Keeping the Main Thing the Main Thing

AlaMATYC Conference

March 2, 2018

Who am I?

- Annette Cook
- Educator for 34 years, wife for 34 years, mom for 28 years
- Executive Assistant and Conference Manager for NADE
- Educational Consultant and Trainer
- Associate Dean of Student Success, Director of the SOAR Institute (retired)
- Math and ORI instructor
- Past President of ALADE and AlaMATYC
- Past VP of AMATYC and NADE
- High school and middle school math teacher

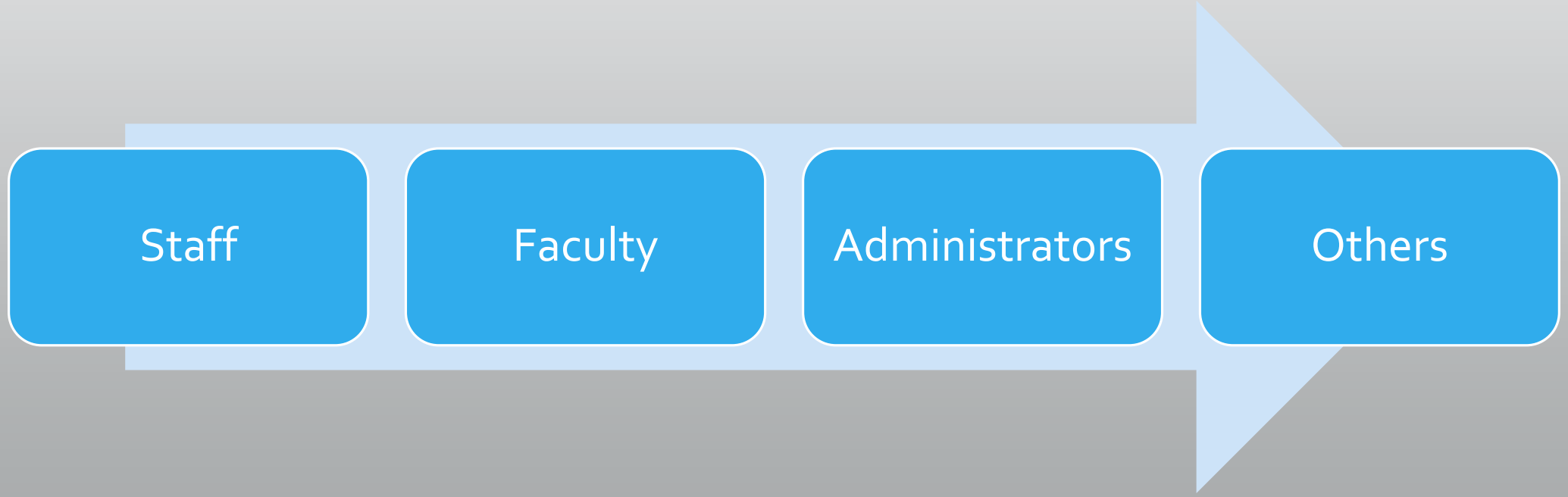
What I Believe

- I believe that all educators should be on a lifelong journey of learning so that in turn, we can inspire students to join us on the journey.
- I believe that students have the right to succeed.
- I believe that all students can learn given the support and direction needed, and that the level of support needed is as diverse as our students.
- I believe that in order to reach each new generation, educators must continually strive to learn more about how to engage and relate to students.

What I bring to the table

- My truth based on my experience, studies, networking, and learning from others in the field.
- If you've heard me before…
- Remember that what we do as educators is not about me and it's not about you. It's about students.

Who are you?



Opening Discussion

- Who has been an educator for 20 years or more?
- What cycles in education, if any, have you noticed?
- What changes can you recall that have occurred in the last 5 years? 10 years? 15 years?
- What is about to be piloted in the two-year system that will have a direct impact on the skill level of students in your classroom?

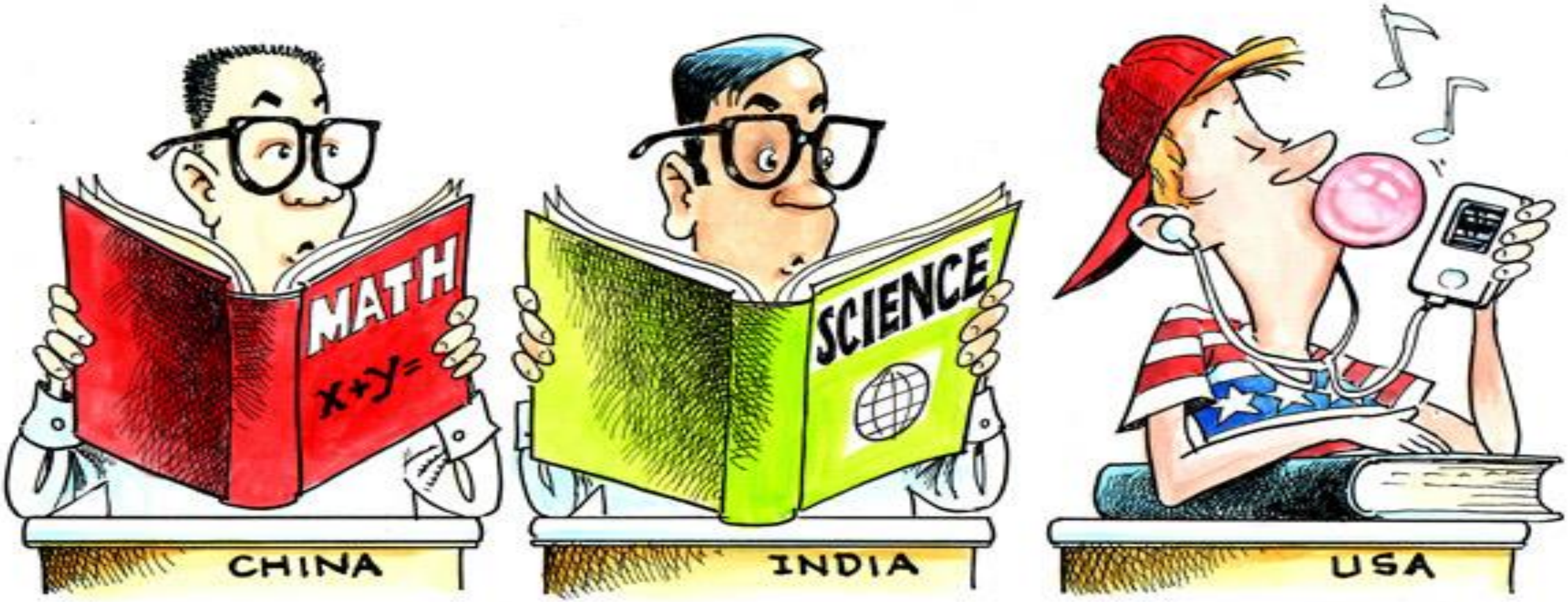
My Experience with Many of These Programs

- No practitioners at the table
- Data needs to be questioned
- Talk with people at the schools who are in the trenches of these programs

According to a 2016 report by CCCSE (Center for Community College Student Engagement)

- "While more than 80% of students believe they are academically prepared to succeed in college, 67% of students who report taking a placement test also report placing into at least one developmental education class. These data demonstrate the disconnect between students' expectations for college and the reality that many are not ready for college-level work."

Study habits...



What are we doing?

- Perhaps we are trying a little bit of everything, with nothing tracked long enough to see what works for certain populations/skill sets.
- We continually hop from one idea to another, or make major changes before things have traction so any comparisons are mute.

Sample Initiatives across the Nation

- Strong Start to Finish – mediated by ECS; funded by philanthropists
- Corequisite Models – many versions
- Dana Center Mathematics Pathways – UT Austin
- Completion by Design – Achieving the Dream; funded by Gates; ended in 2016
- Fifteen to Finish – Complete College America, AACC
- Guided Pathways – several versions
- CUNY Start – College University of New York
- ASAP – CUNY
- Carnegie Math Pathways: Quantway and Statway
- Game Changers – Complete College America

Momentum Pathways – CUNY; Complete College Georgia

A PRIME EXAMPLE

- November 2017
- AMATYC Conference
- Panel discussion
- Gathering information to prepare for 3rd Math Summit (co-sponsored by NADE and AMATYC) in November 2018 at AMATYC Conference

Questions Posed at Each Table

- Table discussions around pre-determined questions led by facilitators
- ≈ 90 people present
- Discussions recorded and analyzed

Questions Posed at Each Table

- What impacts have you seen on students after they have successfully completed developmental mathematics?
- What impacts have improvements to your developmental math programs had on students' college-level course outcomes?

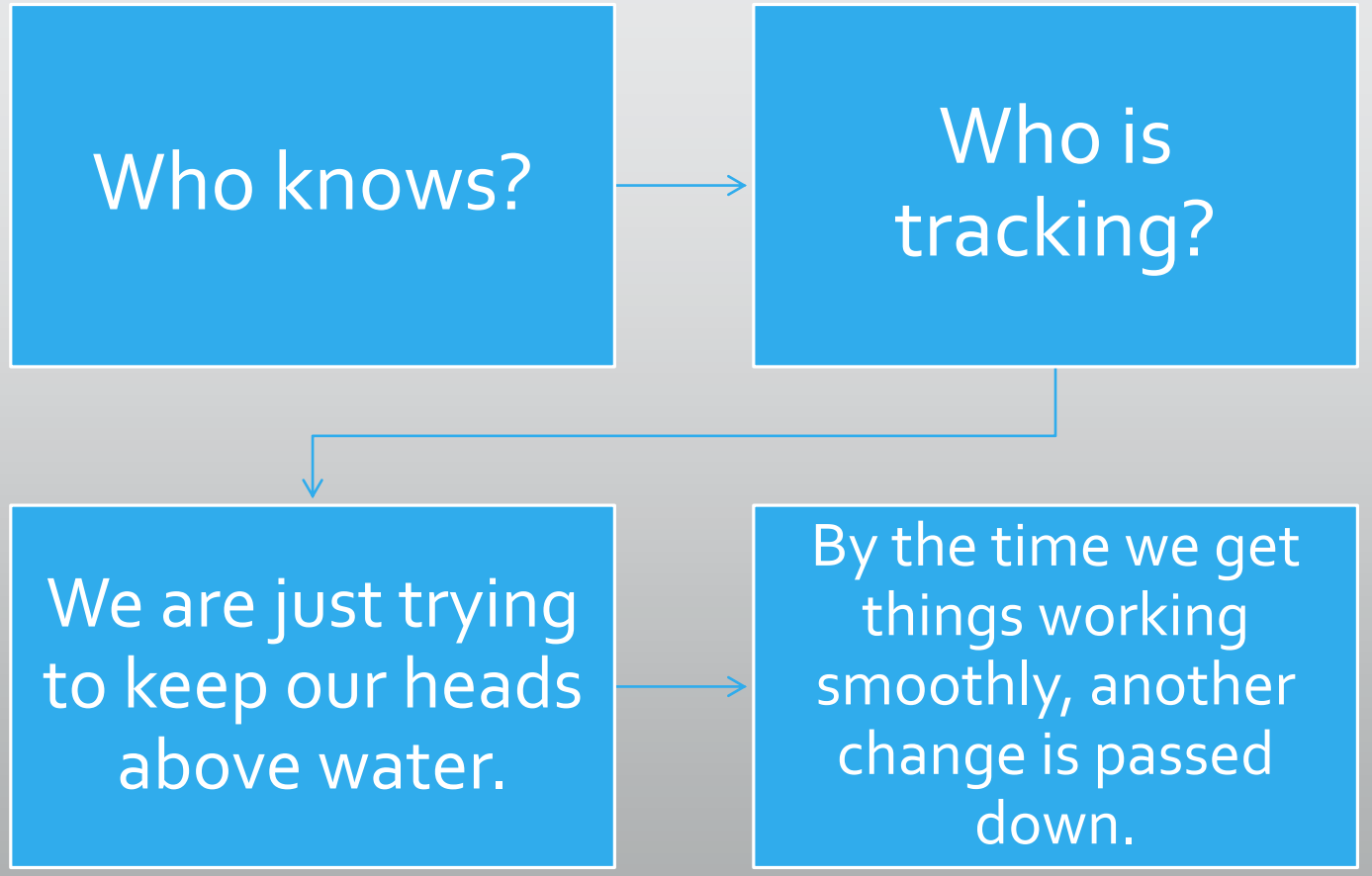
Questions Posed at Each Table

- How have students benefited the most and least from the redesigns?
- How can we help the students who benefited the least?

Questions Posed at Each Table

- How have you measured success in your redesigns?
- What are your areas of concern? What are the new trends that you are seeing in developmental education?

Recurring Theme in Answers



Answers and Comments from Participants

- Redesign Models
  - Accelerated Learning
  - Emporium/Modular
  - Pathways
    - STEM
    - Non-STEM
  - Co-requisite Models

Lack of Common Definitions

- Active Learning
- College Algebra
- Co-requisites
- Pathways
- Multiple Measures Placement
- Student Success course
- College Readiness Skills
- Quantitative Literacy/Reasoning
- Community Building
- Mathematical rigor
- Pass rates/ success rates

Modes of Delivery

- Alternate Delivery
- Hybrid
- Distance Learning
- Face to Face
- Online
- Computer Assisted instruction
  - ALEKS
  - MyMathLab

Redesign Variations

- Based upon the common core
- Change teaching methodology
  - Teaching conceptual/contextual/ procedural blend
- Co-requisite Models
  - Foundations of Math with Intermediate Algebra
  - Linking college level (registration) and developmental courses might make a positive impact on students making it to the college course
  - College Algebra with ?

Redesign Variations

- Place failing students in same classroom; did study skills, learning styles
- Mandating courses if/when grades drop
- Emporium/Modular
- Symposium – single course to prep for multiple pathways
- Pathways (Contextualized Learning)
  - STEM (algebra pathway)
  - Non-STEM (newly redesigned pre-algbra course
    - Statistics
    - Liberal Arts
    - Quantitative Literacy/Reasoning
  - Need a transition bridge back to the STEM

Redesign Variations

- Faster (condensed) path (Accelerated Learning)
  - Getting rid of multi-course developmental mathematics sequence/removing exit points
- Streamline Algebra courses… too much overlap
- Undoing procedural understanding only
- 8-week intensive not working for pre-algebra


WOW

Think about it

- In the midst of all the mandates, extra assignments, and extracurricular duties, how do we keep the main thing the main thing?
- We may even ask, “What IS the main thing?”

Teaching & Learning

C.S. Lewis said,

"No generation can bequeath to its successor what it has not got. You frame the syllabus as you please…If we are skeptical, we shall teach only skepticism to our students, if fools only folly, if vulgar, only vulgarity, if saints sanctity, if heroes heroism…It is equally certain that a man whose mind was formed in a period of cynicism and disillusion, cannot teach hope or fortitude."

As math instructors, we often…

Focus	Focus mostly on our content
Want	Want to prove we know what we are doing (especially as new teachers)
Believe	Believe students have the gift of math or they don't

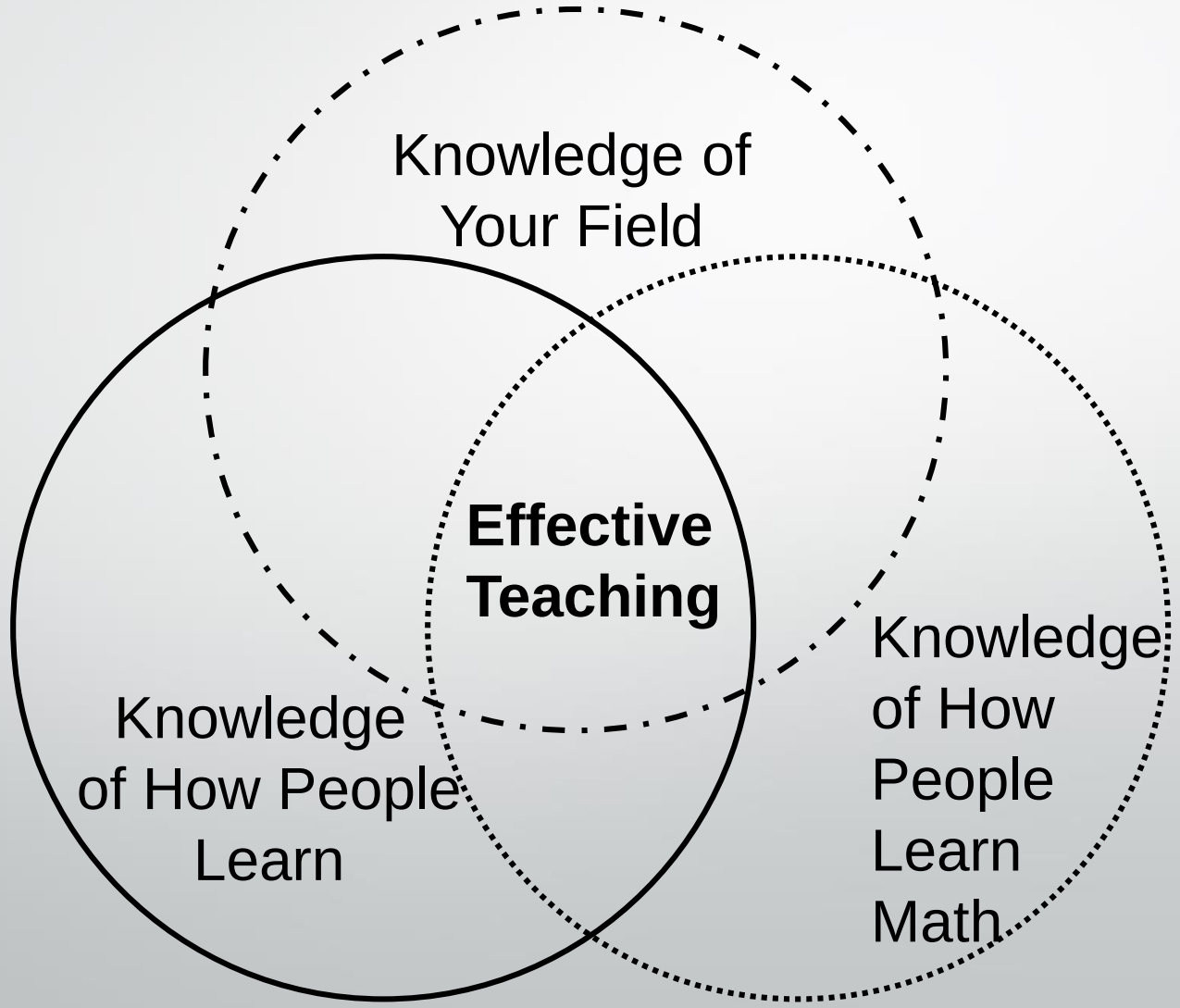
We may need to focus more on…

- How students learn in general
- How students learn math
- Non-cognitive factors that play a role in success

Dr. Stephen Chew, Samford University

- Department of Psychology
- Samford University
- Keynote Speaker at NADE 2018 last week

Three Kinds of Knowledge for Effective Teaching



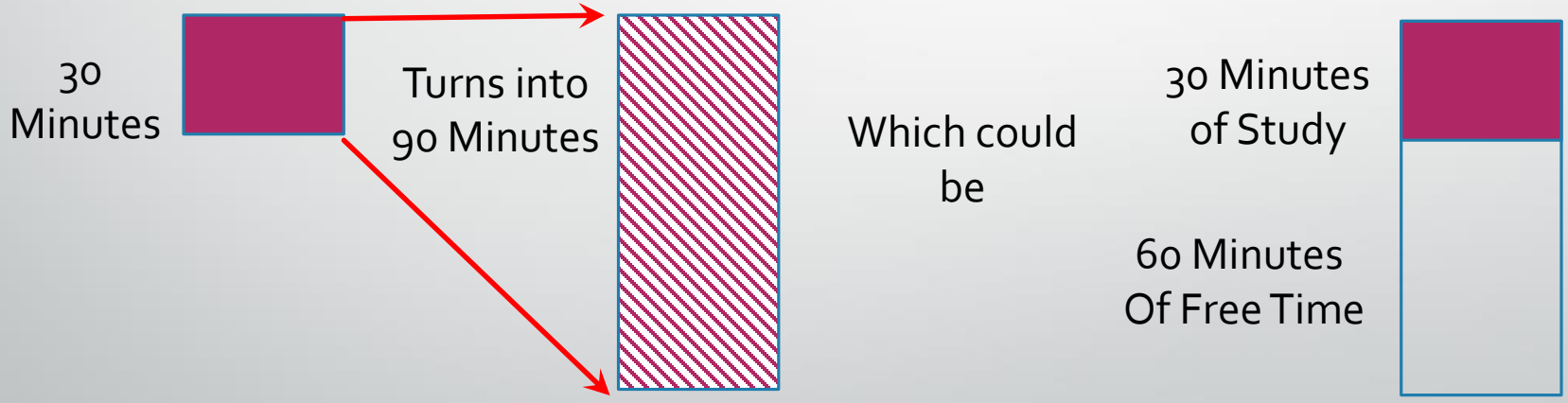
How People Learn

How do our students study?

The Arithmetic of Distracted Studying

Assuming Distracted Study takes three times longer than Focused Study to achieve the same level of learning

Focused Study Takes 30 Minutes	Distracted Study Takes 90 minutes	Focused Study gives you 60 Minutes (undistracted) free time



The Importance of *Undivided* Attention

- There is ***NO*** evidence that multi-tasking is as effective as concentrating on one task at a time
- Good study strategies are effortful, and require full concentration
- Even small distractions significantly reduce learning
- There is no such thing as a **momentary** distraction

The Cost of Distractions

Which of the following is the MOST important ingredient for successful learning?

1. The intention and desire to learn
2. Paying close attention to the material as you study
3. Learning in a way that matches your personal Learning Style
4. The time you spend studying
5. What you think about while studying

Read the instructions for the demonstration to yourselves and do your best to follow them.

Levels of Processing

- Shallow processing focuses on spelling, appearance and sound.
  - Rote memorization of facts
  - Flashcards with isolated facts
- Deep processing focuses on subjective meaning.
  - Relating new information to prior knowledge or other information
  - Making information personally meaningful

Rate each word

- Does the word contain an E or G?

Shallow processing: You are focusing on spelling.

- Do you find the word pleasant?

Deep processing: You are relating the words to your own meaningful experiences.

These are ***orienting tasks*** that cause you to think in deep or shallow ways, regardless of your intention.

Which of the following is the MOST important ingredient for successful learning?

1. The intention and desire to learn
2. Paying close attention to the material as you study
3. Learning in a way that matches your personal Learning Style?
4. The time you spend studying
5. What you think about while studying

Implications for Learning

- Learning strategy has a huge impact on learning.
- Intention and motivation to learn are not sufficient.
  - Good intentions cannot overcome bad study strategies.
- Attention and amount of study is necessary, but not sufficient.

Implications for Teachers

- Pedagogy and teaching skill influence learning greatly (for better or worse).
- Consider pedagogy in terms of orienting tasks and level of processing.
- **Teach students learning skills as well as content.**

Achieving Deep Processing while Studying

As you study, follow these principles:

- **Elaboration**: How does this concept relate to other concepts?
- **Distinctiveness**: How is this concept different from other concepts?
- **Personal**: How can I relate this information to my personal experience?
- **Appropriate to Retrieval and Application**: How am I expected to use or apply this concept?

We must…

- Share this with our students!
- Most have never thought much about how they learn and how they study.

The Curse of Expertise
(aka Curse of Knowledge)

- The more one knows about a topic, the harder it becomes to remember not knowing a topic and the effort required to learn that topic
- Experts are overconfident in their ability to explain concepts (Fisher & Keil, 2015)
- Experts are poor at estimating the time and difficulty for novices to learn a concept (Hinds, 1999)

An Effective Teacher

- Must monitor, manage, and manipulate multiple, conflicting factors, many of which are outside the teacher's control, to achieve desired learning goals
- Must be knowledgeable about multiple teaching methods and make adjustments during teaching.

What is the Primary Goal of Teaching?

Information-Driven Perspective:
Transmitting information that students are responsible for learning

Learning-Driven Perspective:

To develop a deep and connected understanding on the part of students

Cognitive Principles of Effective Teaching

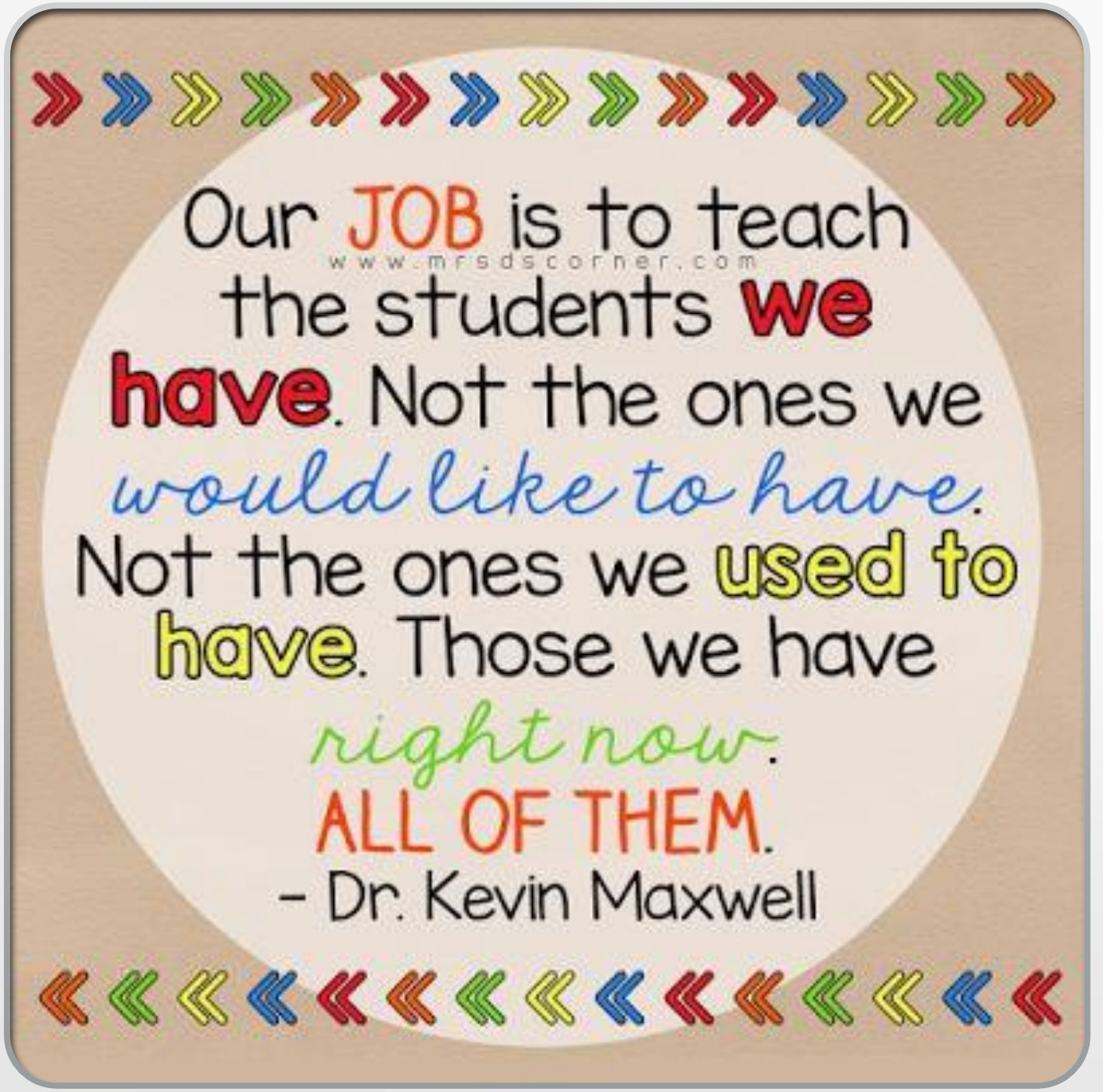
Playlist: http://bit.ly/1LDovLp

Everybody, each one of us, has…

In a world of reforms and top-down initiatives,

I encourage you to work to

keep the main thing the main thing.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have. Not the ones we
would like to have.
Not the ones we used to
have. Those we have
right now.
ALL OF THEM.
- Dr. Kevin Maxwell