Infusing a System with Productive Learning Mindsets

Chris Hulleman and Yoi Tibbetts
To improve peoples’ lives through rigorous motivation research
Partnership Goals

1. Understand

2. Foster
“Solutionitis”

- Doing something—anything—to and for students

- Long-term mentoring
- “Gamification” of course material
- Real-time data systems
- Financial incentives
- Navigating the college campus
- Accountability
- Counseling
- Help choosing major
- Improved orientation
- Career planning
- Study Skills
- Ensuring placed into appropriate courses
“Solutionitis”

- Challenge: lack of **consistent** efforts and messages

- Long-term mentoring
- Financial incentives
- Study Skills
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- “Gamification” of course material
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- Help choosing major
- Real-time data systems

Challenge: lack of consistent efforts and messages
Motivate Lab Design Process

- Empathize & Learn
- Synthesize & Plan
- Prototype & Test
- Adopt & Infuse
Plan for today’s session

Intro:

Part 1:

Part 2:

Wrap Up:

And... please ask questions along the way
| 1) | What is your role at GSW? (e.g., Psychology Professor) |
| 2) | What are 1 or 2 motivational challenges that you routinely face with your students? |
| 3) | What are 1 or 2 strategies that you’ve tried to better motivate your students? |
| 4) | Do you use a particular theory of motivation to help address your challenges or plan your strategies? If yes, can you provide the name for it? |
Can we share some of your motivational challenges?
What are your motivation challenges?

- Getting students to turn things in
- Getting students to be passionate in the field
- Understanding what it takes to be successful
- Entitlement – not willing to work for it
- Stop stigma behind using university resources
- Not asking for help until it’s too late
- Acknowledging the struggles they face – need their honesty
- Overcoming their lack of confidence
Alarming Data... Revisited
(Lepper, Henderlong, & Iyengar, 2005)
Then... what happens when we get students in college?

Student email:
"Hey Prof, i didnt come 2 class last week. did i miss anything imp? any of it gonna b on the test? also, is lab runnin the whole time 2day, or we gettin out early?"

www.ratemyprofessors.com:
- “Definitely take this class. I never went to class or bought the book, and I got a B.”
- “The easiest teacher! Always lets class out early and cancels class on Fridays a lot. TAKE HIM!”
And More Alarming Data that We’ve Collected in College Classrooms

(Hulleman, Godes, Hendricks, & Harackiewicz, 2010)
And to help us appreciate our students’ perspective...

From a College Faculty List-serve:

“I can empathize with unmotivated students when I consider faculty meetings. I dutifully attend these meetings, but they often seem to continue on quite well without me; Perhaps your faculty meetings are run differently?

On the rare occasions when I miss one, I'll ask my colleagues “Did I miss anything important?… they invariably roll their eyes and say no!”
So, a hopeful story through motivational planning

(Hulleman, Godes, Hendricks, & Harackiewicz, 2010)
So, a hopeful story through motivational planning

(Hulleman, Godes, Hendricks, & Harackiewicz, 2010)
So, a hopeful story through motivational planning

(Hulleman, Godes, Hendricks, & Harackiewicz, 2010)
Does anyone have a motivation theory that guides your practice now?
Although many theories exist...

Expectancy-Value-Cost Theory

Goal Theories
Arousal/Emotion Theories
Need Theories
Extrinsic/Intrinsic Theories
Interest Theories
Self-Efficacy Theory
Attribution Theories
The Expectancy-Value Framework  
(Eccles et al., 1983)

\[ M = E \times V - C \]

- **M** = Motivation
- **E** = Expectancy (Can I do the task?)
- **V** = Value (Do I want to do the task?)
- **C** = Cost (Do I have barriers preventing me from doing the task?)
Expectancy
Can I do the task?

Grades
Test Scores

Value
Do I want to do the task?

Interest
Continued Persistence
Major

Cost
Do I have additional barriers that reduce my time, energy, and resources to do the task?
Using EVC language, can you now identify your challenges being a(n):

**Expectancy** problem?
(students don’t think they *CAN* do it)

**Value** problem?
(students don’t *WANT* to do it)

**Cost** problem?
(students have additional *BARRIERS* preventing them from having time, energy, and resources to do it)

Let’s pause for an application break
But, is knowledge of motivation theory (and a formula like $M=E+V-C$) enough?
But, is knowledge of motivation theory (and a formula like $M=E+V-C$) enough?
What if we don’t see the whole system?
Harnessing the Power of System-Wide Change

- Administration
- Policy-Makers
- Instructors
- Curriculum
- Students
- Advisors
- Researchers
- Family & Friends
Part 1: Levers of Change: Mindset Interventions
Mindset GPS

Purpose & Value

Growth Mindset
Do I have what it takes?

What’s the point of this?

Social Belonging
Do I belong here?
Growth Mindset

- Students feel they can be **successful** if they try
  - Intelligence is malleable
  - Challenges are an opportunity to grow
  - Obstacles can be overcome by using good strategies
Growth Mindset Intervention

1. Learn about growth mindset, often through neuroplasticity.

2. Write a one-paragraph essay that describes growth mindset to another student (control: just summarize).
   - Explain that your intelligence can grow
   - Talk about behaviors to grow your intelligence

   “Just because you do not understand something does not mean you are dumb. It just means you need a little extra help in the subject. Some ways you can get help and learn the material is to get a tutor. If you do not have access to tutoring you can always go to your professor and ask for help or ask a friend.”

Aronson et al. (2002); Blackwell et al. (2007)
Intervention Effects Vary by Essay Responses

Control: No Growth Mindset
Beliefs Only
Beliefs + Behaviors

Final Course Grade (4-point scale)
The learning context has **value** to students:

- Students find their learning or school to be relevant, purposeful, interesting, or important.
- There are many ways to infuse value into students’ learning environments.
Purpose and Value: Belief that schoolwork is valuable because it’s personally relevant

Students can value school for different reasons

**Utility:**
This is useful and relevant for my:
- Daily life
- Future education
- Career
- Interests and hobbies

**Personal:**
This will help me get the job I want in the future.

**Identity:**
This is who I am. It’s important to me to be good at this.

**Prosocial:**
This allows me to do something that makes a difference in the world.

**Interest:**
This is fun! I just like doing this.
Utility Value Intervention

1. Select a topic that is currently being covered in class.
2. Write a one-paragraph essay that applies the topic to your life or a letter to someone you know (control: just summarize).
3. Repeat 3-5x over course of semester.

Graphing is an important part of life.... For an example, my grandmother and aunt work at a retirement home and they need to decide dosages per day, meals, and etc. Graphing out all the data they have will [help them] come out with a resolution.
College Biology ($N = 1040$)

Harackiewicz, Canning, Tibbetts, et al. (2016)
“I want to study biology because I want to make a contribution to society”
Reasons for Completing a College Degree

Helping Motives

- Help my family out after I’m done with college
- Give back to my community
- Provide a better life for my own children

Harackiewicz, Canning, Tibbetts, et al. (2016)
FG-URM students used more…

- Social Processing Words
  - E.g., Friends, help, encourage, society

- Family Words
  - E.g., Mom, sister, son

Phrases consistent with their motivations for attending college
Social Belonging

Growth Mindset

Do I have what it takes?

Purpose & Value

Why should I learn this?

Social Belonging

Do I belong here?

- Students feel they belong in the context
  - Connected with peers
  - Known and cared for by teachers and mentors
  - Fit in academically and socially
  - Free from doubts and worries about belonging
One Important Takeaway

Feelings of Belonging  Belonging Uncertainty

Connection with Peers  Feeling Cared for by Mentors

Feelings of Fit
Belonging messages we send students
MY HERO

Dear Mr. Warner Prouty,

My hero is Dr. Martin Luther King Jr. My hero has courage to do what he has to and when he has to do it. He is a testimony to others, and when he was tested he overcame it. He went through trials after trials and he did not hold a grudge.

First Dr. Martin Luther King Jr. has courage. He did not have to speak for “his people” but he did it because he cares. King lead some civil rights movements in his time. Dr. King also gave a speech in front of 200,000 of his supporters.

Second Dr. Martin Luther King is a testimony to me and others. He is a testimony to me because he did everything he could to fight for the freedom for him, his family, and others. Now when I look at the simplest things and complain I think of what Dr. King would do.

Finally Dr. King is my hero because when he was tested he did not complain instead he over came the worst. Dr. King had many good reasons to quit what he was doing and curse everyone, but he didn’t. In the worst of times Dr. King kept his chin up. When King’s home was bombed all he said was “We must learn to meet hate with love” Dr. King was a great man and he helped change our world as we know it.

In conclusion Dr. Martian Luther King Jr. is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

“I have a dream that little black boys and little black girls will be able to join hands with little white boys and little white girls and walk together as sisters and brothers.”
“Wise feedback:”
I’m giving you these comments because I have high standards and I know that you can meet them.

Yeager, Purdie-Vaughns, et al. (2014) *JEP: General*
Percentage of African American Students who Resubmitted their Essay (7th Grade)

Yeager, Purdie-Vaughns, et al. (2014) *JEP: General*
Percentage of Classes Passed (high school)

Yeager, Purdie-Vaughns, et al. (2014) *JEP: General*
30 Second Reflection

• What mindset intervention do you think would be most powerful for the students you work with at GSW? Why?

Growth → Expectancy
Purpose → Value
Social → Cost
Part 2:
Seeing Your Motivation System
4,479 Mindset Survey responses

112 Mindset Survey responses
Survey Findings: Growth Mindset

- Particularly strong predictor for under-represented minority (URM) students
- URM students report lower overall growth mindset
Survey Findings: Value

Growth Mindset

Math Value

English Value

Overall GPA

Math GPA

English GPA

Math & English DFW

Math DFW

English DFW
Survey Findings: Social Belonging

- Growth Mindset
- Purpose & Value
- Social Belonging

- Overall GPA
- Math GPA
- English GPA
- Math & English DFW
- Math DFW
- English DFW
Survey Findings: Overall

Growth Mindset

Purpose & Value

Social Belonging

Overall GPA
Math GPA
English GPA
Math & English DFW
Math DFW
English DFW
What are people saying?

**Student Perspective**

“Unnecessary classes and assignments. It’s hard to get motivated for a class not related to your major, or assignments that do not benefit you.”

**Faculty Perspective**

“They see value in anything that they’re going to orient themselves towards a career. They have a lot of trouble doing that with core courses”
USG Students: Reasons for Completing a College Degree

Helping Motives

- Help my family out after I’m done with college
- Give back to my community
- Provide a better life for my own children
Prepare for my future career
Help my family out after I'm done with college

Motives for Attending College

- Majority CG
- Majority FG
- Minority CG
- Minority FG
Infusing Mindset-Supportive Practices Throughout the Academic Community

**STATEWIDE**

**INSTITUTIONAL**

**CURRICULAR & PROGRAM**

**INSTRUCTIONAL & COMMUNITY SUPPORT**

**STUDENT**
Wrap Up: 3 Key Take-Aways
#1) Can you start **motivational planning**?

\[ M = E + V - C \]
Another example is my syllabus for Psyc212: Research Design and Data Analysis I

**Lecture Topic and Reading Schedule and Due Dates:** The following is a tentative lecture and reading schedule. Any changes will be announced in lecture.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading: From Jackson text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/25</td>
<td>Course Overview and Rationale for Psyc212 and 213</td>
<td>Preface</td>
</tr>
<tr>
<td></td>
<td>8/27</td>
<td>Introduction to Psychological Research and Thinking Like a Scientist</td>
<td>Ch. 1</td>
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<td></td>
<td></td>
<td><strong>Pass out HW#1</strong></td>
<td></td>
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<tr>
<td>2</td>
<td>9/1</td>
<td>Introduction to Psychological Research and Thinking Like a Scientist</td>
<td>Outside reading</td>
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<tr>
<td></td>
<td>9/8</td>
<td><strong>Outside reading</strong></td>
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**M = E + V - C**

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**INSTRUCTOR’s COPY w/ MOTIVATIONAL PLANNING**

**Lecture Topic and Reading Schedule and Due Dates:** The following reading schedule. Any changes will be announced in lecture.

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<td></td>
<td><strong>EVC</strong></td>
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<tr>
<td></td>
<td></td>
<td>- Learn students names before class (V)</td>
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<td></td>
<td></td>
<td>- Activity: PSYC 212 Information Survey (E, V, C)</td>
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<tr>
<td></td>
<td></td>
<td>- Case Study: Replicate Context Experiment (E, V)</td>
</tr>
<tr>
<td></td>
<td>8/27</td>
<td>Introduction to Psychological Research and Thinking Scientist</td>
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<td></td>
<td></td>
<td><strong>EVC</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Case Study: Reading an article from the Univ. of Wisconsin’s college newspaper and debating whether the claim that UW is #2 is valid? (E, V)</td>
</tr>
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<td></td>
<td></td>
<td><strong>Pass out HW#1</strong></td>
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</table>
#2) Can you send **consistent** EVC messages throughout your course?

E.g.,

- Syllabus
- 1<sup>st</sup> day of class
- General approach to teaching each day of class (lecture vs. team-based learning)
- Specific content/activities for each day
- Type and amount of assignments
- Type and amount of readings
- Evaluation and grading practices
- Communication with students (in and out of class)
- Office Hours/Additional Support services
- Teaching particular student populations (e.g., 1<sup>st</sup> Generation, Freshman vs. Seniors, Minority Students)
- Last day of class (and how class ends)
#3) Can you **assess** student mindsets?

To help PLAN interventions

If students’ mindsets are ________, I should consider ________ as a new intervention?

To help EVALUATE interventions

This semester, I decided to adopt ________ as a new intervention, should I keep using it?
#1) Can you start **motivational planning**?

#2) Can you send **consistent** EVC messages throughout your courses and campus?

#3) Can you **assess** student mindset GPS?
Thank you!

Questions?
Contact us:

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YoiTibbetts@Virginia.edu
Examples of Mindset-Supportive Practices:

https://motivatelab.org/mindset-summit-2018
Infusing Mindset-Supportive Practices Throughout the Academic Community

<table>
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<tbody>
<tr>
<td>Coordinate inter-institutional Learning Mindset Summit</td>
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<tr>
<td>Incorporate mindset-supportive practices into Momentum Year initiatives</td>
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<tbody>
<tr>
<td>Facilitate a self-assessment of mindset-supportive practices on campus</td>
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<tr>
<td>Support faculty and staff implementation of mindset-supportive practices</td>
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<tr>
<td>Establish institutional requirement for focus areas to identify mindset-supportive practices</td>
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<th>CURRICULAR &amp; PROGRAM</th>
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<tbody>
<tr>
<td>Provide resources for course and program design that emphasize learning mindsets</td>
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<tr>
<td>Rethink program and curricular design with an eye towards mindset-supportive practices (e.g., advising, orientation, critical courses)</td>
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<th>INSTRUCTIONAL &amp; COMMUNITY SUPPORT</th>
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<tr>
<td>Develop mindset-supportive modules, activities, and protocols and offer training and professional development for use of these practices</td>
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<tr>
<td>Create learning mindset networked improvement communities</td>
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<tr>
<td>Customize existing, research-based learning mindset interventions (e.g., growth mindset, value) to best match the learning context and students</td>
</tr>
<tr>
<td>Develop and test new interventions to meet specific student needs (e.g., cost perception)</td>
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</tbody>
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Three Practical Tips

1. Use language that promotes relational trust and academic support
   • See “Wise framing for feedback” activity
   • Remember to emphasize high standards and assurance

2. Scaffold/Enable students to identify course value for themselves
   • Multiple Strategies
   • See “build connections” activity

3. Choose activities, assessments, and pedagogical practices that offer opportunities for social connection
   • See “Group roles and norms” activity
Targeting Learning Mindsets Boosts Performance and Persistence

Borman et al. (2003); Lazowski & Hulleman (2016)
Targeting Learning Mindsets Boosts Performance and Persistence

Borman et al. (2003); Lazowski & Hulleman (2016)
But Remember...

- Learning mindset interventions can be powerful, but they aren’t magic
Learning Mindset Interventions can be Powerful Because...

- They serve as a catalyst for larger change
- They can be infused within existing initiatives
- Positive effects of interventions are amplified through classroom, school, and system-level changes
“A couple of months ago you broke my heart when you told me you would be attending Nebraska instead of Wisconsin.”

“The question I asked myself was this, based on the foods our schools are known for, which school students could survive longer only consuming those foods?”

“Overall, corn is extremely lacking in fat, protein, calcium, and vitamin A. For example, corn only provides 4.1g (8%DV) of protein per serving, 6% of the daily value of vitamin A…”

“Cheddar cheese, a Wisconsin staple, on the other hand provides those who consume it with 32.9 g of protein (66% DV), 1170 mg of threonine….essentially, cheese provides eight times more amino acids and protein.”

“In conclusion, Wisconsin Badgers would have fewer issues related to protein, calcium, and vitamin A deficiency compared to the Nebraska Huskers.”

Although cheddar cheese is known for being high in fat, Wisconsin is cold in the winter so we need that fat anyways. I think this proves my point that you made a poor choice when deciding to go to Nebraska.”
Current Draft/Preliminary Timeline

- EMPATHIZE & LEARN
- SYNTHESIZE & PLAN
- PROTOTYPE
- TEST INTERVENTIONS

Timeline:
- Fall 2017
- Spring 2018
- Fall 2018
- Spring 2019
- Fall 2019
- Spring 2020
- Fall 2020
- Spring 2021

Steps:
- EMPATHIZE and LEARN
- SYNTHESIZE and PLAN
- PROTOTYPE
- TEST
What Have We Done?

**WHAT WE DID**

**ADVISING ACADEMY**  **OCTOBER 2017**
Participated in panel on successfully transitioning to college and worked with advisors to think through best advising practices.

**STUDENT SURVEY**  **FALL 2017**
Surveyed first year students at all USG schools about their learning mindsets, future goals, and reasons for attending college. These data are being connected to academic records and analyses are ongoing.

**MOMENTUM SUMMIT**  **FEBRUARY 2018**
Consulted with representatives from USG institutions about how to incorporate learning mindsets into Momentum Year planning.

**STRONG START TO FINISH GRANT**  **JANUARY 2018**
Participated in the construction of a collaboration with multiple institutions (e.g., Complete College America, Gardner Institute) to cultivate productive academic mindsets and increase degree attainment.

**WHAT WE'RE DOING**

**SITE VISITS**  **APRIL 2018**
Meeting formally and informally with students, faculty, staff, and key personnel at several schools in the USG system to understand the school climate and student experience.

Conducting classroom observations to gain insight into students' educational experience.

**MINDSET SUMMIT**  **MAY 2018**
Leading a meeting about how to infuse mindset supportive practices into all levels of the USG system.
Respecting Students’ Perspective

Low Expectations for Success

# Math Problems Solved

- Control
- Write
- Lecture

Canning & Harackiewicz (2015)
Respecting Students’ Perspective

Canning & Harackiewicz (2015)
(Mindset) Interventions are most effective when they are...

- Targeted
- Tailored
- Tracked

Tibbetts, Harackiewicz, Priniski, & Canning, 2016
(Mindset) Interventions are most effective when they are...

- Targeted...to the source
- Tailored
- Tracked

Tibbetts, Harackiewicz, Priniski, & Canning, 2016
(Mindset) Interventions are most effective when they are…

- **Targeted**…to the source
- **Tailored**…to your context
- **Tracked**
(Mindset) Interventions are most effective when they are...

- **Targeted**...to the source
- **Tailored**...to your context
- **Tracked**...measured over time and in relation to desired outcomes