

**Making "Fast Friends" Online in Middle Childhood and Early Adolescence**

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**Abstract**

Close peer relationships are critical to children's and adolescents' healthy development and well-being, yet youth sometimes struggle to make friends. The present work tested whether an online version of the Fast Friends procedure could engender closeness among 9- to 13-year-old youth. Participant dyads ( $N = 131$ ), matched in age and gender, were randomly assigned to answer personal questions that encourage self-disclosure and play a collaborative game (Fast Friends condition) or to engage in similar activities without self-disclosure or collaboration (control condition). Fast Friends dyads reported feeling closer and expressed more interest in future contact than control dyads. The discussion addresses potential future uses and implications of an online Fast Friends procedure.

*Keywords:* self-disclosure, collaboration, peer relationships, closeness, contact

### Making "Fast Friends" Online in Middle Childhood and Early Adolescence

Close peer relationships are critical to healthy adjustment and development in childhood and early adolescence (Rubin et al., 2011). Close peer relationships have been linked to positive psychological well-being, positive adjustment during school transitions, and higher levels of school satisfaction among youth (Berndt & Keefe, 1995; Hodges et al., 1999). Having even a single close friend can help reduce the negative impacts of being rejected by other peers (Rubin et al., 2011). To experience the benefits of a close relationship, youth must first establish a close connection with a peer. Unfortunately, the initial stages of friendship formation can be challenging and time consuming for youth (Lessard & Juvonen, 2018). As such, it is important to better understand how to aid children and young adolescents in forming strong initial peer connections that have the potential to transition into meaningful, close peer relationships.

### Peer Relationships in Late Childhood and Early Adolescence

Research on peer relations underscores the unique importance of peer relationships during middle childhood and early adolescence. Older children and adolescents spend most of their free time with peers and care a great deal about being accepted by their peers (Larson & Richards, 1991; Parker et al., 2006). Interactions with peers during late childhood and early adolescence also help youth learn about social norms, develop more advanced social skills, and build their sense of self (Rubin et al., 2011).

Researchers have identified factors that contribute to the formation and maintenance of close peer relationships among older children and young adolescents. In particular, children and adolescents are drawn to peers with similar behavioral tendencies, hobbies, and levels of academic achievement (Altermatt & Pomerantz, 2003; Rubin et al., 1994; Selfhout et al., 2009). As children approach adolescence, intimacy and self-disclosure also become core features of

close relationships (Bauminger et al., 2008; Schneider & Tessier, 2007). Yet, when youth first meet peers, they are more likely to talk about superficial topics (e.g., what activities they do) than they are to engage in intimate self-disclosure of the sort that can foster feelings of closeness (Shulman et al., 1994). As a result, youth may find it challenging to quickly and organically uncover deep similarities in thoughts, feelings, and values with peers in daily interactions or conversations (Simpkins et al., 2006). Thus, it could be valuable to help facilitate self-disclosure and a sense of intimacy between youth during an initial connection so as to help establish features that are typical of, and important for, the formation of meaningful close relationships.

### **Facilitating Closeness**

Because similarity and self-disclosure are important to children's and adolescents' development of close peer relationships, it would be beneficial to find a way to facilitate interactions in which social partners can easily discover similarities and share intimate information. The Fast Friends procedure, developed by Aron and colleagues (1997), does just that. The procedure seeks to help people find similarities and build a sense of intimacy, with the ultimate goal of creating interpersonal closeness between interaction partners (Aron et al., 1997; Page-Gould et al., 2008). In the Fast Friends procedure, two previously unacquainted participants take turns asking and answering requests for personal information (e.g., "Who are you closest to in your family? Is there anybody in your family with whom you wish you had a closer relationship?"; "Name three things you and your partner appear to have in common"). As the procedure unfolds, the questions require increasing levels of self-disclosure. Compared to when interaction partners engage in small talk (e.g., "Do you prefer digital watches and clocks, or the kind with hands? Why?"; "When was the last time you walked for more than an hour? Describe where you went and what you saw"), participants who answer questions involving self-

disclosure report feeling closer to their partner following the interaction (Aron et al., 1997).

Modern iterations of the Fast Friends paradigm (e.g., Page-Gould et al., 2008) also have participants take part in a collaborative activity, in addition to engaging in self-disclosure, which is thought to be beneficial because collaborative and cooperative games facilitate the formation of new relationships and establish feelings of closeness (Depping & Mandryk, 2017).

The Fast Friends procedure has been used most often with adults. However, because it elicits features that contribute to the development of close relationships among older children and adolescents (i.e., intimacy and similarity), there is reason to believe Fast Friends could facilitate relationship-building among younger participants. Lending credence to the utility of the Fast Friends procedure for adolescents' relationship building is a recent study by Echols and Ivanich (2021). Participants in 7<sup>th</sup> and 8<sup>th</sup> grade were assigned both a Fast Friends partner and a control partner from their classroom, neither of whom participants knew well prior to the study. Fast Friends partners spent three sessions over three weeks asking and answering personal questions in their classroom; these questions were similar to questions previously presented to adults but adapted to be appropriate for a middle school sample. Participants also played a collaborative game. Control pairs did not complete any study activities together. Analyses revealed that Fast Friends pairs increased in feelings of closeness over time; further, participants were more likely to consider their Fast Friends partner (vs. their control partner) a friend.

### **Facilitating Closeness Online**

The body of work on the Fast Friends paradigm suggests that self-disclosure and collaboration can engender feelings of closeness for both adult and adolescent pairs (Aron et al., 1992; Aron et al., 1997; Page-Gould et al., 2008). However, there are a few logistical components of the Fast Friends procedure that make it difficult to implement broadly. First,

typical iterations of the paradigm have been time-intensive procedures with multiple in-person interactions that are not feasible in every setting. Second, there are cases where children and adolescents may not be able to interact regularly with peers in-person. During the COVID-19 pandemic, for example, many youth were prevented from socializing in-person and therefore had to rely on online interactions for social connection (Fardouly et al., 2018; Lin et al., 2016). Additionally, students who attend virtual school, students who are homeschooled, or students who are chronically ill may experience more of their interactions with peers online rather than in-person. In sum, it would be beneficial to facilitate active and meaningful interactions between children and young adolescents in an online space.

Despite potential advantages to an online Fast Friends procedure, there are also potential challenges. Online interactions do not allow people to engage in components of in-person interactions that facilitate closeness and affiliation, such as eye contact and coordinated movement (Tunçgenç & Cohen, 2018; Zubek et al., 2022). Additionally, when communicating on online platforms, such as Zoom, individuals often experience delays that can disrupt the rhythm of conversation and lead to misunderstandings of what the pauses mean (Boland et al., 2022; Zubek et al., 2022). The Zoom platform also contains components that can distract people and make it different to focus on interactions with others (e.g., the ability to see one's own actions on video, the presentation of multiple options for settings; Zubek et al., 2022). Therefore, it will be important to test if an online version of the Fast Friends paradigm is effective at engendering closeness in late childhood and early adolescence.

### **The Present Study**

In the present study, we adapted the Fast Friends procedure, which has typically been used with two adults in the same physical space, to be used with 9- to 13-year-old children in a

virtual setting. In contrast to previous work employing the Fast Friends procedure with young adolescents (Echols & Ivanich, 2021), but in line with work conducted with adults (e.g., Aron et al., 1997; Page-Gould et al., 2008), participants in the present study were completely unfamiliar to one another. Also in contrast to previous work, participants completed all study activities over Zoom from their respective homes. Finally, the present study was comprised of a single session, rather than three sessions, making it similar to the format of the procedure originally developed by Aron and colleagues (1997).

As in previous research (Echols & Ivanich, 2021; Page-Gould et al., 2008), participants asked and answered personal questions and played a collaborative game. Consistent with Echols and Ivanich (2021), we adapted the questions to be appropriate for our participant group, which included participants as young as 9 and as old as 13. We chose questions that (1) would not be upsetting to our young participants (for example, Aron et al., 1997 and Page-Gould et al., 2008 included questions referencing death whereas we did not); (2) would be relevant to children and young adolescents (e.g., instead of asking participants whom they would want as a dinner guest, we asked them whom they would want to meet); and (3) would be comprehensible to children and young adolescents (e.g., instead of asking participants to share their “most treasured memory,” we asked them to describe a time they were especially happy). See the Appendix for the full list of questions.

Following from the primary goal of building interpersonal closeness, we asked participants how close they felt to their interaction partner. Based on the fact that the Fast Friends procedure helps facilitate the exchange of personal information and the discovery of similarities, which both are factors that contribute to the development of adolescents’ peer relationships, we expected that youth who took part in the Fast Friends paradigm would report

feeling closer to their interaction partner than youth who did not engage in self-disclosure (Hypothesis 1; Bauminger et al., 2008; Rubin et al., 1994). Additionally, we asked participants whether they would want to have future contact with their interaction partner. Similar to our predictions related to closeness, we expected that participants who completed the Fast Friends activities would be more interested in future contact than those who did not complete the activities (Hypothesis 2) because factors such as self-disclosure and similarity help youth develop meaningful initial connections, that they may be interested in continuing to develop (Bauminger et al., 2008; Rubin et al., 1994). In order to be thorough, we also tested whether age and gender moderated the effects of the Fast Friends activities on feelings of closeness and interest in future contact but did not have a priori predictions about these effects. Finally, in exploratory analyses, we examined the role of how fun participants found either the Fast Friends or alternative activities had in producing effects on closeness and interest in future contact. Again, we did not have a priori predictions about these effects.

## Method

### Transparency and Openness

The study design and analyses were pre-registered and can be accessed at [<https://tinyurl.com/OSFrhmtk>]. Additionally, all study materials, data, and analysis code can be accessed at [<https://tinyurl.com/OSFsgu32>]. Data were analyzed using R, version 4.2.1 (R Core Team, 2022).

### Participants and Design

An a priori power analysis indicated that to detect a medium effect size ( $\eta^2 = .06$ ) with 80% power, we would need 131 dyads. Data were collected in 2021-2022 from 142 dyads, but 11 dyads were excluded from analyses. Participants' data were excluded if the participants in the

dyad knew each other prior to the study session (2 dyads), if one of the participants in a dyad did not complete all the study activities (2 dyads), or if participants did not follow the study procedure (7 dyads in the control condition shared their personal answers to the questions rather than, or in addition to, reading the control script). An additional 18 children experienced their partner not showing up to the scheduled study session. These children completed the control activities with an experimenter as their interaction partner (so they had something to do) and received payment for participating, but they are not part of the sample or analyses reported here.

The final sample consisted of 262 participants ranging in age from 9 to 13 years ( $M_{age} = 11.01$  years, 51.1% girls, 47.4% boys, 1.5% nonbinary, 75.2% White, 13.7% multi-racial, 3.1% Asian, 3.1% Hispanic/Latinx, 1.1% Black or African American, 1.5% other, 2.3% did not disclose, and 81% above local median income level). Our lab uses multiple efforts to recruit participants into studies, such as posting flyers in our local community (e.g., coffee shops, community centers), in-person recruiting at local community events (e.g., the farmer's market), backpack mailers in collaboration with local schools, online recruitment (e.g., Facebook), and word of mouth. Because recruitment efforts were concentrated around a specific city in the Midwestern region of the U.S., all participants were tested in the U.S., and most lived in the Midwestern region of the country. Dyads were randomly assigned to condition ( $N = 66$  dyads in Fast Friends and  $N = 65$  in the control condition). Dyad members were matched on age (within one year) and gender (i.e., girl-girl; boy-boy; or nonbinary-nonbinary). All families of participants received a minimum of \$20 for participating in the study; they could receive up to an additional \$6 based on participants' performance in the game.

## **Procedure**

Participants' legal and custodial primary caregiver received a link to an initial survey where they indicated their child's age and gender; this information was used to match participants. After matching participants, a single session was scheduled based on the families' availability. Caregivers received a full explanation of the study and gave consent over email. Caregivers then filled out a brief questionnaire answering demographic questions about themselves and their child.

Participants and their parents joined a Zoom call at the time of their scheduled session. The single virtual session began with the experimenter providing the families with an explanation of the activities participants would complete throughout the study. Participants were told that the study involved interacting in an online setting. They also learned that they would read through or answer questions, and then play a game. Participants provided verbal assent to the study procedures and were reminded that they could cease participation at any time. Finally, caregivers and children were provided an opportunity to ask any questions about the study before continuing. Then, caregivers left the session.

### ***Fast Friends Condition Activities***

Participants in the Fast Friends condition took turns asking and answering personal questions. Each participant asked and answered every question, but participants alternated who asked and answered the question first. The questions were divided into three sets of seven questions that involved increasing self-disclosure as participants moved from one set to the next (see Appendix). The participants had up to 15 minutes to work on each set of questions before the experimenter sent them the next set of questions. If participants were uncomfortable answering any of the questions, they could skip them. Most participants answered all the questions but, on occasion, participants said, "I don't know" and moved on to the next question

without providing a personal answer. An experimenter remained on the Zoom call to give instructions, but their camera was off during the question-and-answer period so that participants could focus on one another. However, the experimenter did monitor conversations to ensure nothing inappropriate or unkind was said. The experimenter never needed to intervene.

Following the question-and-answer task, participants played a game together that was very similar to Scattergories (Scattergories, 2019). The experimenter explained the rules of the game to participants and informed them that they could earn 10 cents each for every answer they generated working together as a pair during the game (maximum profit per participant = \$6). For each round of the game, participants were given 12 topics and assigned a specific letter (see [\[https://tinyurl.com/OSFsgu32\]](https://tinyurl.com/OSFsgu32) for topic lists). Their goal was to generate words that started with the assigned letter for each of the topics. The topic lists were displayed to participants using the whiteboard feature on Zoom and participants also wrote their answers on the whiteboard. To encourage communication and collaboration, participants were told to work together to generate responses on every round. Further, to prevent participants from working in parallel without consulting one another, only one participant was allowed to write on the whiteboard during a round. Participants played five rounds of this game, and each round lasted for two minutes. The experimenter gave participants a warning when there were 30 seconds left in a round.

### ***Control Condition Activities***

To control for the amount of time spent in the question-and-answer task, as well as the exercise of exchanging information, all participants in the control condition took turns reading from the same script, which was based on answers generated by other participants in response to the Fast Friends questions. We told participants that we were testing out a new activity that was previously conducted in person and that we just wanted them to read from a script in order to see

how the activity played out in an online environment. Therefore, participants in the control condition did not share personal information about themselves or engage in self-disclosure. Each participant was assigned to the role of “Person 1” or “Person 2” and read the corresponding parts of the script. The scripts were split into three sections, mimicking how the questions in the Fast Friends condition were divided into sets, and participants had up to 15 minutes to read through each section (see [<https://tinyurl.com/OSFsgu32>] for scripts).

To control for the amount of time participants in the Fast Friends condition spent playing collaboratively and for the exercise of playing a fun game, participants in the control condition also played a game that was similar to Scattergories. However, they did not work together collaboratively. Participants worked individually to come up with words for the five lists of topics and sent their answers to the experimenter through the chat feature on Zoom. Dyad partners could not see each other’s answers. Participants in the control condition also had the opportunity to earn additional money based on how well they individually played this game (10 cents per correct answer; maximum possible profit = \$6).

### ***Post Interaction***

After participants completed the Fast Friends or control activities, the experimenter told the participants that in the next activity they would complete a survey that asked how they felt about their experiences taking part in the study. All study measures can be accessed on OSF [<https://tinyurl.com/OSFsgu32>]. The experimenter provided participants with a link to the post-study survey and then sent both participants into individual breakout rooms to complete the survey privately; they were told their interaction partner would never see their responses. The survey consisted of three measures (described below) and videos with instructions for the three measures. At the end of the survey, there was a video that provided participants with a

description of the study's purpose. In this video, participants were also told that they were done with the study and could exit out of the survey and close Zoom. The entire study session (including Zoom set-up, the question-and-answer activity, the Scattergories game, and completing the outcome measures) typically took about one hour.

## Measures

### *Closeness*

As our primary outcome of interest, closeness was measured to evaluate whether the Fast Friends procedure could engender feelings of interpersonal closeness. As is standard in research using the Fast Friends procedure (e.g., Aron et al., 1997; Page-Gould et al., 2008), participants completed the Inclusion of Other in Self scale to assess how close they felt to their interaction partner (Aron et al., 1992). The Inclusion of Other in Self scale is a reliable and widely used measure of interpersonal closeness (Gächter et al., 2015), including in studies with children (e.g., Cameron et al., 2006; Rabinowitch & Knafo-Noam, 2015; Vezzali et al., 2016). Before completing the scale, participants watched a video that explained how to use it. The video showed seven pairs of circles with varying degrees of overlap. The video explained to participants that the pair of circles with no overlap represented feeling not at all close to their interaction partner, that the pair of circles with the most overlap represented feeling extremely close to their interaction partner, and that the pairs of circles in the middle represented feeling somewhat close to their interaction partner. After watching the video, participants indicated which pair of circles best matched how close they felt to their interaction partner. Participants' answers were scored from 1–7, with higher scores indicating a greater sense of closeness to one's interaction partner.

### *Interest in Future Contact*

As a secondary measure, interest in future contact was measured to assess if participants were interested in continuing to build upon the connection that they developed during the study session. Interest in future contact was assessed through two sets of questions. Before the first set of questions, participants watched a video that explained to them how to use a scale that ranged from (1) strongly disagree to (7) strongly agree. After watching the video, participants read statements about how they felt about their interaction partner (e.g., “I would want spend more time with this person”). Participants rated how strongly they agreed with each statement. For the second set of questions, participants watched a video that reminded them how to use the Likert scale and asked them to imagine they attended the same school as their interaction partner. Participants then indicated whether they would want to continue a relationship with their interaction partner in a school setting by reporting their level of agreement with statements such as “I would want to eat lunch with this person” or “I would not want to hang out with this person during recess/break [reverse coded].” We conducted an exploratory factor analysis and there was only one factor with an eigenvalue over one that accounted for 54% of the variance, therefore both sets of questions were considered one scale ( $\alpha = 0.91$ ). A composite score was created from participants’ answers to both sets of questions, higher scores indicated a greater interest in future contact.

### ***Activity Enjoyment***

Participants were asked to indicate how much they enjoyed the study activities. We included this measure so that we could account for how much participants enjoyed the activities in analyses examining the effects of the Fast Friends procedure on closeness and interest in future contact. Participants first saw a video that explained how to use a Likert scale that ranged from (1) not at all fun to (7) extremely fun. Then participants indicated how fun they found the

question-and-answer activity and how fun they found the Scattergories activity. A composite score of participants' answers to each question was created, with higher scores indicating greater enjoyment.

## Results

To test if participants in the Fast Friends condition reported a greater sense of closeness and a greater interest in future contact than those in the control condition, as well as to test whether age or gender moderated these effects, we ran two linear mixed effect models. Specifically, in each model we regressed one of our outcome measures (i.e., closeness or interest in future contact) on condition, age, gender, and all two- and three-way interactions between them while including a by-dyad random intercept. Further we calculated effect sizes using the recommendations from Muradoglu and colleagues (*in press*).

In the model examining the primary outcome of closeness, there was a main effect of condition, such that participants in the Fast Friends condition ( $M = 4.18$ ) reported feeling closer to their interaction partner than participants in the control condition ( $M = 3.32$ ),  $b = -0.89$ ,  $SE = 0.17$ ,  $F(1, 121.66) = 28.93$ ,  $p < .001$ ,  $d = .67$ . There was also a main effect of age, such that closeness decreased with age,  $b = -0.02$ ,  $SE = 0.01$ ,  $F(1, 163.73) = 12.76$ ,  $p < .001$ ,  $d = 0.01$ . There were no interaction effects (see Figure 1).

In our secondary analyses examining interest in future contact, there was a main effect of condition, such that participants in the Fast Friends condition ( $M = 5.75$ ) reported greater interest in future contact with their interaction partner than participants in the control condition ( $M = 5.39$ ),  $b = 0.38$ ,  $SE = 0.11$ ,  $F(1, 121.64) = 11.07$ ,  $p = .001$ ,  $d = .41$ . There were also main effects of gender and age, such that girls ( $M = 5.71$ ) reported greater interest in future contact with their interaction partner than boys ( $M = 5.40$ ),  $b = 0.28$ ,  $SE = 0.11$ ,  $F(1, 162.35) = 4.25$ ,  $p = .041$ ,  $d = .11$ .

.35, and that interest in future contact decreased with age,  $b = -0.007$ ,  $SE = 0.004$ ,  $F(1, 121.64) = 6.03$ ,  $p = .015$ ,  $d = 0.007$ . There were no interaction effects (see Figure 2).

In exploratory analyses, we controlled for the effect of activity enjoyment in order to examine if other aspects of the Fast Friends procedure (e.g., reciprocal self-disclosure and collaborative play) had an effect on closeness and interest in future contact above and beyond the effect of how fun participants found the study activities. Additionally, it was especially important to control for activity enjoyment given we anticipated that participants may have enjoyed the Fast Friends activities more than the control activities. First, we regressed closeness on condition, age, gender, and all two- and three-way interactions between them, as well as activity enjoyment, while including a by-dyad random intercept. The main effects of condition and age remained, such that participants in the Fast Friends condition reported feeling closer to their interaction partner than participants in the control condition,  $b = -0.54$ ,  $SE = 0.15$ ,  $F(1, 131.55) = 13.43$ ,  $p < .001$  and closeness decreased with age,  $b = -0.01$ ,  $SE = 0.005$ ,  $F(1, 164.16) = 5.94$ ,  $p = .016$ , while controlling for activity enjoyment. There was also a main effect of enjoyment, such that the more fun participants had, the closer they felt to their partner,  $b = -0.49$ ,  $SE = 0.06$ ,  $F(1, 248.77) = 66.24$ ,  $p < .001$ . There were no interaction effects. This result suggests that even when accounting for the strong effect of how much fun participants had on how close they felt to their interaction partner, the Fast Friends procedure led to an effect of condition on feelings of closeness. Next, we regressed interest in future contact on condition, age, gender, and all two- and three-way interactions between them, as well as activity enjoyment, while including a by-dyad random intercept. The effects of condition, age, and gender on interest in future contact were no longer significant when controlling for task enjoyment. However, there was a main effect of enjoyment, such that the more fun participants had, the more interested they were in

future contact,  $b = 0.37$ ,  $SE = 0.04$ ,  $F(1, 249) = 79.05$ ,  $p < .001$ . There were no interaction effects.

## Discussion

The aim of this research was to test whether the Fast Friends paradigm—a procedure in which participants engage in reciprocal self-disclosure and collaborative play—could facilitate closeness between two children or adolescents who (1) had never previously interacted and (2) who completed all study activities over the course of one session via Zoom. Indeed, compared to participants assigned to the control condition, dyads assigned to the Fast Friends condition reported feeling closer to one another. Fast Friends dyads were also more interested in future contact, which suggests that engaging in self-disclosure and playing collaboratively produces not only a sense of connectedness in the immediate term, but potentially also helps to facilitate a desire for further interactions. Finally, the size of the condition effect we observed for closeness was on par with previous studies that have used the Fast Friends paradigm to engender closeness.<sup>1</sup>

Participants in the Fast Friends condition also indicated that they enjoyed the Fast Friends activities (i.e.,  $M = 5.31$  on a seven-point scale). These results would suggest that participants in the Fast Friends condition found the study sessions to be a positive, fun experience. This point is further supported by the fact that families in the Fast Friends condition sometimes (spontaneously) emailed after the study to say things such as, “It seemed to really make him feel good and increased his confidence. I was surprised that it went so well and was such a meaningful experience for him. He really enjoyed the way it was orchestrated and talked about it on and off throughout the evening,” and “[Child’s name] had a fabulous time, I wasn’t sure we were going to get her back to eat dinner!” Overall, the study findings suggest that the virtual Fast

Friends procedure is an enjoyable experience for children and young adolescents that helps them establish a connection with a peer that they are interested in continuing to develop.

The present findings are timely. During the height of the COVID-19 pandemic, children and adolescents had limited opportunities to interact with one another in person, and research suggests that even youth who have returned to in-person interactions are experiencing significant social difficulties (Fegert et al., 2020; Sun et al., 2022). The Fast Friends procedure tested in the present work—which involved a lightly-moderated, one-time session—could be a useful tool for helping such children and young adolescents regrow their social networks and develop important social skills that come from rich interactions with peers. Of course, as noted in the introduction to this paper, restricted access to in-person interactions is not necessarily unique to pandemics. Students enrolled in virtual schooling, students who live in remote areas, and students who are chronically ill can also experience limited in-person interactions with peers. In future work, it could be important to test the utility of the present method in populations with different social experiences.

Aside from the above findings, there were also main effects of age and gender. Although we did not observe an interaction between condition and age, meaning the Fast Friends condition worked equally well (relative to the control condition) across our age range, the current findings did reveal that, with age, children felt less close to their dyad partner and were less interested in future contact with their dyad partner. There are multiple reasons that we may have observed these age effects, such that participants in the upper part of the age range of this study (full age range was 9–13 years), may have been less receptive to both the Fast Friends and control activities because their desires for autonomy were not met. In early adolescence, children show an increased desire for control and autonomy, and therefore, because we only communicated

with parents prior to the study session and the study activities were very structured, the oldest participants in our study may have wanted more control over the interaction with their dyad partner (Eccles et al., 1991). Alternatively, older participants in our study may have had a broader range of experiences with peers. Therefore, they may have been more selective than younger participants about indicating that they felt close to, or were interested in future contact with, their partner. Future research could examine boundary conditions related to age and test whether the procedure remains effective with younger children or older adolescents. Results also showed that girls were more interested in future contact with their interaction partner than boys—though this was true regardless of condition assignment (i.e., there was no interaction between condition and gender). To speculate on these results, the boys in our study may have been socialized to not express feelings of intimacy with same-gender peers and therefore may have been less willing to endorse interest in spending more time with their partner (Oransky & Marecek, 2009).

For exploratory purposes, we also assessed whether enjoyment of the study activities affected the results and found that the effects on closeness (our most proximate measure for whether participants had developed a strong connection) remained significant when controlling for activity enjoyment. On the other hand, the effect of condition on interest in future contact was no longer significant when controlling for how much participants enjoyed the study activities. It is important to consider that interest in future contact was a new measure that mainly assessed interest in casual contact (e.g., eating lunch together, sitting together in class), which may have contributed to overall high ratings of interest in future contact in both conditions (mean ratings of 5.71 and 5.40 respectively on a seven-point scale) and suppressed our ability to observe a condition effect when controlling for activity enjoyment. A more sensitive measure of contact

may have also asked about more intimate contact (e.g., inviting their partner to sleep over at their house, sharing secrets). In future work, it will be important to carefully consider how to best measure interest in future contact or future contact itself (see next section). How much a participant enjoyed the time they spent with their partner is likely tied to the process of developing a close connection with their partner, so despite the fact the effect of the Fast Friends procedure on interest in future contact did not hold, it is impressive that there was still an effect on closeness when accounting for the effect of activity enjoyment.

### **Future Directions**

It is encouraging that participants in the Fast Friends condition reported feeling closer to, and had a greater interest in future contact with, their interaction partner as these results would suggest that participants developed the type of connection that could serve as the basis for a deeper and more long-term relationship. However, there are limitations to when we measured the constructs of closeness and interest in future contact in our study. Because we measured closeness immediately after the study activities were completed and because we measured participants' interest in future contact (rather than whether the participants continued to spend time together), we could only assess that participants had formed an initial close connection rather than assess whether this version of the Fast Friends paradigm facilitated enduring relationships. Although we expect that these initial connections have the potential to serve as the basis for a strong peer relationship, future studies could follow-up with participants to determine whether participants stayed in contact after the initial Zoom session.

A specific context in which participants would have the opportunity for future contact that could be important to test the Fast Friends procedure in is school because close relationships are linked to higher levels of school satisfaction and belonging (Allen et al., 2018; Hodges et el.,

1999). Schools would likely find the online format of the virtual Fast Friends procedure appealing because it would not interrupt valued classroom instruction time. Additionally, a paradigm in which two previously unacquainted peers are connected could be conducted in a school setting by focusing on school transitions. For example, two students who attended different elementary schools, but who will be attending the same middle school could be connected using the virtual Fast Friends procedure the summer before they start middle school. This could be an especially useful time for students to engage in this paradigm as students often experience decreased feelings of belonging and disruptions in their peer support networks during school transitions and the peer that students met through the Fast Friends procedure could serve as a connection they turn to and rely on during this potentially tumultuous transition (Sancho & Cline, 2012). It will be important to continue this work with the Fast Friends paradigm in applied settings, such as school, because helping youth form close connections with peers in their community that have the potential to become meaningful relationships could lead to students experiencing greater overall well-being.

In addition to limitations related to how closeness and interest in future contact were measured, within the current study we cannot determine what precise mechanism led to the condition effects on closeness and interest in future contact. There is empirical support to suggest that self-disclosure alone can facilitate feelings of interpersonal closeness (e.g., Aron et al., 1997; Shearer, 2017). There is also research to suggest that collaboration alone can help individuals form new relationships and establish feelings of closeness (Depping & Mandryk, 2017). However, in the current study, the Fast Friends condition encouraged youth to engage in both self-disclosure and collaboration. Therefore, we cannot determine whether self-disclosure or collaboration may have had a stronger influence on youth in the Fast Friends condition

developing a greater sense of closeness to their partner than youth in the control condition. It could be beneficial for future work to examine the individual and interactive effects of self-disclosure and collaboration on feelings of interpersonal closeness. The current work does, however, suggest that self-disclosure and collaboration in combination can be useful tools for fostering a sense of closeness among children and young adolescents.

This study also did not assess the potential effects of individual differences in participant characteristics, such as personality or social competence, but the procedure is scaffolded in a way to help facilitate the flow of conversation and exchange of information. Personality type could potentially affect the effectiveness of the Fast Friends procedure. For example, individuals high in a trait like agreeableness may be more likely to engage in meaningful self-disclosure, whereas individuals high in neuroticism may be unlikely to reciprocate when their partner engages in self-disclosure (Barrett & Pietromonaco, 1997; Wilson et al., 2015). On the other hand, the guided questions in the procedure may lead to reduced differences in actual self-disclosure based on personality. In fact, research with adults showed that personality type did not influence degree of self-disclosure during the Fast Friends paradigm (Shearer, 2017). The scaffolding of the questions may similarly help youth with weak social skills connect and engage with their partner, so that the effect of social competency may be reduced. In sum, future research should investigate individual characteristics that could have potential impacts on how youth engage with one another during the Fast Friends procedure, but the structure of the procedure could also have the potential to override the influence of individual characteristics.

Another limitation to the current study is that we could not examine the moderating effects of matching or not matching participants on demographic variables such as race, ethnicity, and socioeconomic status (SES), due to our largely non-Hispanic White and above-

average SES sample. In future work, it would be beneficial to recruit a larger and more diverse sample in order to test whether our single session, virtual Fast Friends procedure would be effective with youth from other racial, ethnic, and SES backgrounds, as well as to test whether our Fast Friends procedure could produce closeness for dyads compromised of different backgrounds. On one hand, the Fast Friends procedure sets the stage for positive intergroup contact by bringing together youth to collaborate and work together towards a common goal while giving them equal status within the activity (Allport, 1954). Previous work using the Fast Friends procedure across multiple sessions has also successfully facilitated closeness between cross-race pairs (Echols & Ivanich, 2021; Page-Gould et al., 2008). On the other hand, youth from different backgrounds often find it more difficult to relate to one another and report finding close relationships with outgroup peers more challenging to form and maintain (Baker, 1998; Mallet et al., 2008). Thus, a brief virtual Fast Friends procedure may not be sufficient to overcome these challenges to the development of close peer connections. In future work, it will be necessary to examine the effects of youth's demographic characteristics, such as their racial, ethnic, or socioeconomic background, on the effectiveness of a single session, online version of the Fast Friends paradigm, as well as examine if there is an equally strong effect size when youth are not matched on these demographic characteristics.

### **Conclusion**

In the present study, we provide evidence that having children and young adolescents engage in self-disclosure and play collaboratively in an online environment can lead to them feeling closer to a peer than children or adolescents who do not engage in self-disclosure or play collaboratively. These findings suggest that as a result of a short, online interaction, children and young adolescents develop close connections. Participants who engaged in self-disclosure and

collaboration were also more interested in having future contact with their partner than participants who did not, which suggests that youth who completed the Fast Friends activities may have had a stronger desire to continue to build upon these connections outside of the study session. The ease of implementing this type of online procedure could make it an appealing paradigm to schools and because children and early adolescents spend increasing amounts of time online it is important to determine ways to find healthy and positive ways for youth to build social connections online (Brisson-Boivin, 2019). Overall, children's and adolescents' close peer relationships are important as they contribute to positive adjustment and healthy development, so it is critical to determine ways to support and bolster children's and young adolescents' connections with peers, as initial close connections are essential to the development of meaningful peer relationships (Berndt & Keefe, 1995; Hodges et el., 1999).

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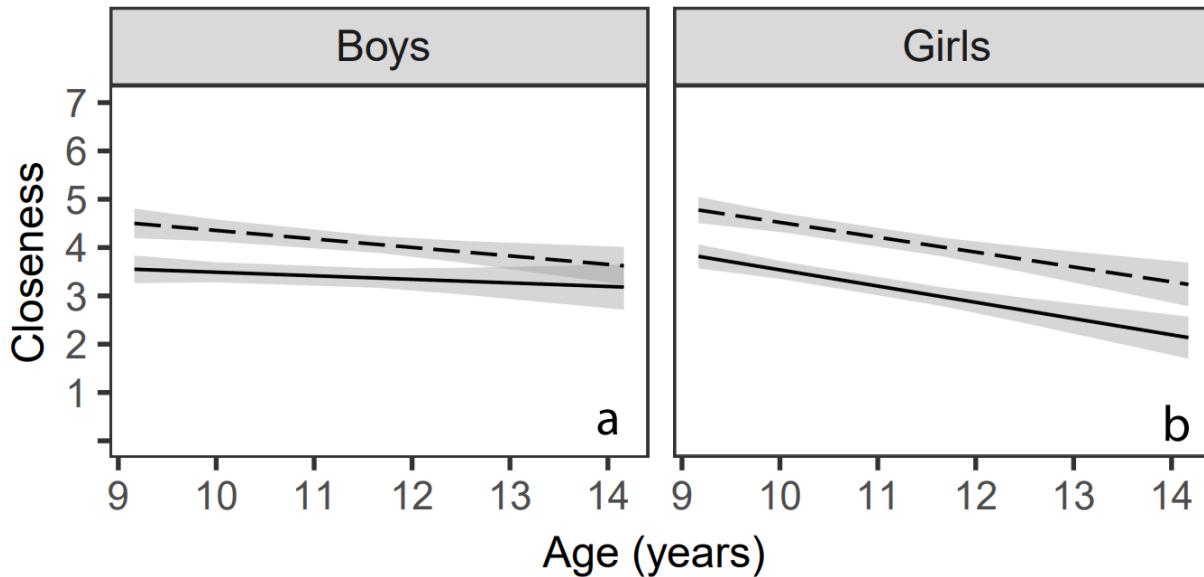
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**Figures****Figure 1**

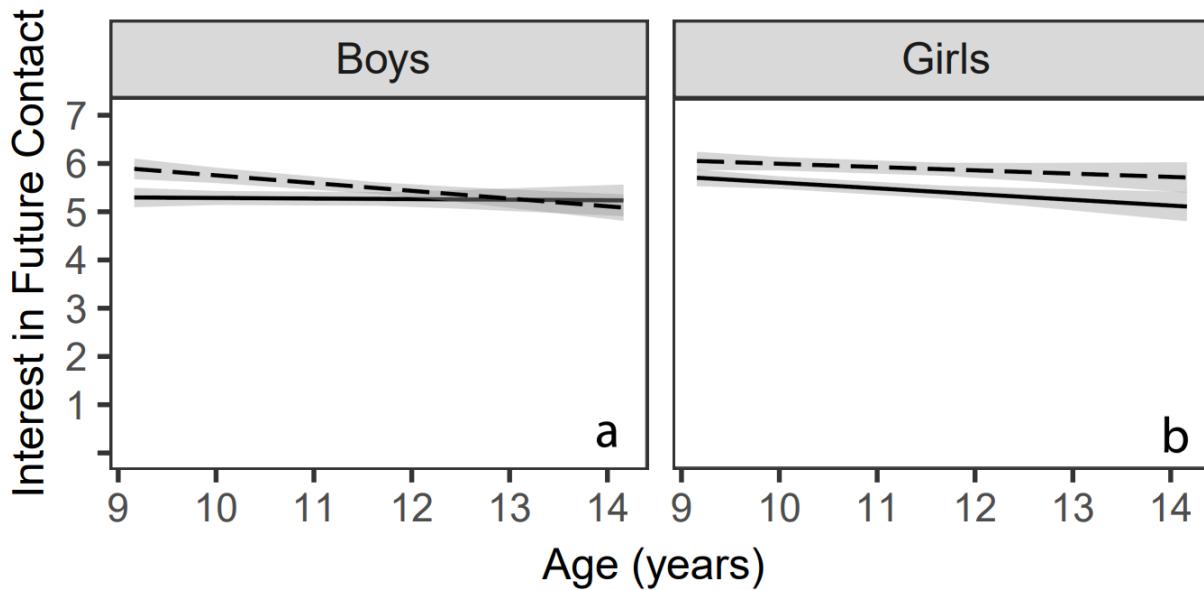
*The Effects of Condition, Age, and Gender on Closeness*



*Note.* There was a main effect of condition, which is shown by the dashed lines being higher on average than the solid lines, and a main effect of age, which is shown by the slope of the lines being negative on average. There was no significant main effect of gender and there were no significant interaction effects on closeness. This figure was created in R, version 4.2.1 (R Core Team, 2022).

**Figure 2**

*The Effects of Condition, Age, and Gender on Interest in Future Contact*



*Note.* There was a main effect of condition, which is shown by the dashed lines being higher on average than the solid lines, a main effect of age, which is shown by the slope of the lines being negative on average, and a main effect of gender, which is shown by the lines in panel b being higher on average than the lines in panel a. There were no significant interaction effects on interest in future contact. Figure was created in R, version 4.2.1 (R Core Team, 2022).

## Appendix

### Fast Friends Self-Disclosure Questions

#### Set 1

1. If you could have any one superpower, what would it be and why?
2. If you could meet anyone in the world, who would you want to meet? What do you think would be fun to do with them?
3. What is your favorite kind of music and why?
4. What do you want to be when you grow up? Why?
5. Find three things you two have in common. For example, if you both have similar hobbies, enjoy the same foods or like the same colors.
6. If you could only eat one kind of food for a year, what would it be? How long do you think it would take you to get tired of eating that food?
7. If you could live in the world of a book, movie, or TV show, which fictional world would you choose and why?

#### Set 2

1. Who is one of your favorite movie, TV, or book characters? In what ways do you think you are similar or dissimilar to this character?
2. Describe a time when you remember being especially happy.
3. Take 2 minutes to tell your interaction partner your life story in as much detail as possible. Include details about where you were born, your family, and some interesting facts about you.
4. What is something you feel really grateful for in your life? Why?
5. Share with your interaction partner an embarrassing moment in your life.
6. What do you think makes someone a good friend? What do you look for in a friend?
7. How would your best friend describe you?

#### Set 3

1. When was the last time you laughed really, really hard? What was so funny?
2. Describe a time that was really difficult for you or when you were especially upset.
3. Your house catches fire. After saving your loved ones and pets, you have time to safely make a final dash to save any one item. What would it be? Why?
4. What do you like best about your life? Least?
5. Who are you closest to in your family? What is that relationship like?
6. Tell your interaction partner something that you like about yourself. Be specific.
7. Tell your interaction partner something that you like about them. Be specific.

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<sup>i</sup> The effect size in our study is comparable to published effect sizes in studies that have used the Fast Friends paradigm with adults in person ( $d = .88$ ; Aron et al., 1997) and with adults online ( $d = .40\text{-.51}$ ; Sprecher, 2021 and Stürmer et al., 2018).