

# Concurrent Math Support in an AB 705 World



## **FLEX DAY Fall 2019**

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# Description of Session

In response to AB 705, the Math Department collaboratively developed interactive, student-centered support, designed to help students succeed in their transfer-level math class. Students each week engage in **holistic learning** activities, using innovative strategies to develop mastery of the math and of essential learning and soft skills. Each week they complete work in the following three types of learning activities: **Targeted Math Support**, **Successful Learning Strategies** and **Monitor Your Own Learning**. We have learned A LOT and are continuing to do so. Many of the things we developed **can be used in any discipline** and we will use this hour to reflect on where we are and continue to process **where we hope to go**.

# Agenda

- From a Student's Perspective
  - Debrief
- Overview of our Concurrent Support
  - Targeted Math Support
  - Successful Learning Activities
  - Monitor Your Learning Activities
    - Linked to soft skills and lifelong learning skills
- Where are we now?!
  - Success, challenges, and changes

# From a Student's Perspective

Engaging in a problem-solving collaborative study group.



# From a Student's Perspective

Quick write!

Reflect back on the collaborative problem-solving activity and answer the problem at the bottom of your paper.



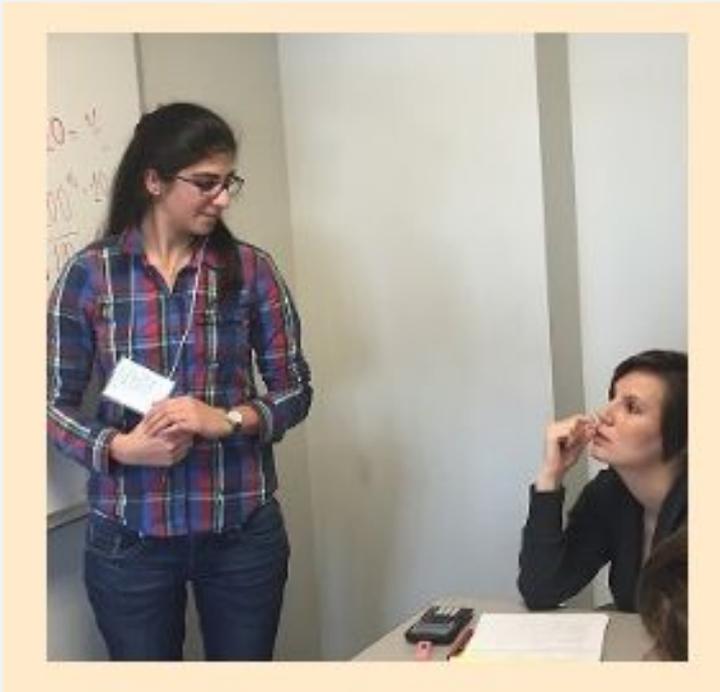
# Overview of Concurrent Support

This is a holistic learning support class!  
It is more than drop-in, homework help.

# Overview of Program

- Support can be taken for noncredit (tuition-free) or for credit (1 lab unit).
- Class meets for 3 hours each week.
- All materials are FREE.
- Pass or No Pass grade.
- Enrollment in the support is optional (more later!).
  
- Currently, each week students engage in:
  - Targeted Math Support
  - Successful Learning Strategies
  - Monitor Your Learning Activities

# Targeted Math Support



We have identified key math topics for each section of each course that are foundational and essential (just in time) for mastery of the concepts.

~ 45 minutes each week

# Successful Learning Activities



Students learn strategies to streamline and improve their performance in any class.

Activities will include exploration of topics essential to successful learning to develop as a learner in a holistic way.

~ 45 minutes each week

# Successful Learning Activities

Activities include:

- Note Taking Skills
- Reading Apprenticeship - Reading with Understanding
- Brain Research - How your Brain Grows and Growth Mindset
- Time Management
- Study Skills - 10 essential tips
- Quiz and Test Preparation - research and theory
- Learning from Mistakes
- Anxiety - strategies to minimize effects.

# Successful Learning Activities

 <p><b>1. Persisting</b> <i>Stick to it!</i> Persevering in task through to completion; remaining focused. Looking for ways to reach your goal when stuck. Not giving up.</p>	 <p><b>2. Managing Impulsivity</b> <i>Take your time!</i> Thinking before acting; remaining calm, thoughtful and deliberative.</p>	 <p><b>3. Listening with understanding and empathy</b> <i>Understand others!</i> Devoting mental energy to another person's thoughts and ideas; Make an effort to perceive another's point of view and emotions.</p>	 <p><b>4. Thinking flexibly</b> <i>Look at it another way!</i> Being able to change perspectives, generate alternatives, consider options.</p>
 <p><b>5. Thinking about your thinking</b> <i>(Metacognition)</i> <i>Know your knowing!</i> Being aware of your own thoughts, strategies, feelings and actions and their effects on others.</p>	 <p><b>6. Striving for accuracy</b> <i>Check it again!</i> Always doing your best. Setting high standards. Checking and finding ways to improve constantly.</p>	 <p><b>7. Questioning and problem posing</b> <i>How do you know?</i> Having a questioning attitude; knowing what data are needed &amp; developing questioning strategies to produce those data. Finding problems to solve.</p>	 <p><b>8. Applying past knowledge to new situations</b> <i>Use what you learn!</i> Accessing prior knowledge; transferring knowledge beyond the situation in which it was learned.</p>
 <p><b>9. Thinking &amp; communicating with clarity and precision</b> <i>Be clear!</i> Strive for accurate communication in both written and oral form; avoiding over-generalizations, distortions, deletions and exaggerations.</p>	 <p><b>10. Gather data through all senses</b> <i>Use your natural pathways!</i> Pay attention to the world around you Gather data through all the senses. taste, touch, smell, hearing and sight.</p>	 <p><b>11. Creating, imagining, and innovating</b> <i>Try a different way!</i> Generating new and novel ideas, fluency, originality</p>	 <p><b>12. Responding with wonderment and awe</b> <i>Have fun figuring it out!</i> Finding the world awesome, mysterious and being intrigued with phenomena and beauty.</p>
 <p><b>13. Taking responsible risks</b> <i>Venture out!</i> Being adventuresome; living on the edge of one's competence. Try new things constantly.</p>	 <p><b>14. Finding humor</b> <i>Laugh a little!</i> Finding the whimsical, incongruous and unexpected. Being able to laugh at one's self.</p>	 <p><b>15. Thinking interdependently</b> <i>Work together!</i> Being able to work in and learn from others in reciprocal situations. Team work.</p>	 <p><b>16. Remaining open to continuous learning</b> <i>Learn from experiences!</i> Having humility and pride when admitting we don't know; resisting complacency.</p>

Tied to “soft skills” or “habits of mind” that we want students to develop as they learn the math, skills desired in the workforce and in social situations.

# Successful Learning Activities

Learning from your Mistakes - Research shows making mistakes is essential to learning!

What happens in our brains when we make mistakes?

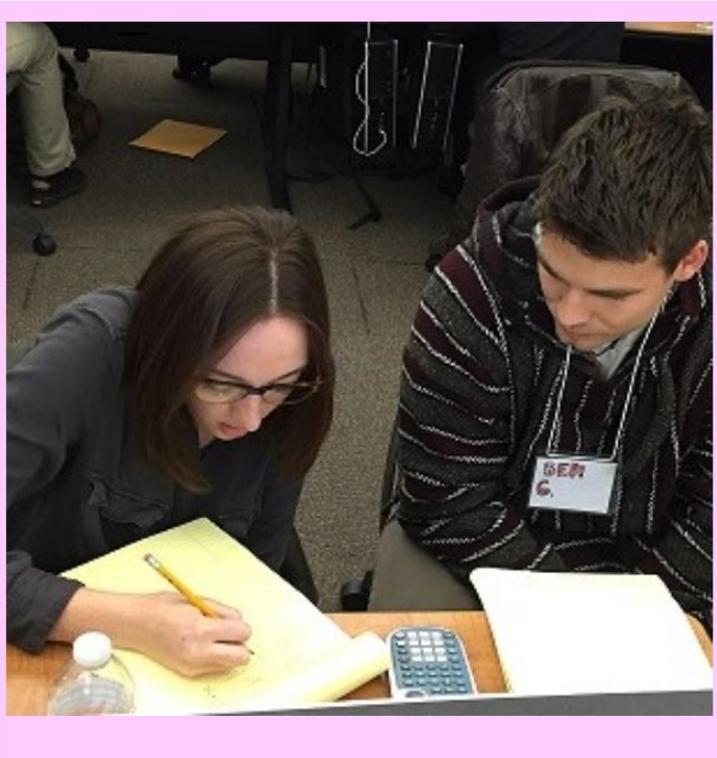
Soft Skill targeted: Remaining open to continuous learning

I have so much more to learn! Having humility and pride when admitting we don't know; resisting complacency.

Successful Learning Activities are the *theory and research*.

“Monitor Your Learning” activities is the *applying* of the strategies!

# Monitor Your Learning Activities



Students regularly *incorporate* growth mindset practices in their studies by reflecting with their peers on key topics learned each week in their math course.

Using the theory from the successful learning activities, Monitor Your Learning activities will support students in *applying* these in a productive way.

~1.5 hours each week

# Monitor Your Learning Activities

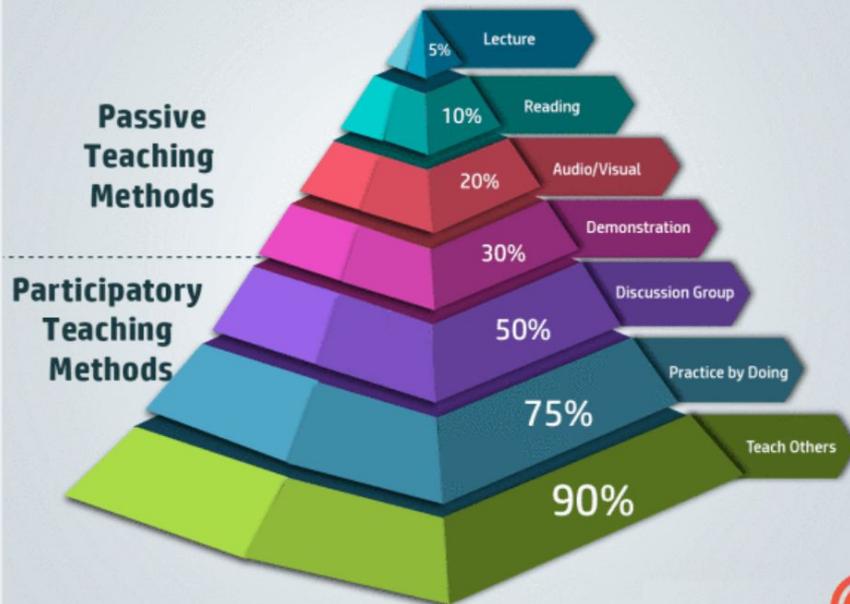
Activities include:

- **Active & Collaborative Learning**
    - Group Study Session
    - Workshop
  - Study Productively
    - Focused Note Taking Part 1
    - Focused Note Taking Part 2
    - Mistakes are just First Takes
  - Test and Quiz Preparation
    - Complete Practice Test, Create Practice Test, Create Cheat Sheet, etc
- Collaborative Activities!**

# Active & Collaborative Learning

## THE LEARNING PYRAMID

### KNOWLEDGE RETENTION RATES



Adapted from National Training Laboratories, Maine



Brain Research has taught us A LOT about what we need to do to be successful learners.

The **Curve for Forgetting** tells us we need to review what we just learned within 24 hours and again after week etc in order to retain the information.

The **Learning Pyramid** tells us that we need to engage in **Active Learning** in order to fire those neurons and create strong understanding of the material.

**Collaborative Study groups** will help facilitate those key **Active Learning** activities that will allow you to **retain** what you are learning::

- **Discussion groups** retain 50%
- **Practice by Doing** in the group study sessions and you will retain 75%
- **Teach Others** in the group study session and you will retain 90%

## Theory behind these active and collaborative learning activities

# Active & Collaborative Learning

	Before	During	After
Steps to Complete when engaging in a Workshop	<p>Identify a workshop that features a key concept that you would like to work on.</p> <p>1. The instructor will provide you with a worksheet.</p>	<p>Using using the <a href="#">prompts and types of questions</a>  on your table and some instruction or facilitation from your instructor or a tutor, collaboratively work through the worksheet.</p> <p>2. Collaborate with other students who want to work on that same concept and complete the worksheet.</p>	<p>Ask your instructor for an answer key. Correct any mistakes and analyze the type of errors made to ensure you have mastered the concepts.</p> <p>3. Turn in your worksheet to your instructor for grading.</p>
Steps to Complete when engaging in a Study Group	<p>Prepare to participate in the study session by completing this form:</p> <p>1. <a href="#">Form PRIOR Collaborative Learning Study Session.pdf</a> </p>	<p>Collaborate with other students studying similar concepts to develop and deepen understanding using the <a href="#">prompts and types of questions</a>  on your table.</p> <p>2. <a href="#">Form DURING Collaborative Learning Study Session.pdf</a> </p>	<p>Apply your learning to enhance your classroom performance.</p> <p>3. Turn in your both forms to your instructor for grading.</p>

**Participants can engage in Workshops or Collaborative Study Groups. Orientation specifically CSGs and workshops provided!**

# Active & Collaborative Learning

## Collaborative Learning Study Session Questions for Effective Dialogue (Socratic Dialogue)

### Questions for Clarification

- What do you mean by...?
- What is the main point of the problem...? What type of problem is it?
- How does this \_\_\_\_\_ relate to \_\_\_\_\_?
- Could you put it another way?
- Could you give me an example?
- Could you explain this further?

### Questions that Probe Assumptions

- What are we assuming?
- Can we do this step without changing the problem or value?
- Can we do this step instead?
- Why have you based your reasoning on \_\_\_\_\_ rather than \_\_\_\_\_?
- This is always the case? Why do you think the assumption holds here?

### Questions about the Question

- What do we need to solve this problem?
- What kind of information do we already know? What information do we need to p
- Do we have a strategy to solve this problem?

As students participate in a CSG, they are encouraged to use “Questions for Effective Dialogue”, provided on their tables.

# Overview of MYLs

## Monitor Your Learning Activities, MYLs

- Active & Collaborative Learning
  - Group Study Session
  - Workshop
- Study Productively
  - Focused Note Taking Part 1
  - Focused Note Taking Part 2
  - Mistakes are just First Takes
- Test and Quiz Preparation
  - Complete Practice Test, Create Practice Test, Create Cheat Sheet, etc

**Independent  
or can be  
Collaborative!**

# Study Productively

## 5-Step Learning Process

Step 3: Write Questions  
Key Ideas  
Study-Guide Style

Questions  
Key Ideas to prompt you for studying

Within  
24  
hours



Step 1: Take Notes

Lecture  
Textbook  
Homework Problems  
Practice Problems  
Study Group Discussions  
Vocabulary Lists

Step 2: Review Notes

Check for errors  
Add information  
Check with peers

Within  
24  
hours

Step 4: Write a Content Summary

Within  
1  
week

Step 5: Study

Within  
1  
month

## Focused Note Taking Part 1

- Students *process* their notes from class

## Focused Note Taking Part II

- Students will *connect* and *summarize*, *apply* their notes

# Where are we now?!



Success, challenges,  
and changes.

# Success, Challenges, Changes

- Course content will be streamlined and expectations more flexible starting in the Spring.
- We are surveying all of our students to find what is working well and what can be improved.
- Request all math faculty include information about C in their syllabi and refer the support to students.

# AB 705 World

The research has shown that students who start at a transfer-level course are more likely to complete transfer-level mathematics than those who start even one level below, regardless of their previous preparation.

This means a couple of things.

# AB 705 World

First: some students will not pass the first semester, but if we encourage them to persist and to take advantage of supports in the spring, they have a greater chance of success.

This necessitates the need for professional development.

# AB 705 World

Second: many of the students struggling in transfer-level classes now would be unlikely to succeed anyway if they started at math levels below with up to three semesters of mathematics in front of them (according to RP Group data).

**So the aim of AB 705 is to maximize the probability that students make it through transfer-level mathematics and to close currently existing equity gaps.**

# Proposed SCFF Project

Persistence is a major issue among Las Positas students struggling in their math classes.

In 2017-2018, 65.4% of LPC students who either withdrew from or failed their math class did not take a math class at LPC the following semester.

To make matters worse, in 2017-2018, 29.8% of students who either withdrew from or failed their math class did not return to LPC period the following semester.

We expect retention to become an even larger issue this year as we implement AB 705.

# Proposed SCFF Project

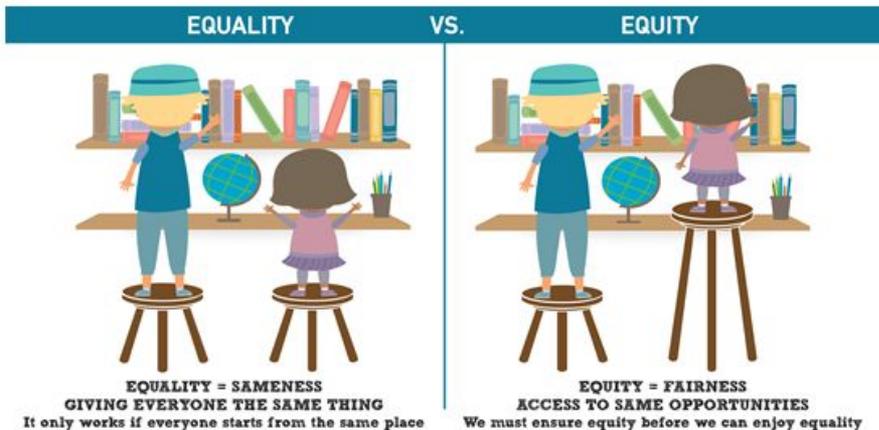
In collaboration with Tutorial, would like to address this issue in two ways:

- a community of practice for math faculty teaching 1st transfer level classes
- call/email campaign targeting students who may have decided not to re-enroll.

Research at other colleges has shown an improvement in retention through a campaign like this; for example, at Pierpont Community and Technical College, the re-enrollment rate grew by 23%.

# Concurrent Support

## Equality vs Equity



As a department we are struggling with keeping the **support optional or required**, and if required than by what measures.

We believe this **decision should be made as a campus**. We hope you join the conversation.

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## **FLEX DAY Fall 2019**

Success, Challenges and Changes can be most effective through community collaboration!

**THANK YOU!!**