The MAA's Instructional Practices Guide: Introduction to a New Resource

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Aspirational Intention

- What can mathematicians do address inequity?

Aspirational Intention

- What can mathematicians do address inequity?
- Focus on our teaching
  - Use what is known about ambitious teaching practice
  - Resist the urge to rely on habits

Challenge

- It is hard to change practice that is embedded in our culture

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  - Mathematicians don't shy away from what is hard

Challenge

- It is hard to change practice that is embedded in our culture
  - Mathematicians don't shy away from what is hard
- View of mathematics as accessible to all
  - Hard when our own identity has been formed in a culture of mathematics-as-identifier-of-exclusive

Overview

- Classroom Practices
- Assessment Practices
- Design Practices

Features

- Vignettes
- Cross-cutting themes
  - Technology
  - Equity

Classroom Practices

- Fostering Student Engagement
- Selecting Appropriate Mathematical Tasks

Fostering Student Engagement

- Building a classroom community
- Wait time
- Responding to student contributions
- One minute paper/exit tickets
- Collaborative learning strategies
- Just-in-time teaching
- Developing persistence in problem solving
- Inquiry-based teaching and learning strategies
- Peer instruction and technology

Selecting Appropriate Mathematical Tasks

- Intrinsic appropriateness
- Extrinsic appropriateness
- Theoretical frameworks for understanding appropriateness
- How to select an appropriate task
- Choosing group-worthy tasks
- Communication
- Error analysis of student work
- Flipped classrooms
- Procedural fluency from conceptual understanding

Assessment Practices

- Basics
- Formative assessment
- Summative assessment
- Promote student communication
- Conceptual understanding
- Assessment in large-enrollment classes
- Assessment in non-traditional classrooms

Design Practices

- Designing for equity
- Student learning outcomes
- Challenges and opportunities
- Theories of instructional design

Cross-cutting Themes

- Technology and Instructional Practice
- Equity in Practice

Quotations

Responding to student contributions in the classroom

"From an equity stance, one of the most powerful ways an instructor can build community and student confidence is to reframe errors"

Quotations

Developing persistence in problem solving

"Many tasks meant to actively engage students in the classroom work best if students understand that persistence is valued and is integral to doing mathematics."

Landscape

- CBMS statement on active learning
- CUPM guide to majors in mathematical sciences
- GAISE Framework
- NCTM Principles to Action
- AMTE Standards for Teachers of Mathematics

Discussion

We anticipate that this document will be used by classroom instructors as well as mathematics educators who offer collegiate professional development.

Does the guide reach the target audience?

Discussion

Is the guide written in such a way that the typical user will find it readable and informative?

Stated another way, does the Guide seem accessible and usable?

Discussion

Is there something missing?

Are there any topics or issues that should be addressed in future editions of the Guide?

Or are there topics or ideas that can be addressed with additional readings or links?

Discussion

What do you view as the strengths and weaknesses of this document?

Questions

- Other comments or ideas?

Review copy available at

- https://drive.google.com/file/d/0B1_9eUIkoHa6dHFqRjJ1a2JyLXc/view
- Email feedback to densley@maa.org