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When to speak up: How children reason about group dynamics

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Abstract

Disagreements arise across many social situations, from families to teams to workplaces. This paper explores how children think about the strategies people use when they disagree with their groups. Specifically, we ask how egalitarian and hierarchical group dynamics influence whether children expect others to speak up about their disagreement, go along with disliked decisions, or leave their groups. We found that 6- to 8-year-olds hold a strong initial expectation that disagreers will speak up, despite believing that the kind of group they are in determines how effective it is to do so. These expectations were dynamic: when given evidence that speaking up did not work, children deferred to other strategies. These results suggest that children update their expectations based on both what has worked in the past and on group dynamics.

Keywords: group dynamics; disagreement; social development

In everyday life, we encounter situations where we disagree with others. When these situations arise, there is often tension between our own opinions and our desire to coordinate or maintain relationships with others. Because of this, we can find ourselves wondering how to proceed. When do we speak up about our disagreement? When do we decide to keep quiet? When do we begin to think that maybe we shouldn't be around the people we are disagreeing with?

Classic work in sociology has explored how these different strategies arise across groups and institutions. Hirschman (1970), in particular, describes three ways people respond to disliked decisions made by institutions such as corporations and states: exit (leaving an institution to join another), voice (speaking up about what is wrong) and loyalty (staying with an institution, regardless of disagreement). Much of the previous work that uses this framework has been from an economics lens – formalizing strategies into game theory models (e.g., Gehlbach, 2006). In the current studies, we build on this classic sociology work in two ways. First, we explore whether this model relates to people's intuitive theories on disagreement and group social dynamics, including their expectations about how and when these strategies are used. Second, we ask whether even children, who have less experience with institutions and different kinds of social groups, have systematic and dynamic expectations about these strategies.

Children have many of the tools needed to begin thinking about these strategies in group contexts. For example, they are capable of identifying different kinds of social groups from even minimal amounts of information (Cikara, 2021; Dunham, 2018; Shutts & Kalish, 2021; Shutts, Roben, & Spelke, 2013). This ability also comes with social consequences; children stereotype outgroups (Brown, Tam & Aboud, 2013; Killen, Hitti, & Mulvey, 2015), have ingroup biases (McGlothlin & Killen, 2010), and distribute resources inequitably across group lines (Kinzler, Dupoux, & Spelke, 2012; Renno & Shutts, 2015).

Children also think about disagreement within groups. They challenge group behaviors that they disagree with, especially when observing unfair treatment (see Killen, Elenbaas, & Rizzo, 2018 for a review). They also reason about decision making strategies. For example, children tend to prefer consensus-based decision making (Schmidt et al., 2016), but are also aware of alternative strategies that can be used when full agreement is unlikely. These strategies include majority rules voting (Helwig, 1998; Hok et al., 2023), impartial procedures such as spinning a wheel (Shaw & Olson, 2014) and turn-taking (Melis et al., 2016).

Although these studies demonstrate that children are capable of reasoning about different ways to make decisions, they do not measure children's expectations about the individual strategies disagreers might use when coordination is desirable. These individual strategies might be especially salient because people's ability to influence the way decisions are made is limited. In general, existing social dynamics or institutions can be difficult to change (Mills, 1956; Pierson, 2000). Further, many decisions are made for children by the various authority figures in their lives (e.g., parents, teachers); they recognize and often expect deference to powerful individuals (refer to Thomsen, 2020 for review). How do children reason about disagreement when neither consensus, majority rules, nor turn-taking are given as viable options? Specifically, how do they think about exit, voice and loyalty?

Different strategies may be better suited to certain social dynamics over others. Imagine, for example, two groups. The first is hierarchical: a workplace, with a boss who has informed you of their decision on where to have a company dinner. The second is more egalitarian: a friend group, where everyone discussed and decided on a food location together. If you were to disagree about the decided location of dinner, in which group would you be more inclined to speak up? As an adult, you might expect open conversations about disagreement to be more acceptable in an egalitarian group, and more likely to change people's minds. It is an open question how we develop these intuitions. There is some evidence that children think about different within-group dynamics. For example, children can distinguish hierarchical groups, where one person makes decisions, from egalitarian groups, where everybody makes decisions (Thomas et al., 2022). However, we know less

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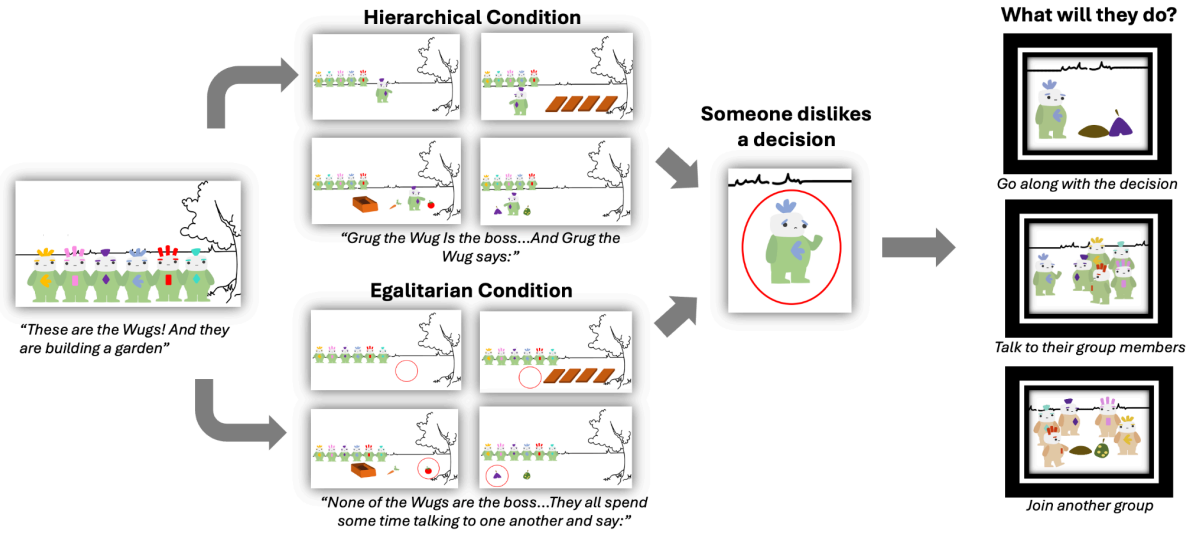


Figure 1: Experiment Procedure. Children were introduced to a novel group of characters called the "Wugs" or the "Flurps" who were either building a garden or a well. In the egalitarian condition, the group made decisions together. In the hierarchical condition, one of the characters of the group was labeled the "boss" and made decisions on behalf of everyone. At test, one of the group members disagreed with a decision being made, and children were asked if they thought that character would go along with the decision, speak to the others about it, or leave their group to join another.

about whether these kinds of group dynamics affect the way children reason about disagreement. Are our adult intuitions a result of lived experiences, or do they follow from our representations of the groups themselves?

How might intuitions about exit, voice, and loyalty develop throughout childhood? Do children distinguish these strategies, and know that people may use them differently depending on their social dynamics? In this paper, we ask if egalitarian and hierarchical dynamics influence whether children believe people will speak up about their disagreement, go along with disliked decisions, or leave their groups (Experiment 1). We also ask whether children think speaking up is more likely to change people's minds in certain groups over others (Experiment 2), as well as which strategies they expect when it does not succeed (Experiment 3).

We test these questions in 6- to 8-year olds, who have a robust understanding of ingroups and outgroups, but only a recently developed ability to identify different group dynamics (as seen in Thomas et al, 2022). If children begin to represent group dynamics at a similar age that they develop systematic intuitions about how egalitarian and hierarchical structures inform disagreement, then it would add to the larger hypothesis that children develop intuitive theories of social dynamics – integrated systems of knowledge about how social dynamics influence behavior. That is, it would suggest that their answers do not reflect isolated associations, but instead a system of knowledge that supports inferences across contexts. Further, we ask these questions at a time when children are interacting in group settings at a greater frequency as they finish kindergarten and enter first grade. Therefore, these different disagreement strategies are relevant to children's everyday experiences.

Experiment 1

In Experiment 1, children were told stories about two different groups coordinating to build a well or garden. One group was structured hierarchically, with a leader who told their group members what to do. The other group was egalitarian, where everyone made decisions together. At test, children saw that someone in the group disagreed with a decision being made and were asked to predict which of three strategies the disagreer would choose: to talk to their group members, to go along with the decision, or to leave their group and join another (Figure 1). If children systematically reason about these options, they may expect different strategies across the two groups. Alternatively, children may not think that group structure is centrally important to navigating disagreements. (All analyses were pre-registered unless otherwise noted: https://osf.io/9w8vb/?view_only=9317941975f14706a091d14c1c82548e)

Methods

Participants Fifty six- to eight-year olds (mean age = 7.5 years, range = 6.1-8.9; White = 21, Asian = 15, Hispanic/Latinx = 4, Black/African American = 1, Multiracial = 6, Other = 1, No Response = 2) were recruited and tested via video chat. Four additional participants were recruited but excluded from the task due to failure to pass its comprehension check.

Procedure and Stimuli Children were shown simple, animated stories on Powerpoint (Figure 1) that were similar to stimuli used in previous research (Thomas et al., 2022). In these stories, they saw 2 scenarios of different groups of 6 (called the Wugs and the Flurps) making a series of

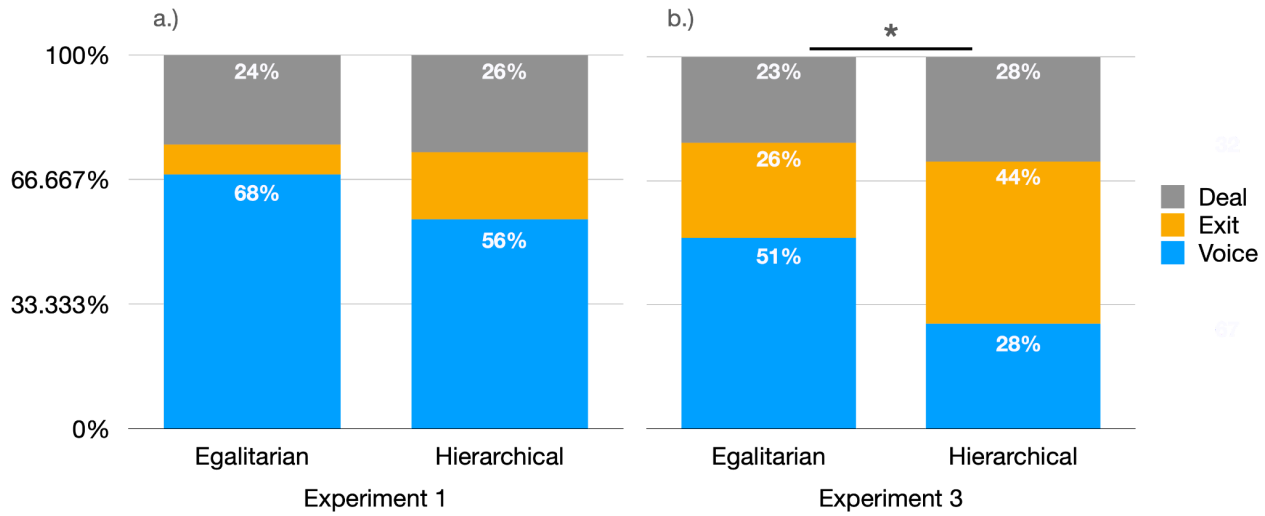


Figure 2: Proportion of participants' responses to what they thought the disagreer would do. Y axis shows the percentage of their responses. X axis shows the group condition (hierarchical or egalitarian). In the legend: 'Deal' represents participants who said the disagreer would go along with the decision, 'Exit' represents those who said the disagreer would leave the group, 'Voice' represents those who said the disagreer would talk to their group members. Chance is ⅓ or 33.33%. Figure 2a: Children's responses to Experiment 1, where participants were not given any evidence about how effective any given strategy was. Figure 2b: Children's responses to Experiment 3, where they were given evidence that speaking up would not work to change people's minds.

decisions, in order to build a garden for food or a well for water. Children were told that "this [garden/well] would be the only way" they would be able to get "[food/water], so it is very important to them". One group was structured hierarchically, in which a single character made three decisions on behalf of their group. The other group had an egalitarian structure, in which the group discussed three decisions and came to an agreement together on each.

At test, participants saw one of the group members disagree with a decision being made. When the group was building a garden, the group member disagreed with the kind of seed that was being planted. When the group was building a well, the group member disagreed with the choice of material used to build the well roof. Afterwards, participants were asked to predict what the disagreer would do next and why. Participants were given three options for what the disagreeing group member could do: "Talk to the rest of their group to see if they'll change their mind", "Just deal with it and [use wood to build the roof/buy the wuxa seeds]" or "Join another group that has already [built the well the way they wanted to/bought the seeds that they wanted to buy]." These options were designed to follow 'voice', 'loyalty', and 'exit'.

After watching both scenarios and answering questions, the experimenter then asked the participant which group had someone in charge (a comprehension check). At the end of the experiment, participants were informed that one of the two Wugs/Flurps who disagreed with the decision decided to leave their group. The experimenter then asked participants which one left and why.

Results

We first analyzed children's overall predictions about what the disagreer would do: voice their opinion, go along with the decision or leave their group. To do so, we calculated bootstrapped 95% confidence intervals in R. We found that 6-to-8 year olds most frequently predicted that the disagreer would talk to their group members (62%; 95% CI = [53%, 72%], chance = 33.33%).

We were also interested in whether children thought that disagreers would use different strategies depending on whether their group was egalitarian or hierarchical. To do so, we ran a Bayesian multinomial regression model with default priors. Here, we treated participants' choices of 'voice', 'go along with' and 'exit' as the response variable. Our main predictor was group structure (hierarchical or egalitarian), and we controlled for participant age in months and the counterbalance version. We also included a random intercept to account for within-subject effects. For children's responses, we found no significant effect of group structure (muExit Estimate = 2.13, Est. Error = 1.29, CI = [-.06, 5.82]; muVoice Estimate = -.4, Est. Error = .59, CI = [-1.54, .75]; Figure 2a).

We also looked at children's responses to the forced choice question of which of the disagreers, either the one in the hierarchical group or the egalitarian group, decided to leave their group and join another. In an exploratory analysis, we found positive evidence that children were at chance (51% selected the hierarchical group; BF_{01} = 2.97, chance = 50%).

Discussion

In this experiment, we found that children thought that the disagreer would speak up, regardless of whether they were in a hierarchical or egalitarian group. This could suggest that children did not consider group structure when they predicted strategies for disagreement. This leaves open the question of whether children believed that speaking up would be equally effective across both groups.

Experiment 2

In this second experiment we directly investigated whether children think speaking up is more likely to change minds in egalitarian or hierarchical groups. To get at this question, 6- to 8-year old children were again told stories about hierarchical and egalitarian groups. However, this time children were told that the person who disagreed with the group decision tried to talk to their group members about it. At test, we asked children how likely it was that the group listened to the disagreer. We also asked a final forced choice question about whether children thought the disagreer from the hierarchical group or from the egalitarian group was successful in changing people's minds (for pre-reg refer to OSF link: https://osf.io/t32sc/?view_only=4e5c378ac0a34432958bb196086c1dbf).

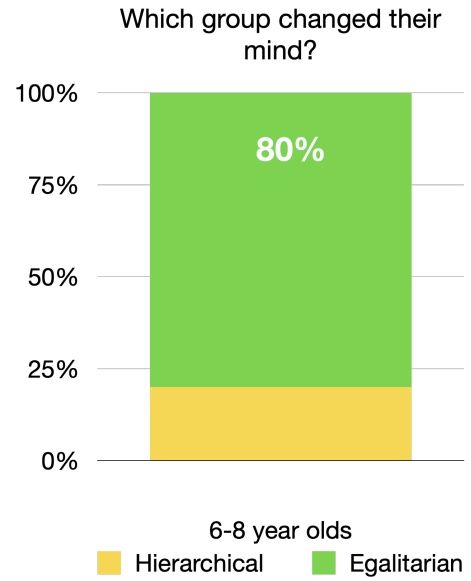


Figure 3: Proportion of children's responses for which group changed their mind. Y axis shows the percentages, x-axis shows forced choice responses of "egalitarian" or "hierarchical" group.

Methods

Participants Fifty six- to eight-year olds (mean age = 7.6 years, range = 6-8.9; White = 28, Asian = 8, Black/African American = 1, Multiracial = 13) were recruited and tested online. Six additional participants were recruited but excluded from the task due to failure to pass its comprehension check.

Procedure and Stimuli Experiment 2 was similar to Experiment 1. Again, we presented children with stories about two groups – one egalitarian, one hierarchical – each coordinating to build a garden. After children learned about each group (with a leader making the decisions in the hierarchical group and everyone deciding together in the egalitarian group), they were informed that one of the group members disliked a decision being made.

Unlike Experiment 1, we then informed children that the disagreer "tells their group members that they" don't like the decision. Participants responded using a child-friendly 4 point likert scale: we asked children whether they thought the other group members would listen to the disagreer (yes/no), then followed with either definitely or maybe listen/not listen.

At the end of the experiment, after children were told stories about both groups and we asked them to confirm which group had a boss, we presented them with a forced choice question. In it, we showed children the disagreers from both groups, told them that "only one of them was able to change their group members' minds," and asked them to select which one.

Results

We first analyzed whether children significantly selected one group dynamic over the other in our forced choice question, where we asked which disagreer successfully changed their group's mind. To do so, we calculated bootstrapped 95% confidence intervals. We found that 6-8 year olds overwhelmingly predicted that speaking up would change the group's mind in the egalitarian condition rather than the hierarchical condition (80%; CI = [73%, 88%], chance = 50%; Figure 3).

We were also interested in children's individual judgments of how likely speaking up would be to change peoples' minds across groups, absent of this forced choice question. To explore this, we ran a Bayesian logistic ordinal regression on how likely children thought it was that the group members listened to the disagreer. Our main predictor was group structure (hierarchical or egalitarian). We included a random intercept to account for within-subjects effects and a fixed control variable for counterbalance. We found a significant effect of group structure (Estimate = -1.32, Est. Error = .43, CI = [-2.18, -.51]), such that children thought that disagreers were more likely to be listened to in the egalitarian group than the hierarchical group.

Discussion

In this experiment, we found that children thought that speaking up was more likely to change minds in egalitarian groups than in hierarchical groups. We saw this both when children were given a forced choice between the two groups and when children were assessing each group on their own.

This suggests that children's initial preference for speaking up (as seen in Experiment 1) was not likely because they thought that it would work to change others' minds equally well across different group dynamics. Still,

this experiment focused on children's evaluations of what others *have already* done, while the previous experiment asked children to predict what others will do. Therefore, it is possible that children do not update their expectations about what others will do based on what they think will be more effective.

Experiment 3

In this experiment, we further explored how children think about voice. In Experiment 1, children were most likely to predict that disagreers would speak up, regardless of their group dynamic. Experiment 2 revealed that children also thought that people who had already spoken up would only be listened to in egalitarian groups. If children reason differently when predicting future behavior compared to evaluating past behavior, we figure that they should not update their predictions when given evidence about whether 'voice' works. Thus in the current Experiment, we tested whether children would continue to predict that a disagreer would speak up even when given evidence that it would not change people's minds. To get at this question, we again presented children with egalitarian and hierarchical groups building a garden or well. However, this time, when someone disagreed, they tried to talk to their group but failed to change anyone's mind. Afterwards, we asked children whether they thought the disagreer would voice their opinion (again), go along with the decision, or leave the group. If children do not consider the efficacy of these different strategies, then they should predict that the disagreer will speak to their group no matter their group dynamic, as found in Experiment 1. If children do consider the efficacy of these different strategies, then we should expect different results from Experiment 1 and possibly a significant difference in their responses across group structures. (OSF link: https://osf.io/fnqjx/?view_only=c74165f3004249d181c50f47cdf40faa).

Methods

Participants Fifty six- to eight-year olds (mean age = 7.4 years, range = 6-8.8; White = 27, Asian = 9, Hispanic/Latinx = 2 , Multiracial = 11, no response = 1) were recruited and tested online. Six additional participants were recruited but excluded from the task due to failure to pass its comprehension check.

Procedure and Stimuli This experiment was nearly identical to Experiment 1. We presented children with the same stories about hierarchical and egalitarian groups, which ended with a group member from each disliking a decision being made. In this experiment, however, the disagreer told their group about their disagreement, but failed to change their group members' minds. Specifically, children were informed that the disagreer "tells their other group members that they don't" like the decision, but that their group "continued to do so anyway." Afterwards, we asked children what they believed the groups would do next. Would they talk to their group again to see if they'll change their mind, go along with the decision, or leave their group to join another?

At the end of the experiment, after both stories and our comprehension check ("Which group had a boss?"), we present children with a forced choice question. We show children the disagreer from each group, tell them that one of the two decided to leave their group, and ask them to select which one.

Results

We first tested whether children still hold a strong expectation that disagreers will speak to their group members, even after being given evidence that doing so does not work to change minds. To do this, we calculated bootstrapped 95% confidence intervals. We found that 6-8 year olds no longer had the expectation that people would voice their opinion overall (42%; 95% CI = [32%, 51%], chance = 33.33%). We also ran an exploratory two-sample z-test for proportions to compare children's answers from Experiment 1 and Experiment 3 and found that they were significantly different from one another (X-squared = 7.23, df = 1, p-value = 0.01).

We also ran a Bayesian multinomial regression model to see if there were significant differences between conditions. Here, we treated participants' choices of 'voice', 'go along with' and 'exit' as response variables. Our main predictor was the group structure (hierarchical or egalitarian). We controlled for the counterbalance and included a random intercept to account for within-subject effects. Children were significantly less likely to say that disagreers would speak up in the hierarchical group (Estimate = 21.61, Est. Error = 7.8, CI = [7.85, 38.91]) and more likely to say they would leave instead (Estimate = 14.83, Est. Error = 7.66, CI = [.84, 30.39]; Figure 2b).

Discussion

In this study, we found that overall children no longer believe that people will speak up about their disagreement when given direct evidence that it is ineffective in changing minds. Interestingly, children in our experiment were also significantly less likely to believe that disagreers would speak up again in hierarchical groups than in egalitarian groups. This, in conjunction with the results of Experiment 2, demonstrates that children are capable of both reasoning about which strategies are most effective and using this information to anticipate how others will go about disagreement.

General Discussion

This study explored how children expect disagreements to be handled across different group dynamics. In Experiment 1, we found that children expected people to talk to their group members, to use 'voice', about their disagreements, regardless of whether their group was egalitarian or hierarchical. This was in spite of, as we found in Experiment 2, the fact that they thought speaking up was

more likely to be effective in egalitarian groups than in hierarchical groups. Finally, Experiment 3 provided evidence that children adjust what they think disagreers will do depending on how likely a given strategy is to work. Across all of these studies we held constant how important the decision was for the group (by saying that the group depends on the garden and well for food and water) as well as how viable an exit strategy would be to achieve the individual's personal goal (by saying they could join another group that was already doing what the disagreer wanted).

Our work has two primary implications. First, it demonstrates that children dynamically reason about how disagreements will play out. They do not merely think that people will always speak up (as we had initially seen in Experiment 1). They can update their expectations based on what has or has not worked in the past (Experiment 3). In fact, when given this additional evidence, they also pay attention to group structure: they believe that disagreers in hierarchical groups are more likely to leave and less likely to speak up. This suggests that children use both the inferences we found in Experiment 2, that voice is less effective in hierarchical groups, and the direct evidence we gave them to update their expectations. Given this, these experiments demonstrate at least two factors which play into children's theories on the dynamics of disagreement: group structure and recent history.

Second, this research provides preliminary evidence that children's representations of group structures/social dynamics might be theory-like in nature. Previous research demonstrated that 6- to 8-year olds can identify hierarchical and egalitarian groups (Thomas et al., 2022). Our research shows that, under a similar developmental trajectory, children also use these dynamics to reason about how disagreements may play out. Our work in combination with this past research suggests that children make several predictions based on relatively sparse data about the social dynamics of a group. Therefore, this work presents preliminary evidence in favor of these representations' strong explanatory power.

These experiments also leave several open questions. Foremost, they cannot conclusively explain why children said that disagreers would speak up regardless of group structure in Experiment 1. Given the results of Experiment 2, it is unlikely that children simply think that speaking up always works to change people's minds. Instead, there are alternative explanations for what they could have been reasoning about. For example, children might have normatively valued speaking up and therefore assumed others would do the same. Alternatively, children in our experiments may have been making additional inferences about the people within these groups that could lend themselves to certain strategies over others. For instance, children may have initially assumed that group members were friends with one another. However, once we gave them evidence that the disagreer was not listened to in Experiment 3, children may have updated their inferences about the kind of relationship the disagreer had with their group members. Past research has shown that children expect their friends to both listen (Brendt, Perry, & Scarr, 1986; Smith-Flores et al, 2024) and be loyal (Liberman & Shaw, 2019) to them. Therefore, without the expectation of loyalty that comes with friendship, they might have inferred that disagreers would leave their groups at greater frequencies (Figure 2).

Another open question is whether children recognize these different disagreement strategies at younger ages. By the time we tested children in our studies, they had many years of experience in coordinating actions within both formal groups (like classrooms or teams) and informal groups (amongst peers). Children's predictions may reflect the real world dynamics of these different social groups. Because research suggests that children only reliably identify hierarchical and egalitarian group dynamics by age 6 (Thomas et al., 2022), it is unlikely that we could use this paradigm to find that younger children use group structure in their predictions. However, 'exit, voice, and loyalty' are strategies that can be deployed across a wide range of social situations, including interpersonal relationships. Anecdotally, many parents report that their children are much more vocal about their disagreements at home than at school. This could be because even young children understand that their parents do not have 'exit' as an option. Future work could explore how younger children think about these strategies across different kinds of relationships.

Further, the current paradigm asks what children think people will do when disagreeing about essential resources like food and water. Children's expectations that people would speak up (Experiment 1) and leave when given evidence that it didn't work (Experiment 3) could be driven by the fact that they perceived these disagreements as important for survival. Their responses might be very different if groups were coordinating about something more superfluous, like where to throw a party or what color to paint a shared house.

Finally, the children we tested were relatively homogenous in terms of education, culture, and income. Research in other fields suggests that SES can play a role in how people think about disagreement, especially with authority figures (Conner, Posner, & Nsowaa, 2022; Kelly, 2008). Thus we may find that children from different cultures or who are from more diverse economic backgrounds have different expectations or normative evaluations of these strategies.

While many questions remain, these experiments demonstrate children's nuanced understanding of how disagreements might play out in a complex social world. Our work shows that children not only reason about how an individual might go about disagreement, but also how such disagreements are informed by the larger structures they take place in.

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