

What I Learned as a Student in the Teaching Institute

Why and How I Consider Critical Thinking in My Teaching

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The Things I Learned (... and stuck with me)

- Background
 - 2015 alumni of the Faculty Institute
 - Why did I even apply?
 - Quantified critical thinking across different disciplines (NSF CAT exam results)
 - Frustration with my own course (“What equation do I use?”, “Memorization is what we do!”)
- What did I learn in the institute?
 - Wonderful teaching techniques that were challenging to scale up for large classes and/or science classes
 - E.g. Socratic approach... create smaller classes within the large class?
 - E.g. Discuss and support alternative opinions? Explain/support assumptions.
 - Some equally wonderful techniques that would scale more easily
 - E.g. Meaningful examples in their field/career of interest, Connect to common experiences
 - E.g. Encourage and Facilitate small group collaboration
 - E.g. Assess deeper conceptual understanding
 - Why are the facts in physical chemistry true?
 - Consider some question stems related to the assessment of critical thinking (U. Waterloo – Centre for Teaching Excellence): Why is X happening? How does X affect Y? What is X analogous to? Do you agree or disagree with X, and what evidence supports your position?
- What challenges am I still trying to overcome?
 - Balancing or integrating conceptual and quantitative learning
 - Improving assessment of conceptual understanding in a large class
 - Encouraging critical reading through meaningful and efficient assessment