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# Examining Individual and Collaborative Interactive Engagement in Transmedia Storytelling Learning Environment

## Background

FRANKENSTEIN 200

- **Transmedia Storytelling Experience,** designed for learners 10-15 years old
- Combines an augmented reality game with hands-on activities
- **Learning goals:** Develop self-efficacy and conceptual knowledge of ethical science and social responsibility of scientists

### ICAP Theoretical Framework

- Describes four modes of learning activities: Passive, Active, Constructive, Interactive
- Hypothesizes that learning increases with cognitive engagement (I > C > A > P)
- Interactive mode produces the highest level of learning

## Research Questions

1. Does the mode of engagement (individual versus collaborative) influence science self-efficacy? If so, how?
2. Does the ICAP Framework hold when applied to engagement in a transmedia learning environment?
3. Are there other ways to increase learners cognitive engagement in addition to collaboration?

## Objectives: Applied Research

1. The study aims to contribute to the existing body of research on the ICAP Framework by measuring the learning process using a dispositional measure (self-efficacy) rather than a specific domain
2. The study aims to provide practical insights to researchers, practitioners, and instructional designers to improve the study and design of activities that foster cognitive engagement of learners.
3. The study aims to provide tools for embedding narrative-based learning in formal and informal environments.

## Hypotheses

1. Students who engage in collaborative mode will show greater self-efficacy than those who complete the activities individually.
2. Transmedia as an intervention will boost self-efficacy for students engaged in the individual mode.
3. ICAP holds when applied to metacognitive skills such as self-efficacy.

## Study Design Methods and Measures

### Study Design and Intervention

| | Transmedia (digital & hands-on) | Hands-on Activities |
|---|---|---|
| Individual | 10 participants | 10 participants |
| Collaborative | 10 participants | 10 participants |

**2x2 Comparison**
- **Activity Type**
- **Individual vs. Collaborative**

### Data Collection

- **Pretest/posttest survey questionnaire using scales to measure self-efficacy and growth of conceptual knowledge in specific domain**
- **Observations and field notes**
- **Semi-structured interviews of selected participants**
- **Analyzing the login data of the students on the online platform of Frankenstein200**

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This project is supported by NSF under grant numbers 1354287 and 1516684, and Center for Science and the Imagination

Special thanks to Drs. Ruth Wylie and Peter Nagy for their help and guidance