Exploring Pedagogies of Practice that Support Preservice Teachers in Learning How to Facilitate Argumentation-Focused Discussions

NSF DRK-12 Online Practice Suite (OPS)
Grant #2037983

ASTE Conference – January 7, 2022
Exploratory Session
Workshop Presenters

• Meredith Park Rogers, Indiana University - Bloomington
• Jamie N. Mikeska, ETS
• Pamela S. Lottero-Perdue, Towson University
• Heidi Masters, University of Wisconsin – La Crosse
• Ron Hermann, Towson University
• Laura Zangori, University of Missouri - Columbia

• *Dionne Cross Francis, University of North Carolina at Chapel Hill
Workshop Goals and Structure

- **Session Goal** – to introduce you to different methods teacher educators are using to support PSTs in planning for AND/OR reflecting on their practice of argumentation-based discussions.

- **Our context for teaching about argumentation** – an online practice suite that involves virtual learning contexts, but the pedagogical approaches shared today could be used in a variety of "real" learning contexts as well.

<table>
<thead>
<tr>
<th>Structure of the Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Short overview of our context and our position on argumentation-based discussions</td>
</tr>
<tr>
<td>• Adjusted presentation format</td>
</tr>
<tr>
<td>&gt; All presenters, 12 mins each to share approach.</td>
</tr>
<tr>
<td>&gt; 2 mins for Qs for each presenter between as we prepare for the next person.</td>
</tr>
<tr>
<td>• Final Qs for the group and collecting information to share resources</td>
</tr>
</tbody>
</table>
Background on the Issue

• Practice teaching experiences in PK-12 classrooms such as field placements and student teaching are the most widely used approaches to preparing teachers.

• While these experiences are critical to supporting pre-service teachers’ (PSTs) learning, they often fall short.

• Challenges with relying on these approaches:
  o They provide PSTs with few opportunities to rehearse components of complex practice repeatedly and without adverse effects on real students (Dieker et al., 2014; Straub et al., 2015).
  o PSTs tend to observe more traditional instruction in the field and then struggle to reconcile these experiences with the vision of ambitious instruction they study in university courses (Feldman & Kent, 2006; Wilson et al., 2001).

• These issues are notably acute when it comes to facilitating argumentation-focused discussions.
  o This practice is essential to supporting students’ learning in science classrooms but difficult to learn how to do well;
  o PSTs tend to have limited familiarity with argumentation in their own previous experiences as learners.
Introduction to the Online Practice Suite (OPS)
Online Practice Suite (OPS) Overview

• The OPS includes three different practice-based learning activities:

  - Focused Practice Spaces (FPS)
  - Avatar-Based Simulations (ABS)
  - Virtual Teaching Simulator (VTS)

• All activities focused on supporting teachers in learning one specific teaching competency: **facilitating discussions that support the practice of argumentation**
Dimensions of Facilitating Argumentation-Focused Discussions

Dimension 1: Attending to student ideas
Dimension 2: Facilitating a coherent and connected discussion
Dimension 3: Encouraging student-to-student interactions
Dimension 4: Developing students’ conceptual understanding
Dimension 5: Engaging students in argumentation
Micro Cycle for Each OPS Activity

1. Preparation for OPS Activity
2. Engagement in OPS Activity
3. Debrief/Reflection on OPS Activity
Presenters
Coding focused on teachers’ elicitation/encouragement of: (1) students’ initial constructed arguments; (2) argument critique; (3) consensus building; and (4) student-to-student talk.
Focusing vs. Funneling Argumentation Discussions

• Are your preservice teachers funneling students to the right answer when facilitating discussions?

• Let's explore activities and strategies to help preservice teachers learn to focus discussions in science.

• Elementary focus – Applicable to any preservice teacher
Ron – Secondary Science

Building Consensus

• Middle School Science Methods Course – 1 day/week for 3 hours
• 9 PSTs specializing in 2 areas (science/math/LA/SS)
• OPS was one thread lasting most of the semester
• PSTs utilized a 5 Practices approach to engage students in argumentation with the aim of connecting student work to learning goals to develop a consensus model
• We will discuss how to prepare PSTs to use student work to plan discussions that encourage argumentation practices and build consensus
Laura – Secondary Science

A potpourri of activities

• Overall course goal: Asking good questions and listening to student responses
• Bio 4994: Third science methods class
  o Focus content; Biology (LS2, LS1, LS3, LS4)
  o Focus practice: Argumentation
  o Focus cross-cutting concept: Energy
• How practice/CCC implemented in a bio methods class
  o All DCI looked at through energy lens
  o Readings
  o Micro-teaching using argumentation
  o Simulation tasks
  o Field assignment
Accessing Resources Shared in Breakouts

• Scan this QR code and fill out the Google Form.

• Shortly after the conference we will share a link to a OneDrive folder where you can access all the materials the presenters have shared, including this PowerPoint.

Thank you for attending!