Children learn better from (some) fantastical stories

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Studies 1 and 2

- Some studies have found that children are less likely to learn from fantastical stories (e.g., Richert et al., 2009, 2011; Walker et al., 2015), but others have found that children's learning benefits from the presence of fantasy (Hopkins & Lillard, under review; Weisberg et al., 2015).
- **Does fantasy help or hinder learning from stories?**

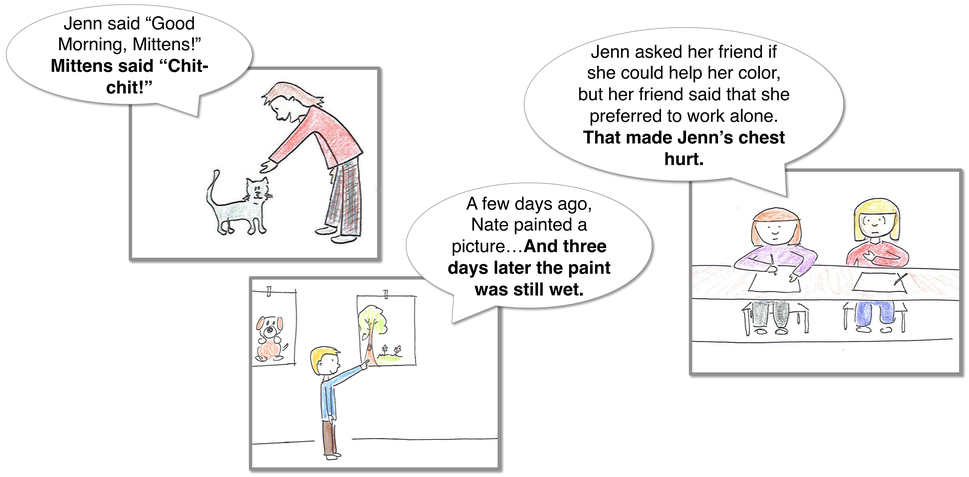
Participants
- Study 1
  - $N = 40$ (21 girls)
  - Mean age = 58.0 months (Range: 47-69 months)
- Study 2
  - $N = 72$ (38 girls)
  - Mean age = 56.4 months (Range: 42-71 months)

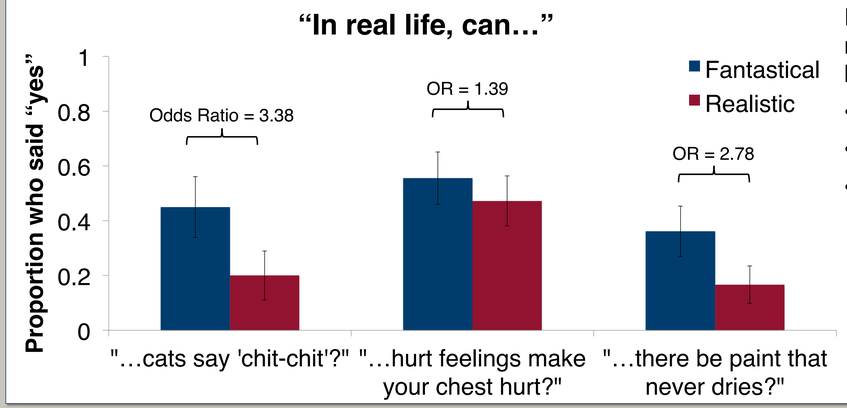
Design
- Study 1
  - Fantastical ($n = 20$) or Realistic ($n = 20$) story
  - One novel fact presented in both stories
- Study 2
  - Fantastical ($n = 29$) or Realistic ($n = 32$) story
  - Two novel facts presented in both stories

Story Types

Fantastical

Realistic





For 2 out of 3 facts, there was a marginally significant advantage for learning from the fantastical story:
- **Chit: χ^2 (1, $N = 40$) = 2.85, $p = .09$**
- Hurt: χ^2 (1, $N = 72$) = 0.50, $p = .48$
- **Paint: χ^2 (1, $N = 72$) = 3.50, $p = .06$**

Fantastical stories may help children learn some types of information.

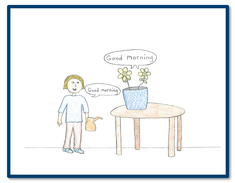
Study 3

- Recent research suggests that impossible events in particular may impact learning (Hopkins & Lillard, under review; Stahl & Feigenson, 2015).
- **Is this effect limited to physically impossible events?**
- **Will impossible events affect learning of different types of information?**

Participants
- $N = 101$ (47 girls)
- Mean age = 57.9 months (Range: 42-71 months)

Design
- Story: Realistic ($n = 35$), Physical ($n = 34$) or Biological Violations ($n = 33$)
- Children were pre- and post-tested on their understanding of both a biological and a physical principle

Story Types



Biological Violations

Physical Violations

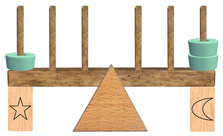
Realistic

Inheritance Principle

Inborn traits: "This bunny was born with no tail. Will her babies have fluffy tails or no tails?"

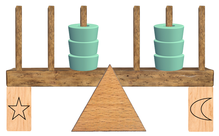
Acquired traits: "This bunny lost her tail in an accident. Will her babies have fluffy tails or no tails?"

Balance Principle

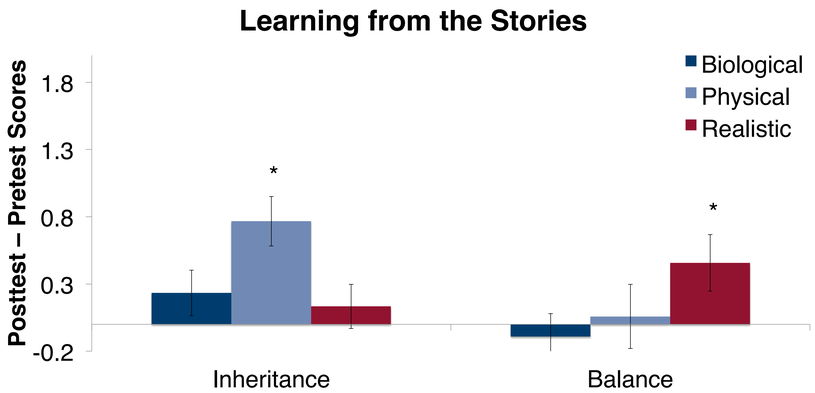


Weight

"Will the left side go down, or the right side go down, or will both stay up?"



Distance



- **Inheritance**: difference scores were significantly different from 0 in the Physical Violations condition only: one-sample $t(29) = 3.91$, $p < .001$
- **Balance:** difference scores were significantly different from 0 in the Realistic condition only: one-sample $t(34) = 2.17$, $p = .04$

Physical violations may help learning in familiar domains. Realistic contexts may be best for less familiar domains.

Conclusions

- There is an emerging pattern of evidence that children may learn better from some fantasy stories.
- The benefit of fantasy depends on the interaction between the type of fantasy and the type of information being taught.
- When children are less confident about a problem or domain, they may benefit most from realistic contexts. These contain fewer distractions and are more easily transferrable to reality.
- However, in areas where children have more baseline knowledge, fantasy, particularly physically impossible events, may benefit learning by inducing deeper processing (Weisberg et al., 2014).

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