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