Teaching for PROWESS: IMPACTing Active Learning on STEM Pathways
This material is based upon work supported by the National Science Foundation under Grants No. 2012962, 2013232, 2013493, 2013550.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
Teaching for Prowess

• Collaborating Partners
  • AMATYC (Lead)
  • Oregon State University
  • Chandler-Gilbert CC
  • Clackamas CC
  • RMC Research (External Evaluator)

• College IMPACT Teams
  • Phase 1: Chandler-Gilbert CC & Clackamas CC
  • Phase 2: [coming soon]
What do you notice/wonder?
Hmmm...

• The $100,000 bar was created in 1964. What would it be called today?

• Create a function formula to represent the “value” of the $100,000 bar over the time period 1964-2021.
Facts

• 3.81% annual inflation 1964-2021
• The value of $1 in 1964 has increased by about $0.13 per year over 1964-2021.
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Year 1 Professional Development

• Transition to online learning environment
• Summer Calculus Camp
• Active Learning Strategies
  • Desmos and Geogebra
  • Discussion Questions
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Year 2 Professional Development

• In person again!
• Math Camp - Summer and Saturdays
• Active Learning Strategies
  • Building Thinking Classrooms
  • Orchestrating Classroom Discourse
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Collaborative Community of Learners (CCOL)
- Small groups (up to 6)
- Book study
  - Mathematics for Human Flourishing (Francis Su)
  - Building Thinking Classrooms (P. Liljedahl)
  - Idea Sharing
  - Desmos Activity Development
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Major Takeaways

• Sustainable sharing of professional work
• Sustainable collaboration through CCOLs
• Encourage and support Active Learning
Clackamas CC
Transferable Skills in STEM

Before reviewing and revising our Calculus curriculum, we asked a group of science faculty at our college:

*What mathematics do you see students struggling with in your classes?*
Transferable Skills in STEM

Here are two quotes that highlight the type of responses we got:

- “They have the math language but have a hard time with applying it.”
- “Being able to see a mathematical operation, anticipate the type of answer you would get, and then consider it when you look at your calculated answer.”
Transferable Skills in STEM

- “They have the math language but have a hard time with applying it.”
- “Being able to see a mathematical operation, anticipate the type of answer you would get, and then consider it when you look at your calculated answer.”

Spend 5 minutes discussing at your table what you might do with one or the other of this information. What could you do in your courses to help students with these skills?
Instructor Collaboration

What was meaningful about the discussion you just had?
If you had these conversations regularly in your department, what would happen?
Impacting the Culture of Teaching

We often say that mathematics classes should provide an intellectual need for students to learn the mathematics.

Similarly, we want to provide instructors with a professional need to change their classrooms.
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Support from the grant project

• Professional development workshops
• Learning from and with other colleges
• Support from researchers
• Collaboration and support from experts
• Accountability and flexibility
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This helped us accomplish:

- Increased collaboration within department
  - Faculty Inquiry Groups (FIGs)
  - “Brown Bag” Sharing Sessions
  - Active Learning Support

- Work products
  - New types of activities for engaging students
  - Instructor Guides
  - Capstone Projects
  - Multiple sources for assessment
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Goals for second half of project

• Get all of our faculty involved
• Continue to develop shared values around active learning
• Consistency of expectations across math courses, including pre-100 level
• Sustainability
Get Involved!

- Increase student success through active learning!
- $150K over 3 years (July 2022 - July 2025)
- RFP info...go to teachingforprowess.wordpress.com
- Request for Proposals: Due April 15th, 2022
Contact Information: tfpleadership@amatyc.org