Mathematics and Intercultural Competence in the Middle School

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Overview

• Intercultural Competence
• Motivation
• Survey
• Rubric
• Lesson Plans
Intercultural Competence (ICC)

- “A person’s ability to relate to and communicate with people who speak a different language and live in a different cultural context”
- Byram’s factors of ICC
  - Attitudes
  - Knowledge
  - Skills of Interpreting and Relating
  - Skills of Discovery and Interaction
  - Critical Cultural Awareness
Motivation

• Globalization
• Farmington (CT) School District
• Interdisciplinary units
  ▪ ICC focus
  ▪ Assessment
• Math ←→ ICC
Research Questions

1) How can intercultural competence be appropriately assessed within a middle school environment (with a specific focus on sixth grade students)?

2) How can intercultural competence be incorporated into K-12 mathematics classrooms?
Survey - Process

• Track ICC development over time
• Existing instruments
• Development

• Dimensions
  ▪ Attitudes
  ▪ Knowledge
  ▪ Mathematics Learning
  ▪ Interdisciplinary Learning

• Consultation
Survey - Results

- Mathematical and Intercultural Awareness Survey (MICAS)
  - 5 demographic questions
  - 33 Likert scale items (5-point scale)
  - 5 open-ended questions

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<tbody>
<tr>
<td>A</td>
<td>I can understand my own culture without knowing about other cultures.</td>
</tr>
<tr>
<td>K</td>
<td>I feel that I can clearly explain my culture to a pen pal in another country.</td>
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<tr>
<td>M</td>
<td>I do not need math to understand another culture.</td>
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<tr>
<td>I</td>
<td>I enjoy learning about the same topic in different subjects.</td>
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<tr>
<td>O</td>
<td>What are three things you learned about other cultures in math class?</td>
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Survey - Goals

• Administer in upcoming school year
  ▪ Refine through data analysis

• Future uses
  ▪ Other schools
  ▪ Other grade levels
Rubric - Process

• Teacher resource
  ▪ Written responses
  ▪ Classroom interactions

• Existing tools
  ▪ VALUE rubric

• Extremes → Levels

• Consultation
  ▪ Teacher guide
Rubric - Results

- Categories: Curiosity, Openness, Knowledge of Self/Other
- Levels: Insufficient, Developing, Emerging, Proficient

<table>
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<tr>
<th>Attitudes - Curiosity</th>
<th>4 “Proficient”</th>
<th>1 “Insufficient”</th>
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<td>Student shows interest in learning about all aspects of different cultures and subcultures. Student asks questions which are able to form discussions among peers.</td>
<td>...</td>
<td>Student lacks interest in learning about cultures. Student asks few or inappropriate questions during class time.</td>
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Rubric - Goals

• Application to any content area
• Future uses
  ▪ Other schools
  ▪ Other grade levels
Lesson Plans

- Teacher resource
  - Common Core
  - ICC
- Examples across development
  - 3rd grade – perimeter, area, agriculture
  - 6th grade – surface area, volume, housing
  - 9th grade – linear equations, graphing, populations
- Progression of ICC
Conclusion

• Global Citizenship

• Future Research
  ▪ Data analysis
  ▪ Math $\leftrightarrow$ ICC


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