

## **UC Merced**

### **Proceedings of the Annual Meeting of the Cognitive Science Society**

#### **Title**

The Importance of Explanations in Guided Science Activities

#### **Permalink**

<https://escholarship.org/uc/item/8gj9110k>

#### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

#### **Authors**

Venkadasalam, Vaunam

Larsen, Nicole

Ganea, Patricia

#### **Publication Date**

2019

Peer reviewed

# **The Importance of Explanations in Guided Science Activities**

**Vaunam Venkadasalam**

University of Toronto, Toronto, Ontario, Canada

**Nicole Larsen**

University of Toronto, Toronto, Ontario, Canada

**Patricia Ganea**

University of Toronto, Toronto, Ontario, Canada

## **Abstract**

This study examined whether embedding explanations in guided activities promotes conceptual change about a physical science concept. One common misconception that children have is that heavy objects fall at a faster rate than light ones. We used a pre-, post-, and delay test design to address this misconception. Forty 5-year-old children were assigned to one of two conditions: a guided play activity that included an explanation about gravity, or the same guided play activity but with no explanation provided. Children's explanations improved immediately at post-test ( $p = .001$ , 95% CI [0.58, 2.33]) and after a one-week delay test ( $p < .001$ , 95% CI [1.23, 2.95]) when the explanation about gravity was embedded in the activity. There was no improvement at post-test ( $p = .36$ ) or delay-test ( $p = .93$ ) when children completed the activity only. This study shows that conceptually rich explanations are an effective pedagogical tool for promoting belief revision in children.