

Chapter 5: Argumentation and Student-Centered Learning Environments

Important Terms as defined by the author:

1. *Argumentation* – a process of constructing and critiquing arguments
2. *Argumentation games* – authentic activities involving argumentation and decision making
3. *Collaborative (collective) argumentation*, similar to *exploratory talk* – as a group students explore ideas

Major Concepts

- Arguing to Learn (utilizing *argumentation games*)
 - A structured activity to facilitate discussion among learners in which they explore reasons and examples to formulate an argument
 - The activity is structured – typically includes rules and goals
- Learner Benefits:
 - Activation of prior knowledge
 - Reflection
 - “Social Practice” (133)
 - “Enhanced conceptual understanding” (133)
 - Exposure to various diverging opinions results in cognitive dissonance and ultimately “conceptual change or deeper conceptual understanding” (115).
- Drawbacks/Concerns:
 - Difficult to “determine how much structure, scripting and scaffolding students need” (133)
 - Too much scaffolding can be time consuming and negatively impact “free-flow discussion”
 - Too little scaffolding can make discussions less focused and more trivial
 - Assessing student argumentation can be difficult
 - When/how does the teacher assess student discourse?
 - Concept knowledge is key to meaningful discussions
 - Learners should have some conceptual understanding before
 - Teacher must gauge conceptual understanding
 - Argumentation should be part of a larger learning environment, not the learning environment itself
- General Best Practices (134):
 - Most learning takes place when students reflect on discussions
 - Vary small group and large group discussions
 - Vary written and oral argumentation
 - Vary structured and unstructured activities
 - Include feedback mechanisms (undeveloped idea by the author)

Theoretical Underpinnings

- There are “four causal mechanisms through which argumentation produces stronger learning outcomes” (116).
 - 1 – “Argumentation makes knowledge explicit and visible”
 - The teacher can observe learners’ conceptual understanding of the topic through *argumentation games* and can interject when necessary to guide discussions

- o 2 – “Argumentation can produce conceptual change”
 - Exposure to various opinions can improve student understanding
- o 3 – “Co-elaboration of new knowledge”
 - Collaborative exploration of new ideas and the association to prior knowledge
 - *Collaborative argumentation* and *exploratory talk* fall under this mechanism
 - The goal is not to “win” the argument
- o 4 – Articulation
 - Through argumentation learners are required to articulate their ideas
 - The teacher can observe knowledge gaps and poor reasoning
- Argumentation Learning Environments should (118):
 - o “provide students with sufficient time to evaluate arguments and counterarguments”
 - o Provide students with opportunities to “learn to argue”
 - o “Develop disciplinary understanding”
- Drawbacks of Argumentation
 - o For Argumentation to be effective (where theory meets practice), learners must:
 - be able to articulate their ideas and willing to discuss them with others
 - have prior knowledge of the topic
 - provide evidence to support their positions
 - be able to assess others’ positions and willing to disagree

Argumentation Mapping

Important Terms:

1. *Computer-assisted argument mapping* (CAAM) – essentially, collaboratively creating digital concept maps with a computer program (specifically designed for argument mapping, such as *Deliberatorium*, *Rationale*, *Compendium*, *Belvedere* or *Diaglo*) or a Web 2.0 tool like bubbl.us
2. *Cartography* – The skills associated with graphically mapping arguments

- Benefits of CAAM and ways to improve effectiveness:
 - o Concept mapping has shown to improve critical thinking at the individual level
 - May be improved through collaboration
 - o Rubrics
 - o Text chat improves construction of concept map
 - o Positions are presented more clearly
- Disadvantages of CAAM
 - o Concept maps can become overly complex
 - o Requires “extensive coaching and feedback”
 - Such as learning *cartography* skills
 - o Increased cognitive load as students are learning content and CAAM skills
 - o Requires moderation by teachers or other students
 - o While students are encouraged to offer constructive criticism, many are reluctant to do so
 - o These argument maps help students to learn argumentation, but research does not adequately confirm that it helps students learn content
 - learning may occur, but uncertain how deep it is
 - may not be successful with hard to teach concepts
 - argument mapping may be too rigid a structure for some situations
- Best Practices

- Concept maps should be used in conjunction with dialogue and reflection
- Concept maps may also be used for reflection

Collaborative Reasoning

- *Collaborative Reasoning* – “a free-flowing discussion where students collaboratively construct and critique arguments”
- Goals:
 - Students participate in and manage discourse
 - To “foster student independence from teacher prompting” (127)
- Rules (126):
 - “think critically about ideas, not about people”
 - “try to understand both sides of an issue”
 - “restate what someone has said if it is not clear”
- Benefits:
 - Students will model other students’ behavior creating a *snowball effect*
 - Especially in the use of *argument stratagems* (common language used in arguments)
 - Example: If...then...
 - Students learn to “interject and disagree respectfully” (127)
 - Oral argumentation has been shown to improve written arguments
- Drawbacks:
 - Difficult in some cultures where losing *face* (social self-image) is a concern
 - Requires content knowledge
 - Lack of content knowledge may lead to learner insecurity when arguing
 - Science-related topics may require much more scaffolding
- Best Practices (Teacher):
 - Teacher:
 - Remains on the sideline
 - Begins discussion by posing a *central question*
 - May interject when necessary
 - Asks for clarification
 - Challenges students ideas
 - Offers counterarguments
 - Models expectations
 - Refrains from contributing too much
 - Avoids shifting focus from students to teacher
 - Remains silent when student discussion dies down
 - Restates student ideas when asking questions
 - Learning Environment (130-1)
 - Students teaching students (reciprocal teaching)
 - Jigsaw research groups
 - Cross-talk between groups
 - Occasional lectures
 - Benchmark lessons (for conceptual understanding)
 - Usually done face-to-face but can also be done virtually

Argumentation and Game Playing

Important terms as defined by the author:

1. *Dialogic games* – argument-oriented language games (Examples: *Interloc* and *Academic Talk*)
2. *Locution openers* – argument specific phrases or idioms
- Examples: “I disagree because...” or “I think we need more evidence.”
3. *Triggering events* – part of the game that encourages choice and discussion
4. *Epistemic games* – community specific forms of reasoning

- Types of dialogic games:
 - Tutoring sessions
 - Debates
 - Creative brainstorming sessions
- Benefits:
 - Games guide the form of dialogue, creating a “dialogic space” for learners (133)
 - Creates authenticity and simulates communities in which certain types of argumentation may occur, such as in the medical community
 - Highly engaging for learners
- Disadvantages:
 - Elementary students struggled with multiple hypotheses and supporting evidence
- Best Practices:
 - Game requires:
 - Central question
 - Authentic and engaging content
 - *Epistemic games*, for example
 - Use games in conjunction with other learning activities
 - Include *triggering events* to prompt discussions
 - Include a variety of menu choices (*locution openers* for example)
 - Include role-playing for authenticity – medical doctors working on a case or government officials arguing policy
 - Incorporating social media could increase engagement