Welcome to the Improvement Science Deep Dive!
Please sit at your topic table.
Slide: https://goo.gl/KVfl7Y
Center for Research on Equity and Innovation

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Essential Questions

- How can we use improvement science to tackle persistent problems of practice?
- How can we use empathy interviews and root cause analysis to gain a deeper understanding of the issue we want to improve - and the factors contributing to success and/or struggle?
- How can we develop a “theory of action” to guide our next steps?
Today’s Problems of Practice

- How can we create more equitable group work?
- How can we support traditionally underrepresented students in going to college?
- How can we support teachers in doing high-quality project-based learning in their classrooms?
To increase the number of African American, Latino and Native American young men of color who go directly to 4 year colleges, and succeed there.
1 in 10 Kindergarteners from low SES earn a college degree

9% who start at CC earn a 4-year degree
Increase the number of underrepresented students who graduate college, career, and civic ready.

**CCCR NIC Aim**

Increase the number of African American, Latino and Native American young men who go directly to a 4-year college, and ultimately succeed there.

**HTH Aim**

Increase the number of young underrepresented students who graduate college, career, and civic ready.

**Primary drivers (the what)**

- **Awareness of College and Career Pathways**
  
  “I can see a path to my future”

- **Family engagement**
  
  “My family knows how to support me”

- **Academic preparation and eligibility**
  
  “I am ready and know how to think deeplys”

- **Learning mindsets and skills to succeed post-graduation**
  
  “I belong and believe I can succeed”

**HTH Projects**

- Internships (HTHNC)
- College application process, including FAFSA (HTHNC)
- Family engagement (HTM, HTHI)
- NGSS Project Design (all schools)
- Improving mentoring/coaching (GSE, HTMNC, HTHMA)
- Literacy/English Language Learners (HTM, HTeCV)
- Mathematical authority and success (all high schools)
- Equitable group work (HTeCV, HTHI)
- Making Thinking Visible (HTeCV)
- Assessment for Growth (HTHI)
- Chronic absenteeism (HTHNC, HTHI, HTMNC)
- Belongingness/Agency (HTHMA, HTeCV, HTHI, HTe)
The principal realized that applying to college was no easy task, even for someone who is used to filling out forms and documents. Imagine how the students feel, OVERWHELMED!

What could we do to make applying to college more accessible?

- Pay for Application
- Checklist for advisors
- Help students fill out applications
- Senior teachers help with personal statements

Results:
- % Seniors Applying:
  - 2012: 75%
  - 2013: 78%
  - 2014: 84%
  - 2015: 96%

Factors:
- Personal Statement
- Motivation
- Self
- Parents Income
- Money
- Transcripts
- Units
HTHNC began working on improvement project for 4-year college application rate.
Reducing Chronic Absenteeism
HTHNC begins chronic absenteeism project in spring 12-13

Chronic Absenteeism High Schools

% of students absent 10% or more

Year

2010 2011 2012 2013 2014 2015 P1

HTHNC begins chronic absenteeism project in spring 12-13
HTHNC begins chronic absenteeism project in spring 12-13

HTHI joins chronic absenteeism project
Index Card Mingle

What’s a question you want to ask others in the room?

End by finding a partner from your same topic, but different color.
Three Improvement Questions

- What are we trying to accomplish?
- What changes can we make that will result in improvement?
- How will we know that a change is actually an improvement?
Understand the problem
What will you do to understand the problem more deeply?

Refine the Theory & Achieve the Aim

Get Moving
What will you try, and gather data on, to guide your learning and next steps?

The key to avoiding analysis paralysis is to start small and learn along the way.
“If I had an hour to solve a problem I’d spend 55 minutes thinking about the problem and 5 minutes thinking about solutions”

-- Albert Einstein
Understanding the Problem

- Gather data
- Uncover and explore underlying causes
- Map your system
Improvement Tool: Fishbone Diagram

Helps us...

- Identify the different contributing factors to a problem
- Drill down to root causes that were not readily apparent
- Scope a massive problem statement down into a project that feels more manageable
Pair Share

What do you notice about how the fishbone diagram is constructed?

Problem: Students struggle to explain the “why” and “how” behind their thinking.
The problems we want to drill down to understand

- Equitable Group Work
- High Quality PBL
- Traditionally Underrepresented Students to College
Empathy Interviews...

- Safety first!
- Seek to understand, not confirm
- Ask once, clearly
- PROBE:
  - “Tell me more...”
  - “What was that like for you?”
Partner Prep for Empathy Interviews

What questions could you ask a student/practitioner to understand their experience of our group’s problem, and the factors contributing to it?

- Question Selection/Creation (5 min)
- Share & Organize (5 min)
- Predict & Plan (3 min)
**Content:** What did we *hear*? What are we learning about the *root causes* that contribute to the problem?

**Process:** Are there *questions we wish we would have asked*? Are there *questions that were particularly fruitful*? Did we *probe* effectively?
Be back by 1:00. **Sit with your same color and topic.**
Each person interviewed someone different.

https://goo.gl/KVfl7Y
Students have trouble working in groups.

Why?
They don’t understand how to work well with others.

Why?
They have little prior experience with group work.

Why?
Teachers tend to emphasize individual learning in task design.

Why?
Some students disengage from group tasks.

Why?
Workload not shared equally.

Why?
Students still developing skills of communication, negotiation, compromise.
Fishbone Generation Protocol

1. Skip Step #1 and instead do a quick whip: **Introductions** and one thing that struck you from your interview?

2. Brainstorm Causes (5 min)

3. Share & Categorize (20 min)

4. Post & Reflect (5 min) - 🌟 💖
Norms

● Avoid Solutionitis
  ○ seek to understand before jumping to solutions

● “Yes and”
  ○ celebrate and build on ideas without getting attached

● Embrace “definitely incomplete; possibly incorrect”
  ○ don’t let perfection get in the way of learning

● Share the air
Cowperson up Facilitators!

Keep it moving. Uphold norms.
Fishbone Generation Protocol

1. Skip Step #1 and instead do a quick whip: **Introductions** and **one thing that struck you from your interview**?

2. Brainstorm Causes (5 min)

3. Share & Categorize (20 min)

4. Post & Reflect (5 min) - 🌟❤️
Break

Be ready to go at 2:20!
Three Improvement Questions

What are we trying to accomplish?

What changes might we introduce and why?

How will we know that a change is actually an improvement?
Good Aims for Improvement Work:
**AIM:** What do we want to accomplish for whom by when?

- By Spring 2015, all HTHNC seniors will apply to a 4-year college.
- By the end of 15-16, CAT HS will decrease our % of students who need remedial Math & English courses in college from 85% to 50%.
- By June 2016, all HTHI students will be able to articulate two areas of strength and two areas for growth using evidence from their work (as assessed through POLs).
DIVERGE

CREATE CHOICES

MAKE CHOICES

CONVERGE
Improvement Tool: Driver Diagram

AIM

Primary Driver → Secondary Driver

Primary Driver → Secondary Driver

Primary Driver → Secondary Driver

“If we want to improve (aim) then we need to focus on (primary driver) through (secondary driver) and one way to do that is (change idea).”

Articulates Our Evolving Theory of Action
By June 2016, 100% of HTHMA 11th grade students will develop and access the tools, behaviors, and actions that **empower students as the mathematical authority in the classroom.**

If we want to improve **AIM**, then we need to focus on **PRIMARY**, through **SECONDARY**, and one way to do that is **CHANGE IDEA**.

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“Definitely incomplete, possibly incorrect” Revised 11.3.15
Pair-Share

Looking at the ASCENT Driver Diagram, what do you notice about how a driver diagram is constructed?

How does this help you visualize the team’s “theory of action”? 
Fishbones to Drivers...

**Aim**

Increase the number of underrepresented students who graduate college, career, and civic ready

**Primary drivers (the what)**

- **Awareness of College and Career Pathways**
  “I can see a path to my future”

- **Family support**
  “My family knows how to support me”

- **Academic preparation and eligibility**
  “I am ready and know how to think deeply”

- **Learning mindsets, academic behaviors and social skills to succeed post-graduation**
  “I belong and believe I can succeed”

“Definitely incomplete and possibly incorrect”
All seniors apply to a 4-year college in spring 2015

Aim

Primary Drivers (the what)
- Application Process
  - Self Perception - Student
  - GPA / SAT / A-G Requirements
  - Relative Importance of College
  - Money

Secondary Drivers (the where)
- Money for application
- A-G Course Input
- Misconception of process
- Personal Statement
- Letters of Recommendation
- Naviance Ins and Outs

Change Ideas (the how)
- All Advisors use the College Tracker google doc for 12th grade students
- HTHNC pays application fee for students who need financial support
- Advisors go through application process with advisees during Staff Day
- Lunch application workshops for students
- Monday advisory workshops for students
- Meetings with 12th grade teachers about writing personal statement

Measures
- % apply to 4-year college
- College Tracker (student progress checklist)
- # students who attend workshops and staff day
- Student survey on perceptions of support
- Student confidence levels about application process (exit cards after each change idea)

If we want to improve (aim) then we need to focus on (primary driver) through (secondary driver) and one way to do that is (change idea).”
High impact, low effort: ☑️
(YES!)

High effort, high impact: 😐
(MAYBE)

High effort, low impact:
(No!) 😞

Low impact, low effort: 😞
(MAYBE)
Driver or Change Idea?

- Student Mindsets
- Increasing Teacher Wait time
- Family college visits
- Financial Literacy
- Professional Development
- Co-construct rubric with students
Driver Diagram Generation Protocol

1. Craft an aim (best you can make in 5 min!)
2. Identify Primary Drivers (15 min)
3. Generate Change Ideas (15 min)
   ○ Star 3-5 “high leverage” change ideas.
4. Identify Secondary Drivers (if time)
5. Debrief (5 min)
6. Post your Driver Diagram for feedback by 3:20!
New Facilitator!

Keep it moving. Uphold the norms.
Improvement Tool: Driver Diagram

“If we want to improve (aim) then we need to focus on (primary driver) through (secondary driver) and one to do that is (change idea).”

Articulates Our Evolving Theory of Action
As sketched by Deming (1985)

THE SHEWHART CYCLE

1. Plan a change or a test, aimed at improvement
2. Carry it out (preferably on a small scale)
3. Study the results, what did we learn?
4. Act
   - Adopt the change
   - Abandon it
   - Run through the cycle again, possibly under different environmental conditions
Learn Fast to Implement Well... Together
Exhibition Prep with Interview Partner

What is one take-a-way you want to share: insight, lingering question, next step?

Exhibition = “Truth Test”
What do you want feedback on?
- what resonates?
- what’s missing?
- what should we consider?

Each person gets 3-5 post-its!
Exhibition!

4:00 - 4:30  Attend exhibition at HTE

4:45 - 5:15  Exhibit your work here in the UN theater

●  Divide: First 15, Last 15
What’s Your Problem?: Improvement Science for Deeper Learning

Deep Dive Room Change 219-220

(go up stairs, cross the outdoor patio, to the back of the school)