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Watching a video together creates social closeness between children and adults

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ABSTRACT

Human social relationships are often formed through shared social activities in which individuals share mental states about external stimuli. Previous work on joint attention has shown that even minimal shared experiences such as watching something together facilitates social closeness between individuals. Here, we examined whether young children already connect with others through joint attention. In the current studies, children sat next to a novel adult who either watched a film with them or was not able to see the film and read a book instead. After the video, we measured children's willingness (i.e., latency) to approach the experimenter holding out a toy. In both studies, the 2.5-year-olds who watched the film together approached more quickly than the other children. These results show that both minimally interactive shared experiences and noninteractive shared experiences lead children to feel more comfortable with a novel adult. This suggests that joint attention interactions, and shared experiences in general, play an important role not only in children's cognitive development but also in their social development and the formation of their social relationships.

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Introduction

One important and unique way in which humans create and maintain social relationships is by actively seeking out social activities in which they share mental states with others (e.g., attention, goals, emotions) toward external stimuli. To feel closer to other individuals we gossip about third parties (Bosson, Johnson, Niederhoffer, & Swann, 2006; Dunbar, 2004) and share thoughts, preferences, and ideas about many other aspects of our lives (Aron, Melinat, Aron, Vallone, & Bator, 1997). Although such forms of sharing are simple and straightforward for adults, young children may lack the language proficiency to engage in this kind of sharing. However, humans also seem to be capable of connecting with others by sharing experiences without the use of language, for example, by coordinating vocalizations and movements in song and dance (Pearce, Launay, & Dunbar, 2015; Tarr, Launay, Cohen, & Dunbar, 2015; Tarr, Launay, & Dunbar, 2016) or playing team sports together (Artinger et al., 2006). Thus, if adults can connect through shared experiences in which no language is required, then such experiences might provide young children with an alternative vehicle to connect with others.

The best known (or at least most commonly studied) phenomenon in which infants share experiences with others is joint attention (Bakeman & Adamson, 1984; Carpenter, Nagell, & Tomasello, 1998). Joint attention is crucial for children's development in a variety of social-cognitive domains. It plays a key role in social learning and cultural transmission (Carpenter & Tomasello, 1995; Cleveland, Schug, & Striano, 2007) as well as in developing the capacity to coordinate behavior with others collaboratively through establishing shared goals (Tomasello & Hamann, 2012). However, the socioemotional consequences of this process, specifically its role in the formation of social relationships, have not yet been studied in young children.

In research with adults, Wolf, Launay, and Dunbar (2015) found that even after simply watching something on a screen together, without otherwise interacting, participants reported feeling more positive about and socially closer to their partner. Similarly, joint attention might allow children to create closeness between them and the adults around them. Although this has never been studied experimentally, previous correlational studies have found that the tendency to initiate joint attention in typically developing children as well as children with autism spectrum disorder (ASD) is correlated with parent reports of a sense of relatedness to their children (Mundy, Sigman, & Kasari, 1994). Furthermore, some research examining the affect displayed during joint attention episodes has suggested that joint attention is related to positive intersubjectivity and a sense of relatedness between children and their interaction partners (Mundy, Kasari, & Sigman, 1992).

If joint attention is indeed a mechanism for infants to increase social closeness with others, this would help to explain why young children spend so much time trying to actively share attention with adults (e.g., by pointing and vocalizing) in contexts where it is unlikely that such behavior would yield any instrumental benefits (Liszkowski, Carpenter, Henning, Striano, & Tomasello, 2004). In other words, it is possible that children's attempts to establish shared attention with adults to something interesting seemingly just for the fun of it are in fact motivated by the desire to create or reinforce positive social relationships with their communicative partners. The aim of the current studies, therefore, was to examine whether sharing experiences through joint attention is a mechanism through which children create social closeness with adults.

Over the years, different operationalizations of joint attention have emerged, each of which would require a slightly different experimental setup. In developmental psychology, the classic operationalization of joint attention is derived from observations of triadic interactions between children and adults in which they attend to the same thing and acknowledge that they are doing so by, for example, looking to the partner during the interaction (Bakeman & Adamson, 1984; Charman, 2003; Charman et al., 1997; Itakura, 2004; Landry, 1995; Leavens & Bard, 2011; Leavens & Racine, 2009; Mundy, 2006; Williams, 2007). In line with this conceptualization, Study 1 examined the effect of joint attention on subsequent social closeness in a natural, minimally interactive setting. Specifically, we examined whether children would be more comfortable in approaching an adult after having watched a video with the adult relative to children in a control condition who watched the same video while the experimenter sat next to them privately reading a book. In this study, as in real life, the children were free to engage the experimenter about the video, who in those cases responded with an acknowledging friendly look.

More recently, others have taken a more cognitive perspective in which joint or shared attention is based on inferences made about whether or not we are attending to something together (Baron-Cohen, 1995; Bayliss et al., 2013; Gomez, 2005; Grossmann & Johnson, 2010; Nuku & Bekkering, 2008; Peacocke, 2005; Shteynberg, 2015, 2018; Striano & Stahl, 2005) and/or to what extent we are aware of others making such inferences (Behne, Liszkowski, Carpenter, & Tomasello, 2012; Carpenter et al., 1998; Grossmann, Lloyd-Fox, & Johnson, 2013; Liszkowski et al., 2004; Liszkowski, Carpenter, & Tomasello, 2008; Siposova & Carpenter, 2019). In line with this line of reasoning, and to make sure that the effects in Study 1 were not simply due to the way in which the experimenter responded to the child after a joint attention bid, we conducted an additional study in which we examined whether a similar effect can be found in a noninteractive context. Thus, in Study 2, the adult was instructed not to respond to joint attention bids from the child while being seated a little more to the front, becoming less available for joint attention bids but still visible enough for the child to infer that the adult was attending to the same thing.

Study 1

Method

Participants and design.

In total, 74 1.5-year-olds and 72 2.5-year-olds from mostly middle-class Caucasian families living in a mid-sized U.S. city participated. Participants came into the university lab to participate in a study employing a between-participants design (watching together vs. control). Of the original sample, 9 participants were excluded from analysis because of errors in the procedure (e.g., experimenter error, parent error). Another 16 participants were too fussy during the manipulation and, therefore, were excluded from analysis (e.g., they did not engage in the manipulation). Finally, 25 participants did not complete the final measure (e.g., they were fussy or had no interest in taking part in the dependent measure). The final sample for analysis, therefore, consisted of 48 1.5-year-olds (age range = 17.13–18.87 months, M_{age} = 18.15 months, SD = 0.55) and 48 2.5-year-olds (age range = 30.60–35.90 months, M_{age} = 33.78 months, SD = 1.41). This means that each condition had 24 participants per age group, 12 of which were male and 12 of which were female. All procedures in Study 1 were approved by the university's institutional review board.

Procedure

When a parent arrived in the waiting room, Experimenter 1 (E1) gave the parent some background and instructions regarding the study and went over the informed consent forms. Next, E1 warmed up with the child using a marble run. E1 stopped warming up if the child voluntarily came over to E1 and took the ball to put in the marble run. All children in the final sample ended up taking the ball from E1. After the warm-up phase, E1 took the parent and participant to the experimental room. Here, the child sat down in front of the screen. For each 1.5-year-old, we asked the parent to choose whether the child would be more comfortable in a toddler chair, in a baby chair with a table, or with a pillow. All 2.5-year-olds sat in a toddler chair. In both age groups, the parent was seated on a pillow behind the child while filling out forms.

When the child and parent had sat down, E1 left the room to get one of nine different female experimenters (E2). All experimenters participated roughly the same amount of times in each condition (with a maximum of one more in one condition than the other). E1 and E2 then came in together. E2 sat down on a chair next to the participant without introducing herself and put a book open on her lap. E1 then said that he or she would start an animal video on the screen. Next, E1 walked behind the curtain and started a silent video consisting of eight 15-s video clips of animal behavior.

In the watching together condition, both the child and E2 could see the screen and looked at the video together. In this condition, E2 ignored the book in her lap. In the control condition, E2 could not see the screen because her visual field was blocked by a piece of cardboard (50×50 cm) attached to the screen. Thus, in this condition, E2 did not watch the video together with the participant and instead looked at the book in her lap. Because we initially wanted the procedure to feel like a natural interaction, E2 was instructed to, in both conditions, acknowledge every joint attention bid (e.g., a look, a point) by looking back at the child with a neutral/friendly expression. This dynamic is comparable to the checking back during joint attention episodes (e.g., Scaife & Bruner, 1975). During the manipulation, whenever a child looked back or attempted to otherwise engage the parent, the parent was instructed to acknowledge the child, say that he or she was busy, and go back to the form. The parent occasionally intervened, always on instruction from E1, for example, by putting the participant back into the chair if he or she started walking around.

When the video was over, E1 came out from behind the curtain. At the same time, E2 got up and walked to the other side of the room. E1 asked the parent to turn around to face E2 and asked the child to move in front of the parent, behind a start line, facing E2. The moment the participant had moved to the line and was facing E2, E1 gave E2 a cue and started a stopwatch. E2 responded by taking out a stuffed animal from under a blanket and offering it to the participant. The moment the toy was offered, E1 told the participant, "If you want, you can go play with the toy," which the parent repeated after E1 following the instructions received before the warm-up phase. If the child had not approached after 15 s, E1 gave E2 another cue to give the stuffed animal a hug and offer it again. After another 15 s, E1 gave a cue to E2, who responded by putting away the stuffed animal. She then took a toy truck with blocks from underneath a blanket and offered one of the blocks to the participant. Again, E1 cued E2 after 15 s. In this case, E2 tilted the back of the truck so that the blocks would fall out. She then grabbed another block and offered it to the participant. Finally, if the participant had still not approached, E1 cued E2 to put the truck away and take a marble run identical to the one in the warm-up phase. E2 put the marble run next to her and offered a ball to the participant. During this part of the experiment, E2 looked at the participant but never said anything to him or her.

Measures and coding

Two cameras recorded the entire experimental session (i.e., manipulation and final measure). After each session, the research assistant who was part of the procedure split up *the initial video file* into a manupulation video file and a dependent measure video file. A research assistant who was not part of the session first checked the manipulation and then the dependent measure for exclusion criteria (e.g., parent or experimenter error, child fussiness). This procedure made sure that exclusion for behavior during the manipulation was uninformed by the dependent measure. Next, a different research assistant coded the manipulation for looks to E2 and bids (i.e., a point or vocal expression accompanied by a look at E2) and coded the dependent measure video for approach latency. Approach latency was defined as the time the child took from the moment the participant was in place and the stuffed animal was held out for the participant to take to the moment the participant first touched one of the toys. A second coder coded 25% of all trials for latency, looks, and bids for coder reliability (all interclass correlations: rs > .90).

Results

Latency

Because the residuals of the latency data for each group were not normally distributed (Kolmogorov–Smirnov test and Shapiro Wilk test: both ps < .001), and several types of data transformation did not resolve this issue, nonparametric statistics were warranted.

As during the experiments, the behavior of the 1.5-year-olds suggested that the procedure was too difficult for them. They were often fussy, did not want to sit in the chair and watch the video, and seemed to have trouble in keeping track of who was watching what. This suspicion was confirmed by the approach latency results; an overall Mann–Whitney test across both age groups showed no difference between conditions (p = .097) (see Fig. 1). The 1.5-year-olds in the watching together condition approached more or less equally fast (M = 23.14, SD = 20.10) as the 1.5-year-olds in the control condition (M = 24.36, SD = 19.61).

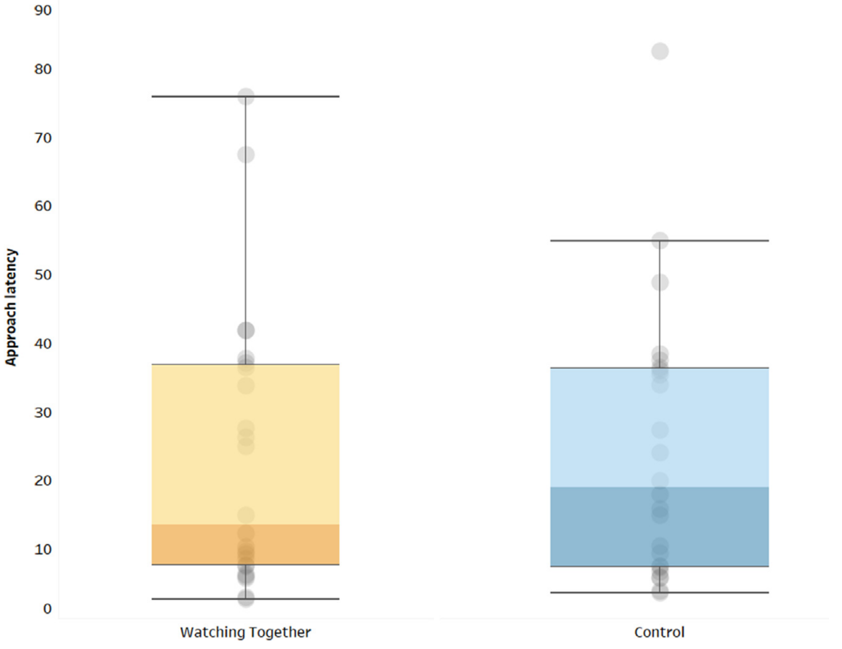

Fig. 1. Distribution of approach latency for 1.5-year-olds in the watching together condition versus control condition (Study 1).

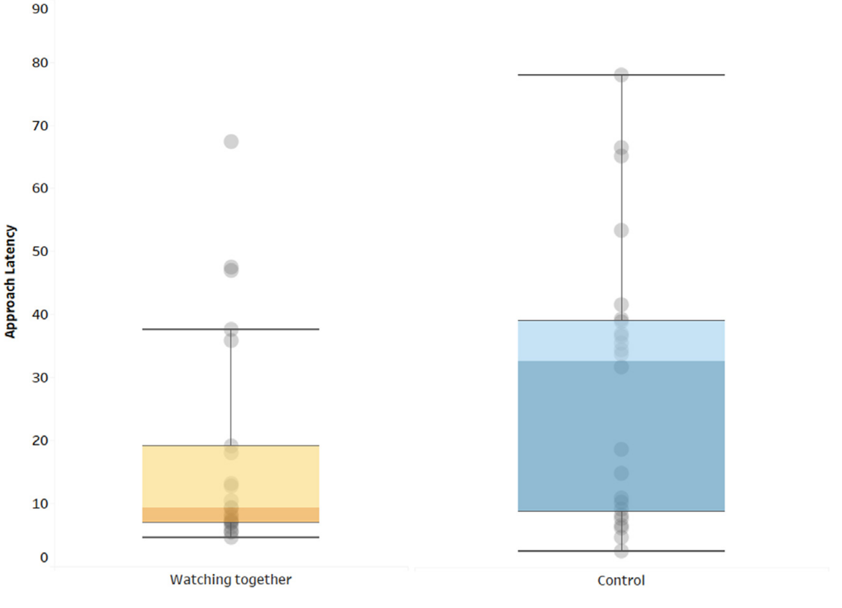

Fig. 2. Distribution of approach latency for 2.5-year-olds in the watching together condition versus control condition (Study 1).

For the 2.5-year-olds, we did find an effect of the manipulation on approach latency (Mann–Whitney: $p = .048$, $r = .286$). The 2.5-year-olds approached E2 faster after the watching together condition ($M = 17.07$, $SD = 16.91$) than in the control condition ($M = 29.46$, $SD = 22.19$) (see Fig. 2).

Looks and bids

For both looks and bids, the residuals of the data were not normally distributed (Kolmogorov–Smirnov test and Shapiro Wilk test for all variables in both age groups: $ps < .005$). Mann–Whitney tests showed no differences between conditions in either age group (all $ps > .05$). The means and standard deviations of all variables in Study 1 can be found in Tables 1 and 2.

Frequency of children not completing the measure

There were many reasons for different children not completing the final measure (e.g., fussiness, lack of interest in the dependent measure sometimes caused by the participant wanting to watch more videos). When we examined the patterns of noncompletions across conditions, we found no condition difference in noncompletions in the group of 1.5-year-olds (7 vs. 8 participants, $z = -0.240$, $p = .81$). However, we did find an unexpected difference in noncompletions for the 2.5-year-olds (10 vs. 0 participants, $z = 3.023$, $p = .003$).

Discussion

The results of Study 1 show that 2.5-year-olds, but not 1.5-year-olds, approach an experimenter faster after having been in joint attention with that experimenter than when the child and experimenter have been attending to different things. However, the effect in Study 1 was only barely significant. Furthermore, the fact that there was an unexpected condition difference in the amount of children who did not complete the dependent measure in the group of 2.5-year-olds suggested that a closer look at the experimental paradigm was necessary.

During data collection, the way in which some children reacted to E2 responding to their looks and bids by looking back raised concerns that allowing the experimenters to respond to the looks and bids of children might have played a part in children's subsequent approach latency. First, we sometimes noticed children responding fearfully to E2 looking back. This suggests that some of the looks toward E2 might have been explorative (i.e., trying to figure out who this stranger was who did not say a word and just sat next to them) rather than communicative (i.e., trying to share attention). Because some children become more fearful after being addressed directly by a stranger, it could be that for some

Table 1
Means and standard deviations of latency, looks, and bids per condition for 1.5-year-olds in Study 1.

	Watching together		Control	
	M	*SD*	*M*	*SD*
Latency	23.14	20.10	24.36	19.61
Looks	7.21	3.13	6.83	3.24
Bids	2.33	2.99	2.13	3.83

Table 2
Means and standard deviations of latency, looks, and bids per condition for 2.5-year-olds in Study 1.

	Watching together		Control	
	M	*SD*	*M*	*SD*
Latency*	17.07	16.10	29.46	22.19
Looks	3.67	3.06	4.21	2.96
Bids	1.29	2.66	0.21	0.59

* Significant at the .05 level.

children in the sample the response to E1's looks might have worked counterproductively, eliciting anxiety rather than a sense of shared experience.

Second, we noticed that even in the control condition some children still pointed or made bids for attention while looking at E2. Because E2 responded by looking back (i.e., similar to what one might expect in a joint attention interaction), some children in the control attention condition might have used this social engagement to wrongfully infer that E2 could see or had been looking at the video with them. Furthermore, even if children did not erroneously infer joint attention based on E2 responding to their looks or bids, this social engagement would still have had an effect, adding noise to the data.

To address these issues, we conducted an additional study in which we set out to replicate the effect found in Study 1 using a procedure in which experimenters did not respond to looks or bids of participants. One additional advantage of this new procedure was that it is a more direct replication of the Wolf et al. (2015) procedure used with adults, in which participants were instructed not to communicate with each other, as well as the more cognitive conceptualization of joint attention (Baron-Cohen, 1995; Bayliss et al., 2013; Gomez, 2005; Grossmann & Johnson, 2010; Nuku & Bekkering, 2008; Peacocke, 2005; Shteynberg, 2015, 2018; Striano & Stahl, 2005). Finally, as mentioned earlier, the procedure seemed to be too demanding for the 1.5-year-olds; therefore, we decided to run this new, cleaner experimental procedure only with a group of 2.5-year-olds.

Study 2

Method

Participants and design

In Study 2, a sample of 74 2.5-year-olds from the same population as Study 1 participated in a design identical to that of Study 1. Of the original sample, 7 participants were excluded because of procedural errors, 10 participants were excluded for fussiness, and 9 participants were excluded because they did not complete the final manipulation. For 1 participant, there was a discrepancy in birth date between the birth records and the details the parent provided. As such, this participant might have been a couple of days older than 36 months. The final sample, therefore, consisted of 48 2.5-year-olds (age range = 30.64–36.36 months, M_{age} = 33.79 months, *SD* = 1.66) who were equally distributed over conditions. Like in Study 1, gender was equally distributed and counterbalanced over conditions.

Procedure and measures

The procedure of Study 2 was identical to that of Study 1 with two subtle changes in the manipulation. In Study 2, E2 was now instructed not to respond to the child at all. In addition, in comparison with Study 1, E2's chair was moved toward the screen 10 cm, whereas the participant's chair was moved back 10 cm. This made E2 slightly less accessible for the participant to engage E2 because the child was now outside E2's visual field. In Study 2, the coder reliability of the latency, looks, and bids was similar to that in Study 1 (all interclass correlations: rs > .95).

Results

Latency

Similar to Study 1, the residuals of the time it took children to approach were not normally distributed, and data transformations did not resolve this issue, warranting nonparametric statistics. A Mann–Whitney *U* test showed that there was an effect of condition on approach latency (p = .029. r = .315). Participants in the watching together condition approached faster (*M* = 18.02, *SD* = 20.09) than participants in the control condition (*M* = 26.86, *SD* = 21.62) (see Fig. 3).

Looks and bids

Due to technical problems, the video material needed for coding the looks and bids was lost for 1 participant, so these data were coded as missing. Like in Study 1, the residuals of the looks and bids

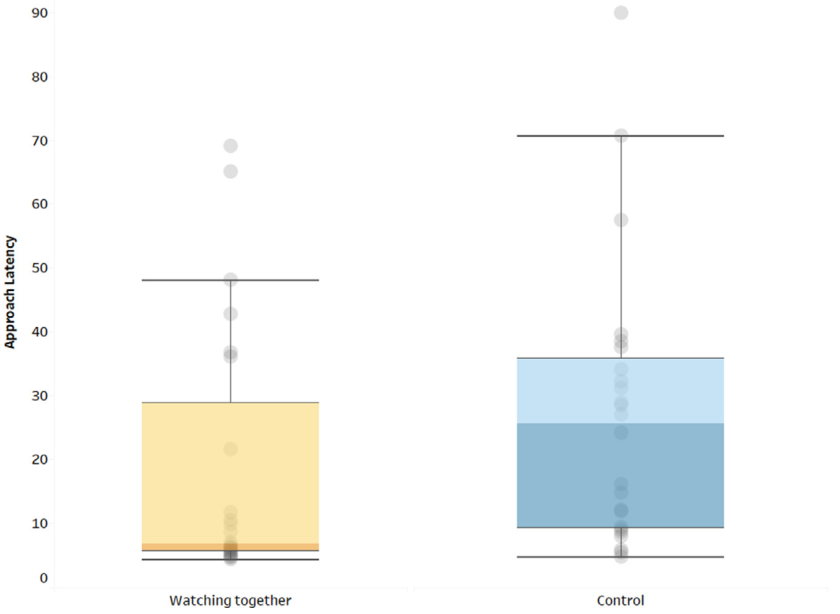

Fig. 3. Distribution of approach latency for 2.5-year-olds in the watching together condition versus control condition (Study 2).

Table 3
Means and standard deviations of latency, looks, and bids per condition for 2.5-year-olds in Study 2.

	Watching together		Control	
	M	*SD*	*M*	*SD*
Latency*	18.02	20.09	26.86	21.62
Looks	4.42	2.17	4.30	2.65
Bids	0.54	0.98	0.30	0.77

* Significant at the .05 level.

variables were not normally distributed; therefore, we used nonparametric statistics. Mann–Whitney *U* tests did not yield a difference between conditions for looks and bids (all $ps > .05$). The means and standard deviations of all variables are displayed in Table 3.

Frequencies of nonapproaches

Importantly, a *z* test for proportions showed that there was no difference ($z = -0.319$, $p = .75$) between the proportion of children who did not approach in the watching together condition (4 of 52) and that in the control condition (5 of 53).

Discussion

Study 2 replicated the effect of engaging in a shared experience on approach latency found in Study 1. Although the mean difference was smaller in Study 2 than in Study 1, the effect size was slightly larger (i.e., $r = .286$ for Study 1 and $r = .315$ for Study 2), suggesting that there might be slightly less noise in the data (although effect size differences as small as this one should be interpreted with caution). Most important, Study 2 was successful in getting rid of the unexpectedly skewed distribution of children who did not complete the final measure in Study 1. As such, Study 2 corroborated the findings in Study 1, suggesting that 2.5-year-olds socially connect with adults through shared experiences.

General discussion

Together, these two studies provide support for the notion that sharing experiences through joint attention in both a minimally interactive and noninteractive context influences how 2.5-year-olds respond to novel adults. More specifically, the studies show that 2.5-year-olds feel more comfortable with an adult after having watched a video together with that adult than when an adult was sitting next to them reading a book. These results imply that sharing experiences with others may play an important role in their developing social relationships.

Study 1 showed neither an effect nor a trend for the 1.5-year-olds. One consideration with regard to the sample of 1.5-year-olds concerns their visual perspective-taking capabilities. Although 1- and 1.5-year-olds have been shown to process that others can see things they cannot see (Moll & Tomasello, 2004), understanding that others cannot see what they can see might be more difficult. As such, the 1.5-year-olds might have had trouble in understanding that E2 in the control condition could not see the video, which might partially explain why the 1.5-year-olds made joint attention bids even when E2 could not see what they wanted E2 to see. However, during the experiment E2's gaze was not directed toward the screen but instead was directed slightly downward toward E2's own book. Thus, although the 1.5-year-olds might have erroneously inferred that E2 had visual access to the video in the control condition, it seems less likely that the children inferred that E2 was actually watching the video at the same time they were. As such, it seems unlikely that the current lack of results for the 1.5-year-olds can be completely attributed to their lack of visual perspective-taking skills. However, as stated previously, it was also clear that the 1.5-year-olds in this study had trouble in sitting still to watch a video without sound for 2 minutes, especially without trying to engage their parents in the interaction. The videos without sound might simply not have been arousing enough to keep their attention (relative to the novelty of the room and the experimenters). Therefore, we cannot conclude that the lack of results for the 1.5-year-olds reflects a fundamental difference in infants' social development. More research using less demanding procedures is necessary to provide a more definitive answer to that question.

The results for the 2.5-year-olds are in line with previous effects found with adults (Wolf et al., 2015) and, more recently, also in great apes (Wolf & Tomasello, 2019). However, recent studies with adults have shown that the extent to which this effect occurs might be moderated by the content of the stimulus. First, the properties of social bonding have been shown to be contingent on the degree to which a stimulus is arousing and/or its valence (Rennung & Göritz, 2015). Second, Haj-Mohamadi, Fles, and Shteynberg (2018) found that the degree to which the content of a stimulus is in line with prior beliefs moderates the social bonding effect of joint attention, especially for belief confirming or disconfirming stimuli that tap into beliefs that are firmly rooted in one's social identity or group membership such as beliefs in evolution or creationism. Being exposed to stimuli that go against such deeply entrenched beliefs might decrease affiliative social processes, which was mentioned by Haj-Mohamadi et al. as an explanation for why they found a social bonding effect of joint attention between participants only when all the stimuli they had been exposed to during the manipulation affirmed their beliefs.

This raises the question of what exactly the underlying psychological mechanics of the social bonding effect of joint attention are. Previous research has shown that shared experiences are more elaborately processed and deeply encoded in memory, intensifying the emotional experience of a stimulus and thereby shaping one's attitude toward it (Boothby, Clark, & Bargh, 2014; Eskenazi, Doerrfeld, Logan, Knoblich, & Sebanz, 2013; Shteynberg, 2010; Shteynberg et al., 2014). As such, a mildly pleasant experience, such as watching a video, might become more pleasant by doing it together. This increased pleasantness, in turn, might become associated with the individual with whom the video was watched together, causing a greater willingness to interact afterward. On the other hand, when using a more cognitively rich conceptualization of joint attention (e.g., Carpenter & Tomasello, 1995; Tomasello, 1995), one might emphasize the creation of common knowledge or common ground between individuals through a joint attention interaction, making subsequent interactions both smoother and more meaningful (Clark, Schreuder, & Buttrick, 1983) and, thus, more appealing to seek out again in the future. These two mechanisms are not mutually exclusive, and more research is needed to find out if and how these mechanisms individually (and/or simultaneously) facilitate the creation of social closeness between individuals.

It is important to note that the type of social connection described in the current studies is different from classic attachment dynamics (Bowlby, 1982). Attachment prototypically concerns primary caregivers and focuses on issues of danger–safety and availability–abandonment. It is particularly salient in response to unfamiliar environments, which might contain potentially dangerous agents or objects. The results of Studies 1 and 2 imply that children also socially connect with even novel adults in a way that is not driven by attachment concerns narrowly defined. In contrast, social relatedness or closeness through shared experiences seems to stem from a fundamental motivation to engage in triadic interactions that provide opportunities to share internal states and activities with others (Tomasello, Carpenter, Call, Behne, & Moll, 2005).

Such a motivation might explain why young children already actively engage in triadic interactions so often even when their behavior does not seem to be motivated by any particular instrumental goal. Research on (proto)declarative and expressive pointing in 12- and 18-month-olds has shown that children point specifically to share attention with adults even in the absence of an instrumental goal (Liszkowski et al., 2004). Yet, the children in Liszkowski et al.'s (2004) study were not satisfied when an experimenter just looked at them and expressed emotions to them; they were not simply trying to engage the adult in any form of interaction. Instead, the experimenter needed to look at where they pointed and then look back to acknowledge that they had seen it for the child to seem satisfied. So, if the pointing gesture was not motivated by a desire to achieve an instrumental goal or by a desire to simply be socially engaged, then what were those children trying to achieve? The current research might help to provide an answer to this question, suggesting that such declarative/expressive pointing gestures might be motivated by a more specific desire to engage in triadic interactions for the purposes of creating a social connection with others, for example, when the willingness and/or opportunities to engage in physical interactions are limited.

This might be particularly relevant when looking at the development of adult–child dynamics in our evolutionary history. That is, the results of the current studies might hint at an evolutionary mechanism that allows children to elicit solicitude in cooperative breeding groups, where multiple children who have started weaning (like the 2.5-year-olds in Studies 1 and 2) are typically looked after by only a few adults and, therefore, need to compete for the attention of those adults (Burkart, Hrdy, & Van Schaik, 2009; Hrdy, 2007). It has been suggested that in such an environment children who are successful at connecting with adults from a distance are more likely to acquire the care and attention they need, providing an evolutionary advantage for those children who develop their shared cognition earlier relative to those for whom such capabilities emerge later. This, in turn, might help to explain why shared cognition emerges so early in ontogeny, in particular before children have developed any of the other necessary (e.g., physical) capacities for successful collaboration in the adult world (Tomasello, 2019).

One important question to consider is how the socioemotional effect of a shared experience compares with the social closeness felt in a long-lasting social relationship. The measures in the current studies were aimed at capturing a degree of comfort and positive attitude toward that individual as well as a willingness and motivation to interact with her. There is no doubt that these aspects are core components of any social relationship. However, close social relationships are also characterized by, for example, an expectation to reciprocate social support when needed. Such expectations usually do not emerge after a single interaction but rather take time and repeated interactions to develop. As such, creating social closeness through shared experiences might be relatively more important during the early stages of relationship formation before factors such as social support start to play a role.

Generating a better understanding of the role that triadic interactions play in children's social development might generate new insights into how social networks are formed during the earlier stages of human ontogeny. Although the scope of the current research was to examine the effect of shared experiences on social closeness between children and adults, there is no reason why this mechanism might not work for interactions between peers. It is worth noting that, compared with their interactions with adults, infants rarely engage in joint attention with other infants (Bakeman & Adamson, 1984; Franco, Perucchini, & March, 2009), only beginning to do so regularly as their peer interactions ramp up in importance after 3 years of age. Nevertheless, studying shared experiences between young children might illuminate how children's social world transitions from a parent/adult-dominated social world to a social world in which peer relationships start to play an increasingly more important role.

Finally, the results of the current studies also bear implications for research on and clinical practices designed for children with ASD. If young children connect with others through shared experiences, then impairments in shared cognition such as those found in children with ASD (Charman et al., 1997) will have profound consequences for their socioemotional development. As such, the current research may help to inform research into the socioemotional development and social relationships of children with ASD. This knowledge might then be used to inform clinical interventions aimed at teaching high-functioning children with ASD new ways of connecting with others, perhaps through behaviorally grounded (rather than communicative) triadic interactions that they find more natural. This might help children with ASD to reduce the relatively higher level of loneliness and poorer quality of friendships they report compared with typically developing children (Bauminger & Kasari, 2000; Bauminger, Shulman, & Agam, 2003).

Overall, the current studies provide a new perspective on the role of shared experience in children's social development. Understanding the socioemotional value that shared experiences have for children might help to explain a variety of their social and communicative behaviors that have been the focus of cognitive study for decades. Most important, the current research sheds new light on the development of humans' remarkable motivation to invest much time and energy in order to share our mental states with others to specific parts of the world around us.

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