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Researchers commonly use puppets in development science. Amongst other things, puppets are employed to reduce social hierarchies between child participants and adult experimenters akin to peer interactions. However, it remains controversial whether children treat puppets like real-world social partners in these settings. This study investigated children's imitation of causally irrelevant actions (i.e., overimitation) performed by puppet, adult, or child models. Seventy-two German children (Age_{Range} = 4.6 - 6.5 years; 36 girls) from urban, socioeconomically diverse backgrounds observed a model retrieving stickers from reward containers. The model performed causally irrelevant actions either in contact with the reward container or not. Children were more likely to overimitate adults' and peers' actions as compared to puppets' actions. Across models, they copied contact actions more than no-contact actions. While children imitate causally irrelevant actions from puppet models to some extent, their social learning from puppets does not necessarily match their social learning from real-world social agents, such as children or adults.

Keywords: Overimitation, Puppetry, Social Learning, Peer Interactions, Theory of Puppets

Research Highlights

- We examined children's overimitation from adult, child, and puppet models to validate puppetry as an approach to simulate non-hierarchical interactions.
- Children imitated adults and child models at slightly higher rates than puppets.
- This effect was present regardless of whether the irrelevant actions involved physical contact to the reward container or not.
- In our study children's social learning from puppets does not match their social learning from human models.

In their first years of life, children begin to acquire the cultural repertoire of their community by learning skills and knowledge from others. Adults and peers offer complimentary yet equally essential

opportunities for children's social learning, forming "two social worlds of childhood" (Tomasello, 2019, p. 31; Tomasello & Gonzalez-Cabrera, 2017). Adults often serve as gatekeepers to cultural knowledge and skills, making it adaptive for young children to learn from them (Zmyj & Seehagen, 2013; Price et al., 2017; Wood et al., 2013b). It is thus no wonder that toddlers and preschoolers often prefer adult over child informants (Jaswal & Neely, 2006; Zmyj, Daum, et al., 2012; Kachel et al., 2018). Adults continue being essential sources of knowledge throughout childhood and adolescence (Molleman et al., 2019), but in their preschool years children increasingly attune to learning opportunities of the "second world": Peers (Jaswal & Neely, 2006; Kachel et al., 2021; see also Zmyj & Seehagen, 2013). Notably, children's experiences in both worlds vary substantially across cultures (Keller & Kärtner, 2013; Rogoff, 2003). Peers and older children play an important role as sources of care and learning in communities outside the Global North (e.g., Garfield et al., 2016; Lew-Levy et al., 2019). Nevertheless, there is little doubt that both peers and adults are essential models for children across the globe (Broesch et al., 2021).

The majority of experimental work on childhood social learning has focused on knowledge transmission from unfamiliar adults to children (Wood et al., 2013b). This focus is not only driven by theoretical concerns, but also derives from methodological challenges of conducting research with peers or familiar adults. It is much easier to conduct rigorously controlled research with (unfamiliar) adult experimenters than child confederates (Zmyj, Daum, et al., 2012) or family members. Hence researchers often rely on (hand-)puppets, animated by adults, to maintain experimental control while aiming to reduce potential power differentials between adult experimenters and child participants. Puppetry has become part of the standard toolkit in developmental research and is widely accepted as a "viable solution" (Rakoczy, 2022, p. 2) to simulate non-hierarchical interactions such as those between peers. This application of puppetry has revealed insights into various aspects of social development, including childhood social learning (Brosseau-Liard et al., 2015; Einav & Robinson, 2011; Keupp et al., 2013; Rakoczy et al., 2010). Some researchers assume that puppets are "perceived as peers" (Remer & Tzuriel, 2015, p. 358) and deliberately introduce them in a "childlike way in order for children to regard the puppet as an equal, that is, not as an authority" (S. Hardecker et al., 2016, p. 367). Puppet partners may encourage children, particularly shy or introverted individuals, to communicate and engage more freely (Kröger, 2019; Remer & Tzuriel, 2015; Simon et al., 2008).

Beyond this use of puppets, developmental scientists rely on puppets and other animated stimuli in a wide range of situations (Kominsky et al., 2020; Rakoczy, 2022). They are particularly common in infancy research, building upon infants' tendency to ascribe agency to such stimuli (Dolgin & Behrend, 1984). Concerns about whether children perceive puppets as animate agents (e.g., Packer & Moreno-Dulcey, 2022) have been addressed elsewhere (Kominsky et al., 2020; Rakoczy, 2022).

Here, we aim to validate the use of hand-animated puppets to simulate non-hierarchical settings akin to peer interactions. We studied children's learning from puppet, adult, and child models, focusing on a learning strategy that may be particularly prone to model biases: the tendency to copy actions lacking any instrumental function–*overimitation* (Lyons et al., 2007; Horner & Whiten, 2005). Overimitation has received considerable interest in developmental research as it may foster the spread of conventions within groups (Stengelin et al., 2022) and facilitates social cohesion (Nielsen, 2018). As overimitation presents a vital learning strategy that also satisfies social motives (Nielsen, 2008; Over & Carpenter, 2013), children are particularly susceptible to models' characteristics when overimitating (Burdett et al., 2018; Lucas et al., 2017; Hoehl et al., 2019).

From 3 years of age, preschoolers overimitate actions from both child (McGuigan & Robertson, 2015; Wood et al., 2016) and adult models (Horner & Whiten, 2005; Lyons et al., 2007). While most overimitation research has focused on children's learning from adults (see Hoehl et al., 2019), some work compared child and adult models using pre-recorded videos (McGuigan et al., 2011; Wood et al., 2012, 2016). Two of these studies found increased overimitation of adults as compared to child models (McGuigan et al., 2011; Wood et al., 2012), but another study documented the reverse pattern (Wood et al., 2016). According to Zmyj and Seehagen (2013), children copy adults because they consider them experts in cultural repertoires, whereas they copy children for affiliative motives.

Children also overimitate puppets (Wood et al., 2013a), but less frequently than child models (McGuigan & Robertson, 2015). Importantly, previous work used abstract animal puppets (e.g., giraffes and lions) lacking childlike features to minimize "model-based bias of copying the irrelevant actions of an adult" (Wood et al., 2013a, p. 206). It thus remains an open question whether hand puppets with child-like features can effectively simulate peer interactions in social learning research. Addressing this question would also validate the use of puppetry for simulating peer interactions more generally.

We therefore contrasted children's overimitation of puppets compared to adults and child models. If children overimitated puppets and child models alike (*puppet-as-child hypothesis*), this would support puppetry as an approach to simulate non-hierarchical interactions, such as those between peers, in social learning research. Alternatively, we tested whether children would overimitate puppets like the adults animating them. Support for this *puppet-as-adult hypothesis* would indicate that children treat puppets as communication mediums of the adult puppeteers. As a third alternative, children may overimitate puppet models differently from both child and adult models (*puppet-as-puppet hypothesis*). This would indicate that children conceive of puppets as distinct, non-human agents. Even if children were to overimitate puppet models to some extent, support for the puppet-as-puppet hypothesis would raise doubts about the degree to which puppetry findings generalize to real-world human partners (see Stengelin et al., 2021).

We focused on urban German middle-class children who grow up with an abundance of puppets and toys. Puppets have been extensively used by developmental researchers in this context (Warneken & Tomasello, 2013; Grueneisen et al., 2017; Stengelin et al., 2018), and German preschoolers have shown considerable tendencies for overimitation in previous work (Schleihauf et al., 2019; Stengelin et al., 2020, 2022).

Children engaged with either a puppet, an adult, or a child partner in a scripted video call (D. J. K. Hardecker, 2020) mimicking reciprocal communication between the child and the model while avoiding physical proximity between children from different households during the Covid-19 pandemic. Previous research presented participants with non-reciprocal video stimuli of child models (McGuigan et al., 2011; Wood et al., 2012, 2016). However, children learn better from reciprocal interactions (Nielsen et al., 2008; O'Doherty et al., 2011), and their overimitation decreases when actions are presented as videos rather than live interactions (Marsh et al., 2014). Given the importance of affiliative motives in children's learning from peers (Zmyj & Seehagen, 2013), video instructions lacking reciprocity may underestimate children's overimitation from peers.

After we established reciprocal communication between children and models, both parties retrieved stickers from a set of four reward containers (Stengelin et al., 2020, 2022). For each container, the models performed some causally irrelevant actions before obtaining the reward. We varied whether these irrelevant actions included physical contact with the reward containers (i.e., contact actions) or

not (i.e., no-contact actions; Taniguchi & Sanefuji, 2017; Schleihauf & Hoehl, 2020). We did this to induce variation in overimitation as children find it more challenging to identify contact actions as causally irrelevant (Lyons et al., 2007; Schleihauf & Hoehl, 2020; Taniguchi & Sanefuji, 2017). Children may copy contact actions similarly from all models as these actions appear causally relevant, but they may be more selective in copying no-contact actions from different models.

We preregistered the following hypotheses. First, we predicted that children would overimitate adults over peers (H1.1; following McGuigan et al., 2011; Wood et al., 2012) and assumed that this effect would be most pronounced for no-contact actions (H1.2). Further, we tested whether children's overimitation of puppet models would resemble their overimitation of peers (*puppet-as-child hypothesis*; H2.1), adults (*puppet-as-adult hypothesis*; H2.2), or whether they would treat puppets differently from human agents (*puppet-as-puppet hypothesis*; H2.3).

Method

Participants

We tested $N = 72$ children (36 girls) aged 4.57 to 6.46 years ($M_{age} = 5.54$; $SD_{age} = 0.57$). Additional $n = 5$ children were excluded from data analyses because of non-compliance, shyness, unwillingness to engage with their partner ($n = 4$) or due to experimenter error ($n = 1$). We substituted each drop-out case until reaching the sample size of $n = 24$ (12 girls, 12 boys) per condition. Sample sizes were based on lab capacities during the Covid19-pandemic.

All children came from Leipzig, a medium-sized German city. Children were recruited from a participant database. Given testing restrictions due to the Covid19-pandemic, testing took place in our child study center ($n = 20$) or in children's daycare institutions ($n = 52$), with conditions balanced across settings. The Ethics Council of the Max Planck Society approved the research (Appl. No: 2021_45).

Study Design and Materials

We preregistered our hypotheses on the Open Science Framework (https://osf.io/by65q/?view_only=9ba0d1b6de164509bb5111ce90dd7ce6). We randomly assigned each child to one of three conditions (between-subjects): puppet-, adult-, or child condition. We counterbalanced the order in which we presented reward containers across children, resulting in 24 combinations per condition. In addition, we matched models' sex to children's to control for potential sex biases in overimitation (Frick et al., 2017). The study lasted ~20 minutes per child.

Each child interacted with four different reward containers, based on previous overimitation research (Stengelin et al., 2020, 2022). For the 'tupper task', we used a transparent plastic container (10cm × 10cm × 5cm) with a transparent lid and four flaps and a blue wooden stick (25cm, Fig. 1A). The 'light-switch task' consisted of a wooden block (22cm × 6cm × 6cm) with a light-switch and a transparent plastic zipper bag (Fig. 1B). We used a blue cylindrical container (9cm × 8cm) with a transparent lid for the 'pringles task'. (Fig. 1C). Finally, we used a blue ice-cube tray (10cm × 29cm × 4cm), a plastic spoon, and a marble for the 'ice-cube task' (Fig. 1D). Children retrieved stickers from each reward container.

We utilized a *kumquat Living Puppet*® (size = 65cm) in the puppet condition. These puppets are frequently used in developmental research due to their childlike appearance (Warneken & Tomasello,

2013; Grueneisen et al., 2017; see Fig. 1E). We embedded the video stimuli in a presentation shown on a MacBook Air, using a remote control (Fig. 1F). Depending on condition, videos depicted an adult, a child, or a puppet of the child's sex (in the puppet condition, an adult of the child's sex was partly occluded by the puppet while animating it). Adult models were 31 and 27 years old, and child models were 8 and 9 years old, respectively. All models wore green sweaters. Pace and scripts of the video stimuli were matched across conditions and sexes (<1s variation across videos).

[Insert Figure 1 here]

Procedure

A female experimenter (E, aged 25) familiarized the child in a warm-up phase by asking questions about children's daily activities.

Pre-test phase. E and the child entered the study room. The child sat down on a chair next to a table with a laptop. We placed reward containers in a box next to the child and covered them with a blanket. E explained that they were about to receive a video call from a friend named "Alex". She started the scripted presentation to simulate a video-conference.

After a ring tone (approximately 5s), Alex answered the call, and both parties greeted each other. E asked Alex whether they could hear them well, to which Alex responded, "Yes, I can hear and see you! Can you also hear and see me?". Next, E asked the child about their favorite ice cream and their favorite game. Alex responded "this is also my favorite ice cream!" and that their favorite game was rope skipping. If children veered off in unexpected directions, E maintained a realistic conversation between both parties (e.g., by directing the conversation back to the content of the next slide).

Test phase. Next, E introduced a task in which both parties could obtain stickers. She asked both partners if they liked stickers, which both confirmed. Then, Alex presented the four reward containers to the child. E asked Alex to retrieve a sticker from the first container and added that they would place stickers in their paper bag. She added that the child would have a go next. Alex performed two causally irrelevant actions, involving a contact action and a no-contact action, before retrieving their sticker. Alex presented their sticker to the child ("here is the sticker!") and placed it in their paper bag. Next, the child took their sticker. We repeated this procedure for the three remaining reward containers.

In the tupper task, Alex tapped the stick on the table twice (no-contact action) before tapping each of the four lids (contact action), removing the lid, and retrieving the sticker. In the light-switch task, Alex tapped their nose with the index finger twice (no-contact action), pressed the light-switch twice (contact action), and retrieved the sticker from the plastic bag. For the pringles task, Alex tapped on the table twice using their index finger (no-contact action), shook the container two times to their left and right (contact action), removed the lid, and took the sticker. In the ice-cube task, Alex tapped their nose with the spoon twice (no-contact action), moved the marble across the tray using the spoon (contact action), and retrieved the sticker.

Post-test phase. E announced that they had retrieved all stickers. Alex thanked them and said goodbye. E ended the call and thanked the child who received a small gift in addition to the stickers.

Coding

The second author coded children's overimitation from tape, resulting in eight binary responses per participant. A research assistant, blind to hypotheses, coded 50% of the videos. Interrater reliability was excellent ($\kappa_{no\text{-}contact} = .92$; $\kappa_{contact} = .91$).

Data Analysis

We fitted generalized linear mixed models with Bernoulli response distributions within a Bayesian framework to model the fixed effects of condition (puppet; adult; child) and action type (contact; no-contact) on children's overimitation. We fitted the models in *R* (R Core Team, 2020; version 4.0.3) using *brms* (Bürkner, 2017, 2018). Our "full" model was as follows:

*OI ~ 0 + condition*action type*	| Fixed Effects/Predictors
+ age + sex+ trial	| Fixed Effects/Controls
+ (1 + trial + action type | ID)	| Random Effects
+ (1 + trial + action type | Box)	| Random Effects

Note that rather than treating one condition as a reference, we estimated separate coefficients for each condition. We used weakly informative priors (*normal(0, 1.5)*) for fixed effects and exponential priors (*exponential(1)*) for random effect variances. Our statistical approach deviates from our pre-registered approach in three critical ways, all of which emerged in response to reviewer comments. Importantly, the conclusions drawn from these analyses resemble those of our pre-registered approach.

First, we adjusted the random effects in our statistical model to gain better predictive accuracy. Secondly, we compared a model including condition to an otherwise identical model lacking condition (i.e., full-null model comparison) as a more direct test of conditional effects on children's overimitation. Thirdly, we used 6-fold cross-validation (Hastie et al., 2009) to compare the predictive accuracies of three competing models (see below), each corresponding to one of the *puppet-as-adult*, *puppet-as-child* or *puppet-as-puppet* hypotheses.

We randomly divided our complete dataset into six equally sized subsets, each including $n_{sample} = 4$ children per condition (i.e., $1/6^{th}$ of the original data). For each of these subsets, the competing models were fit to the remaining $5/6^{th}$ of the original "training" data. Overimitation predictions for the "held-out" $1/6^{th}$ subset were then drawn from the fitted model's posterior predictive distribution. These predictions were compared to the observed values in the held-out set. This random subdivision procedure was repeated 100 times, resulting in a total of 600 comparisons between model predictions and data observations. F**Error! Bookmark not defined.**or the model with the best predictive accuracy, we report posterior means and 89%-highest posterior density intervals (HPD) for the overimitation probability in each combination of condition and action type as well as posterior median and 89%-HPDs for the relative risks (RR) between different conditions and action types. The reported values are calculated with values of zero for the z-transformed age and box, z-transformed trial and sex (coded as ± ½) variables, i.e., they are "average case" predictions. Data and code are available on OSF (https://osf.io/kz385/?view_only=a001625d7ac84fd580e0c829913c6f81).

The analytic steps were as follows: First, we analyzed whether an effect of condition would depend on action type by comparing the predictive accuracies of a model comprising an interaction between both predictors to a model lacking the interaction. Next, we compared the model indicating better predictive performance to a null model lacking condition to estimate the overall effect of condition. To evaluate the competing *puppet-as-puppet, puppet-as-child*, and *puppet-as-adult* hypotheses, we then compared three models representing each hypothesis. In accordance with the *puppet-as-puppet hypothesis*, we used the original dataset parsing three conditions (i.e., puppet ≠ adult ≠ child). To model the *puppet-as-child hypothesis*, we merged the puppet and the child condition and contrasted this joint condition with the adult condition (i.e., puppet = child ≠ adult). We then assessed the predictive accuracy of models fitted with the recoded data. A similar approach was used to represent the *puppet-as-adult hypothesis*. Here, we merged the puppet and the adult condition and contrasted this joint condition with the child condition (i.e., puppet = adult ≠ child).

In a final exploratory analysis, we compared the *puppet-as-puppet* model to a *puppet-vs-human* model assuming that children overimitate adults and child models alike and differently from puppets (i.e., puppet ≠ adult = child).

Results

Children overimitated all models, but their overimitation varied across conditions and action types (see Table 1 for empirical proportions). The full model comprising an interaction between condition and action type outperformed the more parsimonious model without this interaction in less than half of the simulations ($proportion_{Condition*Action\ Type>Condition+Action\ Type}$= .35). Thus, all following analyses compared models lacking the interaction.

[Insert Table 1 here]

The model including condition predicted children's overimitation better than a null model lacking condition ($proportion_{Condition+Action\ Type>Action\ Type}$ = .91). Specifically, children were more likely to copy irrelevant actions from adults compared to puppets ($RR_{AC:PC}$ = 1.76 [0.95; 4.85]) and from children compared to puppets ($RR_{CC:PC}$ = 2.42 [1.19; 7.49]). Children were more likely to copy irrelevant actions from children than from adults, although this difference was less than those between both human agents and puppets ($RR_{CC:AC}$ = 1.26 [0.76; 3.15] – mean posterior probability of $RR_{AC:PC} > RR_{CC:AC}$ = 0.70, and of $RR_{CC:PC} > RR_{CC:AC}$ = 0.93). Further, children copied contact actions more frequently than no-contact actions ($RR_{CA:NCA}$ = 10.00 [2.74; 50.29]). Posterior mean probabilities of over-imitation in the six conditions were, for contact actions: p_{AC} = .57 [.15; .85]; p_{CC} = .66 [.22; .91], p_{PC} = .40 [.07; .71]; and no-contact actions: (p_{AC} = .06 [.01; .14], p_{CC} = .10 [.02; .22], p_{PC} = .03 [<.01; .07].

The *puppet-as-puppet* model outperformed both the *puppet-as-adult model* ($proportion_{Puppet-as-Puppet>Puppet-as-Adult}$ = .78) and the *puppet-as-child* model ($proportion_{Puppet-as-Puppet>Puppet-as-Child}$ = .91) in predicting children's overimitation (see Fig. 2b). Finally, the *puppet-as-puppet* model and the more parsimonious, exploratory *puppet-vs-human* model predicted children's overimitation almost equally well ($proportion_{Puppet-as-Puppet>Puppet-vs-Human}$ = .54). In sum, these analyses show that children overimitate puppets, but they distinguish between puppets and human models, such as children or adults.

[Insert Figure 2 here]

Discussion

We investigated children's overimitation of puppet, adult, and child models to test puppetry as a standard approach in developmental research to simulate non-hierarchical interactions in social learning research (Rakoczy, 2022). Children overimitated adults and child models at comparable rates, but copied puppets less frequently than both human models. This indicates that children perceived puppets neither as children nor as adult-animated communication mediums, but as distinct (non-human) agents.

These findings raise some doubt about the effectiveness of puppetry to simulate children's social learning within non-hierarchical interactions such as those with peers and older children. Using child and even adult models, rather than puppets, may provide more generalizable and realistic insights into children's social learning in non-hierarchical interactions. Generally, the methodological benefits of using puppets rather than adults need to be finely balanced with potential limitations to generalizability.

It should be noted that children engaged with puppets and overimitated them. The effect of condition was markedly smaller than the effect of action type and some control variables, such as children's gender. Thus, our findings highlight overimitation as a complex and multi-faceted phenomenon (Clay et al., 2018; Hoehl et al., 2019). The relatively lower rate of overimitation from puppets does not imply that children perceive puppets as inanimate agents. In fact, children even copy agents lacking human-like appearance, including robots (Fong, Sommer, et al., 2021; Schleihauf et al., 2020) or animal puppets (McGuigan & Robertson, 2015; Wood et al., 2013a).

Nevertheless, our findings present a cautionary note about puppetry to simulate non-hierarchical interactions. Researchers commonly rely on puppets to assess various social phenomena, including normativity (S. Hardecker et al., 2016; Schmidt et al., 2016), prosociality (Kanngiesser & Warneken, 2012; Warneken & Tomasello, 2013), or social cognition (Grueneisen et al., 2017; Stengelin et al., 2018). We focused on puppetry in a learning task, but a systematic assessment of puppetry in other research domains is urgently needed (Stengelin et al., 2021). Rather than assuming that children "have a tendency to treat puppets in a similar manner to humans" (Wilks & Nielsen, 2018, p. 41), future research needs to test such assumptions more explicitly.

We studied children from urban Germany growing up with an abundance of puppets or doll-like artefacts, sometimes also utilized as therapeutic or pedagogical tools (Ahlcrona, 2012; Kröger, 2019; Remer & Tzuriel, 2015; Simon et al., 2008). Puppets may be less familiar to children from other societies, highlighting the need for cross-cultural perspectives on puppetry in developmental research.

Contrary to our predictions, children did not overimitate adults over child models. On a descriptive level, they copied children at slightly higher rates than adults, but our exploratory analysis remained inconclusive regarding this effect. Previous overimitation research has produced mixed evidence with some studies finding selective copying of adults (McGuigan et al., 2011; Wood et al., 2012) and other studies finding reverse patterns (Wood et al., 2016). Child models in our study were slightly older than participants and it is possible that some children noticed the age difference. Other studies on children's imitative learning produced mixed results about whether children preferentially copy same-aged peers over older children (Zmyj, Aschersleben, et al., 2012) or vice versa (Brody & Stoneman, 1981; see also Zmyj et al., 2012). To trace variation in children's learning from different models,

including peers, older children, adults and puppets, future research will need to study larger samples of children than the current study.

While previous research on overimitation from child models utilized non-reciprocal videos (McGuigan et al., 2011; Wood et al., 2012, 2016), we presented participants with scripted conversations. This (simulated) reciprocity may have induced affiliation with models and hence increased overimitation (Fong, Imuta, et al., 2021). Specifically, these motives may have driven overimitation from child models, whereas instrumental goals may have been more prominent for adults (Zmyj & Seehagen, 2013). Future studies will need to test the extent to which such scripted conversations relate to in-person settings. Furthermore, such work may also contrast videos with and without reciprocity (Fong, Imuta, et al., 2021) for further validation of this approach.

Preschoolers rely on learning from adults and peers alike but studying peer interactions while maintaining rigorous experimental control is methodologically challenging. Puppetry offers a convenient way to simulate non-hierarchical interactions in developmental science, but our findings suggest that this approach may come at some cost to generalizability: Children's social learning from puppets does not match their learning from peers or adults.

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Figures and Figure Legends

Figure 1

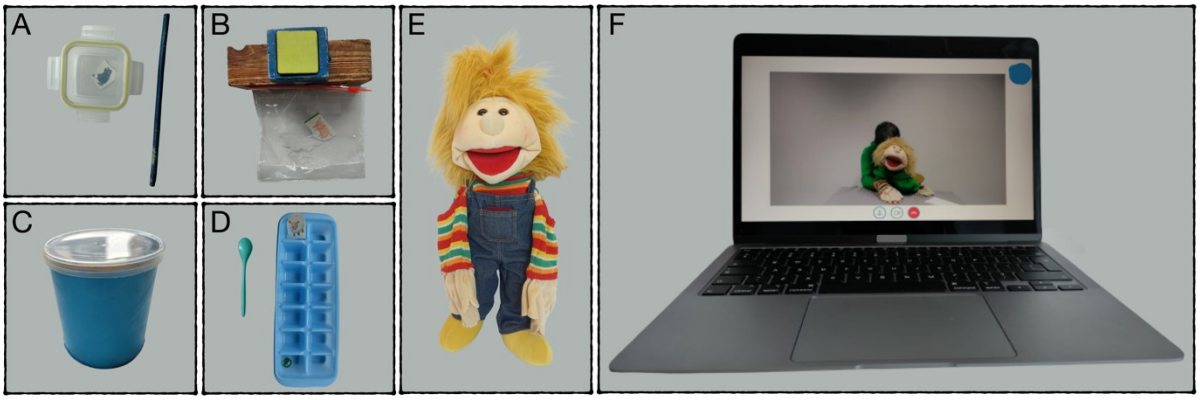

Figure 1. Materials used in the study; (A) – (D) reward containers used in overimitation tasks: (A) tupper task; (B) light-switch task; (C) pringles task; (D) ice-cube task; (E) puppet used in video stimuli; (F) video conversation presented on a laptop.

Figure 2

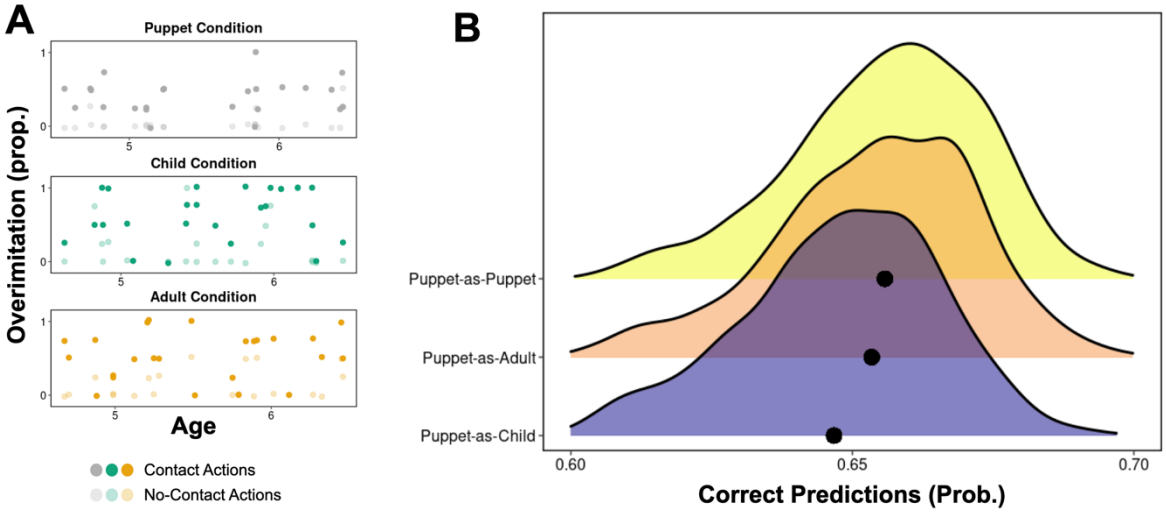

Figure 2. Results; (A) Children's overimitation of contact- and no-contact actions across conditions and ages (data are jittered on the Y-axis for better visualization of data points); (B) Predictive accuracies of models according to the three preregistered hypotheses based on 600 simulations. Black dots indicate mean predictive accuracy of each pre-registered model.

Tables

Table 1

Mean overimitation proportions across conditions and action types

Condition	**Action Type**	
	Contact Action	No-Contact Action
Puppet Condition	.41	.05
Adult Condition	.55	.17
Child Condition	.61	.24