

# Fantasy and Reality Distinction in Young Children

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## Abstract

Imagination is an abstract concept that children somehow have mastered at a young age. Experiment 1 examined what children understand to be real and imaginary and if this understanding is altered in any way by showing them the difference. A pre-intervention and post-intervention study was designed to test what children understand and whether showing them the difference between real and imaginary objects improves their understanding of the distinction. Participants categorized a set of ten pictures before an intervention by the researcher which demonstrated the difference between real and imaginary and categorized a separate but equivalent set of pictures after the intervention. Results supported previous findings showing that younger children have a harder time understanding real and imaginary. Experiment 2 examined preliminary research for adult perception of real and fantasy by using a categorization task in which participants categorized pictures of actors and movie characters into categories of real and imaginary. Results indicated adults accurately categorized both real and imaginary pictures but tended to have slower response times to imaginary pictures.

## Background

- Imagination in the brain and as a developmental component
  - Vygotsky (2004) discusses how the brain's plasticity allows it to retain previous experiences, the reproduction of these experiences and generation of new ideas and thoughts is known as "imagination" or "fantasy"
- Play and its effect on the imagination
  - Play makes demands of the muscular and neural systems which develops physical and mental abilities and imagination develops social skills as imagined play needs to be communicated (Eberle 2014)
  - Kudriavtsev and Fattakhova (2015) discuss the benefits of play as it creates a foundation for learning for when children need to think abstractly, generally, and for social cues
  - Barbieri, Bennati, Capretto, Ghinelli, and Vecchi, (2016) conducted a study in Italy that demonstrated imagination to be helpful to children to express their emotions and thoughts in a positive way
- Fantasy and reality distinction
  - Sharon and Woolley (2004) assessed children's capabilities to categorize real and fantastical entities and their fantasy orientation and found younger children have more difficulty understanding the distinction between fantasy and reality
  - Bjorklund (1989) studied pre-school aged children and found a child's ability to distinguish reality from fantasy improves over the preschool years
- Fantasy and reality distinction in adults
  - Most studies use adults as a control group and comparisons to children's performance on tasks involving imagination or fantasy
  - Martarelli and Mast (2013) used adults for comparative measures when testing if children have a bias towards reality to ensure the stimuli were not ambiguous from an "adult point of view"

## Hypotheses

Younger children (ages 2-4) would find it more difficult to distinguish fantasy from reality than older children (ages 5-6). Post-intervention understanding was predicted to be higher than pre-intervention understanding, and we expected an age X intervention interaction, where younger children show more improvement (pre vs. post) than older children. We hypothesize that participants will categorize actors correctly and characters from movies incorrectly. Categorization of movie characters will have less accuracy than categorization of actors as participants continue the study, and response times will be longer for movie character pictures but shorter for actor pictures.

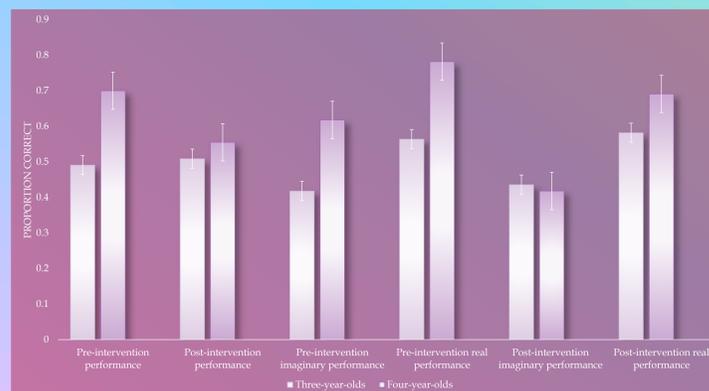
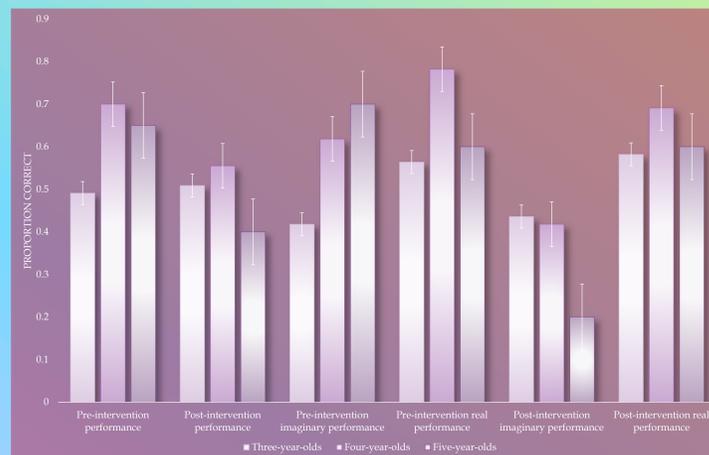
## Methods

### Experiment 1:

- 24 children from the Albright Early Learning Center
  - 11 three-year olds, 11 four-year olds, and two five-year olds
  - Mean age = 3.625
- Children were given consent forms which their parents signed to allow their participation in the study and each child gave verbal assent to participating in the study
- Pre-intervention:
  - Ten pictures, five real things and five imaginary things
- Intervention
  - The researcher demonstrated the difference between real objects and the imaginary counterparts by telling each child if the object was real or imaginary
  - Items used were an apple/toy apple, hammer/toy hammer, iPad/toy iPad, cell phone/toy cell phone, and researcher/doll
- Post-intervention:
  - Ten pictures, different set from the pre-intervention
  - Five real things and five imaginary things
- Participants were asked to categorize each picture as real or imaginary, verbally or by placing it on the "R" or the "I"
- One week after the pre-intervention was completed, the intervention and post-intervention was completed, and the same categorization task was used for the post-intervention

### Experiment 2:

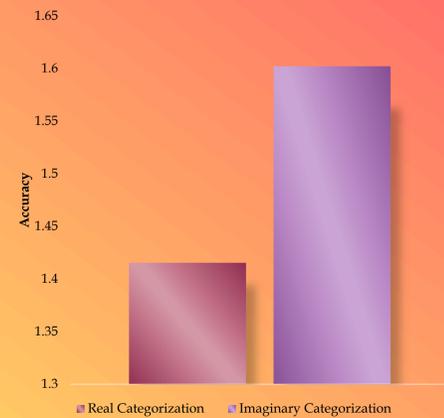
- 16 adults, Mean age = 19.125
- Categorized 36 pictures of actors and actresses in their movie roles and outside their movie roles
- Each picture was labeled "REAL" or "IMAGINARY" and participants categorized the pictures by clicking "Yes" or "No"



## Results

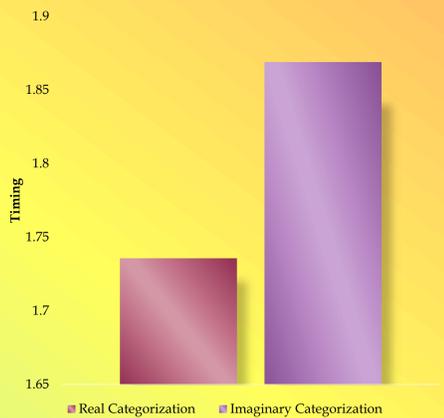
### Experiment 1

- Analyzed using a dependent *t*-test and one-way dependent ANOVA
- Recoding of the data was necessary to complete further analysis, recoded from "real" or "imaginary" to "correct" or "incorrect", then to 1 meaning "real" and 2 meaning "imaginary"
- Dependent *t*-test
  - Pre-intervention performance and post-intervention performance,  $t(23) = 0.193$
  - Pre-intervention imaginary performance and pre-intervention real performance,  $t(23) = 0.158$
  - Post-intervention imaginary performance and post-intervention real performance,  $t(23) = 0.060$
- Repeated measures one-way ANOVA
  - Pre-intervention performance vs post-intervention performance,  $F(1, 21) = 2.566$ , *ns*,  $\eta^2 = 0.109$
  - No significant effect of age in pre-intervention and post-intervention performance,  $F(2, 21) = 1.296$ , *ns*,  $\eta^2 = 0.110$
  - Effect of age that approached significance,  $F(2, 21) = 2.620$ ,  $p = 0.096$ ,  $\eta^2 = 0.200$
  - Pre-imaginary vs pre-real performance,  $F(1, 21) = 0.300$ , *ns*,  $\eta^2 = 0.014$
  - Pre-imaginary vs pre-real performance by age,  $F(2, 21) = 0.030$ , *ns*,  $\eta^2 = 0.026$
  - Effect of age that approached significance,  $F(2, 21) = 3.336$ ,  $p = 0.055$ ,  $\eta^2 = 0.241$
  - Post-intervention imaginary vs post-intervention real performance,  $F(1, 21) = 2.950$ , *ns*,  $\eta^2 = 0.123$
  - Pre-imaginary vs pre-real performance by age,  $F(2, 21) = 0.234$ , *ns*,  $\eta^2 = 0.022$
  - No significant effect of age,  $F(2, 21) = 0.556$ , *ns*,  $\eta^2 = 0.050$
- Repeated measures one-way ANOVA without five-year-olds
  - Pre-intervention performance vs post-intervention performance,  $F(1, 20) = 1.071$ , *ns*,  $\eta^2 = 0.051$
  - Pre-intervention performance vs post-intervention performance by age,  $F(1, 20) = 0.074$ , *ns*,  $\eta^2 = 0.081$
  - Significant effect of age,  $F(1, 20) = 4.857$ ,  $p < 0.05$
  - Pre-intervention imaginary performance vs pre-intervention real performance,  $F(1, 20) = 2.350$ , *ns*,  $\eta^2 = 0.105$
  - Pre-intervention imaginary performance vs pre-intervention real performance by age,  $F(1, 20) = 0.008$ , *ns*,  $\eta^2 = 0.000$
  - Significant effect of age,  $F(1, 20) = 6.253$ ,  $p < 0.05$ ,  $\eta^2 = 0.238$
  - Post-intervention imaginary performance vs post-intervention real performance,  $F(1, 20) = 2.784$ , *ns*,  $\eta^2 = 0.122$
  - Post-intervention vs post-intervention performance by age,  $F(1, 20) = 0.258$ , *ns*,  $\eta^2 = 0.013$
- Dependent *t*-test for three-year-olds only
  - Pre-intervention vs post-intervention,  $t(10) = 0.714$ , *ns*
  - Pre-intervention imaginary vs pre-intervention real,  $t(10) = 0.430$
  - Post-intervention imaginary vs post-intervention real,  $t(10) = 0.537$ , *ns*
- Dependent *t*-test for four-year-olds only
  - Pre-intervention vs post-intervention,  $t(10) = 0.227$ , *ns*
  - Pre-intervention imaginary vs pre-intervention real,  $t(10) = 0.121$ , *ns*
  - Post-intervention imaginary vs post-intervention real performance,  $t(10) = p < 0.05$



### Experiment 2:

- Dependent *t*-test was conducted, measured accuracy and time
  - Accuracy of categorization for real and imaginary,  $t(15) = 3.865$ ,  $p < 0.05$
  - Timing for real and imaginary pictures,  $t(15) = 0.632$ , *ns*



Thanks to the Patt Family ACRE Endowed Fund for support that made this project possible, to the ACRE Program at Albright College, and to the Honors Committee at Albright College.

## Discussion and Future Directions

- Overall, results supported previous research in that younger children have more difficulty understanding the distinction between real and imaginary and the intervention appeared to even the understandings of real and imaginary of the three-year-old children with the four- and five-year old children
- Results for accuracy of categorization of pictures for adults concluded participants categorized pictures accurately according to the labels of "REAL" and "IMAGINARY" but were slower when categorizing pictures labeled as imaginary.
- A more diverse range of ages and a greater sample size and changes to the intervention or type of categorization tasks could potentially change the results of both studies

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