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Background

Learning progress, or perceived improvement in performance, motivates interest in tasks for 4- to 6-year-old children [1,2]

It isn't clear what specific task features motivate children to pursue further learning when determining future learning trajectories [1,2,5]

So, how does learning progress interact with children's preferences for task similarity?

Hypotheses

LP Learning Progress

Children who experience learning progress will choose future tasks that are **similar** to the initial task.

NLP No Learning Progress

Children who do **not** experience learning progress will choose **novel** future tasks.

Methods

1. Learning Phase

Play Shape Game

2. Task Selection

Choice 1 Choice 2 Choice 3

Survey

How much did you like the game?
[a lot/ a little/ not at all]

How much did you learn about which shapes Monster likes to eat?
[a lot/ a little/ not at all]

How many stars did you get throughout the game?
[more / same / less]

*C = Character-based similarity, P = Procedure-based similarity, N = Novel

Participants: 4- to 6-year-old children (n = 110, 55 F)

1 Play shape game with experimentally manipulated feedback to indicate LP or NLP

→ Goal: feed monster shapes he likes to get stars

○ Instructed to collect as many stars as possible

○ 3 blocks x 8 trials per block

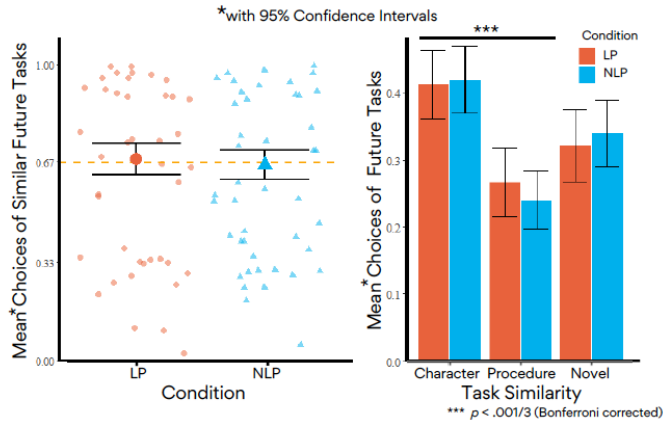
→ After game, complete self report survey with 3-point Likert scale

2 Choose second game to play

○ 3 total selections (3 options x 3 choices)

Results

Condition did not impact frequency of choices of similar versus novel tasks, however children generally preferred character- over procedure-based similarity.

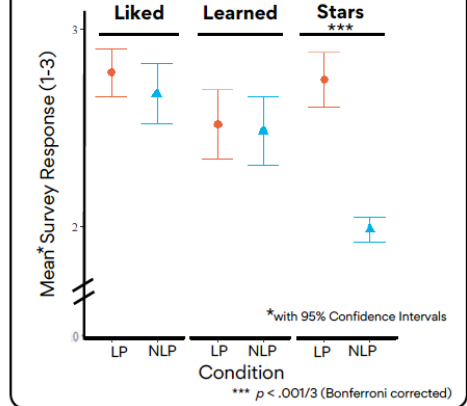


Counts and percentage of total task selections by similarity further illustrate how small between-group differences were in similarity preferences.

	Novel		Similar ** (C + P)		Character-Based		Procedure-Based	
	n	% *	n	%	n	%	n	%
LP	53	32.1%	112	67.9%	68	41.2%	44	26.7%
NLP	58	35.2%	107	64.8%	68	41.2%	39	23.6%

* Fractions calculated out of total amount of choices per condition (n=165 per condition, or n=330 total)
** Adjusted chance value for similar (c + p) is ~66.7% and for novel is ~33.3%

Across conditions, participants were aware of their objective performance (**Stars**), but condition did not affect subjective performance reports (**Learned**).



Conclusions

- 1 Learning progress did not impact task similarity preferences in 4- to 6-year-old children
- 2 Children preferred tasks of character-based similarity over procedure-based similarity

Future Directions

Refining the present study

- **Learnable Rule:** Test this question with a rule-governed novel task
- **Modality:** Test whether the modality of the game impacts perceived learning progress

Moving forward

- **Performance Feedback:** Examine internalization of various methods of performance feedback
- **Goal orientation:** Test whether intended outcome motivates learning in children

Acknowledgments

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References

- [1] Leonard et al. (2022). *Developmental Psychology*. [2] Leonard et al. (2020). *Proceedings of the Annual Conference of the Cognitive Science Society*, 42. [3] Ten et al. (2021). *Nature Communications*, 12. [4] Poli et al. (2022). *Cognition*, 225. [5] Chen (1996). *Academic Press, Inc.*