

Preparing Culturally and Needs-responsive Teachers Through Mathematics Education



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Today's Focus:

Model processes and strategies to build teacher capacity for professional growth and advocacy in preparing culturally and needs-responsive teachers through mathematics education and Common Core State Standards implementation

Agenda Overview

- A Process for Standards-based Change
- Culturally and Needs-responsive Practices and CCSS
- Making the Connection: An example in-action
- A Partnership between a University and a District
- Designing Challenging Resources

CCSS – Standards of Mathematical Practice

Make sense of problems and persevere in solving them.

- Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and ...



INTRODUCING

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Teacher Behaviors

- a. Structures activities in ways that allow students to make meaning of, explore, analyze, plan a solution pathway, monitor, explain, extend, and evaluate their progress.
- b. Poses complex, challenging problems...

Source: Ho'olaupoko – Kamehameha Schools

Student Behaviors

- a. Explains the meaning of a problem and looks for entry points to its solution.
- b. Analyzes givens, constraints, relationships, and goals.
- c. Conjectures about the form and meaning ...

Source: CCSS

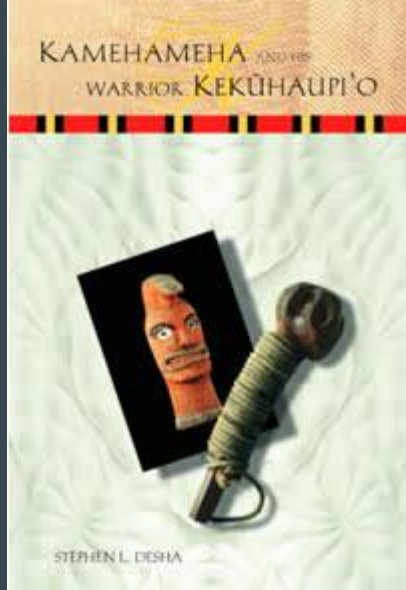


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Culturally Responsive:

“using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them”

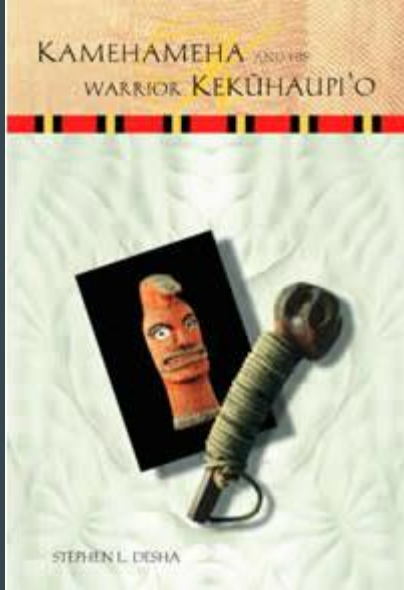




Literature Scan

Teacher Behaviors / Practices:

- Joint productive activity
- Connect lessons to students lives
- Engage students with challenging tasks
- Dialogue over lecture
- Learn through observation
- Encourage student decision making



Where might culturally responsive practices reside within the Standards of Mathematical Practice?

Culturally Responsive Practices:

- Joint productive activity
- Connect lessons to students lives
- Engage students with challenging tasks
- Dialogue over lecture
- Learn through observation
- Encourage student decision making

SMPs:

- SMP 1: Poses complex, challenging problems with no obvious solution or solution process
- SMP 3: Encourage students to propose, defend, and assess sound logical arguments

Case 217: Exploring Real-World Scenarios of Algebraic Functions

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- (Teacher) Hmm. So we have three things going on here.

0:04 / 15:01

CC

Making Instructional Shifts with Video Cases

- Community of mathematics teachers
- Create lessons that promote productive and equitable student discourse.
- Draw on students' knowledge of their culture to increase interest and achievement in math.

Making the Most of Video Cases

- Ensure there's a range of classroom environments depicted.
- Use analysis tools to guide reflective conversations.
- Be specific in reflection, not general.

Making the Most of Video Cases

- Consider selecting two complementary videos to use as focal points for discussion.
- Make time for individual reflection and short-term goal-setting.
- Encourage teacher participants to contribute video clips from their own classrooms.

Designing Challenging, Culturally Responsive Learning - Application in Practice

- <https://tinyurl.com/499CR-CCSS>
- Using either the linked document or the hard-copy, contribute a lesson design that connects culturally responsive practices and the SMPs

Let's Explore ATLAS

- URL: atlas.nbpts.org
- Username: atlas.generic.demo@gmail.com
- Password: NCTM2018

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Mahalo Nui Loa!

