Engaging Students from Matriculation through Completion: Measuring Student’s Affective Learning and Why it Matters

Celia Esposito-Noy, Ed.D., Vice President, Student Services & Enrollment Management, Cosumnes River College

Craig Hayward, Director of Research, Planning and Accreditation, Irvine Valley College

Diego Navarro, Faculty, Cabrillo College; and ACE Founder
1. Context for Affective Measurements
2. Using Mindset and Mindfulness to Inform Successful College Student Behavior
3. ACE Affective Measurements
4. Q & A
Affective Domain (Non-Cognitive)

- Feelings, Emotions, Hope
- Mindsets, Beliefs, Self-Efficacy
- Self-Image, College-Identity
- Perseverance, Self-Discipline, Delayed Gratification
- Behaviors, Habits, Mindfulness
- Social Skills
- Learning Strategies
1. Life problems become overwhelming

2. Their life is more attractive than college life

3. Giving up because of affective issues, mostly centered around fear, anxiety, and a suspicion that they are not “college material”
Students enter college with degrees of commitment

Entering students today have different needs than the student populations first served by community colleges. They come to community colleges from a huge range of backgrounds—age, ethnic, educational, and socio-economic.

**Students may be dealing with:**

- Personal Struggles and Fragmented Families
- Needs of Family
- Vestiges of vigilance and survival in tough situations
- Poverty / Loss of Family Income / Loss of Home
- Working in low-paying jobs and Poor Nutrition, Hunger
- Transportation challenges
- Childcare / Service Agency Appointments
- Unmet Health Challenges
- Violence and Drugs in Neighborhood
Why measuring the affective is important

• Predictability
• Understanding Effectiveness of Interventions
  – Know if you are being effective
  – Compare different approaches and what is working
• Determining Student Segmentation - for better focused interventions
  – Preventative placement
  – Studying students with similar affective profiles
  – Determine which approaches are best for which student populations
  – Understand a college’s student population
  – Determining trends
The relevance of mindset research (Dweck)

**Fixed mindset**
- Intelligence is static
  - Avoids challenges
  - Gives up easily
  - Effort is pointless
  - Ignores constructive critique
  - Threatened by others’ success

**Growth mindset**
- Intelligence can be grown
  - Embraces challenges
  - Persistent vs. obstacles
  - Effort leads to mastery
  - Learns from criticism
  - Inspired by others’ success
Academic Mindsets
- I belong to this academic community.
- My ability and competency grow with my efforts.
- I can succeed at this.
- This work has value for me.

Social Skills
- Interpersonal Skills
- Empathy, Assertion
- Cooperation and Responsibility

Academic Perseverance
- Grit, Tenacity
- Delayed Gratification
- Self-Discipline
- Self-Control

Academic Behaviors
- Going to Class
- Doing Homework
- Organizing Materials
- Participating, Studying

Academic Performance

Learning Strategies
- Study Skills
- Metacognitive Strategies
- Self-Regulated Learning
- Goal Setting

(unrelated to the diagram)

Data defines a spectrum of commitment segments. Each segment points to a different level of need.
1. Context for Affective Measurements
2. Using Mindset and Mindfulness to Inform Successful College Student Behavior
3. ACE Affective Measurements
4. Q & A
What is mindset?

- **Fixed mindset** is believing that your qualities cannot be changed and creates an urgency to prove yourself over and over.

- **Growth mindset** is based on the belief that your basic qualities are things you can change through your efforts.

Concepts developed by Psychologist Carol Dweck, Stanford University, 2006
Teaching mindset in basic skills math

- Students are introduced to fixed and growth mindsets in Math 20 (Arithmetic)
- Both instructor and peer model reinforce commitment to a growth mindset
- Students identify other areas of academics, personal life, etc., where outcomes are informed by their mindset
- Students are able to describe how and when they move from a fixed to a growth mindset and the subsequent behavior or outcome
Mindset and effort

- Effort ignites ability that results in accomplishment (and sometimes accomplishment scares students).

- Fixed mindset allows students to justify failure (“I could have done better if I tried”) and avoid evaluation.

- Lack of effort and subsequent result reinforces student’s belief that, “I don’t belong here.”

- Effort and a growth mindset that lead to positive outcomes sets new academic standard (that student is expected to meet).

Two students talk about mindset

_Fernando Leon_: Identified where he had a fixed mindset and through understanding and reinforcement made the shift to a growth mindset. Now he teaches other students about the importance of the growth mindset as a math tutor.

_Nikki Adenawoola_: Didn’t realize that she had a fixed mindset and when she made the shift to a growth mindset, her personality changed significantly.

_Three minute video clip_
What is mindfulness?

- Mindfulness is being “oriented in the present.”

- Mindfulness is focusing on a single task or action and doing so with intent.

- Mindfulness means, “the continual creation of new categories and labels” that help inform how we see others, ourselves, and the world.

Using mindfulness to address student discipline issues

- Teach students mindfulness as a means of self-regulating behavior

- Use mindfulness to teach students successful student behaviors

- Mindfulness requires reflection and critical thinking

- Mindfulness requires students consider repetitive behaviors that have not resulted in productive or healthy outcomes

Using mindset and mindfulness to support academic success

- Teach students about fixed and growth mindset in basic skills classes
- Teach tutors how to teach mindset and mindfulness to those they work with
- Implement *embedded interventions* in basic skills classes to reinforce mindset and mindfulness:
  - Peer model in class demonstrates successful student behaviors (based on Bandura’s social modeling theory)
  - Students see what to do when they don’t know what they should be doing
  - Peer model facilitates study sessions or SI sessions
Using mindset and mindfulness to support academic success (cont.)

- Faculty spend less time addressing students’ life issues (and more time on content)
- Students learn effective and acceptable coping strategies and problem solving skills
- Strategies are transferrable to all courses and personal life
- Students see others like them who have succeeded and know what they need to do
- Belief in one’s capabilities increases
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3. ACE Affective Measurements

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<table>
<thead>
<tr>
<th></th>
<th>ACE</th>
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<tbody>
<tr>
<td><strong>N</strong></td>
<td>1,020</td>
</tr>
<tr>
<td><strong>African American</strong></td>
<td>15.4%</td>
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<tr>
<td><strong>Latino</strong></td>
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<td><strong>Female</strong></td>
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<td><strong>Prior College Credits</strong></td>
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<tr>
<td><strong>Placed 2+ Levels Below College English</strong></td>
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<tr>
<td><strong>Placed 1 Level Below College English</strong></td>
<td>42%</td>
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<tr>
<td><strong>Placed 2 or More Levels Below College Math</strong> (Los Medanos Only)</td>
<td>88.9%</td>
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<td><strong>Completed GED</strong></td>
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<td><strong>No HS Diploma</strong></td>
<td>11.1%</td>
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<tr>
<td><strong>Mean Age</strong></td>
<td>24.9</td>
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Transfer-Level English Completion

Four College Longitudinal Study of 1,020 Students

Transfer-Level English Completion

**Δx% = [(ACE-Control)x100]/Control

*statistical significance <.001 two-tailed test

2.3x More Likely to Pass Transfer Level English

1.7x More Likely to Pass Transfer Level English

Source: MPR Associates
January 2014
Transfer-Level Math Completion

2013 ACE Longitudinal Study – Los Medanos College

Comparison Group 1:1 propensity score matching from 46,795 non-participants
Students at LMC in ACE Accelerated Program
N = 113

- 4.3x More Likely to Pass Transfer-Level Math
- 3.3x More Likely to Pass Transfer-Level Math

One semester after attending ACE
Two Semesters after attending ACE

Source: MPR Associates
January 2014

\[ \Delta x\% = \frac{[(ACE-Control)\times 100]}{Control} \]

*statistical significance < .001 two-tailed test
Transfer-Level Math & English Completion

2013 ACE Longitudinal Study – Los Medanos College
Transfer-Level Math & English Completion

Comparison Group: 1:1 propensity score matching from 46,795 non-participants
Students at LMC in ACE Accelerated Program: N = 113

7.8x More Likely to Pass Transfer-level Math & English
4x More Likely to Pass Transfer Level Math & English

One semester after attending ACE
Two Semesters after attending ACE

Source: MPR Associates
January 2014

*statistical significance < .001 two-tailed test

**Δx% = [(ACE-Control)x100]/Control
Univ. of Chicago Consortium on Chicago School Research

SOCIO-CULTURAL CONTEXT

SCHOOL and CLASSROOM CONTEXT

ACADEMIC MINDSETS
I belong to this academic community. My ability and competency grow with my efforts. I can succeed at this. This work has value for me.

SOCIAL SKILLS
Interpersonal Skills
Empathy, Assertion
Cooperation and Responsibility

ACADEMIC PERSEVERANCE
Grit, Tenacity
Delayed Gratification
Self-Discipline
Self-Control

LEARNING STRATEGIES
Study Skills
Metacognitive Strategies
Self-Regulated Learning
Goal Setting

ACADEMIC BEHAVIORS
Going to Class
Doing Homework
Organizing Materials
Participating, Studying

ACADEMIC PERFORMANCE

STUDENT BACKGROUND CHARACTERISTICS

ACE Identified Research Constructs that correlate to the Affective Precursors needed for Academic Performance

Criteria used to select constructs were:

- Correlated with student success and completion
- Based on research grounded in theories from multiple fields
- From published evidence in peer-reviewed journals
- Developed into a standardized measurement instrument for each construct
What do we mean by the Affective / Non-Cognitive?

## Affective Domain of Emotions and Feeling

Awareness and relationship factors that **either support or prevent** academic and professional success.

| 1. Mindsets | Self | • College Identity  
|             |      | • Academic Self-Efficacy/Hope  
|             |      | • Mindfulness – Describing  
|             |       | Am I a college student?  
|             |       | Can I make it in the academic world?  
|             |       | Will it turn out alright?  
|             |       | What professional career do I want?  

| 2. Social Skills | Others | • Teamwork & Leadership  
|                 |        | • Interacting with Others: Communication & Personal Responsibility  
|                 |       | How can I contribute to shared goals?  
|                 |       | Am I a dependable teammate?  

| 3. Perseverance / Self-Control | Self | • Mindfulness – Focusing  
|                                 |      | • Mindfulness – Observing  
|                                 |       | Can I set and achieve goals?  
|                                 |       | Can I control myself to achieve what I want?  

|                      | Others | • Mindfulness - Accepting  
|                      |        | Do I care about my classmates?  
|                      |        | Am I listening effectively and speaking non-violently so others can collaborate with me?  

Measuring Non-Cognitive Change in Students – 3 time points

**Foundation Course**
2-Week Intensive Affective Orientation

**STUDENT COHORT**

**ACE Team-Self Management Course**

+ College courses and programs

First Measurement

Second Measurement
After Two Weeks

Third Measurement
Four Months Later
ACE’s Non-Cognitive Effect on Students
6 College Study of 769 Students

Survey responses were based on a five-point scale, from “strongly disagree to strongly agree” for the non-mindfulness items and from “never or very rarely true” to “always or almost always” true for the mindfulness items.


*p<.001; statistical significance is based on comparison with Time 1 scores.
Findings from Non-cognitive Study

• Students improved in 7 of the 8 factors at a p<.001 level of significance after the 2 week Foundation of Leadership Course (FC)

• With the exception of two factors, the change remains consistent or improved four months later (at the end of the semester)
ACE theory of action

Inputs
- ACE curriculum
- Trained faculty
- Peer cohort support

Affective factors
- Self-efficacy
- College Identity
- Interacting with others
- Teamwork
- Mindfulness:
  - Focusing
  - Observing
  - Accepting
  - Describing

Outcomes
- Persistence
- Achievement
- Progress to completion
Assembled records for over 10,000 administrations of the CSSAS

Four distinct administrations of the CSSAS
- Pre-Foundation course (PRE)
- Post-Foundation course (POST)
- End of ACE bridge semester (EBS)
- School CSSAS for non-ACE students (SCSSAS)

Fuzzy match process to link CSSAS records to MIS data

Over 48,000 enrollment records matched to CSSAS students

Initial study focus on completion of English sequence outcomes
What are affective factors?

How are they measured?
I find it difficult to stay focused on what's happening in the present.

Strongly agree (5)
Somewhat agree (4)
Neither agree nor disagree (3)
Somewhat disagree (2)
Strongly disagree (1)
I know how to take notes.

Strongly agree (5)
Somewhat agree (4)
Neither agree nor disagree (3)
Somewhat disagree (2)
Strongly disagree (1)
I rush through activities without being really attentive to them.

Strongly agree (5)  
Somewhat agree (4)  
Neither agree nor disagree (3)  
Somewhat disagree (2)  
Strongly disagree (1)
I am good at doing research.

Strongly agree (5)
Somewhat agree (4)
Neither agree nor disagree (3)
Somewhat disagree (2)
Strongly disagree (1)
I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

Strongly agree (5)
Somewhat agree (4)
Neither agree nor disagree (3)
Somewhat disagree (2)
Strongly disagree (1)
• Questions 1, 3 & 5 are drawn from Mindfulness-Focusing
• Questions 2 & 4 are drawn from Self-efficacy
• Total your points for each scale and divide by the number of questions to arrive at your score.
• What does a low score mean? What does a high score mean?
• Let’s look at some research...
## Completion of “one level below” English

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<th>Pre (n=744)</th>
<th>Post (n=840)</th>
<th>EBS (n=630)</th>
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<tbody>
<tr>
<td></td>
<td>Self-efficacy</td>
<td>Self-efficacy</td>
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<td>College Identity</td>
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<td></td>
<td>Interacting with others</td>
<td>Interacting with others</td>
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<td>Teamwork</td>
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<td>Mindfulness-Focusing</td>
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<td>Mindfulness-Observing</td>
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<td>Mindfulness-Accepting</td>
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<td>Mindfulness-Describing</td>
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Completion of transfer-level English

<table>
<thead>
<tr>
<th></th>
<th>Pre (n=362)</th>
<th>Post (n=390)</th>
<th>EBS (n=382)</th>
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<tbody>
<tr>
<td>Self-efficacy</td>
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<td>College Identity</td>
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<tr>
<td>Mindfulness-Describing</td>
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• Amongst the general student population, self-efficacy is far and away the strongest predictor of completing one-level-below English and transfer-level English.

• The ACE students’ scores seem to describe a journey.

• The story for ACE students is multi-staged and complex.

• Each student is different.

• Part of that journey is developing strengths and part of that story is discovering their own limitations.

• Self-efficacy, Mindfulness-Focusing, Identity, and Awareness all play a part in the story at different stages.
ACE Approach

• Awareness (Being Awake, Having a Purpose, Finding Self)

• Collaborate (Leadership Skills, Peer-Support)

• Effective (Self-Discipline, Self-Efficacy, Ability to Struggle)

+ ACADEMICS
Student Engagement & Support Redefined

Getting Students To Believe They Can Do It

“Lighting the Fire for Learning”

On a Regular-Basis:
- Monitor Student Progress
- Motivate Student
- Deal with Behaviors
- Help Student Solve Life Problems

Academic Program

Foundation Course
2-Week Intensive Affective Orientation

3 credits

ACE Team-Self Management Course

2 credits

Academic Program Variations

8 to 12 credits

Getting Students To Believe They Can Do It

“Lighting the Fire for Learning”
## ACE Program Variations

<table>
<thead>
<tr>
<th>Program Variations</th>
<th>Target Student</th>
<th>Examples</th>
<th>ACE Program Variation Coursework</th>
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<tbody>
<tr>
<td><strong>Affective Orientation</strong></td>
<td>College Prepared Students</td>
<td>Orient to professional skills, behavior, mindsets, and college culture: Nursing, Gen. Ed. requirements, Rad Tech, etc.</td>
<td>Foundation Course&lt;br&gt;ACE Team Self-Mgmt&lt;br&gt;Other College Coursework&lt;br&gt;Students attend regular college courses and programs.</td>
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<tr>
<td><strong>Affective Summer Bridge</strong></td>
<td>Transitioning Students</td>
<td>Provide rich academic and community-building experience leveraging the student’s exposure to social injustice.</td>
<td>Foundation Course&lt;br&gt;ACE Team Self-Mgmt&lt;br&gt;Social Justice Expriential Course</td>
</tr>
<tr>
<td><strong>Affective Support for CTE</strong></td>
<td>CTE Students</td>
<td>Medical Assisting, Green Jobs, Sustainable Construction, Agricultural Machinery, Respiratory Care, etc.</td>
<td>Foundation Course&lt;br&gt;ACE Team Self-Mgmt&lt;br&gt;Career Technical Education</td>
</tr>
<tr>
<td><strong>Affective Booster – Learning Community (LC)</strong></td>
<td>LC Students</td>
<td>Provide 24/7 peer-support in hyper-bonded community, through ACE affective curriculum</td>
<td>Foundation Course&lt;br&gt;ACE Team Self-Mgmt&lt;br&gt;Linked courses</td>
</tr>
<tr>
<td><strong>Accelerated Academic Learning</strong></td>
<td>Developmental Education / STEM Students</td>
<td>Accelerated English and math, and Integrated Science using a project based course around which to integrate curriculum</td>
<td>Foundation Course&lt;br&gt;ACE Team Self-Mgmt&lt;br&gt;Project-based course to integrate curriculum</td>
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Discussion

- What role do individual student risk factors play?
- How does social capital affect students’ identity as college students?
- How can we use this information to improve student success?
- How far in the future can we make valid predictions?
- How do students change over time in their affective traits?
- Can we use early affective assessments to complement cognitive assessments?
- Do students with different affective profiles respond distinctly to different types of support services?