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Do Young Children Treat a Robot as Having Intentions and Being Culpable For Its Actions?

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Introduction

Personified technologies, such as smart speakers and social robots, are capable of projecting personas and mimicking human interactions[1,2]. Will children view personified technologies more like social others rather than just pieces of technology?

- Infants (18 months) view people, but not mechanical devices, as having intentions[3].
- Infants (18 months) and children also treat robots as social others, but only when robots interact in a socially-contingent manner[4,5].

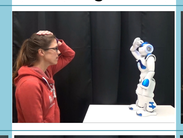
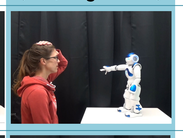
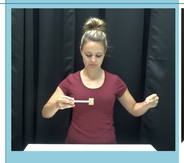
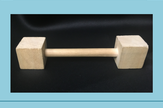
The current study examines whether children will view a social robot as having intentions and, in turn, hold it morally responsible for its actions[6-8].

Method

- **Participants** (*N*=41; target *N*=128)**:**
  3 years (*n*=22; *M*=3.59, *SD*=.27) & **5 years** (*n*=19; *M*=5.45, *SD*=.31); 51.2% girls

- **4 (condition) x 2 (age) Between-Subjects Design**

Conditions

	Human (*n*=12; target *n*=32)	Contingent Robot (*n*=10; target *n*=32)	Non-Contingent Robot (*n*=9; target *n*=32)	Control (*n*=9; target *n*=32)
Contingency Manipulation	X			X
Dumbbell Task Model "Intended-but-failed" Action				X
Does child pull apart dumbbell?				
Tower Task Person builds tower; model knocks down.				

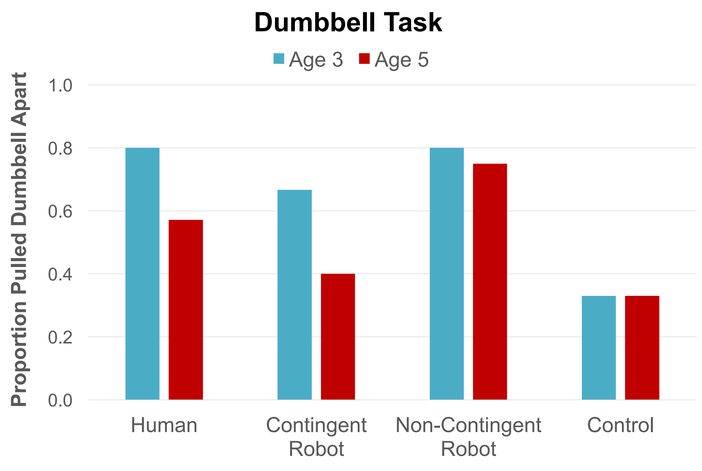
Ratings (all conditions)

Permissibility: Is it alright/not alright for the [person/robot] to knock over the tower?
(0) Not OK – a lot
(1) Not OK – a little
(2) OK – a little
(3) OK – a lot

Culpability: Should the [person/robot] get in trouble?
(0) No, not at all
(1) Yes, a little bit
(2) Yes, a medium amount
(3) Yes, a lot

Purposefulness: Did the [person/robot] do it on purpose or by accident?
(0) by accident
(1) on purpose

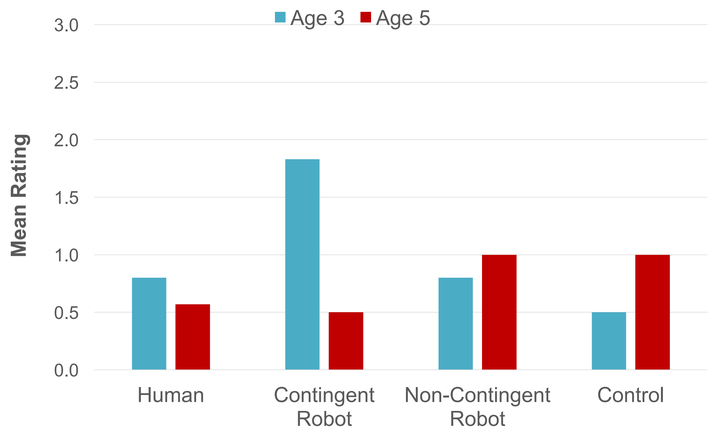
Results: Dumbbell Task



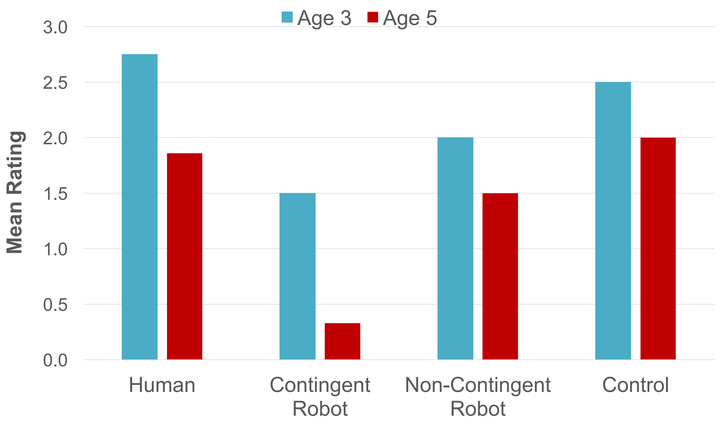
Dumbbell Task
Effect Sizes (Cohen's d)

	Human	Contingent Robot	Non-Contingent Robot	Control
Human	--	0.2388	0.2377	0.6719
Contingent Robot		--	0.4806	0.4151
Non-Contingent Robot			--	0.9429
Control				--

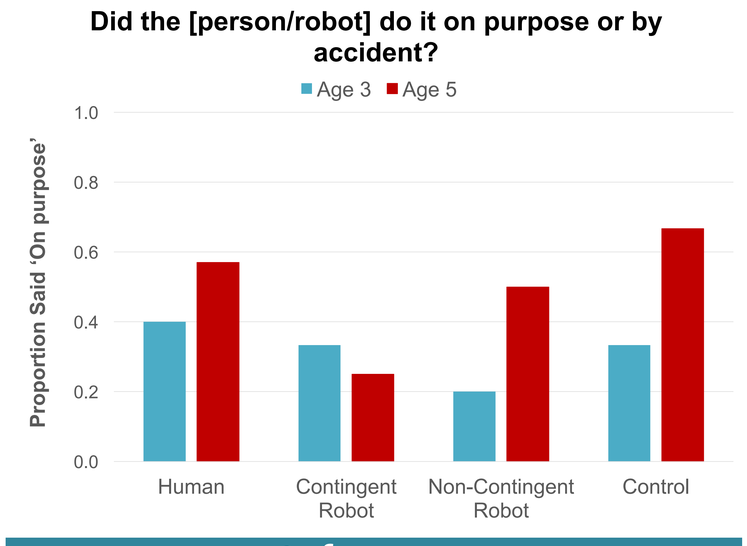
Results: Tower Task



Note: 0=Not ok (a lot), 1=Not ok (a little), 2=Ok (a little), 3=OK (a lot)



Note: 0=No, 1=Yes (a little), 2=Yes (medium amount), 3=Yes (a lot)



Conclusions & Implications

The preliminary findings suggest children:

- Infer intentions to a robot to a similar degree as they do to humans (dumbbell task).
- View a robot's harmful actions as more permissible than a person's harmful actions (tower task permissibility).
- Hold a robot accountable for its actions, although descriptively to a lesser degree than humans (tower task culpability).
- Judge a robot's ambiguous actions as slightly less purposeful compared to a human (tower task purposeful).

These findings contribute to an emerging body of research on whether children conceive of personified robots as pieces of technology, as social others, or as somewhere in-between (e.g., New Ontological Category hypothesis[1,2]), and the moral consequences of doing so[2,6-8].

References

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