

Departmental Change Initiative

Transition from Lecture to Active Learning in Statistics

Carrie Lineberry Ritter

Friday | Feb. 10, 2023
Clarkston Campus

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



What is a Thinking Classroom?

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



Teaching For PROWESS (TfP)



- **Teaching for Prowess (TfP): Increasing Student Success in Community College Mathematics through Active Learning and Systemic Instructional Change**
- **PR**oficiency, **OW**nership, **E**ngagement, **S**tudent **S**uccess
- Randolph Community College (RCC) is one of 6 Phase 2 schools to join the TfP Project Team.
- RCC is in Asheboro, NC

36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



Teaching For PROWESS (TfP)



36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Phase 1 Colleges

- Chandler-Gilbert Community College (Maricopa CCD)
- Clackamas Community College
- Oregon State University

Phase 2 Colleges

- Indian River State College – Fort Pierce, FL
- Kellogg Community College – Battle Creek, MI
- Manchester Community College – Manchester, CT
- Pima County Community College District, Tucson, AZ
- Randolph Community College – Asheboro, NC
- St. Louis Community College – St. Louis, MO

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



Teaching For PROWESS (TfP)



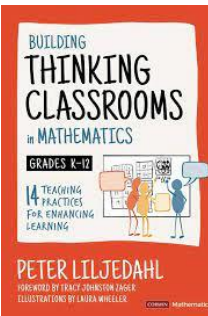
- This project aims to serve the national need for community colleges to play a significant role in supporting students' pathways to college-level mathematics courses. Teaching mathematics in the 21st century brings new opportunities and challenges to creating this pathway for the mathematics community, especially in the first two years of college.
- <https://teachingforprowess.com/>

36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Building Thinking Classrooms



14 Teaching Practices for Enhancing Learning

1. What types of tasks we use
2. How we form collaborative groups
3. Where students work
4. How we arrange the furniture
5. How we answer questions
6. When, where, and how tasks are given
7. What homework looks like
8. How we foster student autonomy
9. How we use hints & extensions
10. How we consolidate a lesson
11. How students take notes
12. How we choose to evaluate
13. How we use formative assessment
14. How we grade

Practices based on research of Dr. Peter Liljedahl and published in a book of the same name

The 14 practices are implemented in phases until eventually all practices are the norm for teaching the subject

Building Thinking Classrooms – Implementation, First Phase

Practices

- Give thinking tasks
- Frequently form visibly random groups
- Use vertical non-permanent surfaces

RCC Students & Instructors (behaviors)

- Change the student paradigm
 - Quickly demonstrate the class (by day & semester) is not conducted in the old manner
 - Instructors need to develop detailed plans for thinking activities and relate those activities to curriculum requirements
- Shock the system (their system)
 - Groups (randomly always changing)
 - Engagement, no lurking or apathetic behaviors
- NPVS (Non-Permanent Vertical Writing Surfaces)
 - Facilities adjustments are required
Room MS-106 being refitted

Building Thinking Classrooms – Implementation, Second Phase

Practices

- De-front the classroom
- Answer only ‘keep thinking’ questions
- Give thinking task early, standing, and verbally
- Give check your understanding questions
- Mobilize knowledge

RCC Students & Instructors (teaching practices)

- Change the student paradigm
 - Lecture / Topic content delivered outside of in-person classroom meeting time [de-front the classroom]
 - Encourage student autonomy
Thinking versus imitation
 - Encourage collective doing and knowing
Stronger students can help weaker students to improve their understanding

Building Thinking Classrooms – Implementation, Third Phase

Practices

RCC Students & Instructors (create a flow)

- Asynchronously use hints and extensions to maintain flow
- Consolidate from the bottom
- Have students write meaningful notes
- Engage students
 - Continually increase the challenge to students, being respectful of their ability. Avoid boredom while preventing frustration
- Big Idea – Low Floor / High Ceiling
- Increased challenge
 - Doing
 - Justifying (prove to themselves they are correct)
 - Explaining (ex. Group A explains to Group B)
 - Teaching (ex. Group A teaches Group B)
 - Creating (what's the new task or discovery to be found)
- Meaningful notes

Building Thinking Classrooms – Implementation, Fourth Phase

Practices

- Evaluate what you value
- Help students see where they are and where they are going
- Grade based on data (not points)

RCC Students & Instructors (assessment)

- Formative assessment
 - Basic, Intermediate, Advanced
 - Students demonstrate individually their skill level
 - Instructor communicates the observed level of skill
- Outcome based assessment – triangulation
 - Shift student focus from grades to achieved learning
 - Triangulation of various pieces of data
 - Example – tailored exams: questions are labelled as being “basic”, “intermediate”, “advanced”
 - Example – no final exam if student has demonstrated advanced skill and knowledge

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



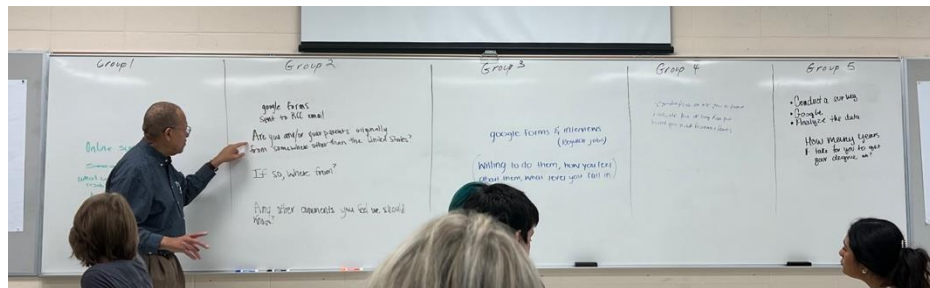
36th Annual Mathematics Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Struggles

- Active learning classrooms



BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Struggles Continued

- Technology
- Common Resources

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Successes

- Collaboration
- Group Work
- Student Achievement
- Student Mindset

BACK TO THE FUTURE

FACE-TO-FACE
AND BEYOND



36th Annual **Mathematics** Conference
Georgia State University, Perimeter College

Friday | Feb. 10, 2023
Clarkston Campus



Any Questions??

- Thanks for your time!
- Carrie Lineberry Ritter
- clitter@randolph.edu
- <https://teachingforprowess.com/>



Learn about TfP!