Creating Opportunities to Influence Self-Efficacy through Modeling Instruction

Vashti Sawtelle[a], Eric Brewe, Renee Michelle Goertzen, Laird H. Kramer
Florida International University

Self-Efficacy or the confidence in one's own ability to perform a specific task [1] develops through four main sources:
1. Mastery experiences – personal accomplishments or failures at tasks
2. Vicarious learning experiences – observing another person succeeding or failing at a task
3. Social persuasion experiences – conveying information about a person's ability through indirect or direct messages
4. Physiological state –current somatic state mediates the impact of the other three sources of self-efficacy

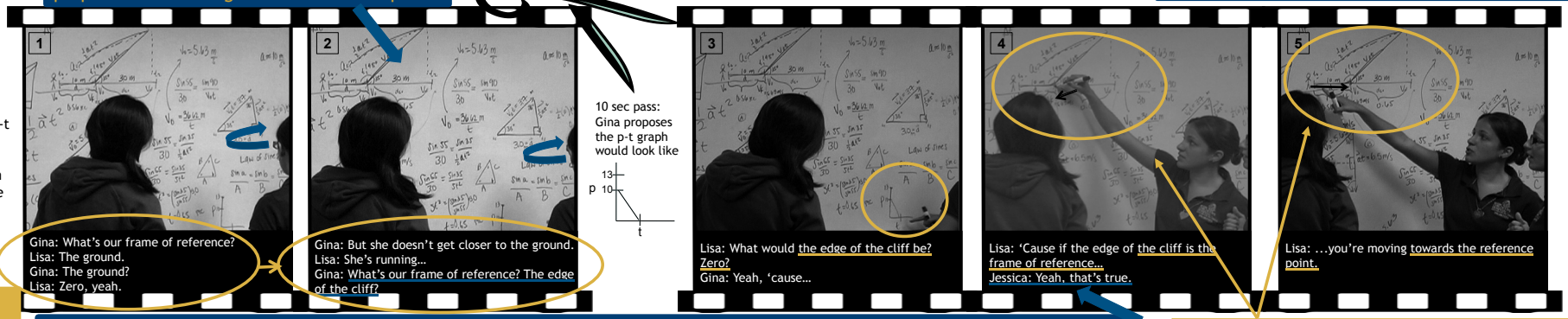
Research Goal: Identify how self-efficacy develops in Modeling
Method: (1) Look for evidence of developing models
(2) Correspond model building with *SEOs*

Developing Models:
- Assumptions define the model
- Representations must be consistent across a model
- Changing assumptions changes the model

Self-Efficacy Opportunities (*SEOs*):
- *Mastery Experience Opportunity* (***MEO***): Require evidence of a **task** and an **evaluation** of the task
- *Vicarious Learning Opportunity* (***VLO***): An individual **models the performance** of a task and a second individual **observes that performance**
- *Social Persuasion Opportunity* (***SPO***): **Messages** about capability are communicated (**directly or indirectly**) between individuals

A *MEO* for Gina begins in frame 2 when Gina proposes the cliff edge as the reference point

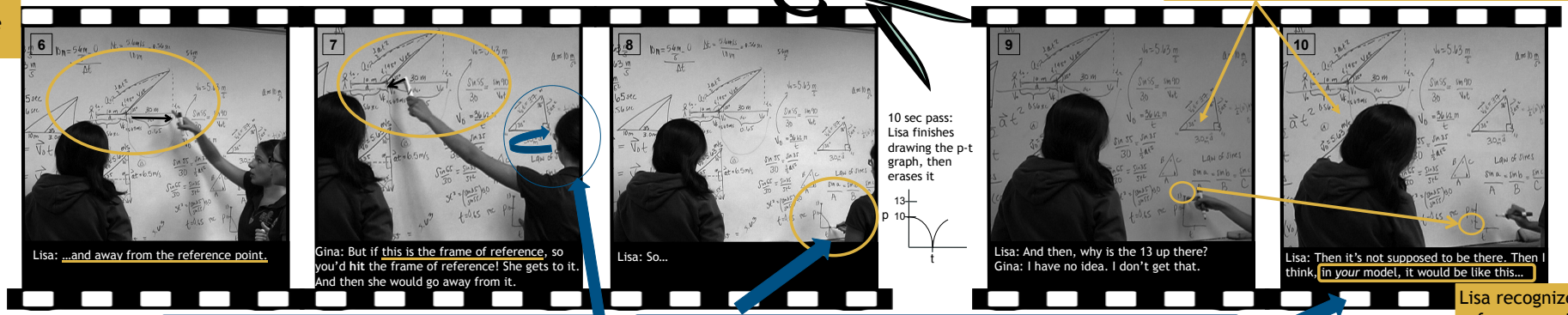
The students construct a p-t graph for a mountaineer jumping a 3m wide crevasse



Gina emphasizes the need to define a frame of reference (1 & 2)

A *VLO* is created for Jessica: Lisa & Gina model choosing a frame of reference (frames 1-3) Jessica observes (frame 4)

The students move fluidly between the pictorial (4,5,6,7) and graphic representation (3,8,9,10), suggesting that they are part of a whole and must agree



Each time Gina turns to look at Lisa when asking a question (frames 1 & 2) or when making a claim (frame 7) creates a *SPO* for Lisa

The *MEO* for Gina from frame 2 ends when Lisa takes up the suggestion and uses the reference point of the cliff (frame 8, 9 - 10)

Lisa recognizes that a reference point is an assumption that changes the model.

Modeling Building Creates Opportunities to Influence Self-Efficacy

[a]vashti.sawtelle@gmail.com
[1] A. Bandura, *Self-Efficacy: The Exercise of Control*, edited by S.F. Brennan and C. Hastings (W.H. Freeman and Company, New York, NY, 1997)

FIU FLORIDA INTERNATIONAL UNIVERSITY
NSF AWARD 0802184