Inefficient Social Disconnection

Jenna Anders
University of California, Berkeley

Amanda Pallais *
Harvard and NBER

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Abstract

Social disconnection has increased over the last 25 years, while traditional contexts for forming connections, like churches and in-person workplaces, have weakened. Through a field experiment, we show the effectiveness of an alternative approach to connection formation: mutual friend intermediaries. We hosted a four-week trivia competition where participants could either join friend-organized teams or register to be matched onto teams with strangers. We then randomized which teams could participate. When teams were organized by existing friends, teammates who weren't initially friends were 20 pp more likely to be friends and 15 pp to be in text communication four months later due to participating, while participating reduced contemporaneous loneliness by 11 pp (24%). In contrast, the intervention did not generate lasting relationships for pairs matched onto teams by the competition. Yet, we propose mutual friends make inefficiently few introductions due to a market failure: it is difficult to compensate friends for organizing costs. Consistent with inefficient underprovision, survey evidence finds substantial untapped supply of friend introductions – 72% of people say they could connect friends, while only 5% recently have – alongside strong demand for such introductions. Finally, we discuss examples of organizations that encourage people to bring their networks together at scale, showing how the organizations best-positioned to scale this approach may not be those typically associated with community building.

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1 Introduction

Social connections play a central role in individual economic outcomes, mental health, and social cohesion. They facilitate employment, workplace productivity, and social mobility (e.g., Bayer et al., 2008; Cai and Szeidl, 2018; Chetty et al., 2022a,b; Granovetter, 1995; Ioannides and Datcher Loury, 2004; Sandvik et al., 2020). They substantially improve mental health and they are strongly associated with better physical health (e.g., Cacioppo et al., 2006; Hawkley and Cacioppo, 2010; Holt-Lunstad et al., 2015; House et al., 1988; Kawachi and Berkman, 2001; Park et al., 2020). Meanwhile, at a societal level, social disconnection undermines trust and fuels political polarization (e.g., Glaeser et al., 2000; Glanville et al., 2013; Petersen et al., 2023; Peterson et al., 2025; Welch et al., 2007).

Unfortunately, social disconnection has increased over the last 25 years. Between 2003 and 2019, the average American spent 12 more hours alone and 10 fewer hours with friends per month, roughly halving social time with friends (Kannan and Veazie, 2023).[1] Simultaneously, traditional contexts for forming social connections have weakened: church attendance has declined substantially since 2000 (Twenge et al., 2016; Voas and Chaves, 2016) and even further as a result of the pandemic (Pew Research Center, 2023; Witt-Swanson et al., 2023). The increase in remote work since the pandemic has reduced workplace interactions (Barrero et al., 2023; Emanuel et al., 2023; Yang et al., 2022). Meanwhile, from 2019 to 2023 time outside the home decreased by about 15%, about twice as large as what would be expected by the shift to remote work alone (Morris et al., 2024; Sharkey, 2024). The reduction in in-person work is particularly consequential as workplaces, like religious institutions, have traditionally served as important venues for friendship formation (Ammerman and Farnsley, 1997; Cox, 2021; Lim and Putnam, 2010).

[1] Increases in time alone are larger for adults without a college degree (Atalay, 2023). In *Bowling Alone*, Robert Putnam pointed out that engagement with civic institutions started declining much earlier, while the fraction of Americans living alone has doubled since the 1960s (Anderson et al., 2023; Vespa et al., 2013).

Citing statistics that half of U.S. adults report being lonely and that lacking social connection is as dangerous as smoking up to 15 cigarettes per day – and more dangerous than obesity or physical inactivity – the U.S. Surgeon General declared loneliness an "epidemic" (Office of the Surgeon General, 2023). Similarly, the UK and Japan appointed Ministers for Loneliness (Office of PM Theresa May, 2018; Osaki, 2021), and the WHO established a Commission on Social Connection (Lee, 2023).[2] Yet, developing effective interventions to increase social connections at scale remains challenging (Goldman et al., 2024; Holt-Lunstad et al., 2017).

Current approaches to addressing social isolation typically focus on connecting people through organizations or improving individuals' mindset or social skills.[3] This paper proposes a different approach, showing that mutual friend intermediaries are particularly effective in creating friendships. In our experiment, just a few interactions are sufficient to create friendships among pairs introduced by a mutual connection, but not among pairs brought together by an organization.[4] However, we propose that this technology for forming connections is inefficiently underused since mutual friends cannot typically be compensated for the costs of making introductions. Consistent with this, survey evidence from the online platform Prolific shows that while most people say they could introduce compatible friends, few do so. While this inefficiency is not necessarily new, it has likely become more consequential as participation in

[2]Loneliness affects people of different ages and demographics. Young adults report surprisingly high levels of loneliness, with many studies finding they are lonelier than seniors over 65, while low-income adults are also significantly lonelier than average (e.g., Barreto et al., 2021; Blanchflower, 2025; Cohen-Mansfield et al., 2016; Hawkley et al., 2022; Shovestul et al., 2020). The literature often uses the short UCLA loneliness scale to measure self-reported loneliness.

[3]The UK has focused on connecting people to community groups, activities, and services through "social prescribing," providing access to transportation, grants to increase volunteer opportunities at organizations like museums and libraries, and giving young people access to clubs, activities and volunteer opportunities (Frazer and Andrew, 2023). The UK is also working to reduce stigma around loneliness and increase the knowledge base (Frazer and Andrew, 2023). In addition to connecting people to groups, the psychology and social work literatures have focused on improving social skills, addressing negative or distorted thought patterns, and providing professional support (Masi et al., 2011). See Hickin et al. (2021) and Bessaha et al. (2020) for additional meta-analyses from the psychology and social work literatures.

[4]People can and do make friends through organizations; see for example, McRoberts (2003), Pattillo (2013), and Small (2006, 2009). However, this process typically requires sustained interaction over longer periods.

organizations that traditionally facilitated connections has declined.

We start with a simple two-period model that illustrates why mutual friends are more effective than organizations at forming lasting friendships. In the first period, an individual can choose to attend an event hosted by an intermediary, like a church or existing friend, where she interacts with a potential new friend and learns about the pair's binary match quality. Pairs who believe match quality is high will subsequently choose to spend time together in the second period without the intermediary, becoming friends. Events hosted by mutual friends are more likely to generate friendships because they bring together pairs who are more likely to be a good match. However, if mutual friends face a cost of bringing people together but cannot get compensated for value they create, they will facilitate inefficiently few introductions.

Next, we present results from a field experiment that assesses the effectiveness of mutual friend intermediaries. We hosted a four-week trivia competition for Ph.D. students where participants signed up and were randomly assigned to participate or not. This setup mirrors our model: the trivia competition serves as the first period where participants attend an event and learn about their match quality with their teammates. Participants signed up in two ways: they could either join a pre-formed team organized by a team captain (friend intermediary) or be placed on a team with strangers (organizational intermediary). Through surveys at baseline, during the intervention, and one and four months after the competition, we track how the intervention affects teammate relationships.

The experiment demonstrates that when mutual friends facilitate interactions, these interactions lead to lasting relationships. Among pairs who weren't friends at sign-up ("non-friend pairs"), being randomized into the four-week trivia competition (versus being randomized out) led to a 20 pp increase in friendship and a 15 pp increase in texting four months later. In other words, just a few interactions were sufficient to create lasting relationships when pairs were introduced by mutual friends. However, participants placed on teams with strangers showed no increase in friendship formation,

even when given the same opportunities for interaction. The trivia competition also substantially decreased contemporaneous loneliness for participants on pre-formed teams (by 11 pp or 24%), while effects for participants matched with strangers were not statistically significant (3.3 pp).

While we did not randomize which participants signed up as part of a pre-formed team versus on their own – this was their choice – observable differences across participants can't explain the difference in friendship formation between the two team types. The benefit of mutual friend introductions is further supported by revealed preference: 85% of participants chose to join pre-formed teams rather than be matched with strangers.

Our findings are consistent with learning about match quality being a key channel through which the trivia competition generated friendships. The positive effects on friendship were concentrated among pairs who reported being uncertain about their match quality at baseline. In contrast, pairs who believed they were good matches became friends at high rates in both treatment and control. Moreover, spending time together during the trivia competition didn't just make pairs more positive about their relationships: the intervention reduced uncertainty about match quality, with this reduction almost evenly split between positive and negative updating, consistent with true learning about compatibility. The impacts were also almost twice as large for pairs where both members had fewer-than-average social activities at baseline, consistent with pairs forming friendships when their expected value of interacting exceeded their outside options (and less consistent with an adverse selection model in which less social individuals have difficulties forming friendships).

While mutual friend introductions are effective at creating new friendships, we propose that friends make inefficiently few connections. Introductions take effort and it is generally repugnant to compensate friends for making them (a la Roth, 2007; Sandel, 2012; Satz, 2010). Survey evidence from Prolific suggests a large gap between the number of people who say they could introduce people they think would get along (72% of a nationally-representative sample) and those who have done so in the last month

(5%). On the other hand, there is substantial unmet demand for friend-facilitated introductions. While most survey respondents want their friends to connect them, few have asked for introductions, in part out of concern that asking would be stigmatizing or pressuring.

Our findings suggest broadening our view of which institutions are well-positioned to build social connections. While traditional approaches often focus on establishing and promoting place-based organizations where strangers meet – like community centers, volunteer organizations, and social clubs – our results show that encouraging people to bring their friends together is very effective at forming lasting connections. Importantly, this natural expansion of social networks does not require physical infrastructure. Instead, it involves providing potential connectors with a reason to bring their community together, ideally with support to make hosting easier. For example, the UK's Big Lunch, started in 2009 encourages people to bring their neighbors together for a lunch on a specific weekend, providing hosts with planning resources. In 2024, it attracted 10 million people (1 of every 7 UK residents), with 70% saying attending made them less lonely (Eden Project Communities, 2025; Mann, 2024) – demonstrating the potential for friend-facilitated approaches to address social disconnection at scale. A similar approach could be adopted by entities with activities that provide natural reasons for people to gather, from entertainment platforms and sports leagues to faith communities. Given that many of these entities already engage millions of people regularly, they could potentially address social disconnection at considerable scale.[5]

The rest of the paper proceeds as follows. In the next section, we lay out a simple model of social connection formation. Section 3 discusses the experimental design. Section 4 presents the experimental results and discusses external validity. Section

[5]One potential concern is that encouraging the natural expansion of social networks could inadvertently lead to more homophilous networks. A key question is whether additional friend gatherings would crowd out participation in institutions like churches that connect diverse networks or, instead, reduce the significantly greater time people spend on social media platforms, where interactions may be more insular and shaped by algorithms that can amplify polarizing content. While underpowered to assess crowdout, our estimates suggest that our intervention increased participants' total social activities.

5 presents the results from the Prolific survey and discusses how organizations can encourage friend-facilitated connections at scale. We conclude in Section 6.

2 Model

In this simple two-period framework, pairs first interact through an intermediary and learn about their match quality. They then choose to continue the relationship on their own if their expected match quality is sufficiently high. While mutual friends are particularly effective intermediaries because they introduce pairs with higher expected match quality, since serving as an intermediary is costly and they can't get paid for the value they create, they facilitate inefficiently few connections.

Set-Up

Before the first period, intermediary (k) decides whether to host an activity. Then, in period 1, player i chooses whether to attend the activity (if it is offered). If she attends, she receives direct utility x_i (e.g., enjoyment from trivia) and interacts with player j. Whether the pair is a good or bad match is initially unknown. Players i and j receive a symmetric return from interacting $y_{1,ij} \in \{0, 1\}$ where a good (bad) match generates a return $y_{1,ij}$ of 1 (0) with probability $\sigma > \frac{1}{2}$. If player i doesn't attend the activity, she receives her outside option τ.

In period 2, i and j simultaneously decide whether to interact. If either chooses not to, both receive τ. Otherwise, they receive $y_{2,ij}$ which reveals their match quality: $y_{2,ij}$ = 1 (good match) or 0 (bad match). We define friends as pairs who interact in period 2.

The pair is a good match with probability $\alpha > 0$. If the intermediary is a mutual friend, we assume the pair has a higher probability of being a good match (α^f) than if the intermediary is an organization (α^o). We also assume the probability of a good match is low: $0 < \alpha^o < \alpha^f < \tau < 1$. There is no discounting.

Second-Period Equilibrium

In equilibrium, players i and j meet in the second period iff they received a positive signal in the first period and

$$\frac{\alpha\sigma}{\alpha\sigma + (1-\alpha)(1-\sigma)} \geq \tau. \tag{1}$$

Since $\alpha < \tau$, pairs require a positive signal to interact in period 2. However, even with a positive signal, pairs' posterior belief may not be sufficiently high to meet if the baseline probability of a good match (α) is low or the match quality signal is uninformative (σ low).[6] Note that if players enjoy the activity itself (high x_i), they will attend in the first period even if their expected utility from interacting is below their outside option. The specific condition in which players attend in the first period is presented in Appendix A.

The Experiment and Intermediaries

We consider the trivia competition as the first-period activity. All participants wanted to attend, but only treated individuals were allowed to participate. We compare subsequent relationship formation (in period 2) between treatment and control pairs: those who attended the activity and those who didn't. We distinguish between pairs brought together by mutual friends and pairs matched by the organization.

The model yields the following testable predictions. (Proofs are in Appendix A.)

1. *The treatment weakly increases the probability of friendship formation and subsequent (second-period) interaction.*

Since friendship formation and second-period interaction require pairs to have received a positive signal in the first period, treated pairs are weakly more likely to become friends and interact in the second period.

2. *Treatment effects on friendship formation and second-period interaction are weakly larger for pairs brought together by a mutual connection.*

[6] This is consistent with people rarely forming lasting friendship after brief positive interactions.

Since $\alpha^f > \alpha^o$, pairs brought together by a mutual connection have higher prior beliefs about match quality. This makes them both more likely to receive a positive signal and, conditional on receiving a positive signal, more likely to have a posterior belief that exceeds the second-period interaction threshold (Equation 1).

3. *Treatment causes some pairs to update their match quality beliefs upward and others to update their beliefs downward.*

Pairs receiving positive signals revise their beliefs upward, while those receiving negative signals revise their beliefs downward. The possibility of negative updating distinguishes this learning model from familiarity models in which exposure mechanically improves perceived compatibility.

We now extend the baseline model separately in two ways to better reflect the empirical context. First, we allow some pairs to initially believe that they are a good match: $\alpha > \tau$.

4. *Treatment increases friendship formation and second-period interaction only among pairs who do not initially believe they are a good match ($\alpha < \tau$).*

Control pairs who believe they are a good match ($\alpha > \tau$) will interact as friends in the second period.

Second, we revert to assuming that $\alpha < \tau$, but allow for heterogeneity in players' outside option, τ.

5. *Treatment effects on friendship formation and second-period interaction decrease in $max\{\tau_i, \tau_j\}$.*

For pairs to interact in period 2, their expected match quality must exceed both players' outside options. Thus, when outside options are higher, pairs are less likely to interact.

Discussion and Inefficiency

To become friends, players i and j must attend the first-period activity. If players are

more likely to enjoy and thus attend activities hosted by their friends, this is another advantage of mutual friend intermediaries.

The intermediary also has to choose to host the activity. We assume mutual friend intermediary k gets utility x_k^h from the activity and has to pay a cost c to host. If she doesn't host, she takes her outside option τ. Thus, k hosts if her private return exceeds her cost of organizing: $x_k^h - \tau \geq c$. Since she doesn't factor in attendees' positive returns from attending, she hosts inefficiently little. If paying friends weren't repugnant, this inefficiency could be solved by allowing i and j to pay k for offering the activity.[7]

Finally, we note that higher outside options generate negative externalities through reduced hosting and activity attendance, decreasing friendship formation. This mechanism may help explain rising social disconnection if technologies like the internet and social media have raised outside options over the last 25 years.

3 Experimental Design

Our experiment tests the relative effectiveness of individual and organizational intermediaries in facilitating friendship formation. Specifically, we examine: (1) whether a small number of interactions can lead to lasting friendships when pairs are brought together by a mutual friend, and (2) whether this friend intermediary approach is more effective than having an organization facilitate the same types of interaction between strangers.

We hosted a four-week trivia competition for Harvard Ph.D. students in October 2019. Students could join teams in one of two ways: they could either (1) sign up as part of a pre-formed team organized by a team captain (friend intermediary) or (2) sign up to be placed on a team with strangers by the trivia competition (organizational intermediary). Due to venue capacity constraints, only half of those who signed up

[7]While organizations also face a cost of hosting, they are often able to charge participants to recoup these costs.

(chosen at random) could participate. We surveyed students before, during, and after the competition to determine the impact of the intervention on their relationships.

3.1 Trivia Contest

The trivia competition was modeled on the many popular pub trivia nights around Boston. Teams met four consecutive Tuesday evenings (October 1 through October 22) from roughly 7:30 to 9:30 pm. Each evening included some time for socializing at the beginning, followed by a team-based trivia competition where teammates worked together to answer questions. To encourage attendance, we provided free food each week and prizes for weekly winners and overall contest winners.[8] Attendance was high: 82% of treated participants attended at least three of the four nights, and 50% attended all four.

Teams were formed in two ways, reflecting our two intermediary types. Students could either join pre-formed teams or sign up as individuals or in small groups to be matched with others. For pre-formed teams, a team captain registered the team and either signed up teammates directly or sent them a team-specific sign-up link. For matched teams, we combined individuals and small groups to create teams of six. This process yielded 50 teams total. Due to venue capacity constraints, only half the teams could participate. We used stratified randomization and treatment status was balanced within (1) teams of five or six, (2) teams of four, and (3) matched teams of smaller sign-up groups. Each team had a 50% chance of being selected for the competition.

Two facts suggest that participants preferred being on teams with their friends. First, 42 out of the 50 teams were pre-formed teams where all members signed up together. Second, participants on matched teams attended fewer trivia nights (0.4 fewer) on average than did those on pre-formed teams (Appendix Table 1). This meant pairs

[8] We gave drink tickets to early arrivers and awarded weekly and overall prizes to the top three and median-scoring teams. The prizes ranged from a $30 gift card for median place to a $150 cash prize for the top scoring overall team. We advertised the competition through student leaders, departmental and student group listservs, and posters (shown in Appendix Figure 1). Economics Ph.D. students participated in a pilot and so did not sign up for the experiment.

who weren't friends at baseline had more interactions at trivia on average if they signed up together (2.9) than if they were matched onto a team by the competition (2.2 interactions, Appendix Figure 2). Otherwise, attendance was not significantly related to baseline characteristics, including the respondent's reported loneliness score (Appendix Table 1).

3.2 Surveys

We surveyed participants at four points: baseline, during the trivia competition (October 18-28), one month after it ended (November 16-25), and four months later during the following semester (March 3-11).[9] We eliminate from all analyses the 8% of students who did not consent to participate in the study before randomization.[10]

The core survey measures focused on relationships between teammates. For each teammate, we asked whether they were "an acquaintance, friend, or good friend" (including a never met option). Throughout we distinguish whether the respondent designates the pair as friends ("friend" or "good friend") or not ("acquaintance" or "never met"). We also ask whether the pair texted in the last week (including WhatsApp) and how often they had spent time together in the last two weeks, top-coded at five. To measure beliefs about match quality, we asked at baseline, "If you had the desk next to this person for a year, do you think they could become one of your good friends?" Since baseline responses were almost entirely split between "Maybe" and "Yes," (only 1.5% were "No"), we modified follow-up surveys to ask whether they "would" become good friends to better capture negative beliefs. Since belief updating is identified by comparing the treatment and control groups' beliefs (not comparing beliefs before and after the intervention), this wording change does not drive our belief updating results.

[9]The surveys are included in Appendix B. Respondents received $15 for each survey completion, plus $10 for completing all four. The final survey was completed before the university's transition to online classes in March 2020.

[10]The IRB required treated students who did not initially submit the consent form to consent at the door before participating in trivia. However, these students excluded from the analysis.

We did not ask control participants who signed up alone about their relationships with the teammates they would have been matched with had they been randomized in. Since they weren't told of these teammates' existence, we thought these questions would be confusing. Thus, while for pre-formed teams, we compare relationships among treated and control pairs, for matched teams, we measure relationships only among treated teammates. We implicitly assume that control matched pairs would not have become friends and thus any friendship formation among treated matched pairs resulted from the trivia competition. This is a particularly safe assumption given that no lasting friendships formed even among treated pairs. Moreover, if control matched pairs did become friends, this would mean the trivia competition was even less effective for matched teammates. Due to the differences in research design, we analyze pre-formed and matched teams separately throughout the paper.

In addition to the questions about teammate relationships, respondents completed the three-question UCLA Loneliness Scale commonly used in the literature (e.g., Bolotnyy et al., 2022; Hughes et al., 2004; Luhmann and Hawkley, 2016), which asks how often respondents: (1) feel they lack companionship, (2) feel left out, and (3) feel isolated. Respondents receive one point for answering "hardly ever," two points for "some of the time," and three points for "often." Answers to the three questions are summed to form an index which ranges from 3 to 9, with scores of 6 or higher traditionally categorized as lonely. We also asked survey respondents how many social activities they attended in the last two weeks and how many non-family members they texted in the last 48 hours. At baseline, we asked respondents how many friends they had locally and in follow-ups, we asked how many new friends they had formed since October 1 to assess whether trivia crowded out other relationships. Finally, we gathered respondents' gender, year in grad school, and relationship status.[11]

Response rates were high, though slightly higher in the treatment than control group. During the trivia contest, 95% of treated students and 86% of control students

[11] We saw no significant effects of the trivia contest on relationship status.

responded, while post-trivia response rates were 93% and 92% for treated students and 86% and 86% for control students. Characteristics were balanced among treated and control respondents (Appendix Table 2) and we show in supplementary results that the results are robust to including only the first 86% of the treatment group that responded.

3.3 Descriptive Statistics

Table 1 provides descriptive statistics on the 257 students in the experiment who provided consent at baseline and assesses randomization balance. Participants were disproportionately likely to be first-year Ph.D. students (43%), slightly more likely to be male than female, and about equally likely to be single or in a relationship. At baseline, the average UCLA-3 loneliness score was 5.3, similar to the average in the Bolotnyy et al. (2022) survey of economics Ph.D. students (5.2), suggesting that the trivia contest did not attract particularly un-lonely students, though the most isolated and disconnected students may have been unlikely to sign up. Treated and control students look similar on observables.

Students who signed up on pre-formed teams were more likely than those matched onto teams to be first year students. On average, they were happier with their social lives, but actually had (insignificantly) fewer other friends in the area (Table 1). We return to these differences in Section 4.

Roughly 70% of students signed up in teams of six, with another 15% signing up in teams of 4 or 5 (Table 1). Most of the teammates students signed up with were friends at baseline, but the average person signed up with 1.4 non-friends. Just over three quarters of participants who signed up with teammates (73%) signed up with at least one person who wasn't already a friend (Appendix Figure 3).

Table 2 provides descriptive statistics on pairs and assesses randomization balance separately for pairs who weren't friends at baseline (the focus of our analysis) and pairs who were. Throughout our analyses, we consider outcomes at the pair level, so

as not to double count pairs. We define non-friend pairs as pairs in which at least one member said the pair wasn't friends at baseline, though we show in the appendix that our results are slightly larger if we restrict to pairs in which both partners said they weren't friends.

One thing to note is that non-friend pairs are typically acquaintances, not strangers. While most non-friend pairs had interacted fewer than ten times at baseline, roughly a third had texted in the past week (though some of this was likely related to coordinating the trivia team). We don't view this as unique to our context, but instead a reason why mutual friend introductions are so effective. People typically have many more acquaintances than friends and when mutual friends bring groups together, they often bring together people who are somewhat acquainted. The table also shows that in this population, texting is a particularly strong marker of friendship, with over three quarters of friend pairs having texted in the past week.

Finally, we look at predictors of loneliness. Having more friends, texting more people, and attending more social activities are all negatively correlated with loneliness (Figure 1 and Appendix Table 3). Single participants are also much lonelier than those in relationships, despite engaging in more social activities.

4 Experimental Results

Our experiment demonstrates two key findings. First, just a few interactions can lead to lasting friendships when pairs are brought together by a mutual friend. Second, interactions were ineffective at creating friendships among pairs matched by our trivia contest. In our model, this difference arises because mutual friend intermediaries bring together pairs that are more likely to be a good match.

4.1 Main Effects: Pre-Formed Teams

The trivia competition led to lasting relationships for non-friend pairs who signed up together on the same team. Figure 2 displays the evolution of these relationships

across our four survey waves, with regression results controlling for baseline outcomes presented in Table 3. (Appendix Table 4 considers outcomes during the competition itself.) Throughout, an observation is a pair, and the outcome is the average of the pair's responses.[12] Standard errors are clustered at the team level, though because of the relatively small number of clusters (40), the tables also show p-values from a wild cluster bootstrap as described in Cameron et al. (2008).

One month after the competition ended, treated pairs were 16 pp more likely to consider themselves friends than were control pairs (Table 3). This effect persisted and even grew slightly: by four months out the treatment effect on friendship was 20 pp. Similarly, after one month, treated pairs were 18 pp more likely to have texted in the prior week than were control pairs. This advantage remained strong months later, with treated pairs still 15 pp more likely to text in March. These lasting changes in texting behavior provide additional evidence of genuine friendship formation, as texting is strongly correlated with friendship.

Effects on in-person interactions show a similar pattern, though with some decay over time. After one month, treated pairs were 15 pp more likely to interact at least weekly. While this effect was no longer statistically significant by March, we cannot rule out persistent effects of similar magnitude.[13] A summary index that averages our three main outcomes: friendship status, texting, and in-person interaction also shows the intervention had lasting effects. Unsurprisingly, there is no lasting impact on pairs who were already friends at baseline (Appendix Figure 4).

Our results are robust to different sets of controls (Appendix Tables 6 and 7) and to coding the outcomes as the maximum or minimum of the pairs' reports instead of the

[12]The mean of the friendship variable is not zero at baseline since we define non-friend pairs as ones in which at least one member said they were not friends at baseline. In some of these pairs the other teammate considered the pair friends.

[13]This variable could be coded multiple ways; all give similar results. If we code the variable as interacting at least once over the two-week period (instead of weekly), the coefficient is an insignificant 11 (12) percentage points in the one-month (four-month) follow-up. If we use a continuous number of interactions (capped at five by the survey), we see that interactions increased by 0.46 over the two week period in November and that this falls to an insignificant 0.20 by March (Appendix Table 5).

average (Appendix Tables 8 and 9). Our results are slightly larger when we consider only pairs in which neither partner considered the pair friends at baseline (Appendix Table 10). To ensure the results are not driven by differential survey response rates, we show the results are similar when we limit each survey's sample to include only the first X% of treatment group respondents, where X is the control group's response rate (Appendix Table 11).[14]

Overall, the trivia competition led to an average of 0.5 new teammate friends for participants who signed up with least one teammate they didn't consider a friend at baseline (Appendix Table 12, Panel A). We find no evidence that the trivia competition crowded out other friendships (Appendix Table 12, Panel B). If anything, treated students made more non-teammate friends than did control students, but these estimates are very imprecise.

4.2 Main Effects: Matched Teams

The trivia competition did not create lasting friendships among participants matched onto teams by the organizers. The dashed lines in Figure 2 show outcomes for these treated matched pairs.[15] While many matched pairs interacted weekly during trivia, these pairs effectively ceased interacting afterwards. A few matched pairs texted and considered each other friends at the one-month follow-up, but by the following spring, virtually no pairs interacted, texted, or considered themselves friends.

While we randomized admission to the trivia competition, we did not randomize whether participants signed up on a pre-formed or matched team. We argue that the intervention was more effective at building relationships for pairs who signed up on the same team because mutual friends bring together more compatible pairs. An alternative explanation is that the intervention was simply less effective for the types

[14]Later respondents typically required reminder emails, so we consider them more marginal to responding.

[15]Since we did not ask control participants about their relationships with their counterfactual teammates, we are implicitly assuming that any interactions between matched teammates result from the competition.

of people who signed up for matched teams. For example, students who signed up individually might have had a harder time making friends and would be less responsive to any friendship intervention.

However, observable differences between participants who signed up with teams and those who signed up individually cannot explain the differences in the treatment's effects. Students who were matched onto teams, had (insignificantly) more friends outside of their team (Appendix Table 13). They also attended (insignificantly) fewer social activities at baseline, which would predict larger treatment effects for participants on matched teams. In Appendix Figure 5 and Appendix Table 14, we show that reweighting the sample of students who signed up on pre-formed teams to match the observable characteristics of students who were matched onto teams leads to similar treatment effects.[16]

4.3 Mechanisms

We argue that pre-formed teams were not more effective in forming friendships because they attracted different types of people, but instead because they attracted different types of pairs – specifically, pairs with higher expected match quality. This advantage could arise from homophily, whereby people with mutual friends are more similar, or from team organizers using their knowledge of who would get along to form compatible teams. Indeed, non-friend pairs on pre-formed teams reported higher match quality than did matched pairs. When asked whether their teammate would become a good friend if they shared adjacent desks for a year, 53% of non-friends on pre-formed teams expressed optimism four months after the competition, relative to only 17% of matched pairs. Among pairs who were not uncertain or split in their assessment, virtually all (95%) of the pre-formed team pairs were optimistic, while only two-thirds of matched pairs (68%) felt the same way.

[16]To reweight the sample, we follow the procedure in DiNardo et al. (1996). Descriptive statistics on the unweighted and weighted samples are in Appendix Table 13. We can also reweight in the other direction: reweighting the matched pair sample to match the characteristics of participants on pre-formed teams. Given that virtually none of the matched pairs formed lasting relationships, this reweighting also does not impact the estimates.

Our learning model suggests that treated pairs should update both positively and negatively as a result of the intervention (Prediction 3), rather than simply becoming more positive through increased familiarity. Figure 3 supports this prediction, comparing the post-experiment beliefs of treatment and control non-friend pairs on pre-formed teams. To improve power, all heterogeneity analyses average the one- and four-month follow-up survey responses; Appendix Figures 6 and 7 show results separately for the two follow-up surveys. Indicators for the pair's belief about match quality (such as both respondents being uncertain) are regressed on a treatment dummy, controlling for the pair's baseline response and number of follow-up survey responses.[17] The treatment leads to a 12 pp (31%) reduction in both partners being uncertain and an additional (insignificant) 4 pp (65%) reduction in the pair being split (with one positive and one negative belief). Just over half (53%) of the reduction leads to pairs becoming more positive, while the rest results in pairs becoming more negative. The increased negative updating, while statistically insignificant, is interesting because it is inconsistent with models where familiarity simply improves relationships.

Our learning model has additional implications for which pairs should benefit most from the intervention. Since pairs who already believe match quality is high will become friends regardless of the treatment, the treatment should have larger impacts on pairs initially uncertain about match quality (Model Prediction 4). Table 4 documents this pattern for non-friend pairs who signed up on pre-formed teams, comparing impacts for pairs who were certain match quality was high (where both teammates were positive at baseline) and pairs where at least one member was uncertain.[18] The few pairs (4.7%) where someone was negative at baseline are excluded. The table shows that pairs who were initially certain about their match quality developed strong relationships in both treatment and control, while the trivia competition's impacts were strongly concentrated among pairs who were initially uncertain about their match quality.

[17] The number of follow-up survey responses is a strong predictor of the outcomes: if only one member responds, for example, the pair cannot have one member positive and the other negative.

[18] Appendix Table 15 shows the results for the one- and four-month surveys separately.

We next consider the treatment's differential impacts by participants' outside options, using baseline social activities as a proxy. Our model predicts larger treatment effects for pairs with lower outside options (Model Prediction 5). The results in Table 5 support this prediction.[19] They show that the trivia competition had minimal effects when both members had above-median social activities, while if both members had slack in their social schedules, the effects were substantial: a 35 pp increase in friendship formation, a 27 pp increase in texting, and a 16 pp impact on interacting weekly. These results argue against an adverse selection story in which participants with fewer social activities struggle to form friendships and thus benefit less from introductions.

In Appendix Tables 17, 18, and 19, we consider treatment effect heterogeneity by our other baseline characteristics. While not significant, we find suggestive evidence that the treatment had larger effects for female pairs than mixed gender or all-male pairs (Appendix Table 17) and that the effects are larger for pairs in which both members were in a romantic relationship (Appendix Table 18). We don't find large differences by year in the Ph.D. program (Appendix Table 19). However, our results are imprecise.

4.4 Loneliness

Table 6 looks at the impact of the trivia competition on loneliness, as measured by having a UCLA loneliness score of at least 6. During the trivia competition, the intervention decreased loneliness by a significant 9.5 pp – a substantial 20% decrease. There were large reductions in loneliness for those who signed up on teams with friends (10.6 pp or 24%). The measured impact for participants who were matched onto teams (3.3 pp or 5.5%) is noisy and imprecise. While point estimates suggest potential long-term reductions in loneliness, these effects are smaller and insignificant.

4.5 External Validity

The experiment focused on a specific sample – Ph.D. students – and a specific activity – a trivia competition. Here, we extend beyond the scope of our data to discuss four

[19] Appendix Table 16 shows the results for the one- and four-month surveys separately.

potential concerns about generalizability.

1. Ph.D. students are a unique population.

Ph.D. students have important commonalities such as age, educational background, and current life situation, which may facilitate friendship formation. However, we do not necessarily see this as unusual among people introduced by a mutual friend. When people bring their friends together, they often bring together people similar in education, age, and life stage. Instead, we see the focus on Ph.D. students as more impactful for the matched teams. If students who signed up individually had joined other community organizations, they would likely have met people who were less demographically similar. Thus, focusing on Ph.D. students may have decreased the difference in match quality between friend- and organization-intermediated matches.

Another concern is that Ph.D. students may be particularly motivated to form friendships given their life stage. In our model, this would be captured by having lower outside options. Since we find that people with lower outside options benefit more from friend-facilitated introductions, this suggests that populations with more available time – such as the elderly – might benefit even more from mutual friend introductions.

2. Mutual friend introductions are only effective for those already connected.

By their nature, mutual friend introductions cannot help people without existing connections. Nevertheless, many lonely people could benefit from friend introductions. Our trivia competition attracted many lonely students and Section 5.1 shows that over three quarters of lonely people say they have friends who could introduce them to others they would enjoy meeting. Moreover, the most isolated and socially anxious people many find interacting with strangers at community organizations particularly stressful. Even if they aren't a solution for everyone, mutual friend introductions could help a large segment of the population that is lonely, but not completely isolated.

3. Pub trivia is a unique activity.

The trivia competition had two features we believe are important for learning about match quality: substantial time for conversation and repeated interactions. We expect activities lacking these features to be less effective in forming friendships. While many friend group activities naturally emphasize social interaction, organizational activities (e.g., church or organized sports) may be more focused on the activity itself. Conversely, organizations often provide regular, repeated meetings, though participants may not interact with the same people at each.

Our intervention led pairs to compete as part of a team. It's difficult to know to what extent this is important. We also don't have sufficient power to determine whether winning affects subsequent friendship formation. Teams that performed better did attend more often, but part of this is likely due to attendance improving performance as teams that were larger at sign-up also performed better.

4. Outside of our experiment, people do form connections through organizations.

Our results might seem to imply that people never form friendships through organizations. Yet people do; it may simply take longer than the four weeks of our trivia competition for lasting relationships to develop. In our model, some pairs who meet through organizations are good matches and, with a sufficiently precise signal (enough interactions), they will learn this. For people who enjoy attending an organization, slow friendship formation may not be problematic. However, those attending primarily to form connections or who find interacting with strangers unpleasant may find the lengthy process painful. In our model, when friendship formation rates are low, people become less willing to attend the organization in the first place.

5 Discussion

So far we've shown that mutual friend intermediaries are very effective at forming lasting relationships. We next present suggestive survey evidence that this technology

is inefficiently underused (Section 5.1) and then discuss how organizations could encourage people to bring their friends together at scale (Section 5.2).

5.1 Survey Evidence

While we don't know the efficient level of mutual friend introductions, survey evidence suggests that there is substantial untapped potential supply of friend introductions alongside high demand. We conducted two 300-person Prolific surveys using Prolific's U.S. nationally-representative survey option in December 2024, separating questions on the potential supply of and demand for friend introductions into two surveys to avoid contamination and prompting effects. Appendix C shows the survey questions, while Appendix Table 20 provides sample descriptive statistics.

On the supply side, most people could facilitate introductions, but few actually do. While 72% of respondents report that they could introduce compatible friends who do not know each other well, only 5% had done so in the past month (Table 7). Making an introduction has costs: 95% said it would require effort. However, many viewed these costs as surmountable: 40% said introducing their friends would require "little" effort, while 52% said they would organize gatherings in the next month if they knew of a good activity to organize around. Respondents are almost certainly over-optimistic about future hosting, expecting to host much more in the future than they have in the past. However, their responses suggest that many view themselves as potential organizers.

The demand-side evidence reveals a strong appetite for friend-facilitated connections (Appendix Table 21). Importantly, even among lonely respondents (43% of the sample), 76% know someone who could organize a gathering with others they don't know well but would enjoy meeting, suggesting that loneliness doesn't preclude access to potential connectors. The vast majority of this group (91%) would want to attend one of these gatherings. When choosing how to meet new people, 73% prefer introductions through friends over organizations.

We propose that an inability to compensate friends for making introductions leads to inefficiently few connections formed. One might think that informal reciprocity arrangements could solve this problem. However, only 14% of lonely people who want their friends to introduce them have asked for introductions (Appendix Table 21), often citing concerns about appearing "weird or lonely" (47%) and not wanting to pressure their friends (53%).[20] Two-thirds of lonely people who want their friends to host gatherings don't think their friends even know this, suggesting that people don't signal demand even indirectly. Without potential hosts knowing their friends would like these introductions, reciprocity becomes difficult.

5.2 Are There Policy Solutions?

Our findings suggest rethinking policy approaches to building community. Traditional approaches have relied on place-based strategies like creating and supporting community centers, volunteer organizations, and public spaces where strangers meet and hopefully form connections. Our results point to a different model: when people bring their friends together, lasting connections form. Rather than connecting strangers, this approach leverages existing relationships to expand social networks naturally. While our specific intervention would be difficult to replicate broadly, the principle can be applied at scale.

Two examples show how organizations encourage people to bring their community together at scale. OneTable is a Jewish organization that asks people to host Shabbat dinners for their peers and contributes towards the food costs. It has sponsored over 75,000 Shabbat dinners. A non-randomized evaluation found that participating substantially decreased loneliness and increased participants' engagement with Jewish practices (Benenson Strategy Group, 2022).

Similarly, The Big Lunch in the UK encourages people across the country to organize a

[20]Respondents were asked to select all the reasons that applied; these categories are not mutually exclusive. Interestingly, people who aren't lonely are more than twice as likely to have asked for an introduction and substantially less likely to be concerned about seeming weird or lonely. Still, only half of non-lonely people who want an introduction think their friend knows.

lunch for their neighbors on a specific weekend in June. It provides a reason to gather, trainings for interested hosts, and planning packs including a how-to guide, printed invitations, and games. Started in 2009, in 2024 10 million people (1 out of every 7 in the UK) participated with approximately 75% of attendees reporting making friends and 70% reporting feeling less lonely as a result (Eden Project Communities, 2025; Mann, 2024).

OneTable and The Big Lunch take activities that people could have always organized (Shabbat dinners and neighborhood meals) and create frameworks that motivate people to organize them. Both provide a reason to host, an excuse to invite guests, and practical support that reduces hosting costs. This model could be adopted by entities like entertainment platforms, sports leagues, and media companies that aren't traditionally associated with community building. These companies have content they want to promote (e.g., tv shows, sporting events, and books) that could easily become social experiences where people host their friends (e.g., game watches or book clubs). Like OneTable and the Big Lunch, these organizations could invest in creating hosting frameworks that motivate people to organize gatherings for their communities around the activities. These companies have a scale that dwarfs traditional community interventions and financial incentives to increase audience engagement. Yet, as they don't capture the full social welfare gains from reduced loneliness, there remains a role for public or philanthropic funding. This approach of empowering existing networks to expand may be particularly relevant now as traditional community-building institutions decline, while digital platforms and media companies have unprecedented ability to coordinate behavior at scale.

6 Conclusion

Social disconnection has risen in recent decades and worsened since the start of the pandemic. Simultaneously, traditional institutions that facilitated relationship formation – churches and in-person workplaces – continue to decline. Against this backdrop, we identify a particularly effective technology for addressing social

disconnection: mutual friend introductions.

Our field experiment demonstrates this effectiveness. When mutual friends facilitated just a few interactions between people who didn't know each other well, those participants were 20 pp more likely to be friends and 15 pp more likely to be texting four months later. Contemporaneous loneliness fell by nearly 25%. In contrast, identical interaction opportunities without mutual friend introductions failed to generate lasting relationships. Supplementary analyses suggest that mutual friends succeed because they bring together pairs who are more likely to be compatible.

Yet we argue that mutual friend connections are underprovided: they are costly to provide and beneficiaries cannot easily compensate friends for making them. While most people say they could introduce compatible friends, few do so. Meanwhile, lonely people prefer meeting new people through friends than through organizations, but find it stigmatizing and pressuring to even ask their friends for introductions.

These findings point toward a different approach to addressing social disconnection. Rather than focusing solely on building institutions where strangers meet, loneliness reduction efforts could encourage existing social networks to expand naturally. Examples like OneTable and The Big Lunch demonstrate this approach at scale. Importantly, this reframing reveals that the institutions best-positioned to foster social connections are not just traditional community organizations. Entities with significant reach and natural gathering opportunities – from entertainment companies to sports leagues to faith communities – could encourage people to bring their networks together, offering a more scalable approach to addressing social disconnection.

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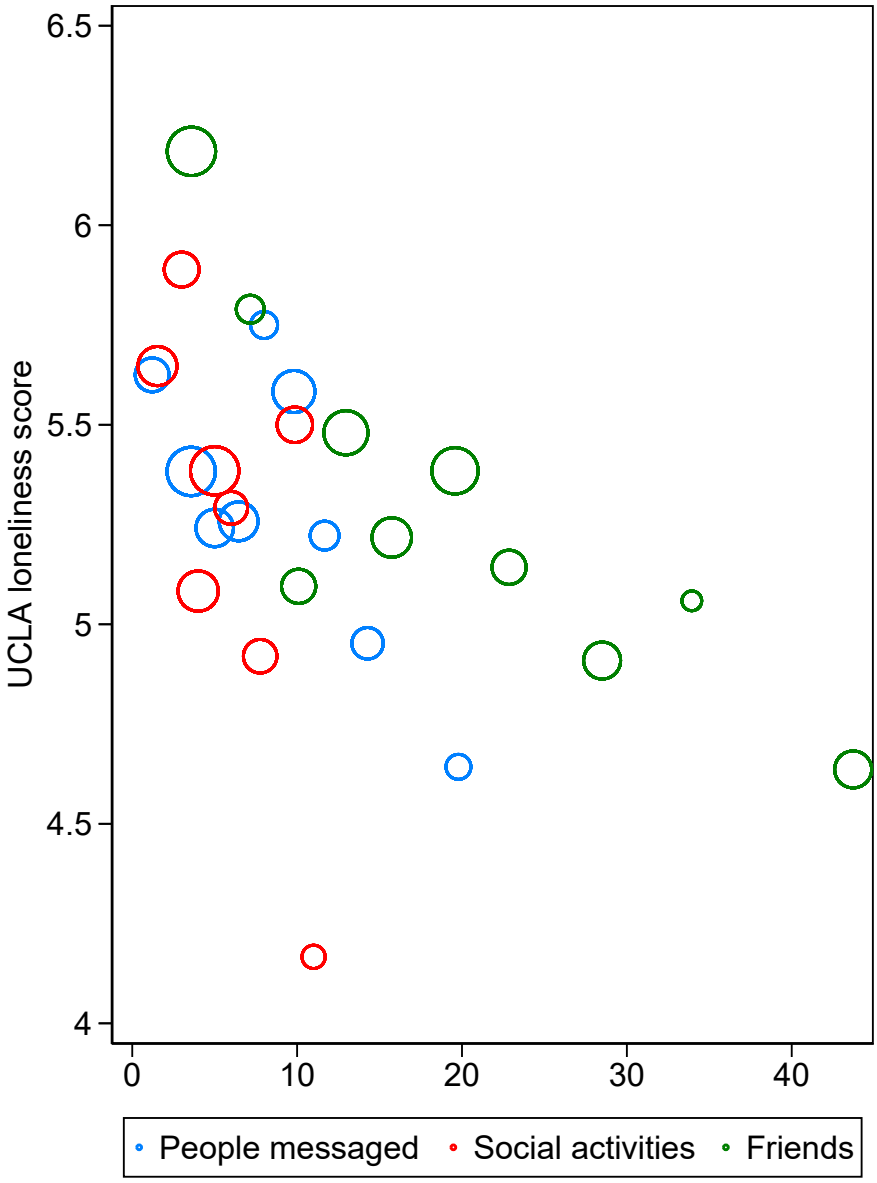
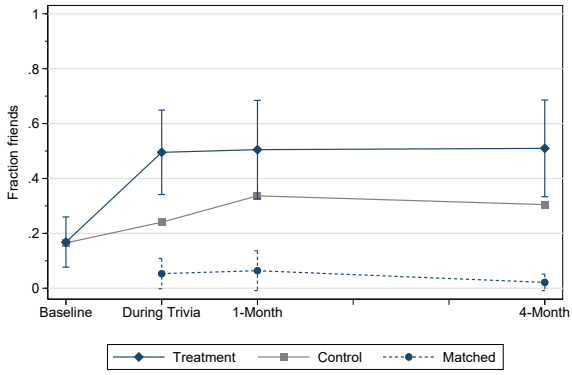
Figure 1: Correlates of Loneliness



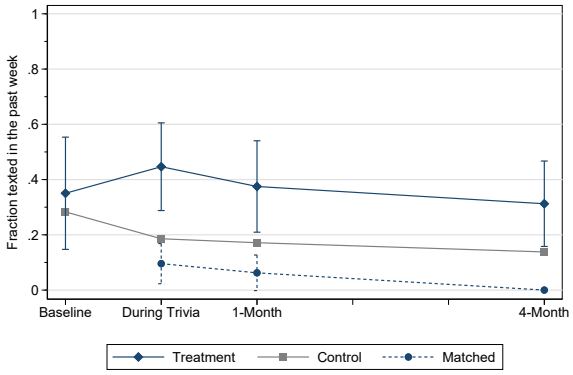
Notes: The figure plots the mean of the 3-item UCLA loneliness score by decile of three different variables using data from the baseline survey. The UCLA loneliness score ranges from 3 to 9 with higher scores indicating greater loneliness. Dot size is proportional to the number of observations in each bin; bins are different sizes due to the discrete nature of the variables. "People messaged" is the number of non-family members messaged in the last 48 hours, "Social activities" is the number of social events attended in the last two weeks, and "Friends" is the total number of friends in the area at baseline, including teammates.

Figure 2: Relationship Outcomes

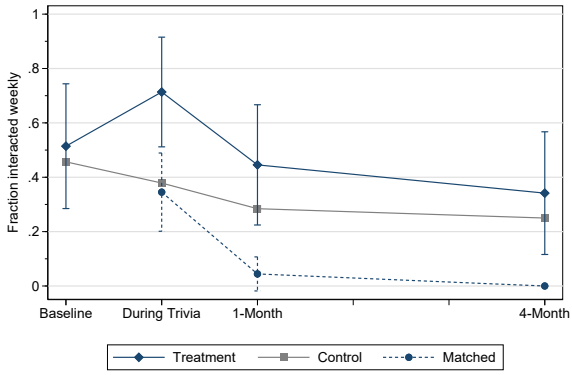
Non-Friend and Matched Pairs



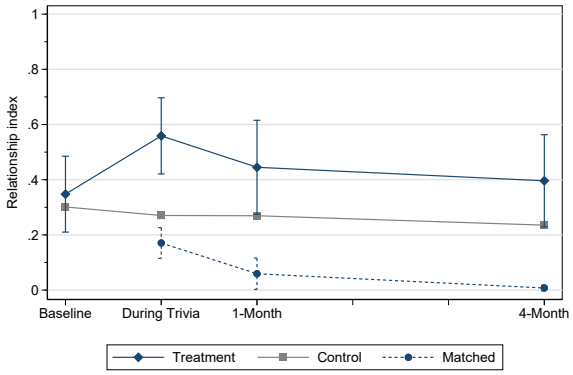
(a) Friendship



(b) Texted in the Past Week



(c) Interacted Weekly

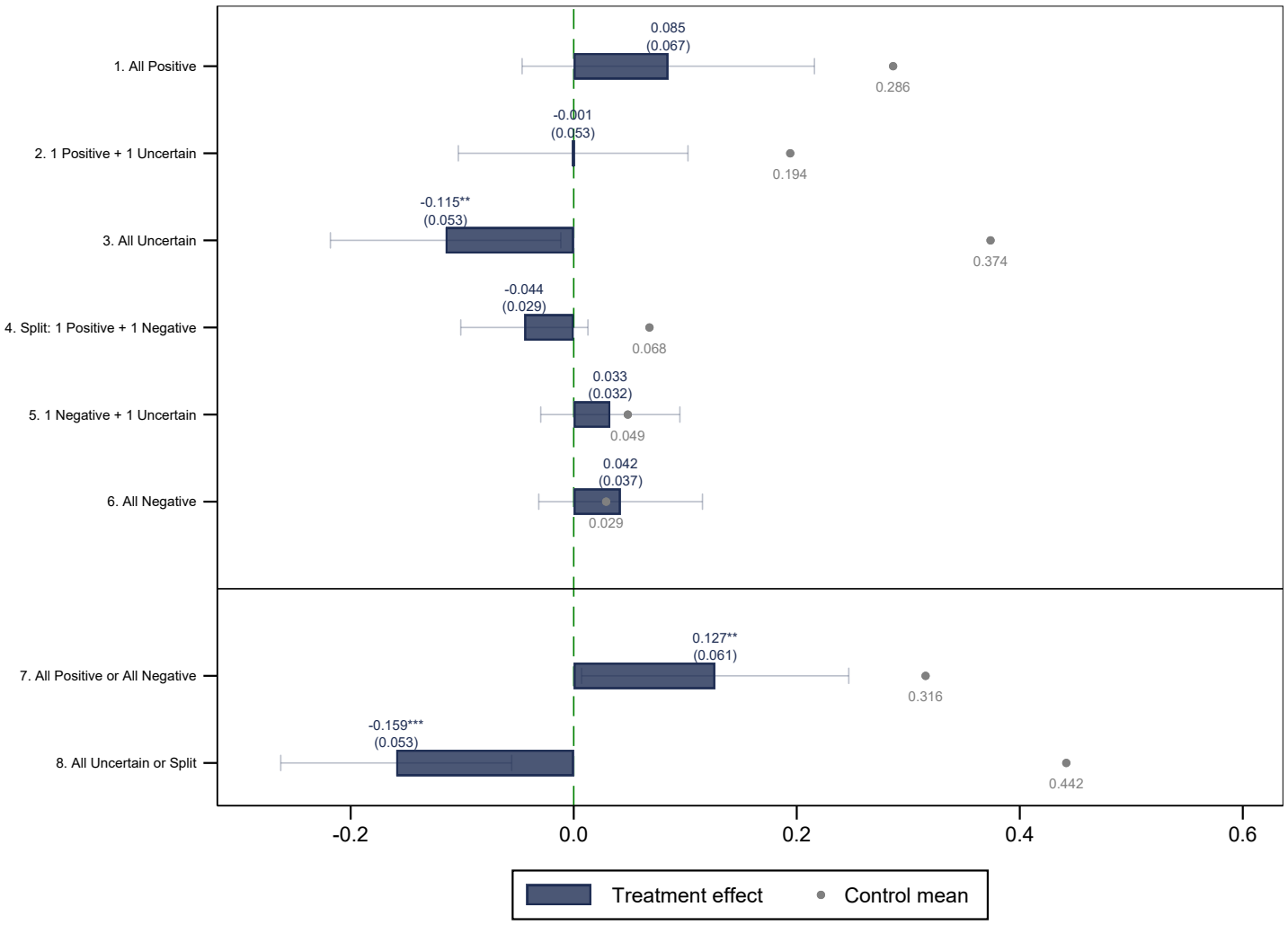


(d) Index

Notes: This figure displays mean outcomes for three groups: non-friend treatment pairs who signed up together ("Treatment"), non-friend control pairs who signed up together ("Control"), and treatment matched pairs ("Matched"). Non-friend pairs are those where at least one teammate reported the pair was not friends at baseline. The index is the average of the other three outcomes. Error bars on the "Treatment" series reflect 95% confidence intervals around the difference between treatment and control. Error bars on the "Matched" series reflect 95% confidence intervals around the mean. Standard errors are clustered at the team level.

Figure 3: Impact on Perceived Match Quality

Non-Friend Pairs



Notes: This figure considers responses to the question, "If you had the desk next to this person for a year, do you think they would become one of your good friends?" Respondents could respond "Yes," (positively) "No," (negatively) or "Maybe/I don't know," (uncertain). Each observation is the average response for a pair from the 1-month and 4-month follow-up surveys: for example, a pair that was *all positive* in one survey and *1 positive + 1 uncertain* in the second is coded as 0.5 for both outcomes. The gray dot shows the mean for the control group. The treatment bar displays the treatment coefficient and 95% confidence interval from a regression of the outcome on treatment status, controlling for the baseline response and the number of responses from the pair in each follow-up. The sample is restricted to non-friend pairs who signed up on the same team. Standard errors are clustered at the team level. The first six items represent each potential combination of responses, while the bottom two items combine responses. ** and *** indicate statistical significance at the 5% and 1% levels, respectively.

Table 1: Summary Statistics and Randomization Balance

	A. Overall	B. Matched vs. Pre-Made Teams			C. Treatment vs. Control		
		Pre-Made	Matched	p-value	Treatment	Control	p-value
Gender							
Male	0.50	0.50	0.49	0.89	0.47	0.53	0.42
Female	0.44	0.43	0.46	0.73	0.45	0.42	0.74
Nonbinary	0.01	0.01	0.02	0.53	0.02	0.00	0.07
Prefer not to say	0.05	0.06	0.02	0.23	0.06	0.05	0.64
Program year							
1st year	0.43	0.48	0.17	0.00	0.42	0.44	0.88
2nd+ year	0.47	0.42	0.76	0.00	0.48	0.47	0.92
Not a PhD student	0.07	0.07	0.07	0.92	0.07	0.07	0.99
Prefer not to say	0.03	0.03	0.00	0.02	0.03	0.02	0.74
Relationship status							
Single	0.47	0.44	0.61	0.02	0.49	0.45	0.59
In a relationship	0.27	0.29	0.20	0.23	0.24	0.30	0.26
Married or living together	0.17	0.18	0.12	0.48	0.19	0.14	0.37
Prefer not to say	0.09	0.09	0.07	0.60	0.08	0.10	0.48
Loneliness and social life							
Social life satisfaction score	3.70	3.79	3.24	0.00	3.70	3.71	0.94
UCLA-3 loneliness score	5.33	5.28	5.57	0.34	5.32	5.33	0.95
Lack companionship	1.84	1.83	1.95	0.35	1.84	1.85	0.89
Feel left out	1.72	1.72	1.76	0.72	1.75	1.70	0.58
Feel isolated	1.76	1.74	1.86	0.15	1.74	1.78	0.52
Non-teammate friends in area	20.66	20.41	22.03	0.48	20.34	20.98	0.76
Social activities	5.41	5.57	4.58	0.12	5.29	5.53	0.57
Messages in last 48 hours	7.70	7.88	6.74	0.23	7.85	7.54	0.63
Sign-up teammates							
Friends	3.06	3.16	1.58	0.00	3.02	3.11	0.80
Acquaintances	1.20	1.27	0.08	0.00	1.25	1.16	0.75
Never met	0.21	0.22	0.00	0.00	0.20	0.22	0.88
Share of participants who signed up in groups of...							
1 person	0.11	N/A	0.66	N/A	0.09	0.12	0.79
2 people	0.01	N/A	0.05	N/A	0.00	0.02	0.16
3 people	0.05	N/A	0.29	N/A	0.08	0.02	0.27
4 people	0.11	0.13	N/A	N/A	0.10	0.12	0.83
5 people	0.04	0.04	N/A	N/A	0.04	0.03	0.88
6 people	0.70	0.83	N/A	N/A	0.69	0.70	0.92
Sample size							
N students	257	216	41		129	128	

Notes: Respondents were asked how often they feel they lack companionship, feel left out, and feel isolated from others. These questions are scored 1, 2, or 3 if they answered, "hardly ever," "some of the time," or "often," respectively. The UCLA-3 score is the sum of the respondent's answers to these three questions and ranges from 3 to 9 with higher scores indicating greater loneliness. Social life satisfaction scores reflect responses to the question, "How satisfied are you with your social life?" and range from 1 ("not at all satisfied") to 5 ("very satisfied"). The *Sign-up teammates* rows include people who respondents signed up with at baseline and do not include matched teammates. p-values come from regressions with standard errors clustered at the team level.

Table 2: Describing Relationships at Baseline

	A. Non-friend pairs			B. Friend pairs		
	Control	Treatment	p-value	Control	Treatment	p-value
Number of previous interactions						
0-9	0.65	0.62	0.83	0.19	0.22	0.66
10-20	0.24	0.29	0.55	0.30	0.28	0.74
21+	0.11	0.08	0.55	0.51	0.51	0.96
Relationship level						
Never met	0.13	0.11	0.82	0.00	0.00	1.00
Acquaintance	0.67	0.69	0.74	0.00	0.00	1.00
Friend	0.20	0.20	0.95	1.00	1.00	1.00
Messaging						
Texted in last week	0.30	0.35	0.63	0.77	0.76	0.88
Time spent in last 2 weeks						
Number of interactions	1.93	2.10	0.75	3.57	3.27	0.43
Interacted at least once	0.62	0.70	0.41	0.94	0.96	0.55
Interacted at least twice	0.51	0.51	0.98	0.82	0.77	0.56
Match quality						
Yes	0.46	0.54	0.36	0.89	0.91	0.59
No	0.03	0.03	0.87	0.01	0.00	0.56
Don't know	0.51	0.43	0.35	0.11	0.09	0.65
Sample size						
N pairs	193	198		311	302	

Notes: Non-friend pairs are those where at least one member reported not being friends at baseline. The "Friend" row is non-zero for non-friend pairs because some non-friend pairs had one partner say the pair was friends at baseline; for these split pairs the "Friend" variable averages to 0.5. Match quality refers to responses to the question: "If you had the desk next to this person for a year, do you think they could become one of your good friends?" Number of interactions in the last 2 weeks is top-coded at 5 (35% of responses). Only pairs that signed up together are included.

Table 3: Impact on Relationships

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.16*	0.18***	0.15**	0.16***
	(0.09)	(0.06)	(0.06)	(0.06)
Outcome at baseline	0.78***	0.41***	0.58***	0.81***
	(0.10)	(0.06)	(0.08)	(0.09)
Bootstrapped p-value (Treatment)	0.10	<0.01	0.04	<0.01
Control mean	0.34	0.17	0.28	0.27
N pairs	202	205	199	196
N Clusters	39	38	39	38
R^2	0.22	0.27	0.36	0.45
		B. 4-Month Follow-Up		
Treatment	0.20**	0.15**	0.05	0.12*
	(0.08)	(0.07)	(0.07)	(0.06)
Outcome at baseline	0.77***	0.30***	0.52***	0.69***
	(0.11)	(0.07)	(0.09)	(0.10)
Bootstrapped p-value (Treatment)	0.02	0.05	0.52	0.07
Control mean	0.30	0.14	0.26	0.24
N pairs	209	209	199	199
N clusters	40	40	40	40
R^2	0.22	0.17	0.32	0.35

Notes: Observations are pairs and the dependent variables are the average of the pair's responses. The index is the mean of the three other outcomes. The sample is restricted to non-friend pairs (those in which either teammate reported the pair was not friends at baseline) who signed up on the same team. Baseline outcomes are defined analogously to the dependent variables, taking values of 0, 0.5, or 1. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Impact by Relationship Certainty

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.19**	0.21***	0.16**	0.18***
	(0.07)	(0.07)	(0.06)	(0.06)
Treatment x Certain	-0.11	-0.19*	-0.25***	-0.18**
	(0.10)	(0.10)	(0.09)	(0.08)
Certain	0.31***	0.20***	0.27***	0.23***
	(0.06)	(0.07)	(0.07)	(0.05)
Outcome at baseline	0.74***	0.31***	0.51***	0.67***
	(0.11)	(0.06)	(0.07)	(0.08)
Bootstrapped p-value (Treatment)	0.03	0.01	0.02	<0.01
Bootstrapped p-value (Interaction)	0.31	0.09	0.01	0.04
Control mean	0.33	0.17	0.27	0.26
N pairs	196	196	192	192
N clusters	39	39	39	39
R^2	0.37	0.28	0.47	0.49

Notes: Each observation is a pair; outcomes are the average of the pair's responses from both the one- and four-month follow-up surveys. "Certain" refers to pairs in which both partners responded "Yes" at baseline to the question "If you had the desk next to this person for a year, do you think they could become one of your good friends?" The 4.7% of pairs where either teammate answered "No" to this question are excluded. Only non-friend pairs who signed up on pre-made teams are included. The index is the mean of the three other outcomes. Baseline outcomes are defined analogously to the dependent variables and can take fractional values. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator and the "Treatment × Certain" interaction using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Impact by Baseline Social Activities

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.35***	0.27***	0.16*	0.26***
	(0.09)	(0.10)	(0.09)	(0.05)
Treatment x High social activity (One)	-0.16	-0.01	-0.02	-0.06
	(0.11)	(0.10)	(0.11)	(0.08)
Treatment x High social activity (Both)	-0.27*	-0.22*	-0.11	-0.22**
	(0.16)	(0.12)	(0.15)	(0.10)
High social activity (One)	0.07	0.02	-0.04	-0.02
	(0.06)	(0.06)	(0.07)	(0.05)
High social activity (Both)	0.07	-0.04	-0.06	-0.02
	(0.08)	(0.05)	(0.07)	(0.05)
Outcome at baseline	0.78***	0.34***	0.55***	0.75***
	(0.10)	(0.05)	(0.08)	(0.09)
Bootstrapped p-value (Treatment)	0.02	0.09	0.10	0.01
Bootstrapped p-value (Interaction 1)	0.20	0.92	0.86	0.46
Bootstrapped p-value (Interaction 2)	0.13	0.14	0.47	0.06
Control mean	0.31	0.15	0.26	0.25
N pairs	208	208	204	204
N clusters	40	40	40	40
R^2	0.30	0.33	0.43	0.49

Notes: Each observation is a pair; outcomes are the average of the pair's responses from both the one- and four-month follow-up surveys. "High social activity (One)" is an indicator for one partner having at least the median number of social activities (5 in the last two weeks) at baseline and the other having below-median social activities. "High social activity (Both)" is an indicator for all respondents having at least the median number of social activities at baseline. The index is the mean of the three other outcomes. Baseline outcomes are defined analogously to the dependent variables and can take fractional values. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values use the wild cluster bootstrap-t procedure described in Cameron et al. (2008). "Interaction 1" denotes the interaction "Treatment x High social activity (One)." "Interaction 2" denotes the interaction "Treatment x High social activity (Both)." *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Impact on Loneliness

During Trivia

	Entire Sample	Pre-Made Team	Matched onto Team
Treatment	-.095**	-.106*	-.033
	(.047)	(.052)	(.127)
Baseline Loneliness Score	.189***	.190***	.164***
	(.016)	(.017)	(.042)
Boostrapped p-value (Treatment)	.034	.058	.773
Control mean	.471	.449	.600
N Individuals	215	182	33
R^2	.366	.376	.329

Notes: The dependent variable is a binary indicator for reporting being lonely (defined as having a 3-item UCLA score $\geq$ 6) during the trivia survey wave. A respondent's UCLA-3 loneliness score is the sum of their answers to three questions asking how often they feel that they lack companionship, feel left out, and feel isolated from others, scored 1, 2, or 3 if they answered, "hardly ever," "some of the time," or "often," respectively. A score of 6 or higher is traditionally considered lonely on this scale. The last two columns limit the sample to those who signed up on pre-made teams and those who were matched onto teams, respectively. Regressions control for the respondent's baseline UCLA-3 score and gender dummies. Standard errors are clustered at the team level. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Potential Supply of Friend Introductions

Prolific Sample

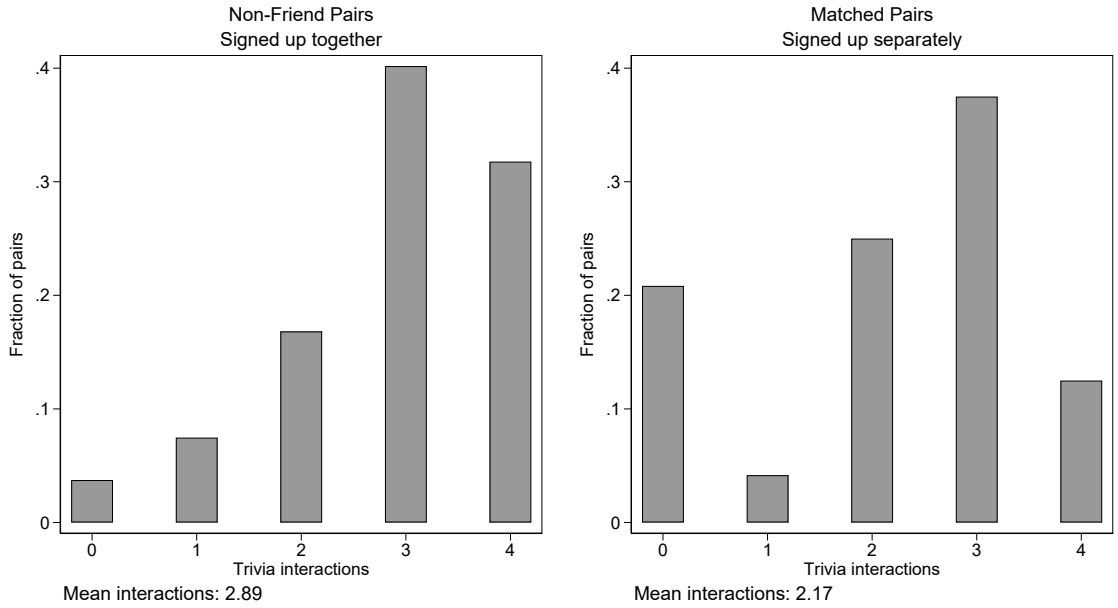
	Percentage of Respondents
Could organize get-together	72%
Last organized get-together	
Last month	5%
1-6 months ago	17%
6-12 months ago	11%
Over a year ago	40%
Never	26%
Effort to organize get-together	
No effort	5%
A little	40%
Moderate	40%
Great deal	16%
Expect to organize get-together in the next month	20%
Would if they knew of a good activity	52%
Concerns about organizing: Somewhat+ (A lot only)	
Money spent	63% (18%)
Time spent	52% (14%)
Emotional effort	68% (23%)
Sample size	300

Notes: Prolific respondents from a U.S. nationally-representative sample were asked (1) whether they could organize a small get-together with people who don't know each other well but who they thought would get along, (2) the last time they had organized such a gathering, and (3) how much effort organizing this type of get-together would take. The questions are in Appendix C. Respondents were also asked if they expected to organize this type of get-together in the next month and whether they would expect to if they knew of a good activity to host around. Finally, participants were asked "How much do you worry about the following when planning a get-together?" Responses were "not at all," "somewhat," and "a lot." The percentage answering "somewhat" or "a lot," is displayed first; the percentage answering "a lot" is in parentheses.

Appendix

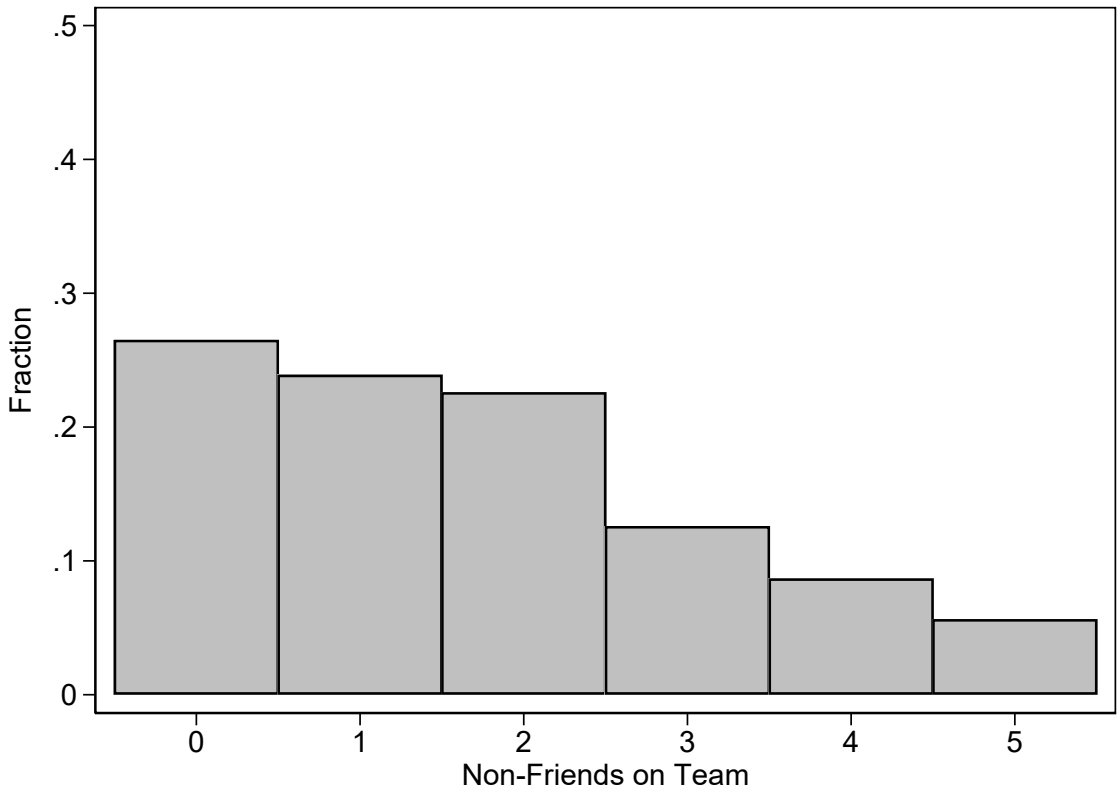
Appendix Figure 1: Trivia Flyer

Appendix Figure 2: Pair Interactions at Trivia



Notes: The figure displays the distribution of the number of times both members of a pair attended trivia, based on recorded attendance. The first panel includes only non-friend pairs who signed up together. The second panel includes only pairs who signed up separately and were matched onto the same team.

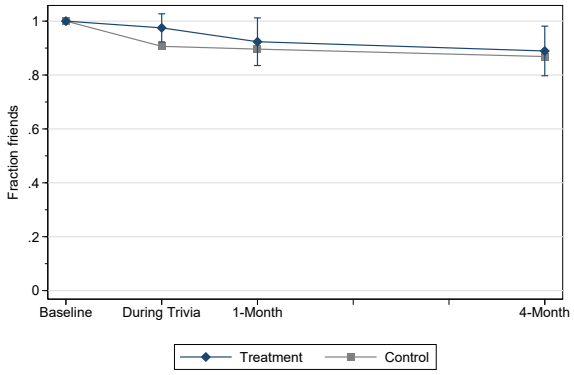
Appendix Figure 3: Non-Friends on Team at Baseline



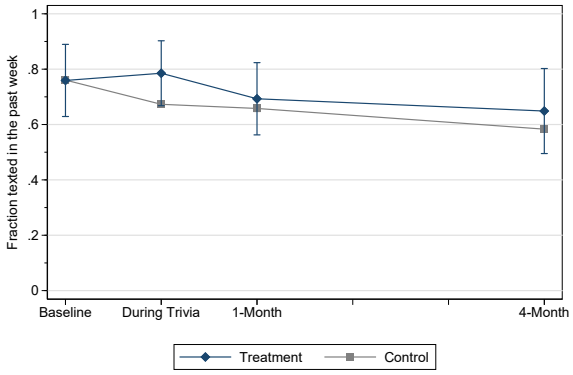
Notes: This figure plots the distribution of the number of non-friends participants signed up with at baseline. A pair is defined as non-friends if either partner said they were acquaintances or had never met at baseline. The figure is limited to students who signed up with teammates.

Appendix Figure 4: Relationship Outcomes

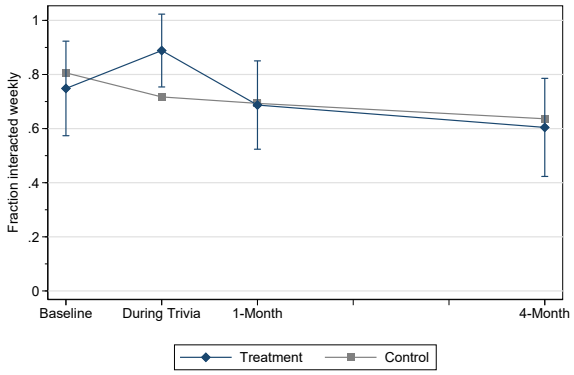
Friend Pairs



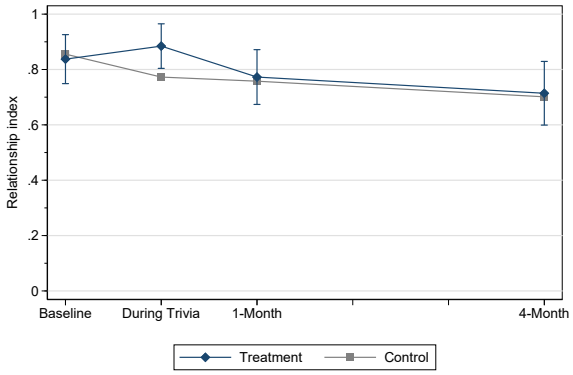
(a) Friendship



(b) Texted in the Past Week



(c) Interacted Weekly

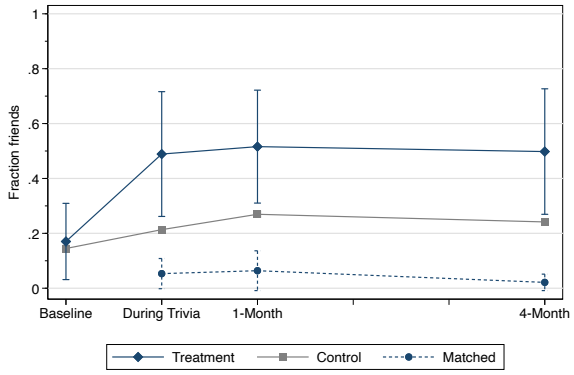


(d) Index

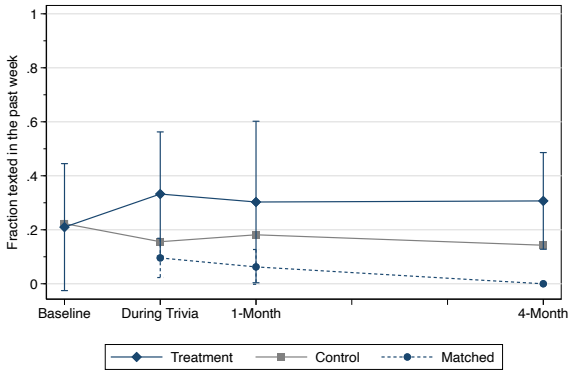
Notes: This figure displays the mean of the outcome indicated by the panel, for treatment and control pairs separately. Only friend pairs (pairs in which both teammates reported they were friends at baseline) are included. Pairs in which only one member answered the baseline survey and indicated the pair was friends are also included. Error bars reflect 95% confidence intervals around the difference between treatment and control. Standard errors are clustered at the team level.

Appendix Figure 5: Relationship Outcomes, Weighted

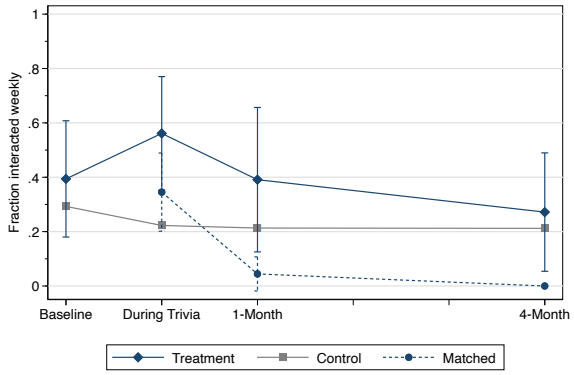
Non-Friend and Matched Pairs



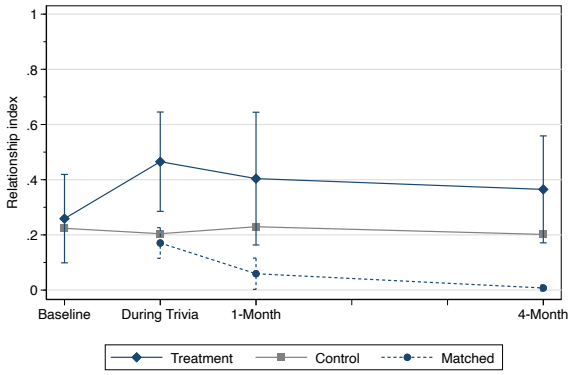
(a) Friendship



(b) Texted in the Past Week



(c) Interacted Weekly

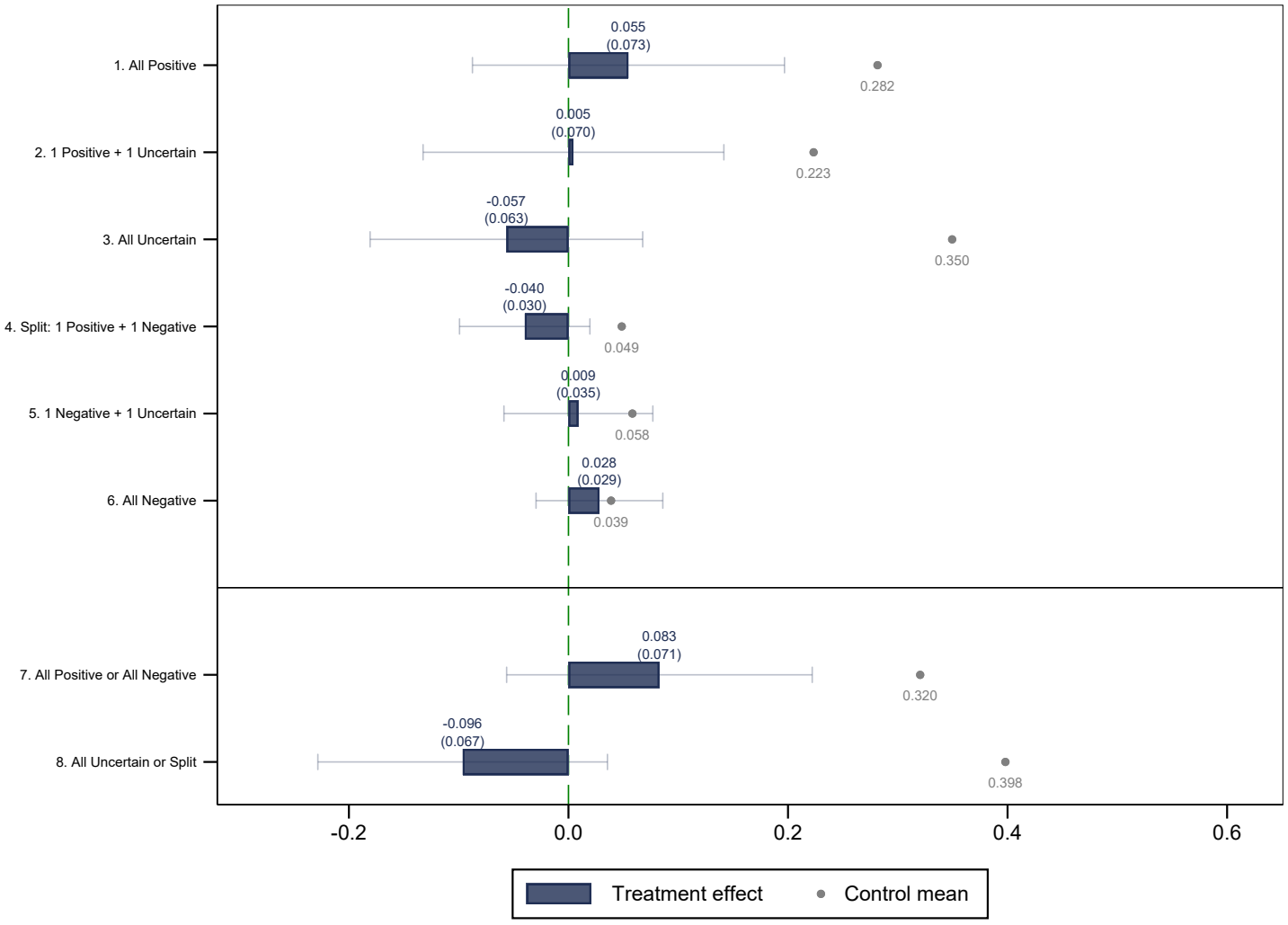


(d) Index

Notes: This figure replicates Figure 2, where observations in the "Treatment" and "Control" series are weighted to make the sample of participants who signed up on pre-made teams demographically similar to those who signed up to be matched onto teams using the method in DiNardo et al. (1996). The results of this weighting exercise are shown in Appendix Table 13.

Appendix Figure 6: Impact on Perceived Match Quality

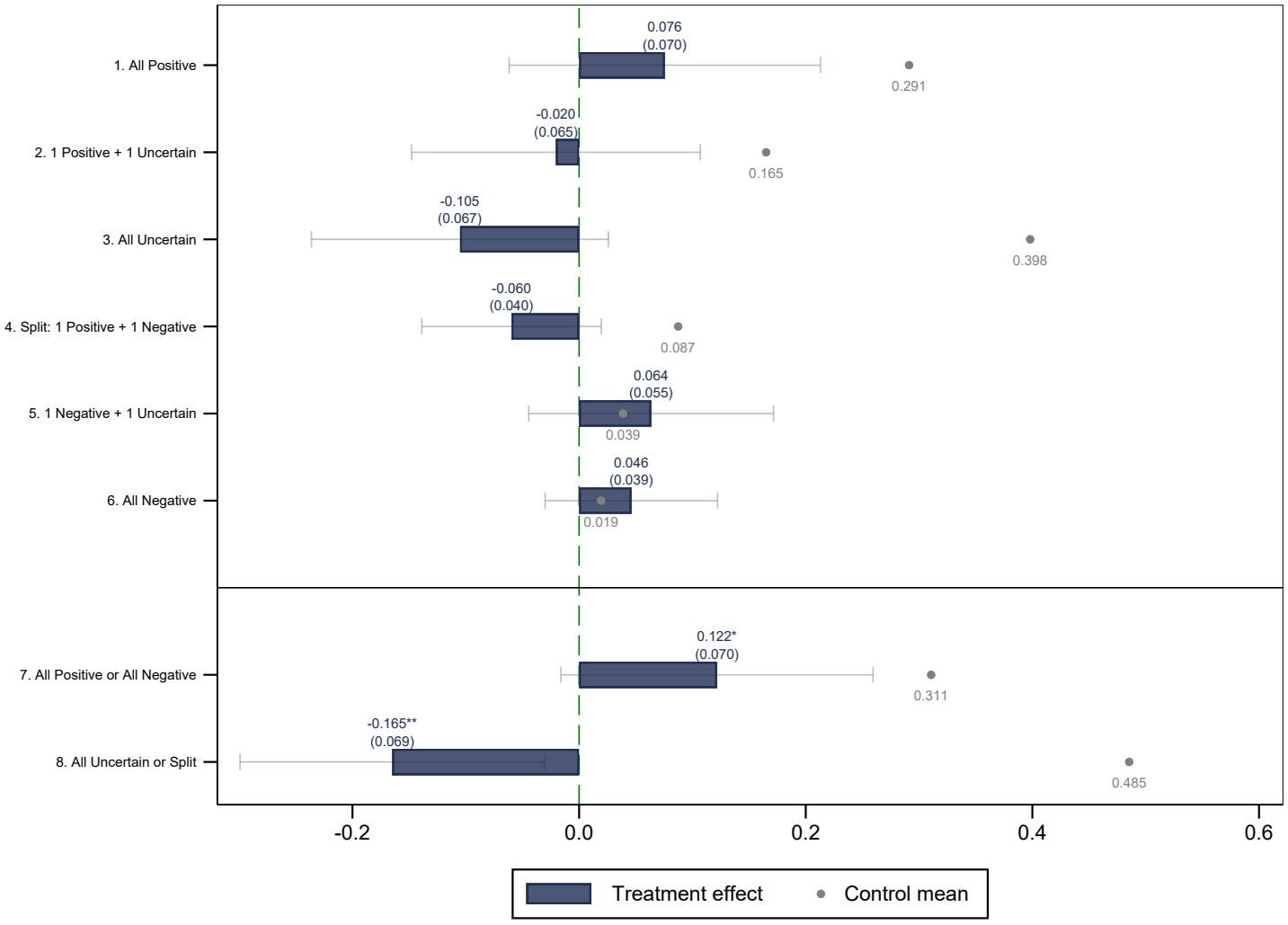
Non-Friend Pairs; 1-Month Follow-up



Notes: This figure replicates Figure 3, with outcomes limited to the one-month follow-up survey.

Appendix Figure 7: Impact on Perceived Match Quality

Non-Friend Pairs; 4-Month Follow-up



Notes: This figure replicates Figure 3, with outcomes limited to the four-month follow-up survey. * and ** indicate statistical significance at the 10% and 5% levels, respectively.

Appendix Table 1: Trivia Attendance

Treatment Group Only

	All treated students	Pre-made teams only				
Matched onto team	-0.38**					
	(0.14)					
Share of sign-up teammates who are friends at baseline		0.01				-0.25
		(0.30)				(0.33)
UCLA loneliness score			-0.06			-0.02
			(0.08)			(0.10)
Social life satisfaction (1-5)				0.15		0.18
				(0.10)		(0.13)
Male					0.13	0.14
					(0.18)	(0.21)
First-year student					-0.25	-0.16
					(0.21)	(0.22)
Single					0.02	0.11
					(0.24)	(0.27)
Dependent variable mean	3.22	3.38	3.32	3.32	3.32	3.36
N individuals	129	93	99	99	95	85
N clusters	25	21	21	21	21	21
R^2	0.02	0.00	0.01	0.02	0.02	0.04

Notes: The dependent variable is the number of trivia nights (out of 4) the participant attended. Standard errors clustered at the team level are reported in parentheses. The UCLA loneliness score ranges from 3 to 9 with higher scores indicating greater loneliness. ** indicates statistical significance at the 5% level. Only treated participants are included.

Appendix Table 2: Characteristics of Respondents by Survey

	During trivia			1-month follow-up			4-month follow-up		
	Treatment	Control	p-value	Treatment	Control	p-value	Treatment	Control	p-value
Gender									
Male	0.47	0.53	0.42	0.47	0.53	0.42	0.47	0.53	0.42
Female	0.45	0.42	0.74	0.45	0.42	0.74	0.45	0.42	0.74
Nonbinary	0.02	0.00	0.07	0.02	0.00	0.07	0.02	0.00	0.07
Prefer not to say	0.06	0.05	0.64	0.06	0.05	0.64	0.06	0.05	0.64
Program year									
1st year	0.42	0.44	0.88	0.42	0.44	0.88	0.42	0.44	0.88
2nd+ year	0.48	0.47	0.92	0.48	0.47	0.92	0.48	0.47	0.92
Not a PhD student	0.07	0.07	0.99	0.07	0.07	0.99	0.07	0.07	0.99
Prefer not to say	0.03	0.02	0.74	0.03	0.02	0.74	0.03	0.02	0.74
Relationship status									
Single	0.49	0.45	0.59	0.49	0.45	0.59	0.49	0.45	0.59
In a relationship	0.24	0.30	0.26	0.24	0.30	0.26	0.24	0.30	0.26
Married or living together	0.19	0.14	0.37	0.19	0.14	0.37	0.19	0.14	0.37
Prefer not to say	0.08	0.10	0.48	0.08	0.10	0.48	0.08	0.10	0.48
Loneliness and social life									
Social life satisfaction score	3.73	3.70	0.85	3.71	3.70	0.98	3.70	3.69	0.94
UCLA-3 loneliness score	5.25	5.30	0.74	5.28	5.30	0.91	5.30	5.29	0.94
Lack companionship	1.80	1.84	0.56	1.83	1.84	0.90	1.83	1.85	0.84
Feel left out	1.73	1.69	0.60	1.74	1.69	0.53	1.74	1.69	0.46
Feel isolated	1.71	1.77	0.41	1.71	1.77	0.35	1.73	1.76	0.66
Non-teammate friends in area	20.42	20.97	0.79	20.06	20.92	0.68	20.23	21.13	0.68
Social activities	5.23	5.51	0.52	5.20	5.52	0.46	5.24	5.53	0.51
Messages in last 48 hours	7.77	7.52	0.69	7.78	7.56	0.72	7.74	7.51	0.72
Sign-up teammates									
Friends	3.03	3.08	0.89	3.04	3.07	0.93	3.04	3.11	0.83
Acquaintances	1.23	1.17	0.84	1.22	1.22	0.99	1.21	1.17	0.89
Never met	0.17	0.23	0.67	0.17	0.23	0.68	0.17	0.23	0.69
Share of participants who signed up in groups of...									
1 person	0.09	0.12	0.79	0.09	0.12	0.79	0.09	0.12	0.79
2 people	0.00	0.02	0.16	0.00	0.02	0.16	0.00	0.02	0.16
3 people	0.08	0.02	0.27	0.08	0.02	0.27	0.08	0.02	0.27
4 people	0.10	0.12	0.83	0.10	0.12	0.83	0.10	0.12	0.83
5 people	0.04	0.03	0.88	0.04	0.03	0.88	0.04	0.03	0.88
6 people	0.69	0.70	0.92	0.69	0.70	0.92	0.69	0.70	0.92
Sample size									
N students	122	110		120	110		119	110	

Notes: The table compares baseline characteristics among treatment and control respondents from each survey wave. p-values come from a regression with standard errors clustered at the team level.

Appendix Table 3: Loneliness Correlates at Baseline

Dependent Variable: UCLA-3 Loneliness Score

Friends	-0.023***			-0.020**	-0.020***
	(0.007)			(0.008)	(0.007)
Social activities		-0.082**		-0.030	-0.025
		(0.035)		(0.043)	(0.045)
People messaged			-0.040**	-0.014	-0.021
			(0.017)	(0.020)	(0.022)
Matched onto team					0.153
					(0.334)
Male					0.159
					(0.210)
Single					0.431**
					(0.207)
Dependent variable mean	5.31	5.33	5.33	5.32	5.35
N individuals	223	238	236	221	206
R^2	0.05	0.02	0.01	0.06	0.09

Notes: The UCLA-3 loneliness score ranges from 3 to 9, with higher values indicating greater loneliness. "Friends" is the total number of friends in the area, including teammates, "Social activities" is the number of social activities attended in the last two weeks, and "People messaged" is the number of non-family members messaged in the last 48 hours. Standard errors clustered at the team level are reported in parentheses. **, and *** indicate statistical significance at the 5%, and 1% levels, respectively.

Appendix Table 4: Impact on Relationships

Non-Friend Pairs, During Trivia

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.25***	0.23***	0.32***	0.27***
	(0.06)	(0.06)	(0.08)	(0.05)
Outcome at baseline	0.88***	0.41***	0.54***	0.70***
	(0.10)	(0.06)	(0.07)	(0.08)
Bootstrapped p-value (Treatment)	<0.01	<0.01	<0.01	<0.01
Control mean	0.24	0.19	0.37	0.27
N pairs	210	208	200	198
N clusters	40	40	40	40
R^2	0.34	0.28	0.40	0.49

Notes: Observations are pairs and the dependent variables are the average of the pair's responses. The index is the mean of the three other outcomes. The sample is restricted to non-friend pairs (those in which either teammate reported the pair was not friends at baseline) who signed up on the same team. Baseline outcomes are defined analogously to the dependent variables, taking values of 0, 0.5, or 1. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 5: Impact on Relationships

Non-Friend Pairs, Additional Interaction Outcomes

	Interacted weekly	Interacted at least once in two weeks	Number of interactions
		A. 1-Month Follow-Up	
Treatment	0.15**	0.11	0.46**
	(0.06)	(0.09)	(0.21)
Outcome at baseline	0.58***	0.56***	0.58***
	(0.08)	(0.08)	(0.07)
Bootstrapped p-value (Treatment)	0.04	0.27	0.05
Control mean	0.28	0.48	1.05
N pairs	199	199	199
N Clusters	39	39	39
R^2	0.36	0.32	0.54
		B. 4-Month Follow-Up	
Treatment	0.05	0.12	0.20
	(0.07)	(0.10)	(0.24)
Outcome at baseline	0.52***	0.50***	0.63***
	(0.09)	(0.08)	(0.09)
Bootstrapped p-value (Treatment)	0.52	0.23	0.45
Control mean	0.26	0.38	1.02
N pairs	199	199	199
N clusters	40	40	40
R^2	0.32	0.25	0.48

Notes: The first column of the table replicates Column 3 of Table 3. The next two columns use different measures of in-person interactions as dependent variables. The number of interactions is capped at 5 by the surveys. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 6: Impact on Relationships

Non-Friend Pairs, with Controls for Program Year, Gender, and Relationship Status

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.18**	0.19**	0.14*	0.17**
	(0.08)	(0.07)	(0.07)	(0.06)
Outcome at baseline	0.77***	0.36***	0.52***	0.75***
	(0.12)	(0.07)	(0.10)	(0.12)
Bootstrapped p-value (Treatment)	0.08	0.03	0.09	0.03
Control mean	0.34	0.17	0.28	0.27
N pairs	202	205	199	196
N Clusters	39	38	39	38
R^2	0.28	0.31	0.42	0.48
		B. 4-Month Follow-Up		
Treatment	0.19***	0.16**	0.05	0.12**
	(0.06)	(0.08)	(0.07)	(0.06)
Outcome at baseline	0.75***	0.26***	0.51***	0.69***
	(0.13)	(0.07)	(0.08)	(0.10)
Bootstrapped p-value (Treatment)	0.02	0.10	0.51	0.07
Control mean	0.30	0.14	0.26	0.24
N pairs	209	209	199	199
N clusters	40	40	40	40
R^2	0.32	0.20	0.41	0.43

Notes: This table replicates Table 3, adding saturated dummies for program year, gender, and relationship status at baseline (e.g., both first-years, first-year/not-first-year, first-year/missing) as controls. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 7: Impact on Relationships

Non-Friend Pairs, without Controls for Baseline Outcomes

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.17*	0.20**	0.16	0.18**
	(0.09)	(0.08)	(0.11)	(0.08)
Bootstrapped p-value (Treatment)	0.09	0.03	0.19	0.05
Control mean	0.34	0.17	0.28	0.27
N pairs	202	205	203	199
N Clusters	39	38	39	38
R^2	0.04	0.07	0.03	0.06
		B. 4-Month Follow-Up		
Treatment	0.20**	0.17**	0.09	0.16*
	(0.09)	(0.08)	(0.11)	(0.08)
Bootstrapped p-value (Treatment)	0.04	0.04	0.46	0.09
Control mean	0.30	0.14	0.25	0.24
N pairs	209	209	203	203
N clusters	40	40	40	40
R^2	0.05	0.05	0.01	0.06

Notes: This table replicates Table 3, excluding controls for baseline outcomes. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 8: Impact on Relationships

Non-Friend Pairs, Outcomes are the Maximum of the Pair's Reports

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.22**	0.22**	0.19**	0.21***
	(0.10)	(0.09)	(0.08)	(0.07)
Outcome at baseline	0.46***	0.46***	0.53***	0.69***
	(0.06)	(0.07)	(0.06)	(0.07)
Bootstrapped p-value (Treatment)	0.07	0.02	0.03	0.01
Control mean	0.42	0.25	0.34	0.34
N pairs	202	205	199	196
N Clusters	39	38	39	38
R^2	0.25	0.29	0.32	0.46
		B. 4-Month Follow-Up		
Treatment	0.20**	0.18*	0.12	0.16*
	(0.09)	(0.10)	(0.10)	(0.08)
Outcome at baseline	0.47***	0.34***	0.46***	0.60***
	(0.08)	(0.08)	(0.07)	(0.08)
Bootstrapped p-value (Treatment)	0.05	0.09	0.23	0.06
Control mean	0.40	0.19	0.31	0.31
N pairs	209	209	199	199
N clusters	40	40	40	40
R^2	0.24	0.18	0.23	0.35

Notes: This table replicates Table 3, but codes outcomes as the maximum of the pair's responses instead of the average. For example, if one partner considers the pair a friend and the other does not, the friend outcome is coded as 1. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 9: Impact on Relationships

Non-Friend Pairs, Outcomes are the Minimum of the Pair's Reports

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.11	0.15**	0.11	0.13**
	(0.09)	(0.06)	(0.08)	(0.05)
Outcome at baseline	0.00***	0.29***	0.45***	0.71***
	(0.00)	(0.07)	(0.10)	(0.14)
Bootstrapped p-value (Treatment)	0.27	0.01	0.21	0.03
Control mean	0.26	0.10	0.22	0.19
N pairs	202	205	199	196
N Clusters	39	38	39	38
R^2	0.01	0.14	0.25	0.26
		B. 4-Month Follow-Up		
Treatment	0.20**	0.13**	0.00	0.11
	(0.08)	(0.06)	(0.08)	(0.06)
Outcome at baseline	0.00***	0.12**	0.42***	0.51***
	(0.00)	(0.06)	(0.11)	(0.14)
Bootstrapped p-value (Treatment)	0.03	0.05	0.99	0.11
Control mean	0.21	0.09	0.20	0.17
N pairs	209	209	199	199
N clusters	40	40	40	40
R^2	0.05	0.05	0.24	0.18

Notes: This table replicates Table 3, but codes outcomes as the minimum of the pair's reports instead of the average. For example, if one partner considers the pair a friend and the other does not, the friend outcome is coded as 0. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 10: Impact on Relationships

Strict Baseline Non-Friend Definition

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.22**	0.23***	0.18**	0.20***
	(0.10)	(0.06)	(0.07)	(0.06)
Outcome at baseline	0.00***	0.36***	0.55***	0.79***
	(0.00)	(0.09)	(0.10)	(0.13)
Bootstrapped p-value (Treatment)	0.07	<0.01	0.04	<0.01
Control mean	0.17	0.06	0.14	0.13
N pairs	131	134	129	126
N Clusters	35	34	35	34
R^2	0.07	0.32	0.43	0.47
		B. 4-Month Follow-Up		
Treatment	0.28***	0.15**	0.08	0.15**
	(0.09)	(0.07)	(0.07)	(0.07)
Outcome at baseline	0.00***	0.21**	0.56***	0.68***
	(0.00)	(0.08)	(0.10)	(0.15)
Bootstrapped p-value (Treatment)	0.01	0.05	0.25	0.02
Control mean	0.14	0.06	0.14	0.11
N pairs	138	138	128	128
N clusters	36	36	36	36
R^2	0.12	0.15	0.42	0.36

Notes: This table replicates Table 3, but includes only pairs in which neither partner reported the pair was friends at baseline. Standard errors are clustered at the team level. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 11: Impact on Relationships

Non-Friend Pairs, Differential Response Exercise

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.18*	0.20***	0.18***	0.18***
	(0.09)	(0.07)	(0.06)	(0.06)
Outcome at baseline	0.78***	0.41***	0.58***	0.82***
	(0.10)	(0.06)	(0.08)	(0.09)
Bootstrapped p-value (Treatment)	0.08	<0.01	0.01	<0.01
Control mean	0.34	0.17	0.28	0.27
N pairs	200	204	198	194
N Clusters	39	38	39	38
R^2	0.22	0.25	0.36	0.46
		B. 4-Month Follow-Up		
Treatment	0.20**	0.16**	0.06	0.13*
	(0.08)	(0.08)	(0.08)	(0.07)
Outcome at baseline	0.78***	0.28***	0.54***	0.67***
	(0.12)	(0.07)	(0.09)	(0.11)
Bootstrapped p-value (Treatment)	0.03	0.06	0.51	0.08
Control mean	0.30	0.14	0.26	0.24
N pairs	203	203	193	193
N clusters	40	40	40	40
R^2	0.22	0.15	0.33	0.34

Notes: This table replicates Table 3, accounting for differential response by keeping responses for only the first X% of the treatment group who responded to each survey, where X is the response rate for the control group. This response rate is 87% for the 1-month follow-up survey and 86% for the 4-month follow-up. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 12: Impact on Friends Made

	1-month follow-up	4-month follow-up
	A. Teammate Friends Made	
Treatment	0.48*	0.53**
	(0.25)	(0.24)
Teammates not friends at baseline	0.39***	0.36***
	(0.11)	(0.11)
Control mean	0.57	0.51
N students	108	110
N clusters	38	39
R^2	0.27	0.26
	B. Non-Teammate Friends Made	
Treatment	0.23	0.05
	(0.22)	(0.42)
Baseline friends in area	0.03***	0.05***
	(0.01)	(0.02)
Control mean	0.91	2.63
N students	192	192
N clusters	45	45
R^2	0.05	0.03

Notes: The dependent variable in Panel A is the number of teammates an individual did not define as a friend at baseline, but did define as a friend in the indicated follow-up survey. This is regressed on a treatment indicator, controlling for the number of teammates the respondent did not consider friends at baseline. The sample is limited to students who signed up with at least one teammate who was not a friend at baseline. The dependent variable in Panel B is the number of non-trivia team friends made since October 1 (the start of trivia). Standard errors clustered at the team level are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Appendix Table 13: Pre-Made and Matched Sign-Up Weighted Comparisons

	Pre-Made (Original)	Pre-Made (Weighted)	Matched (Original)	p-Value (Original)	p-Value (Weighted)
Gender					
Male	0.50	0.51	0.49	0.89	0.85
Female	0.43	0.44	0.46	0.73	0.85
Nonbinary	0.01	0.01	0.02	0.53	0.60
Prefer not to say	0.06	0.04	0.02	0.23	0.68
Program year					
1st year	0.48	0.17	0.17	0.00	0.98
2nd+ year	0.42	0.78	0.76	0.00	0.82
Not a PhD student	0.07	0.05	0.07	0.92	0.58
Prefer not to say	0.03	0.00	0.00	0.02	1.00
Relationship status					
Single	0.44	0.64	0.61	0.02	0.71
In a relationship	0.29	0.18	0.20	0.23	0.88
Married or living together	0.18	0.14	0.12	0.48	0.83
Prefer not to say	0.09	0.04	0.07	0.60	0.37
Loneliness and social life					
Social life satisfaction score	3.79	3.18	3.24	0.00	0.80
UCLA-3 loneliness score	5.28	5.72	5.57	0.34	0.66
Lack companionship	1.83	1.99	1.95	0.35	0.74
Feel left out	1.72	1.85	1.76	0.72	0.49
Feel isolated	1.74	1.88	1.86	0.15	0.92
Non-teammate friends in area	21.98	25.82	23.11	0.69	0.67
Social activities	5.74	4.72	4.74	0.12	0.99
Messages in last 48 hours	8.28	6.97	7.11	0.32	0.91
Sample size					
N students	216	199	41		

Notes: This table replicates the individual-level descriptive statistics on participants who signed up on pre-made and matched teams from Table 1. It then shows summary statistics from a reweighting exercise to make the participants who signed up on pre-made teams similar on observables to those who signed up for matched teams. Weights are created using the methodology in DiNardo et al. (1996) using all the covariates listed in the table. p-values come from regressing an indicator for being on a matched team on the given demographic covariate either with weights or without, with standard errors clustered at the team level.

Appendix Table 14: Impact on Relationships

Non-Friend Pairs, Main Outcomes: Weighted

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.20*	0.12	0.10	0.14
	(0.10)	(0.11)	(0.10)	(0.09)
Outcome at baseline	1.00***	0.57***	0.54***	0.83***
	(0.19)	(0.09)	(0.07)	(0.12)
Bootstrapped p-value (Treatment)	0.08	0.40	0.49	0.17
Control mean	0.27	0.18	0.22	0.23
N pairs	199	202	196	193
N Clusters	38	37	38	37
R^2	0.40	0.37	0.32	0.45
		B. 4-Month Follow-Up		
Treatment	0.23***	0.17**	0.00	0.12**
	(0.08)	(0.07)	(0.08)	(0.06)
Outcome at baseline	0.87***	0.45***	0.47***	0.76***
	(0.19)	(0.09)	(0.12)	(0.15)
Bootstrapped p-value (Treatment)	0.04	0.05	0.98	0.09
Control mean	0.24	0.14	0.22	0.21
N pairs	206	206	196	196
N clusters	39	39	39	39
R^2	0.30	0.25	0.28	0.41

Notes: This table replicates Table 3, weighting observations to match the baseline characteristics of participants who signed up for matched teams. The results of this weighting exercise are shown in Appendix Table 13. Standard errors clustered at the team level are in parentheses. The bootstrapped p-value uses the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 15: Impact by Relationship Certainty

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.23**	0.26***	0.28***	0.26***
	(0.08)	(0.08)	(0.07)	(0.06)
Treatment x Certain	-0.24*	-0.27**	-0.42***	-0.29***
	(0.13)	(0.12)	(0.12)	(0.10)
Certain	0.33***	0.21**	0.33***	0.24***
	(0.08)	(0.08)	(0.09)	(0.07)
Outcome at baseline	0.72***	0.38***	0.57***	0.77***
	(0.11)	(0.06)	(0.07)	(0.08)
Bootstrapped p-value (Treatment)	0.02	0.01	<0.01	<0.01
Bootstrapped p-value (Interaction)	0.08	0.05	<0.01	0.01
Control mean	0.35	0.18	0.28	0.27
N pairs	189	192	186	183
N clusters	38	37	38	37
R^2	0.29	0.28	0.43	0.50
		B. 4-Month Follow-Up		
Treatment	0.16*	0.18**	0.05	0.12*
	(0.08)	(0.08)	(0.07)	(0.07)
Treatment x Certain	0.01	-0.11	-0.10	-0.05
	(0.11)	(0.11)	(0.10)	(0.08)
Certain	0.28***	0.18**	0.21***	0.18***
	(0.07)	(0.07)	(0.07)	(0.05)
Outcome at baseline	0.74***	0.28***	0.49***	0.63***
	(0.12)	(0.07)	(0.08)	(0.10)
Bootstrapped p-value (Treatment)	0.07	0.04	0.47	0.08
Bootstrapped p-value (Interaction)	0.94	0.34	0.35	0.52
Control mean	0.32	0.15	0.27	0.25
N pairs	196	196	187	187
N clusters	39	39	39	39
R^2	0.31	0.20	0.36	0.40

Notes: This table replicates Table 4, but separates the results from the two follow-up surveys. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values show standard errors for the treatment indicator and the "Treatment × Certain" interaction using the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 16: Impact by Baseline Social Activities

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
		A. 1-Month Follow-Up		
Treatment	0.24***	0.17	0.24**	0.21***
	(0.08)	(0.12)	(0.11)	(0.07)
Treatment x High social activity (One)	-0.05	0.17	-0.03	0.04
	(0.13)	(0.14)	(0.14)	(0.10)
Treatment x High social activity (Both)	-0.14	-0.07	-0.19	-0.15
	(0.18)	(0.15)	(0.17)	(0.12)
High social activity (One)	0.02	-0.06	-0.02	-0.07
	(0.08)	(0.08)	(0.08)	(0.05)
High social activity (Both)	0.05	-0.12*	0.01	-0.05
	(0.10)	(0.07)	(0.06)	(0.04)
Outcome at baseline	0.78***	0.41***	0.59***	0.83***
	(0.11)	(0.05)	(0.08)	(0.09)
Bootstrapped p-value (Treatment)	0.04	0.26	0.02	0.01
Bootstrapped p-value (Interaction 1)	0.70	0.24	0.85	0.70
Bootstrapped p-value (Interaction 2)	0.46	0.65	0.28	0.25
Control mean	0.34	0.17	0.28	0.27
N pairs	201	204	198	195
N clusters	39	38	39	38
R^2	0.23	0.33	0.38	0.48
		B. 4-Month Follow-Up		
Treatment	0.44***	0.37***	0.07	0.30***
	(0.10)	(0.11)	(0.12)	(0.08)
Treatment x High social activity (One)	-0.25*	-0.17	-0.01	-0.16*
	(0.13)	(0.11)	(0.14)	(0.09)
Treatment x High social activity (Both)	-0.36**	-0.35**	0.00	-0.26**
	(0.15)	(0.14)	(0.19)	(0.11)
High social activity (One)	0.10	0.09	-0.06	0.00
	(0.08)	(0.06)	(0.08)	(0.05)
High social activity (Both)	0.07	0.04	-0.14	-0.04
	(0.09)	(0.06)	(0.10)	(0.06)
Outcome at baseline	0.75***	0.30***	0.53***	0.72***
	(0.11)	(0.07)	(0.09)	(0.10)
Bootstrapped p-value (Treatment)	0.02	0.02	0.60	0.01
Bootstrapped p-value (Interaction 1)	0.12	0.18	0.96	0.12
Bootstrapped p-value (Interaction 2)	0.05	0.07	0.99	0.05
Control mean	0.30	0.14	0.26	0.24
N pairs	208	208	198	198
N clusters	40	40	40	40
R^2	0.26	0.24	0.34	0.41

Notes: This table replicates Table 5, but separates the results from the two follow-up surveys. Standard errors clustered at the team level are reported in parentheses. The bootstrapped p-values use the wild cluster bootstrap-t procedure described in Cameron et al. (2008). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 17: Impact by Gender

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.30**	0.25**	0.14*	0.21**
	(0.12)	(0.10)	(0.08)	(0.08)
Treatment x Mixed gender	-0.13	-0.08	-0.05	-0.11
	(0.13)	(0.13)	(0.09)	(0.08)
Treatment x Both male	-0.25	-0.11	-0.03	-0.08
	(0.19)	(0.15)	(0.12)	(0.13)
Mixed gender	0.01	-0.01	0.05	0.03
	(0.10)	(0.06)	(0.07)	(0.05)
Both male	0.02	0.03	-0.02	0.00
	(0.10)	(0.08)	(0.08)	(0.07)
Outcome at baseline	0.73***	0.34***	0.60***	0.78***
	(0.13)	(0.07)	(0.08)	(0.10)
Bootstrapped p-value (Treatment)	0.06	0.12	0.13	0.07
Bootstrapped p-value (Interaction 1)	0.38	0.55	0.62	0.22
Bootstrapped p-value (Interaction 2)	0.29	0.50	0.85	0.56
Control mean	0.37	0.18	0.30	0.29
N pairs	156	156	156	156
N clusters	38	38	38	38
R^2	0.28	0.26	0.45	0.48

Notes: Each observation is a pair; outcomes are the average of the pair's responses from both the one- and four-month follow-up surveys. The "Mixed gender" indicator takes on a value of 1 if one respondent in the pair indicated their gender was male and the other respondent indicated their gender was female at baseline. The "Both male" indicator takes on a value of 1 if both respondents in the pair indicated their gender was male at baseline. Pairs with non-binary respondents or respondents who preferred not to provide their gender are excluded. The index is the mean of the three other outcomes. Baseline outcomes are defined analogously to the dependent variables and can take fractional values. Only non-friend pairs on pre-made teams are included. Standard errors are clustered at the team level. The bootstrapped p-value uses the wild cluster bootstrap-t procedure described in Cameron et al. (2008). "Interaction 1" denotes the interaction "Treatment x Mixed gender." "Interaction 2" denotes the interaction "Treatment x Both male." *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 18: Impact by Relationship Status

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.41***	0.20	0.21*	0.22**
	(0.14)	(0.15)	(0.11)	(0.10)
Treatment x Only one single	-0.35**	-0.06	-0.14	-0.13
	(0.15)	(0.16)	(0.10)	(0.11)
Treatment x Both single	-0.35*	-0.11	-0.13	-0.11
	(0.20)	(0.19)	(0.17)	(0.16)
Only one single	0.06	-0.03	-0.06	-0.03
	(0.11)	(0.05)	(0.07)	(0.05)
Both single	0.15	0.11	0.03	0.04
	(0.15)	(0.10)	(0.10)	(0.10)
Outcome at baseline	0.68***	0.37***	0.61***	0.77***
	(0.13)	(0.07)	(0.09)	(0.11)
Bootstrapped p-value (Treatment)	0.06	0.23	0.10	0.04
Bootstrapped p-value (Interaction 1)	0.04	0.73	0.19	0.25
Bootstrapped p-value (Interaction 2)	0.15	0.58	0.47	0.54
Control mean	0.39	0.20	0.31	0.30
N pairs	146	146	146	146
N clusters	37	37	37	37
R^2	0.30	0.29	0.50	0.50

Notes: Each observation is a pair; outcomes are the average of the pair's responses from both the one- and four-month follow-up surveys. "Only one single" is an indicator for one member being single and the other being partnered at baseline. "Both single" indicates both members were single. Pairs in which both members did not provide relationship status at baseline are excluded. The index is the mean of the three other outcomes. Baseline outcomes are defined analogously to the dependent variables and can take fractional values. Only non-friend pairs on pre-made teams are included. The bootstrapped p-values use the wild cluster bootstrap-t procedure described in Cameron et al. (2008). "Interaction 1" denotes the interaction "Treatment x Only one single." "Interaction 2" denotes the interaction "Treatment x Both single." *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 19: Impact by Year of Ph.D. Program

Non-Friend Pairs

	Friends	Texted in last week	Interacted weekly	Index
Treatment	0.24***	0.10	0.10	0.12
	(0.09)	(0.09)	(0.07)	(0.07)
Treatment x Only one first-year	-0.06	0.10	-0.04	0.02
	(0.17)	(0.20)	(0.13)	(0.14)
Treatment x Both first-years	-0.08	0.12	0.07	0.07
	(0.16)	(0.14)	(0.13)	(0.12)
Only one first-year	0.13	0.01	0.08	0.01
	(0.08)	(0.07)	(0.09)	(0.06)
Both first-years	0.14	-0.01	0.07	-0.03
	(0.09)	(0.08)	(0.10)	(0.09)
Outcome at baseline	0.72***	0.33***	0.55***	0.76***
	(0.10)	(0.07)	(0.09)	(0.11)
Bootstrapped p-value (Treatment)	0.02	0.34	0.23	0.15
Bootstrapped p-value (Interaction 1)	0.78	0.68	0.77	0.89
Bootstrapped p-value (Interaction 2)	0.66	0.43	0.66	0.56
Control mean	0.37	0.19	0.31	0.29
N pairs	166	166	166	166
N clusters	38	38	38	38
R^2	0.27	0.27	0.45	0.46

Notes: Each observation is a pair; outcomes are the average of the pair's responses from both the one- and four-month follow-up surveys. "Only one first-year" is an indicator for one partner indicating they were a 1st year Ph.D. student and the other respondent indicating they were not a 1st year. "Both first-years" indicates both partners were 1st years. Pairs in which both partners did not provide grade year information are excluded. The index is the mean of the three other outcomes. Baseline outcomes are defined analogously to the dependent variables and can take fractional values. Only non-friend pairs on pre-made teams are included. Standard errors are clustered at the team level. The bootstrapped p-values use the wild cluster bootstrap-t procedure described in Cameron et al. (2008). "Interaction 1" denotes the interaction "Treatment x Only one first-year." "Interaction 2" denotes the interaction "Treatment x Both first-years." *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 20: Descriptive Statistics: Prolific Samples

	Supply Survey	Demand Survey		Supply Survey	Demand Survey
Gender			*Highest level of education*		
Male	0.48	0.49	Less than high school	0.01	0.01
Female	0.50	0.51	High school	0.10	0.14
Non-Binary	0.01	0.00	Some college	0.24	0.23
Prefer not to say	0.00	0.00	Associate's degree	0.13	0.12
			Bachelor's degree	0.37	0.36
Age	45.71	45.52	Graduate degree	0.14	0.14
Relationship status			*Current school enrollment*		
Single, never married	0.26	0.27	Yes, in college	0.09	0.08
Single, divorced	0.09	0.12	Yes, in graduate school	0.03	0.03
In a relationship, living apart	0.08	0.06	Yes, in another type of program	0.01	0.01
In a relationship, living together	0.14	0.14	Not currently enrolled	0.86	0.88
Married or in a civil union	0.43	0.42			
			Employment status		
Living with others			Employed full-time	0.48	0.47
With family	0.48	0.49	Employed part-time	0.22	0.21
One or more non-family roommates	0.05	0.02	Unemployed	0.12	0.13
With a significant other	0.31	0.28	Retired	0.12	0.13
Living alone	0.16	0.21	Not looking for work	0.07	0.07
Loneliness			*Sample size*	300	299
UCLA loneliness score (3-9)	5.17	5.10			
Lonely (UCLA ≥ 6)	0.42	0.43			

Notes: This table provides descriptive statistics on the samples from two Prolific surveys conducted in December 2024, using Prolific's U.S. nationally-representative survey option. The "Supply Survey" is in Appendix C.1; survey results are in Table 7. The "Demand Survey" is in Appendix C.2; results are in Appendix Table 21. One participant in the Demand Survey received credit for taking the survey without answering any questions, leading to a sample size of 299.

Appendix Table 21: Demand for Friend Introductions

	All	Lonely (43%)	Not lonely (57%)
		A. Entire sample	
Knows potential organizer	82%	76%	86%
Knows organizer & wants to attend	74%	69%	78%
Prefers meeting new people through friends	74%	73%	74%
Sample size	299	128	171
		B. Knows Organizer & Wants to Attend Only	
Friend thinks they want intro	44%	33%	51%
Asked for introduction	24%	14%	32%
Sample size	221	88	133
Why haven't asked for intro (check all that apply)			
Don't want to pressure introducer	48%	53%	54%
Might make me seem weird or lonely	33%	47%	21%
Introducer may not make intro	11%	14%	9%
Might change dynamic	7%	9%	4%
Sample size	167	76	91

Notes: Prolific respondents from a U.S. nationally-representative sample were asked whether they "know someone who could organize a get-together that includes at least one person you don't know that you think you would enjoy meeting" (row 1). Those that said yes were then asked whether they would want to attend a gathering of either this friend or another who could organize. Row 2 displays the sample fraction that both knew a potential organizer and would want to attend either friend's event. Respondents were asked "If you were going to meet new people, would you prefer to meet them at a friend's get-together or through an organization (like a church, sports league, or volunteer organization);" row 3 shows the share preferring to meet new people through a friend's get-together. Panel B is restricted to respondents who knew a potential organizer and wanted to attend a friend's gathering (the 74% of the sample from row 2). These respondents were asked "Do you think this person thinks you want them to host a get-together?" and "Have you asked this friend to introduce you to their friends or host a get-together directly?" The share saying yes to these question is displayed. Respondents who had not asked for an introduction were then asked to check all the reasons they hadn't asked from the following list: "I don't want to pressure them," "asking for an introduction might change our dynamic," "asking for an introduction might make me seem weird or lonely," "they may not do it," and "I don't want an introduction." Questions are in Appendix C. "Lonely" respondents are those with a UCLA-3 loneliness score of at least 6. 300 participants were sampled; one got credit for taking the survey without answering any questions, leading to a sample size of 299.

A Theoretical Appendix

This section expands on the model presented in Section 2, providing proofs of the second-period equilibrium and the model's predictions and defining the model's first-period equilibrium. Since pairs are friends iff they interact in the second period, we prove all results in terms of second-period interaction, with the friendship formation results following by definition.

A.1 Proof of Second-Period Equilibrium

Proposition. In equilibrium, players i and j meet in the second period iff they received a positive return from interacting in the first period and

$$\frac{\alpha\sigma}{\alpha\sigma + (1-\alpha)(1-\sigma)} \geq \tau. \tag{2}$$

Proof. Players i and j either do not interact in the first period, interact and receive a positive return, or interact and receive a zero return. If they don't interact, their expected utility from meeting in the second period is α. Since $\alpha < \tau$, they will not choose to meet in the second period. If the pair receives zero utility from interacting, each player's expected utility from meeting in the second period is $\frac{\alpha(1-\sigma)}{\alpha(1-\sigma)+(1-\alpha)\sigma}$. Since $\sigma > \frac{1}{2}$, $\frac{\alpha(1-\sigma)}{\alpha(1-\sigma)+(1-\alpha)\sigma} < \alpha < \tau$, so the pair won't meet in the second period. If the pair receives a positive signal from interacting in the first period, each player's expected utility from meeting in the second period is $\frac{\alpha\sigma}{\alpha\sigma+(1-\alpha)(1-\sigma)}$. In this case, the pair will meet in the second period iff $\frac{\alpha\sigma}{\alpha\sigma+(1-\alpha)(1-\sigma)} \geq \tau$.

A.2 Proofs of Model Predictions

We next repeat the model's predictions from Section 2, adding proofs.

1. *The treatment weakly increases the probability of friendship formation and subsequent (second-period) interaction.*

Proof. In Section A.1, we showed that pairs do not meet in the second period if they

did not meet in the first. Without the treatment, pairs will not interact in the second period. Thus, the treatment weakly increases the probability that pairs subsequently interact.

2. *Treatment effects on friendship formation and second-period interaction are weakly larger for pairs brought together by a mutual connection.*

Proof. Since non-treated pairs don't interact in the second period, proving this prediction reduces to showing that among treated pairs, those brought together by an existing connection are more likely to interact in the second period. Treated pairs interact in the second period iff they receive a positive signal in the first and Equation 2 holds (Section A.1). Since $\frac{1}{2} < \sigma < 1$, the left-hand side of Equation 2 is increasing in α. Given that $\alpha_f > \alpha_o$, we consider three exhaustive cases.

Case 1: Equation 2 holds for both α_f and α_o. In this case, all pairs interact in the second period iff they receive a positive first-period signal. The probability of receiving a positive first-period signal is $\alpha\sigma + (1-\alpha)(1-\sigma)$, which is increasing in α since $\sigma > \frac{1}{2}$. Since $\alpha_f > \alpha_o$, pairs with existing connections are more likely to interact in the second period.

Case 2: Equation 2 holds for neither α_f nor α_o. No pairs interact in the second period.

Case 3: Equation 2 holds for only α_f, not α_o. No pairs without a mutual connection will interact; only pairs with a mutual connection that receive a positive-first period signal will.

In each case, treated pairs are weakly more likely to interact if brought together by a mutual connection.

3. *Treatment causes some pairs to update their match quality beliefs upward and others to update their beliefs downward.*

Proof. Since non-treated pairs do not interact in the first period, their expected probability of being a good match remains α. Treated pairs interact and receive a return of either 0 or 1. Using Bayes' rule, pairs receiving a return of 1 update their beliefs the match is good to $\frac{\alpha\sigma}{\alpha\sigma+(1-\alpha)(1-\sigma)} > \alpha$ (positive updating), while those receiving a return of 0 update their belief to $\frac{\alpha(1-\sigma)}{\alpha(1-\sigma)+(1-\alpha)\sigma} < \alpha$ (negative updating).

The next two predictions extend the model separately in two ways to mirror the empirical context. First, we allow some pairs to initially believe that they are a good match: $\alpha > \tau$.

4. *Treatment increases friendship formation and second-period interaction only among pairs who do not initially believe they are a good match ($\alpha < \tau$).*

Proof. Pairs with $\alpha \geq \tau$ will interact in the second period without treatment. First-period interaction cannot increase their interaction probability, but a negative signal can decrease their posterior belief below τ, leading them to forgo interacting. Thus, the treatment can only increase second-period interaction for pairs with $\alpha < \tau$.

Finally, we allow for heterogeneity in players' outside option, τ, reverting back to our original assumption that $\alpha < \tau$ (for all levels of τ).

5. *Treatment effects on friendship formation and second-period interaction decrease in $max\{\tau_i, \tau_j\}$.*

Proof. Since $\alpha < min\{\tau_i, \tau_j\}$, non-treated pairs do not interact in the second period. Thus, proving this prediction only requires proving that treated pairs' second-period interaction decreases in $max\{\tau_i, \tau_j\}$. Treated pairs interact iff they receive a return of 1 from their first-period interaction and Equation 2 holds for both τ_i and τ_j, that is:

$$\frac{\alpha\sigma}{\alpha\sigma + (1-\alpha)(1-\sigma)} \geq max\{\tau_i, \tau_j\}. \tag{3}$$

The probability of receiving a positive first-period signal does not vary with τ. Since the left-hand side of Equation 3 is independent of τ, the inequality is less likely to be satisfied – and thus pairs are less likely to interact in the second period – as $max\{\tau_i, \tau_j\}$ increases.

A.3 First-Period Equilibrium

Finally, we discuss the first-period equilibrium. To simplify notation, we define $g \equiv \alpha\sigma + (1-\alpha)(1-\sigma)$ as the probability of receiving return of 1 from the first-period interaction.

Proposition. Player i chooses to attend the period 1 activity iff

$$x_i + g(1-\tau) + gmax\{\frac{\alpha\sigma}{g}, \tau\} \geq \tau. \tag{4}$$

Proof. Player i attends the activity when her expected lifetime utility from attending exceeds her expected lifetime utility from not attending.

If she does not attend, she will take her outside option in both periods, for a lifetime utility of 2τ.

If she attends, her expected first-period utility is her utility from the activity itself plus her expected utility from interacting with j: $x_i + g$. Her second-period decision depends on the first-period signal.

- With probability $1-g$, she receives a negative signal and will take her outside option τ.
- With probability g, she receives a positive signal and believes the match is good with probability $\frac{\alpha\sigma}{g}$. She will interact with player j iff $\frac{\alpha\sigma}{g} \geq \tau$, yielding expected utility $max\{\frac{\alpha\sigma}{g}, \tau\}$.

Therefore, her expected lifetime utility from attending the activity is $x_i + g +$

$gmax\{\frac{\alpha\sigma}{g}, \tau\} + (1-g)\tau$.

Player i will attend the first-period activity iff:

$$x_i + g + gmax\{\frac{\alpha\sigma}{g}, \tau\} + (1-g)\tau \geq 2\tau \tag{5}$$

or equivalently

$$x_i + g(1-\tau) + gmax\{\frac{\alpha\sigma}{g}, \tau\} \geq \tau. \tag{6}$$

Discussion. Player i will attend the first-period activity if her expected first-period utility from attending exceeds her outside option: $x_i + g \geq \tau$. However, this is not a necessary condition. She will also attend if her expected first-period utility from attending falls below her outside option, provided that the expected second-period option value from learning about match quality is high enough to compensate for the expected first-period loss. The higher the direct utility from the activity itself, x_i, the more likely she will attend.

B Trivia Surveys

We conducted four trivia surveys: a baseline survey (September 13 to September 27), a survey during trivia (October 18 to October 28), a follow-up survey roughly one month after trivia (November 16 to November 25), and a follow-up survey roughly four months after trivia (March 3 to March 11). The trivia contest took place from October 1 to October 22.

B.1 Baseline Survey

Please provide the following background information:

Phone number (for texting future survey links)

Please format your phone number: XXX-XXX-XXXX

G-Year

- ○ G1
- ○ G2
- ○ G3
- ○ G4
- ○ G5
- ○ G6
- ○ G7+
- ○ Master's student
- ○ Not a graduate student

Gender

- ○ Male
- ○ Female
- ○ _____ Prefer to self-describe
- ○ Prefer not to say

Relationship Status

- ○ Single
- ○ In a relationship
- ○ Married or living together
- ○ Prefer not to say

For each teammate, please report

	Have you texted this person in the last week (include WhatsApp)?		On how many occasions have you spent time with this person in the last two weeks?	Since you've met, how many times have you engaged with this person either one-on-one or in a social setting?	Do you consider this person an acquaintance, friend, or good friend?	If you had the desk next to this person for a year, do you think they could become one of your good friends?		
	Yes	No				No	Maybe/I Don't Know	Yes
Name 1	○	○				○	○	○
Name 2	○	○				○	○	○
Name 3	○	○				○	○	○
Name 4	○	○				○	○	○
Name 5	○	○				○	○	○

Aside from your teammates listed on the previous page, how many people in the Boston area would you consider to be a:

Friend? _____

Good friend? _____

How many people in the Boston area do you feel comfortable reaching out to for the following one-on-one activities?

Eating lunch together _____

Talking about a problem or worry _____

How many social activities have you attended in the last two weeks?

_____

Imagine you had a block of free time. You could choose to spend this time with

A) Someone you know well but don't consider a good friend.

OR

B) Someone you don't know well but who you believe could become a good friend.

In this situation, who would you make an effort to see?

- ○ Person A
- ○ Person B
- ○ Neither (spend time with no one)

The following questions address how you feel about different aspects of your life.

	Hardly ever	Some of the time	Often
How often do you feel you lack companionship?	○	○	○
How often do you feel left out?	○	○	○
How often do you feel isolated from others?	○	○	○

How satisfied are you with your social life?

- ○ Not at all satisfied
- ○ Not very satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Fairly satisfied
- ○ Very satisfied

B.2 During Trivia

The first questions pertain to your relationships with specific people.

	Have you texted this person in the last week (include WhatsApp)?		On how many occasions have you spent time with this person in the last two weeks?
	Yes	No	
Name 1	○	○	
Name 2	○	○	
Name 3	○	○	
Name 4	○	○	
Name 5	○	○	

For each person below, please report:

	Do you consider this person an acquaintance, friend, or good friend?	If you had the desk next to this person for a year, do you think they could become one of your good friends?		
		No	Maybe/I don't know	Yes
Name 1		○	○	○
Name 2		○	○	○
Name 3		○	○	○
Name 4		○	○	○
Name 5		○	○	○

Aside from the people listed on the previous page, how many people in the Boston area would you consider to be a:

Friend?

Good friend?

How many new friendships have you formed this academic year?

How many new **good** friendships have you formed this academic year? (Please include both people you have met this year as well as pre-existing relationships that have strengthened this year.)

How many social activities have you attended in the last two weeks?

How many non-family members have you texted or messaged in the last 48 hours?

The following questions address how you feel about different aspects of your life.

	Hardly ever	Some of the time	Often
How often do you feel you lack companionship?	○	○	○
How often do you feel left out?	○	○	○
How often do you feel isolated from others?	○	○	○

How satisfied are you with your social life?

- ○ Not at all satisfied
- ○ Not very satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Fairly satisfied
- ○ Very satisfied

What is your relationship status?

- ○ Single
- ○ In a relationship
- ○ Married or living together
- ○ Prefer not to say

B.3 1-Month Follow-Up

The first questions pertain to your relationships with specific people.

	Have you texted this person in the last week (include WhatsApp)?		On how many occasions have you spent time with this person in the last two weeks?
	Yes	No	
Name 1	○	○	⌄
Name 2	○	○	⌄
Name 3	○	○	⌄
Name 4	○	○	⌄
Name 5	○	○	⌄

For each person below, please report:

	Do you consider this person an acquaintance, friend, or good friend?	If you had the desk next to this person for a year, do you think they would become one of your good friends?		
		No	Maybe/I Don't Know	Yes
Name 1	⌄	○	○	○
Name 2	⌄	○	○	○
Name 3	⌄	○	○	○
Name 4	⌄	○	○	○
Name 5	⌄	○	○	○

For each person below, please report:

	In the last two weeks, how many times have you engaged with this person either one-on-one or in a social setting?
Name 1	⌄
Name 2	⌄

	In the last two weeks, how many times have you engaged with this person either one-on-one or in a social setting?
Name 3	
Name 4	
Name 5	

Aside from the people listed on the previous page, how many people in the Boston area would you consider to be a friend?

Are any of your Boston friends in the previous question *new* friends since October 1st?
Please include anyone you knew before this date but only newly consider a friend.

- ◯ Yes
- ◯ No

How many are new friends since October 1st?

Aside from the people listed on the previous page, how many people in the Boston area would you consider to be a good friend?

Are any of your Boston good friends in the previous question *new* good friends since October 1st?
Please include anyone you knew before this date but only newly consider a good friend.

- ◯ Yes
- ◯ No

How many are new good friends since October 1st?

How many social activities have you attended in the last two weeks?

How many non-family members have you texted or messaged in the last 48 hours?

The following questions address how you feel about different aspects of your life.

	Hardly ever	Some of the time	Often
How often do you feel you lack companionship?	○	○	○
How often do you feel left out?	○	○	○
How often do you feel isolated from others?	○	○	○

How satisfied are you with your social life?

- ○ Not at all satisfied
- ○ Not very satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Fairly satisfied
- ○ Very satisfied

What is your relationship status?

- ○ Single
- ○ In a relationship
- ○ Married or living together
- ○ Prefer not to say

B.4 4-Month Follow-Up

The first questions pertain to your relationships with specific people.

	Have you texted this person in the last week (include WhatsApp)?		On how many occasions have you spent time with this person in the last two weeks?
	Yes	No	
Name 1	○	○	⌄
Name 2	○	○	⌄
Name 3	○	○	⌄
Name 4	○	○	⌄
Name 5	○	○	⌄

For each person below, please report:

	Do you consider this person an acquaintance, friend, or good friend?	If you had the desk next to this person for a year, do you think they would become one of your good friends?		
		No	Maybe/I Don't Know	Yes
Name 1	⌄	○	○	○
Name 2	⌄	○	○	○
Name 3	⌄	○	○	○
Name 4	⌄	○	○	○
Name 5	⌄	○	○	○

Aside from the people listed on the previous page, how many people in the Boston area would you consider to be a friend?

Are any of your Boston friends in the previous question *new* friends since October 1st, 2019?
Please include anyone you knew before this date but only newly consider a friend.

- ○ Yes
- ○ No

How many are new friends since October 1st, 2019?

Aside from the people listed on the previous page, how many people in the Boston area would you consider to be a good friend?

Are any of your Boston good friends in the previous question *new* good friends since October 1st, 2019?
Please include anyone you knew before this date but only newly consider a good friend.

- ○ Yes
- ○ No

How many are new good friends since October 1st, 2019?

How many social activities have you attended in the last two weeks?

The following questions address how you feel about different aspects of your life.

	Hardly ever	Some of the time	Often
How often do you feel you lack companionship?	○	○	○

	Hardly ever	Some of the time	Often
How often do you feel left out?	○	○	○
How often do you feel isolated from others?	○	○	○

How satisfied are you with your social life?

- ○ Not at all satisfied
- ○ Not very satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Fairly satisfied
- ○ Very satisfied

What is your relationship status?

- ○ Single
- ○ In a relationship
- ○ Married or living together
- ○ Prefer not to say

C Prolific Surveys

We conducted two Prolific surveys in December 2024 with 300 participants each, using Prolific's U.S. nationally-representative survey option. Sample descriptive statistics are in Appendix Table 20. The "Supply Survey" (Section C.1) asked questions about organizing get-togethers, while the "Demand Survey" (Section C.2) asked questions about attending get-togethers and meeting new friends. One participant in the Demand Survey received credit for taking the survey without answer any questions, leading to a sample size of 299. The bold section headings (e.g., "Demographics" and "Friends and Loneliness") and the gray skip logic were not shown to participants.

C.1 Supply Survey: Organizing Get-Togethers

Demographics

What is your gender?

- ◯ Male
- ◯ Female
- ◯ Non-binary
- ◯ _____ Prefer to self-describe
- ◯ Prefer not to say

What is your age?

_____

What is your relationship status?

- ◯ Single, never married
- ◯ Single, divorced
- ◯ In a relationship, living together
- ◯ In a relationship, living apart
- ◯ Married or in a civil union

Do you live with other people?

- ◯ Yes, with family
- ◯ Yes, with one or more non-family roommates
- ◯ Yes, with a significant other

- ◯ No

What is your highest level of education completed?

- ◯ Less than high school
- ◯ High school
- ◯ Some college
- ◯ Associate's degree
- ◯ Bachelor's degree
- ◯ Graduate degree

Are you currently enrolled in school?

- ◯ Yes, in college
- ◯ Yes, in graduate school
- ◯ _____ Yes, in another type of program
- ◯ No

Which of the following best describes your employment status?

- ◯ Employed full-time
- ◯ Employed part-time
- ◯ Unemployed
- ◯ Retired
- ◯ Not looking for work

Friends and Loneliness

How often do you feel that you lack companionship?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

How often do you feel left out?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

How often do you feel isolated from others?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

Potential Organizer Questions

Do you have any friends or acquaintances that don't know each other that well, but who you think would get along and that you could bring together over a meal or an activity? For example, you might have a friend from school and a friend from work that you could ask to get coffee, or you might invite your roommates and coworkers to watch the Superbowl.

- ◯ Yes
- ◯ No

Now imagine you were going to bring together two or more friends who you think would get along but who don't know each other well. Please briefly

describe this get-together.

How much effort would this take to set up?

- ◯ A great deal of effort
- ◯ A moderate amount of effort
- ◯ A little effort
- ◯ No effort

[1] When was the last time you brought together people who don't know each other, as in the question above?

- ◯ In the last month
- ◯ 1 - 6 months ago
- ◯ 6 - 12 months ago
- ◯ Over a year ago
- ◯ Never

Display this question:
If [1] != Never

Please briefly describe this get-together.

How much do you worry about the following when planning a get-together?

	Not at all	Somewhat	A lot
People canceling or changing plans at the last minute	◯	◯	◯
The get-together being awkward or	◯	◯	◯

	Not at all	Somewhat	A lot
your friends not getting along			
It being awkward to invite people (e.g., they might think it's strange you're inviting them or they might say no)	○	○	○
Having to act as a host (e.g., making sure people get along and no one is left out)	○	○	○
The social dynamic changing if your friends become friends. For example, they might want to hang out as a group while you might enjoy getting together one-on-one	○	○	○
Your friends being less eager to attend future events if they don't have a good time	○	○	○
Your friends resenting you for a bad introduction	○	○	○

How much do you worry about the following when planning a get-together?

	Not at all	Somewhat	A lot
Money spent hosting or planning an event.	○	○	○
Time spent hosting or planning an event.	○	○	○

	Not at all	Somewhat	A lot
Emotional effort. For example, navigating social dynamics, feeling responsible for guests having a good time, the risk of people cancelling and the event falling through, etc.	○	○	○

Do you expect to organize this type of get-together in the next month?

- ○ Yes
- ○ No

Would you expect to organize this type of get together in the next month if you knew of a good activity to invite people to?

- ○ Yes
- ○ No

Thank you

C.2 Demand Survey: Attending Get-Togethers

Demographics

What is your gender?

- ○ Male
- ○ Female
- ○ Non-binary
- ○ [ ] Prefer to self-describe
- ○ Prefer not to say

What is your age?

[ ]

What is your relationship status?

- ○ Single, never married
- ○ Single, divorced
- ○ In a relationship, living together
- ○ In a relationship, living apart
- ○ Married or in a civil union

Do you live with other people?

- ○ Yes, with family
- ○ Yes, with one or more non-family roommates
- ○ Yes, with a significant other

- ◯ No

What is your highest level of education completed?

- ◯ Less than high school
- ◯ High school
- ◯ Some college
- ◯ Associate's degree
- ◯ Bachelor's degree
- ◯ Graduate degree

Are you currently enrolled in school?

- ◯ Yes, in college
- ◯ Yes, in graduate school
- ◯ _____ Yes, in another type of program
- ◯ No

Which of the following best describes your employment status?

- ◯ Employed full-time
- ◯ Employed part-time
- ◯ Unemployed
- ◯ Retired
- ◯ Not looking for work

Loneliness

How often do you feel that you lack companionship?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

How often do you feel left out?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

How often do you feel isolated from others?

- ◯ Hardly ever
- ◯ Some of the time
- ◯ Often

Hosting Get-Together

[1] Do you know someone who could organize a get-together that includes at least one person you don't know that you think you would enjoy meeting? This could be a small group dinner, a birthday party, watching a sporting event, or bar trivia, for example. You might know some of the people present, but not everyone. Please include people in your local area who could do this, regardless of whether you think they are likely to.

- ◯ Yes
- ◯ No

Display this question:
If [1] = Yes

Would you want them to host that get-together?

- ◯ Yes
- ◯ No

Display this question:
If [1] = Yes

[2] Would you want to attend that get-together?

- ◯ Yes
- ◯ No

Display this question:
If [1] = Yes

Please explain why.

Display this question:
If [2] = No

[3] Is there any get-together someone you know could host where you would meet at least one person you don't know that you would want to attend?

- ◯ Yes
- ◯ No

Display this question:
If [1] = Yes

Do you think this person thinks you want them to host a get-together?

- ◯ Yes
- ◯ No

Display this question:
If [1] = Yes

[4] Have you asked this friend to introduce you to their friends or host a get-together directly?

- ◯ Yes
- ◯ No

Display this question:
If [4] = No

Which of the following are reasons you haven't asked your friend directly? (Check all that apply)

- [ ] I don't want to pressure them
- [ ] Asking for an introduction might change our dynamic
- [ ] Asking for an introduction might make me seem weird or lonely
- [ ] They may not do it
- [ ] I don't want an introduction

If you had the choice of attending a friend's get-together or joining a new organization to spend your social time, which would you prefer? Examples of joining a new organization could be joining a new church, sports league, or volunteer organization.

- ◯ Friend's get-together
- ◯ Organization

If you were going to meet new people, would you prefer to meet them at a friend's get-together or through an organization (like a church, sports league, or volunteer organization)?

- ◯ Friend's get-together
- ◯ Organization

Would you join an organization just to make friends, or do you have to enjoy attending the organization itself? For example, would you join a sports league just to meet new people, even if you don't particularly like or dislike the sport?

- ◯ I would join an organization just to make friends or meet new people
- ◯ I need to enjoy the activity/organization as well in order to join an organization

Social Anxiety

Please rate how much you agree with the following statements.

Fear of embarrassment causes me to avoid doing things or speaking to people.

- ◯ Not at all
- ◯ A little bit
- ◯ Somewhat
- ◯ Very much
- ◯ Extremely

I avoid activities in which I am the center of attention.

- ◯ Not at all
- ◯ A little bit
- ◯ Somewhat
- ◯ Very much
- ◯ Extremely

Being embarrassed or looking stupid are among my worst fears.

- ◯ Not at all
- ◯ A little bit
- ◯ Somewhat
- ◯ Very much
- ◯ Extremely