

Dana Center
Mathematics
PATHWAYS

*How do faculty adjust “just-in-time”
to meet the needs of the students?*

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Session Outcomes

Participants will:

- Explore the difference between formative and summative assessments
- Collaborate with peers to practice and share learning assessment techniques used in the classroom
- Discuss ways to adjust teaching and learning based on results

Types of Assessment

- Formative assessment
- Summative assessment

What's the difference?

What is Summative Assessment?

“The goal of summative assessment is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.

Summative assessments are often high stakes, which means that they have a high point value.

Examples of summative assessments include...a midterm exam.”

~Carnegie Mellon University, Eberly Center

What is Formative Assessment?

Formative assessment is...

“...a planned process in which assessment-elicited evidence of students’ status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their learning tactics.”

W. James Popham, *Transformative Assessment*,
ASCD, 2008, page 6

Formative assessment depends on collecting data and on taking action based on the data collected.

Breakout #1

Choose a reporter and a timekeeper

In your breakout, discuss:

What types of formative or summative assessment techniques do you use in your class?



Share-out #1

Reporters:

What types of assessment techniques were discussed?

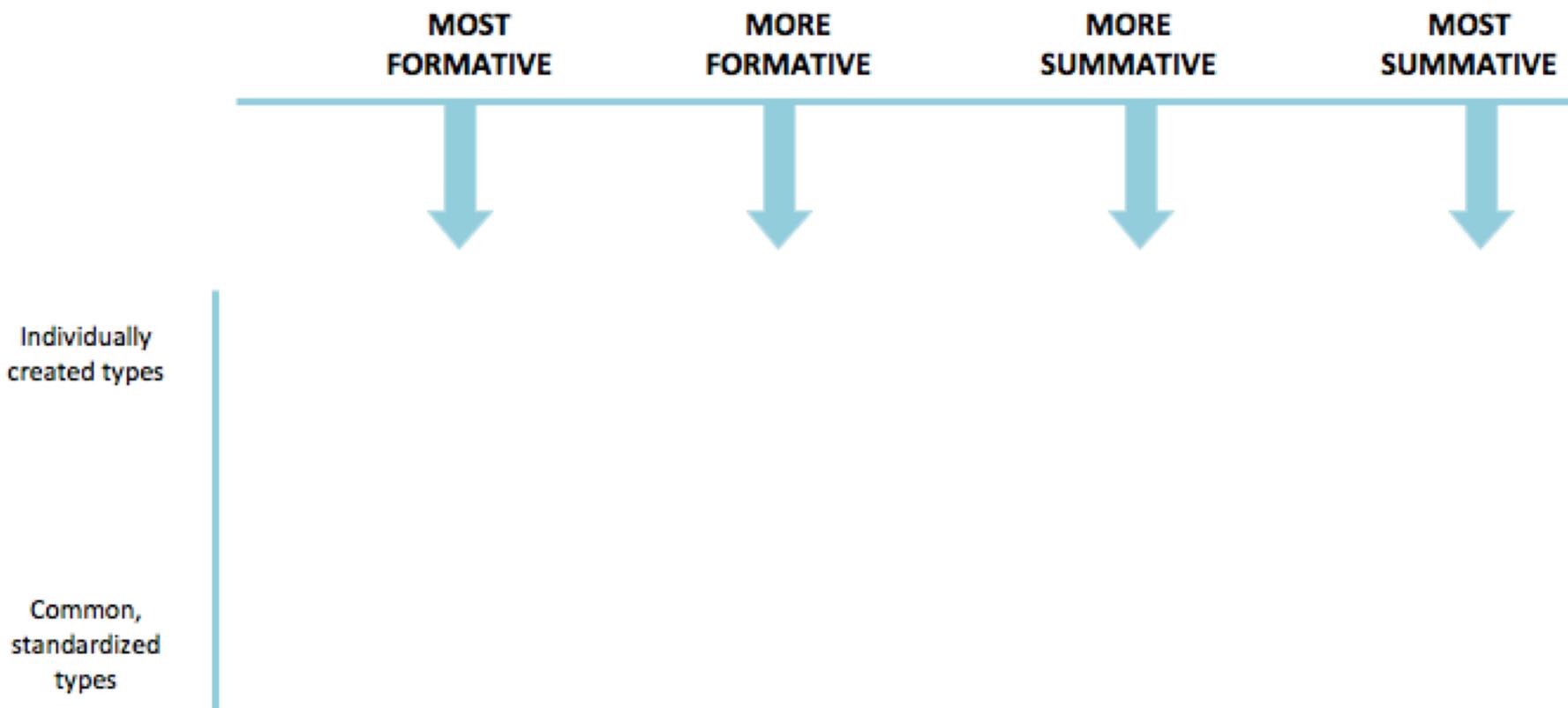
Other participants:

If there are other types of assessment techniques that have not been shared, please share them in the chat box.



The assessment continuum

Where do typical assessments fall on the continuum?



The faculty's role in formative assessment

To tap the full potential of formative assessments, faculty must:

- *Clarify and share learning intentions and criteria for success with students.*
- *Engineer effective classroom discussions, questions, and learning tasks.*
- *Provide feedback that moves learners forward.*
- *Activate students as owners of their own learning.*
- *Encourage students to be instructional resources for one another.*

D. William, "Changing Classroom Practice"

A Look at Research

We use the general term *assessment* to refer to all those activities undertaken by teachers—and by their students in assessing themselves—that provide information to be used as feedback to modify teaching and learning activities. Such assessment becomes formative assessment when the evidence is actually used to **adapt the teaching to meet student needs**.

Black and Wiliam (1998). Inside the Black Box.
Phi Delta Kappan, 2, 139-144.

Assessment Sequence

- **Pre-Assessment**
- **Participatory Learning**
- **Post-Assessment**
- **Closing**

Pre-Assessment

Instructor finds out...

- what do learners already know?
- Do I need to adjust the depth and pace of learning?
- What are my students interested in?
- Which students could act as resources in the class?

Learners...

- Recall prior knowledge
- Gain confidence by reviewing prior knowledge
- Assess own strengths and areas for improvement

Breakout #2

Choose a reporter and a timekeeper

In your breakout, discuss:

What types of pre-assessment techniques do you use in your class?



Share-out #2

Reporters:

What types of pre-assessment techniques were discussed?

Other participants:

If there are other types of pre-assessment techniques that have not been shared, please share them in the chat box.



Assessment Sequence

- **Pre-Assessment**
- **Participatory Learning**
- **Post-Assessment**
- **Closing**

Chat-box #1

In the chat box, type the answer to this question:

*What does the phrase **participatory learning** mean to you?*



Participatory Learning

Instructor...

- Makes learning outcomes explicit to the class
- Carefully plans a learning activity that allows students to engage with the learning outcomes
- Communicates expectations early
- Plans level and type of instructor facilitation to maximize student learning

Learners...

- Are actively involved in achieving the outcomes of the lesson
- Improve understanding and deepen learning by connecting with, testing, exploring, and mentally manipulating ideas
- Metacognitively assesses understanding of the outcomes

Assessment Sequence

- **Pre-Assessment**
- **Participatory Learning**
- **Post-Assessment**
- **Closing**

Post-Assessment

Instructor determines...

- What did the learners learn?
- Were the desired outcomes accomplished?
- Are there any gaps in understanding?
- What resources do students need?

Learners find out...

- Am I getting it?
- What do I need to work on?
- What are my strategies for working on it?

Breakout #3

Choose a reporter and a timekeeper

In your breakout, discuss:

How much feedback are you able to give to students in class and at what point? How do you ensure that this feedback is useful for and used by students?



Share-out #3

Reporters:

What types of feedback do people give? How do they ensure it is valuable for students?

Other participants:

If there are other types of feedback or strategies for making feedback useful that have not been shared, please share them in the chat box.



Assessment Sequence

- **Pre-Assessment**
- **Participatory Learning**
- **Post-Assessment**
- **Closing**

Breakout #4

Choose a reporter and a timekeeper

In your breakout, discuss:

How do you adjust teaching and learning based on results of formative assessments?



Share-out #4

Reporters:

How do you adjust teaching and learning based on results of formative assessments?

Other participants:

If there are other adjustments to teaching and learning that have not been shared, please share them in the chat box.



Closing

“Close the lesson. *Develop a culminating activity (or several) that brings closure to the class. Tie the lesson together with a review of the learning outcomes, and remind them of what it was that they were supposed to learn as a result of your teaching...A closing activity also gives the instructor an opportunity to describe what will come next for the students and what will be expected from them.”*

~Carnegie Mellon University, Eberly Center

Teaching, Learning, and Assessment Strategies for Math/QR Courses



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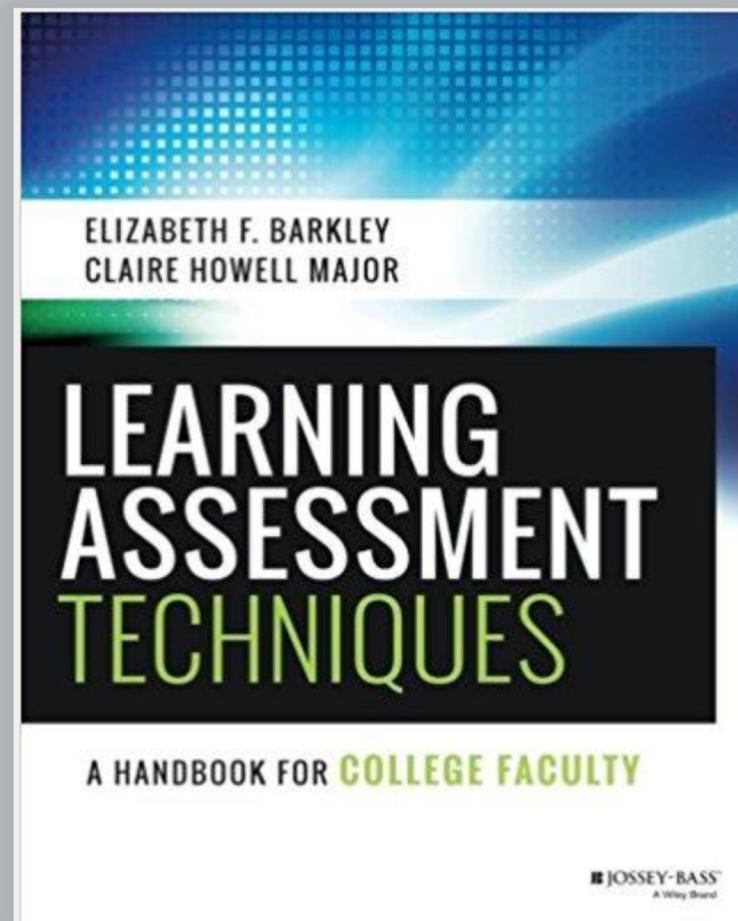
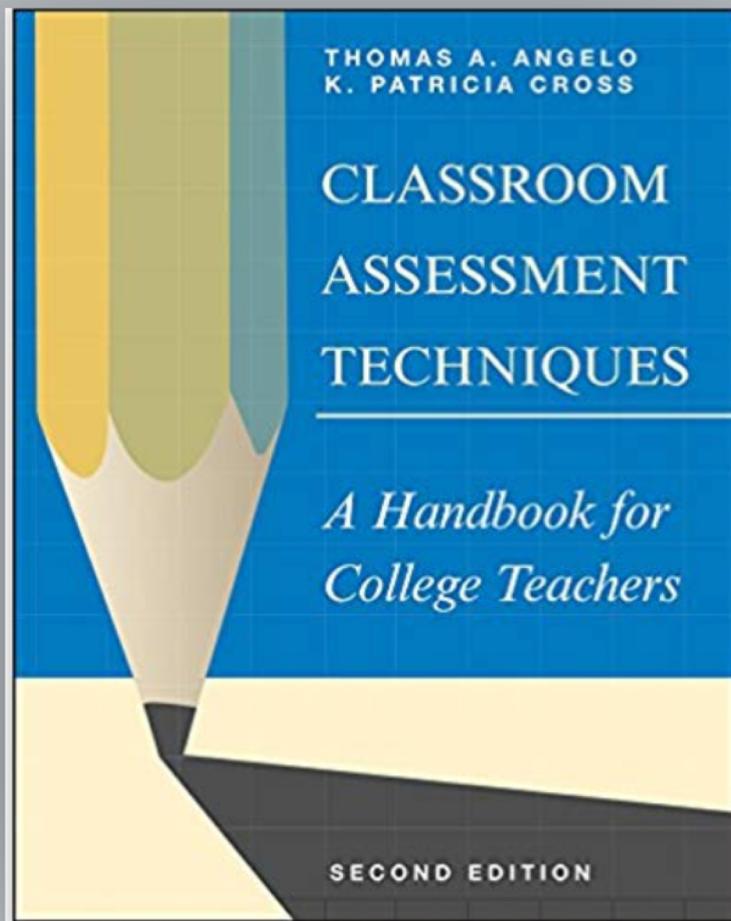
Alison Lynch

Assistant Professor, Mathematics & Statistics, CSUMB



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Formative Assessment Resources



Other Resources

CSU Collaboration Spaces

- <http://tiny.cc/csu-teams>
- <http://tiny.cc/csu-math>
- <http://tiny.cc/csu-english>

Calendar

- www.calstate.edu/professional-development-calendar

Recordings and resources are linked to event listings in the archive.

Upcoming Webinars

What's All This Fuss About Growth Mindset and Other Psychological Factors?

- **Date: Friday, November 9**
- **Time: 12:00pm – 2:00pm Pacific**

How do we ensure rigor in first-year mathematics courses?

- **Date: Friday, December 7**
- **Time: 12:00pm – 2:00pm Pacific**

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About the Dana Center

The Charles A. Dana Center at The University of Texas at Austin works with our nation's education systems to ensure that every student leaves school prepared for success in postsecondary education and the contemporary workplace.

Our work, based on research and two decades of experience, focuses on K–16 mathematics and science education with an emphasis on strategies for improving student engagement, motivation, persistence, and achievement.

We develop innovative curricula, tools, protocols, and instructional supports and deliver powerful instructional and leadership development.

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