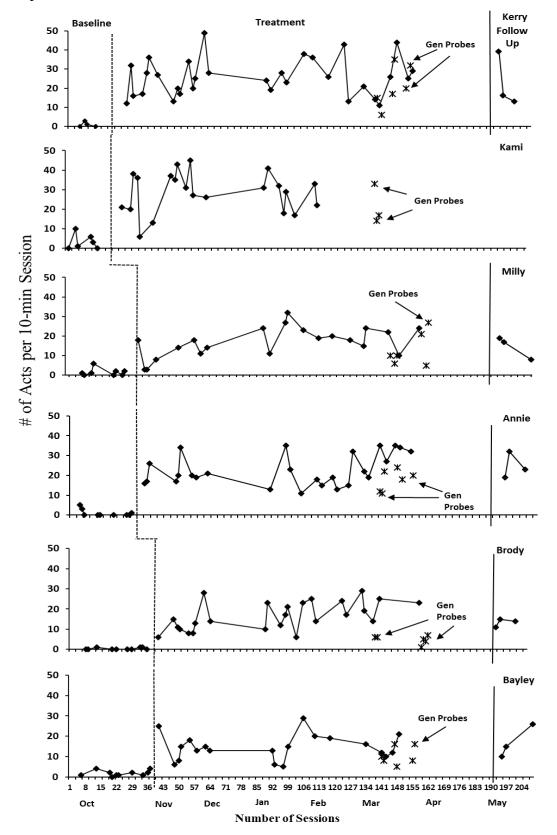# Supplemental Material

Figure S1. Total rates of communication acts for children with ASD directed to peer partners across phases.
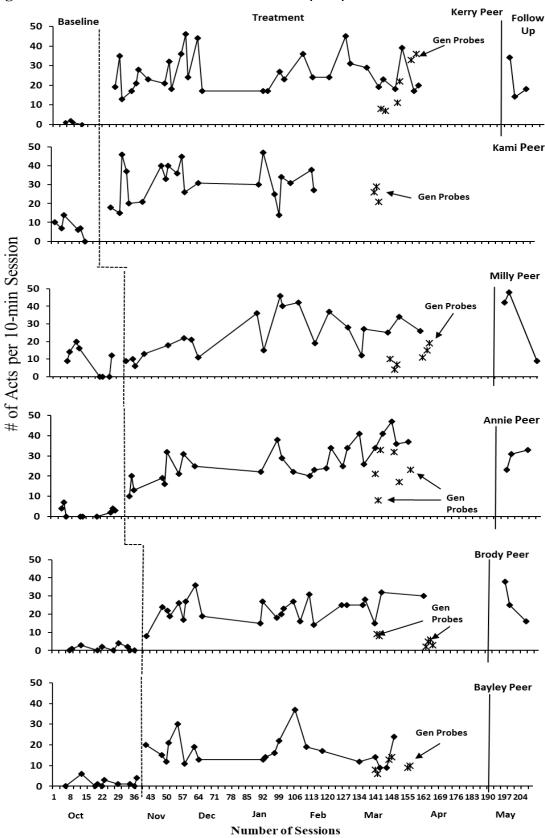
Figure S2. Total rates of communication acts for peer partners directed to children with ASD.

Results

Figure S1 shows line graphs of rates of total communication acts (initiations plus responses) for the children with ASD directed to peers across all phases, and Figure S2 shows peer line graph of rates of total communication acts directed to child with ASD. Generalization probes for both partners collected mainly during the last month of treatment are represented by single stars. Results in Figures S1 and S2 provide strong evidence of experimental effects, replicated across focus children and their peers. Visual analysis showed rather immediate effects when examining the levels of communication in baseline versus the other conditions. The day-to-day variation is typical for social interactions, and with the exception of the last baseline session for Milly's peer, no steep upward slopes were evident in baseline.

Kerry demonstrated immediate treatment effects at the onset of treatment. Although his rates were occasionally variable, his communication increased from a mean of 1 act in baseline to 26 acts per treatment session. Generalization to a novel setting was observed ($M = 21$ per session), and he maintained his improvements during follow-up ($M = 23$ acts). Kerry's peers also showed immediate treatment effects, with an increase from an average of 1 act in baseline to 26 in treatment, 23 in generalization, and 22 acts at follow-up. The treatment effect was replicated for Kami and her peers, with immediate improvements observed at the start of intervention. Her average communication acts increased to a mean of 29 in intervention and 21 in generalization, compared to 31 acts for her peers in treatment and 25 in generalization. Maintenance data were not available as Kami moved prior to the end of the study. Visual analysis revealed immediate treatment effects for Milly, with an increase in acts from an average of 2 in baseline to 17 during treatment. Her communication returned to baseline rates in treatment sessions 2 and 3, after which she showed a steady increase in communicating to peers. She generalized and maintained gains ($M = 13$ and 15 acts respectively). At the start of treatment, Milly's peers showed variable communication rates similar to baseline levels. However, over the intervention phase, peer acts trended upwards and mean levels increased to 24 per session. Mean peer acts in generalization was 11 and at follow-up was 33. A functional relation between onset of treatment and communication rates was immediately observed for Annie; then, she showed variable improvements and a steeper trend during the last five sessions. Means increased from 1 act in baseline to 23 in treatment, 18 in generalization, and 25 at follow-up. Annie's peers showed similar improvements, from an average of 2 acts to 28 in treatment, 22 in generalization, and 29 during follow-up. Although variable, Brody's communication improved to a mean of 17 acts in treatment, decreased during generalization settings ($M = 5$ acts), then increased at follow-up ($M = 13$ acts). Immediate effects were noted for peer communication acts, with a mean increase from 2 to 23 in treatment. Similar to Brody, a decrease in peer acts was noted in generalization ($M = 6$) and an increase was observed in follow-up ($M = 26$). The immediate treatment effect was replicated for Bayley, with a marked increase in acts observed during the first treatment session and more variable performance over the remainder of this phase. Overall, her mean communication acts increased from 2 in baseline to 15 in treatment; she continued to communicate at higher levels in generalization ($M = 11$ acts) and at follow-up ($M = 17$). An immediate treatment was noted for Bayley's peers, with mean changes from baseline ($M = 2$) to treatment ($M = 17$ acts) and generalized use ($M = 10$) that was maintained at follow-up ($M = 14$).

Effect sizes were calculated for each child with ASD and for the peer partners, and these values were combined into an overall Tau-U for each group to determine the magnitude of change between baseline and treatment. Tau-U effect sizes of < .50, .50–.69, and .70–1.0 are

interpreted as *minimal to no effect*, *moderate effect*, and a *large effect*, respectively. Tau-U calculations revealed large effect sizes for all six participants with ASD, with a 1.0 effect size for Kerry, Annie, Brody, and Bayley and an effect size of .98 for both Kami and Milly. The combined Tau-U across all six focus children indicated a large magnitude of change (.99) from baseline to treatment. Analyses of Tau-U for the peer partners also revealed large effect sizes, with 1.0 calculated for Kerry, Annie, Brody, and Bayley's peers, and .99 for Kami's peers. Milly's peers, who demonstrated more communicative acts during baseline, showed a moderate effect size of .67. The calculated Tau-U for all peers combined indicated a large magnitude of change (.94) during treatment.