Classroom Experiences that Drive Activation in Science

Meghan Bathgate
Activation

Success

Learning

Choice

Career
Classroom Experiences

• Why classroom?
  – Only science experiences for some learners
  – All learners participate

• Self-reported experiences
  – Learners’ vary in how they perceive same class
Classroom Experiences

This is great!

I’m bored.
Classroom Experiences

This is going well!

I’m confused…
Classroom Experiences
Affective Engagement 😊
Behavioral Engagement
Cognitive Engagement
Perceived Success
Experiences ➔ Activation

- Affect Engagement
- Behavioral Engagement
- Cognitive Engagement
- Perceived Success
- Fascination
- Values
- Competency Beliefs
- Sensemaking
Experiences $\rightarrow$ Activation

Which Classroom Experiences Drive Activation?

Controlling for:

- Other variables in model (competing)
- Out of school experiences
- Home support
- Demographic differences
# Malleable Factors (ALES 2014)

## 2014-2015

| 6\textsuperscript{th} + 8\textsuperscript{th} grade |
|---|---|
| Fall | Spring |

### Engagement/Perceived Success
- Begin (Fall)
- Mid (Spring)
- End (Spring)

### Choice Preferences
- Begin (Fall)
- End (Spring)

### Career Interest
- Begin (Fall)
- End (Spring)

### Prior/Recent Experiences
- Begin (Fall)
- Mid (Spring)
- End (Spring)

### *Content knowledge*
- Pre (Fall)
- Post (Spring)

### Activation
- Begin (Fall)
- Mid (Spring)
- End (Spring)

### Fidelity / Activity Logs
- ~3 times (Fall)
- ~3 times (Spring)

### Family Background
- Begin (Fall)
- End (Spring)
Classroom Experiences

Affective Engagement

Behavioral Engagement

Cognitive Engagement

Behavioral-Cognitive Engagement

Perceived Success
Classroom Experiences

Affective Engagement  
During this activity, I felt excited

Behavioral-Cognitive Engagement  
...I was busy doing other tasks (R)

Perceived Success  
...I did everything well
Experiences → Activation

- Affect Engagement
- Behavioral-Cognitive Engagement
- Perceived Success

Correlations

- Fascination
- Values
- Competency Beliefs
- Sensemaking
## Correlations

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**Classroom Experiences**
- Affective Engagement
- Behavioral-Cognitive Eng.
- Perceived Success

**Activation Dimensions**
- Fascination
- Values
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- Sense-making
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Bivariate Correlations with *Fascination*

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*Standardized betas (β)*

Controlling for initial motivation, gender, ethnicity, home support
Bivariate Correlations with Values

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Fascination

Values

Affect Engagement

Behavioral-Cognitive Engagement

Perceived Success

.13***

.08***
Bivariate Correlations with Competency Beliefs

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- Affect Engagement ∨ .05* Fascination
- Behavioral-Cognitive Engagement ∨ .19*** Values
- Perceived Success ∨ .19*** Competency Beliefs
Bivariate Correlations with Sensemaking

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Affect Engagement

Behavioral-Cognitive Engagement

Perceived Success

Fascination

Values

Competency Beliefs

Sensemaking
Conclusion & Contribution

• Contributors to change are not uniform
  – Affect & Perceived Success $\rightarrow$ Motivational Space
  – Cognitive-Behavioral Engagement & Perceived Success $\rightarrow$ Sensemaking
  – Missing connections also important
Conclusion & Contribution

• Help direct educational goals
  • What are we looking to influence (i.e., which part of Activation)?
  • What opportunities do the activities/context offer?
Classroom Experiences that Drive Activation in Science

Meghan Bathgate