used in the matching procedure. Matching on a large number of pre-treatment covariates increases the validity of the final analysis because it is more likely that all covariates of assignment to treatment are accounted for (Ho et al. 2007b). This set of variables included measures of civic participation in high school, measures of why each student ranked the dormitories before being placed, indicators of which dorm each subject was eventually placed into, pre-treatment information on the subject’s roommate and dormitory, demographics, measures of home life before coming to college, and civically-relevant attitudes and characteristics.

The full matching procedure involves three steps. First, subjects who engaged in an above-average amount of civic talk with their roommate were classified as having been treated ($N = 495$), while those who engaged in a below-average amount of civic talk were classified as untreated ($N = 549$). Second, the variables included in the matching procedure were used to estimate a score of one’s propensity to engage in civic talk (Hansen 2004; Ho, King and Stuart 2007a; Ho, King and Stuart 2007b). Third, at least one untreated subject was matched to at least one treated case based on how close the propensity scores were between treated and untreated cases (i.e., a process of creating “subclasses” where more than one treated subject could be matched to an untreated subject and vice-versa). Each untreated case was only matched to one treated case, and vice-versa (i.e., matching without replacement). Also, after a case was initially matched it could have been moved and matched to a different case in order to improve the overall similarity between treated and untreated subjects in the data set (i.e., the process is “optimal” not “greedy”).

Table A3: Percent Improvement in Balance Between Treated and Untreated Cases

Overall	99.70
QQ Plot Summary Statistics	
Median	94.10
Mean	93.42
Max	89.53

Source: Collegiate Social Network Interaction Project Panel Study

Note: For the purposes of standardization, the overall balance measure is measured in standard deviations.

The results of the matching procedure were incorporated into the analysis by weighting the regression models. All treated cases were given a weight of 1, while untreated cases were assigned a weight equal to the number of treated cases in the subclass that they were assigned to, divided by the number of untreated cases in the subclass that they were assigned to. For example, an untreated case that was assigned to a subclass with 10 treated cases and 1 untreated case was assigned a weight of 10, while an untreated case that was assigned to a subclass with 1 treated case and 10 untreated cases was assigned a weight of .10. Applying this weight caused the regression model to pay more attention to untreated cases that are similar to treated cases, and less attention to untreated cases that are dissimilar to treated cases, making the analysis a better comparison between the treated and untreated cases than if the data were not weighted.

The results presented in Table A3 illustrate how the matching procedure increased the similarity, or “balance” (Ho et al. 2007a and 2007b), between subjects who did and did not engage in civic talk. The first row in the table shows the overall improvement in similarity between treated and untreated subjects, as measured by the subject’s estimated propensity to engage in civic talk (i.e., the propensity score created by the matching procedure). Overall, the similarity in the propensity to engage in civic talk between subjects who did and did not engage in civic talk with their roommates increased by nearly 100 percent as a result of matching. The remaining rows of the table show the summary statistics from “QQ plots.” QQ plots are two-dimensional graphs which plot the empirical distribution of a variable among treated subjects on one axis against the empirical distribution of that same variable among untreated subjects on the other axis. The closer this plotted line is to the 45-degree line on the graph, the closer treated and untreated subjects are to being perfectly balanced on that variable. The results in Table A3 show that the median, mean and maximum distance of the propensity score QQ plot from the 45-degree line were all greatly improved due to the matching procedure.