

Infants' manipulation complexity is influenced by object affordances



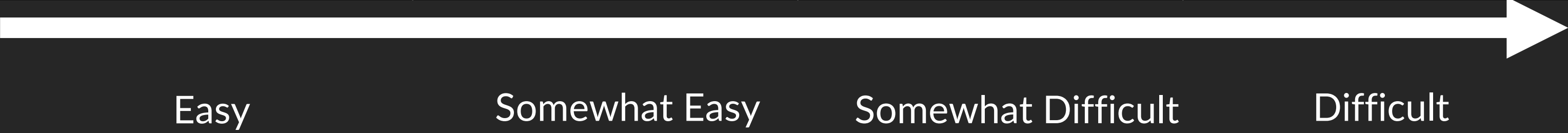
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BACKGROUND/METHODS:

- Prior literature suggests patterns in how infants use their hands to manipulate objects.
- Infants first begin to use more than one hand, then start to differentiate the roles of the hands, separate one digit from the rest of the hand, and finally can manage multiple objects.
- This **maturational account** suggests that infants will show increasingly complex patterns of manipulation, and in the same order, given any object over time.
- By comparison, an **affordances account** suggests manipulation complexity is variable in order because object properties vary.
- In this study, we examined if manipulation skills can be ranked in 25 infants using a longitudinal design from 9-14 months.
- We compared skill rankings using four contrasting questions for eight objects that had the same end goal but different properties.

Object affordances impact ranking difficult, but not easy, manipulation skills in infants.

Toy	Order of Difficulty			
	Q 1	Q2	Q3	Q4
	Q 1	Q2	Q3	Q4
	Q 1	Q3	Q2	Q4
	Q 1	Q2	Q4	Q3
	Q 1	Q2	Q4	Q3
	Q 1	Q2	Q4	Q3
	Q 1	Q2	Q4	Q3
	Q 1	Q2	Q4	Q3



Q1	Is there more than one hand?
Q2	Are the hands doing different things?
Q3	Is there independent finger movement?
Q4	Is there more than one object?



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DATA ANALYSIS:

- Guttman scale analyses were conducted per object over time to determine the difficulty order of skills.
- Levels of manipulation complexity are cumulative such that the infant can do a category at age *N* only if they also perform all lower ranked categories at age *<N*.

RESULTS:

- Coefficient of Reproducibility (CR) ranged from .90 to .98, indicating object skills fit a cumulative scale for manipulation complexity.
- Skill rankings were not identical across objects/time.

DISCUSSION:

- Across objects, using more than one hand and differentiating the hands were the skills ranked easiest.
- Rankings varied by object whether independent finger movement or multiple objects was the most difficult skill.

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