Culturally Responsive Instruction

The Context of Mathematics

April 28, 2016
Objectives

• Establish context for necessity of culturally responsive practice
• Learn key components of educational equity
• Recognize culturally responsive/relevant practice
• Learn successfully incorporated strategies leading to student success
The land and water area in Region X covers 16.1 million square miles or approximately 10% of the earth’s total surface including:

- 9 time zones
- 5 U.S. states
- 2 U.S. territories
- 1 commonwealth
- 2 republics
- 4 federated states
Presenters

Patrice Woods
Region X EAC
Education Northwest

Adam Christopulos
Rainier Beach High School
Changing US Student Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Two or more races</th>
<th>American Indian/Alaska Native</th>
<th>Asian/Pacific Islander</th>
<th>Hispanic</th>
<th>Black</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>1.1</td>
<td>3.7</td>
<td>13.5</td>
<td>16.8</td>
<td>64.8%</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>2014</td>
<td>2.8</td>
<td>5.2</td>
<td>25.8</td>
<td>15.4</td>
<td>49.8%</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Projected 2023</td>
<td>3.5</td>
<td>5.5</td>
<td>29.9</td>
<td>15.1</td>
<td>45.1%</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

Increasingly Diverse Schools

- There is a rapidly rising non-White child population (Polleck & Shabdin, 2013)
- Almost two-thirds of all American children are projected to be students of color by 2050
- In 63 of the 100 largest U.S. school districts, over half of the student population identify as students of color
Languages Spoken

- Mandarin: 873 mil
- English: 508 mil
- Hindi: 497 mil
- Spanish: 438 mil
- Portuguese: 178 mil
- Arabic: 206 mil
- Russian: 145 mil
- Bengali: 171 mil
- Telugu
- German
- French
- Japanese
- Turkish
- Punjabi
- Cantonese
- Wu
- Uighur
- Gujarati
- Korean
- Marathi
- Japanese
- Min
- Tamil
- Italian
- Ka...
Supply and Demand

The need for culturally responsive instruction

- To positively impact student learning and close achievement gap
- Change the trajectory for student post-secondary options
- Mathematics to become a GATEWAY rather than the Gatekeeper
Grade 4 NAEP Achievement

- White (not Hispanic)
- Hispanic
- American Indian or Alaska Native
- Black (not Hispanic)
- Asian American or Pacific Islander
- Unclassified

Year:
- 2004
- 2008
- 2012
Grade 8 NAEP Achievement

Scale score

- White (not Hispanic)
- Hispanic
- American Indian or Alaska Native
- Black (not Hispanic)
- Asian American or Pacific Islander
- Unclassified

Year

2004 2008 2012
Grade 11 NAEP Achievement

- △ White (not Hispanic)
- ✤ Hispanic
- ☐ American Indian or Alaska Native
- ○ Black (not Hispanic)
- ◊ Asian American or Pacific Islander
- ★ Unclassified
Mathematics
GATEWAY OR GATEKEEPER
Gateway or Gatekeeper?

Course-related context
- Access to advanced courses
- College entrance
- Access to math-dependent career fields

Life-related context
- Sense making in everyday life
- Critical thinking
- Problem solving
- Competency judgements
Key Components of Educational Equity

- Access
- Instruction
- Materials
- Attitudes
- Interactions
- Language
- Assessment
Culturally Responsive Instruction

“… a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1994, p. 382).
Culturally Responsive Instruction (CRI)

- Not specific to one content area
- Some strategies more effective than others, depending on context
- Attend to identity and competence through mathematics
Considerations for CRI

Examples
• Student relevant
  – Content
  – Context
  – Process/Product

Non-examples
• Different lesson specific to “culture”
  – Ethnic
  – Socioeconomic
  – Religious
  – Gender (ID)
Key Features of CRI

- Communicate high expectations
- Actively engage students in learning
- *Facilitate* student learning
- Understand the assets and capabilities students bring
  - Build relationships
Key Features (cont’d)

• Anchor curriculum in everyday lives of students
• Select participation structures for learning that reflect students’ ways of knowing and doing
• Share control of the classroom with your students
• Engage in reflective thinking and writing
Five Equity-based Instructional Practices

1. Focus on conceptual mathematics development
2. Leverage multiple mathematics competencies
3. Affirm students mathematics identities
4. Challenge spaces of marginality
5. Draw on multiple resources of knowledge

The Number One Thing

“Quality instruction, therefore, is the most valuable weapon in the teacher's arsenal and the most significant factor that influences achievement gains—an influence many times greater than poverty or per-pupil expenditures (Sanders & Horn, 1994; Wright, Horn, & Sanders, 1997).”

From Kadhiri Rajagopal’s Create Success! (2011)
Practitioner’s Perspective in Action
RAINIER BEACH HIGH SCHOOL
Rainier Beach High School

- Student population: 549 (650)
  - Male 49.3%, Female 50.7%
  - Hispanic/Latino(a) 13.0%
  - American Indian/Alaskan Native 0.8%
  - Asian 24.8%
  - Black 51.7%
  - Native Hawaiian/Other Pacific Islander 2.7%
  - White 3.0%
  - Two or More Races 4.0%
- Free/Reduced Lunch 76.3%
- Special Education 21.3%
- Transitional Bilingual 26.6%
- Section 504 0.2%
- Foster Care 0.4%
## Brief History

<table>
<thead>
<tr>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Leadership/Staff</td>
<td>Math proficiency: EOC Y1 52.0%; EOC Y2 48.9%</td>
<td>Math Proficiency: EOC Y1 72.8%; EOC Y2 67.1%</td>
</tr>
<tr>
<td>Math proficiency: EOC Y1 33.3%; EOC Y2 28.</td>
<td>IB Implementation</td>
<td></td>
</tr>
</tbody>
</table>

Graduation

More students graduating
Rainier Beach, once considered the worst high school in Seattle, now has graduation rates that top the district’s. The rates have climbed by 25 percentage points since 2011.

Graduation rates

<table>
<thead>
<tr>
<th>Class</th>
<th>SEATTLE</th>
<th>RAINIER BEACH HIGH SCHOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>75.8</td>
<td>53.7</td>
</tr>
<tr>
<td>2012</td>
<td>74.8</td>
<td>59.6</td>
</tr>
<tr>
<td>2013</td>
<td>72.6</td>
<td>68.2</td>
</tr>
<tr>
<td>2014</td>
<td>78.9</td>
<td>74.1</td>
</tr>
</tbody>
</table>

Source: OSPI/Center for Educational Effectiveness

Kelly Shea / The Seattle Times
Systemic Practice

1. Observe and collect qualitative and quantitative data
2. Analyze data and make instructional decisions
3. Review progress and adjust instruction as needed
4. Differentiate instruction to support individual student needs

Region X
Equity Assistance Center
at Education Northwest
Key Components of Educational Equity

• Access
• Instruction
• Materials
• Assessment
• Attitudes
• Interactions
• Language
Strategies in Practice: Access

- Scaffolding
- Multiple approaches
  - Build confidence
- Differentiated instruction
- Collaborative processes
- Open access to higher level (IB) courses

How do these strategies impact student learning?
Instruction

- Algebra tiles
- Scavenger hunt
  - Visuals
- Vote by feet
- “Plicker”
  - Technology
- White board activities
Interaction

- High expectations
  - Build confidence
- Know more about students to “tweak” and make lessons relevant to their lives
- Be authentic with context, content, and praise
- Put more focus on student interactions than small changes to instruction or grading
Assessment

- Moving toward standards-based
- Multiple opportunities to demonstrate mastery
- Timely
Questions?
Thank You!

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