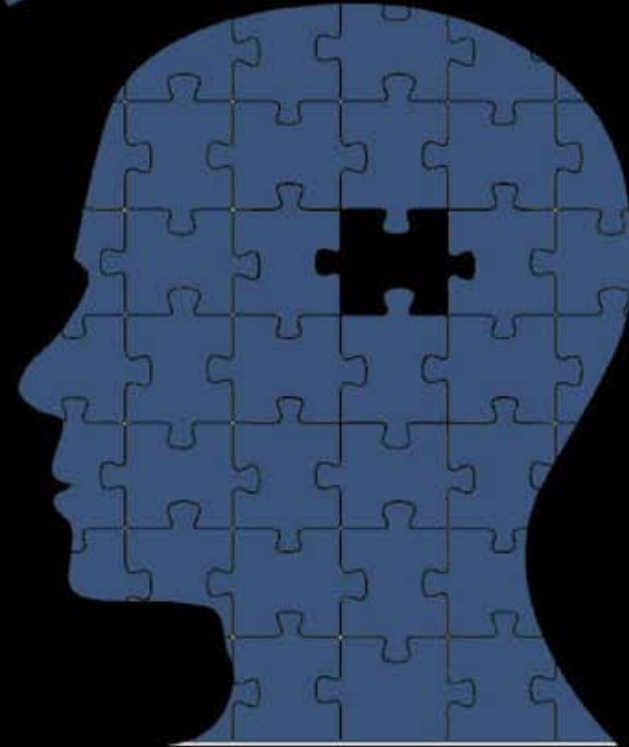
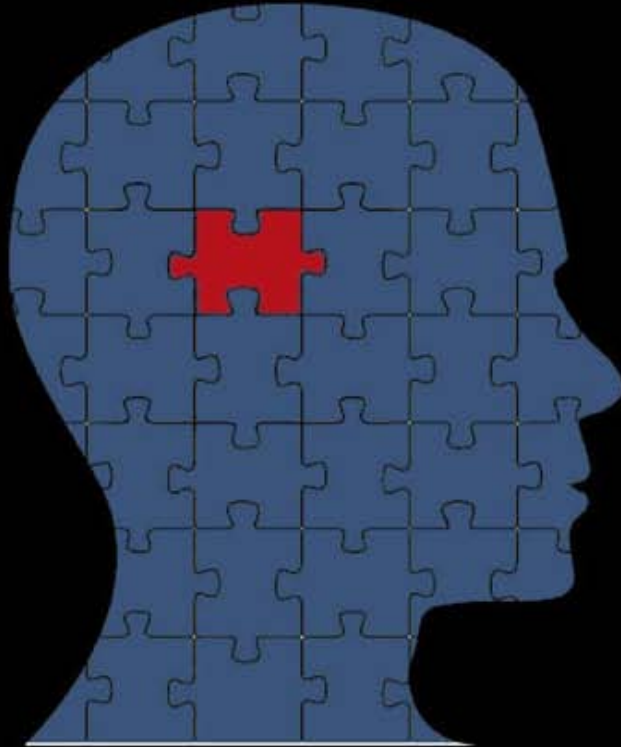


# Math Learning Disabilities

Difference



not Deficit

# Careful Identification of Students with Math Learning Disabilities



# 2 out of 11 students met criteria



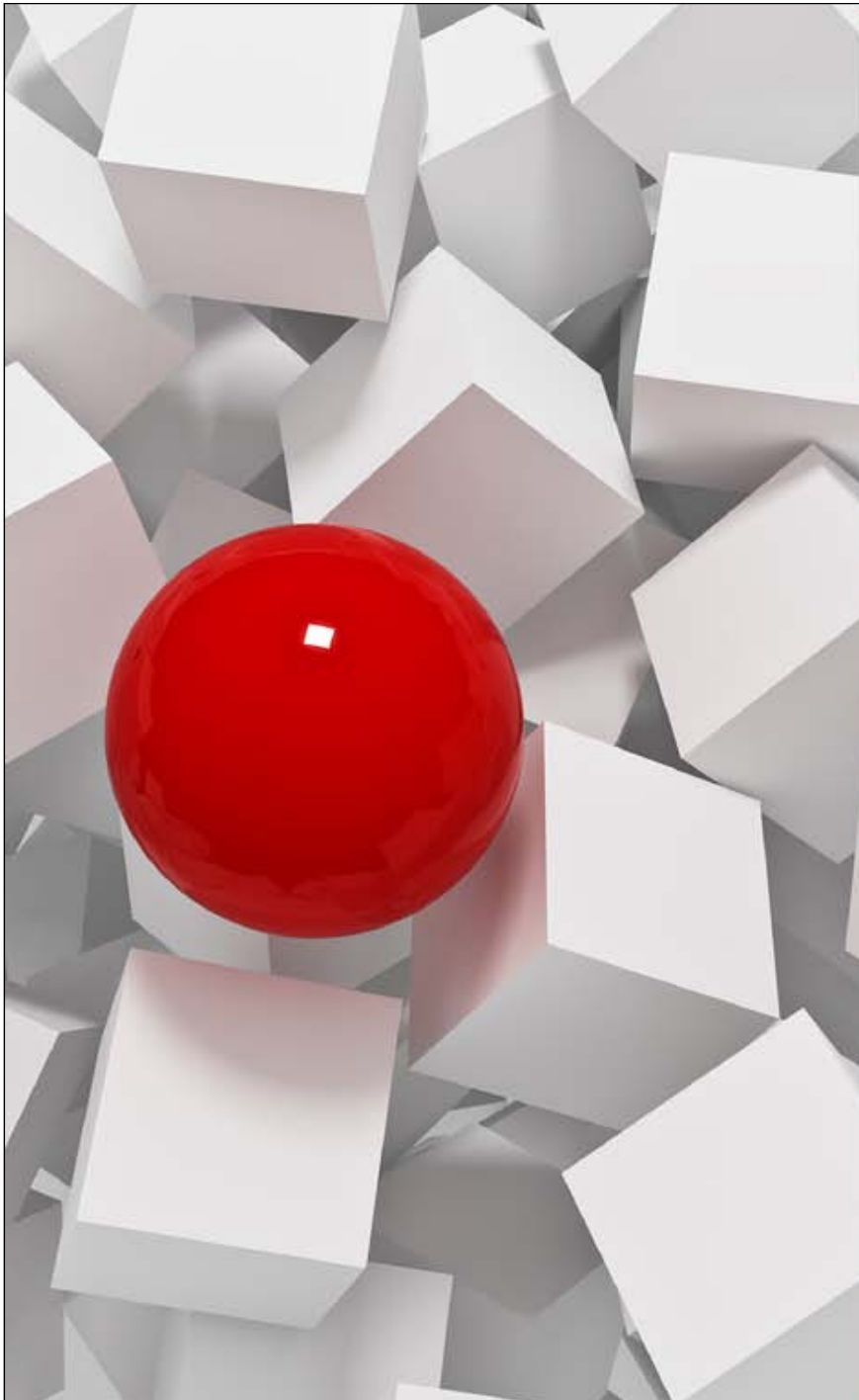
Unexplained low math achievement



Lack of Response to Instruction (RTI)

# Analysis of tutoring sessions revealed atypical understandings of fractions





Both students had ***similar*** atypical understandings of fractional quantity.

## Halving Understanding

### Typical

Draw

$$\frac{1}{2} \rightarrow$$



↑  
shading highlights  
the **quantity**

### Atypical

Draw

$$\frac{1}{2} \rightarrow$$

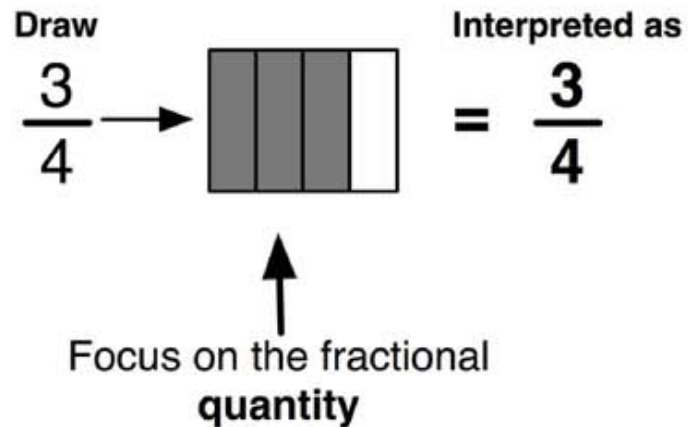


↑  
**Atypical:** Focus on splitting

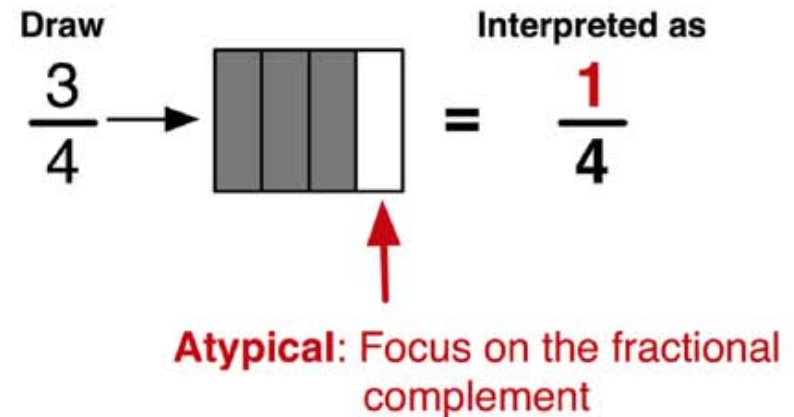
Contrast of typical and atypical  
fraction understanding

## Fractional Complement Understanding

### Typical



### Atypical



Contrast of typical and atypical  
fraction understanding

# Atypical Understandings were

A large red puzzle piece is shown fitting into a larger white puzzle piece. The background is a dark blue surface with a pattern of interlocking puzzle pieces. The red piece is positioned in the upper left, and the white piece is in the center, with the red piece partially overlapping it.

**Persistent**

Reoccured across tutoring sessions

**Robust**

Were not resolved through standard instruction

**Detrimental**

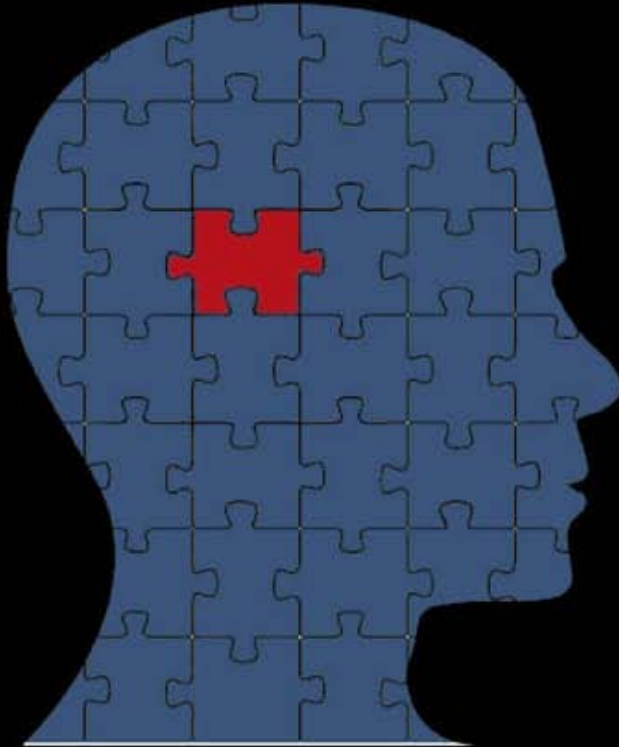
Caused difficulty when working with more complex fraction concepts



Representations of quantity were inaccessible to students with math learning disabilities.

# Math Learning Disabilities

**Difference** → **Inaccessibility**



# CITATION

Lewis, K. E. (2014). Difference Not Deficit: Reconceptualizing Mathematical Learning Disabilities. *Journal for Research in Mathematics Education*, 45(3), pp. 351-396. (<http://www.nctm.org/publications/article.aspx?id=42001>)