Learning Through Inquiry

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Particularly for entering college students, engagement is closely linked to the level of immediacy or "real world" impact students perceive in course topics and assignments. This session will introduce strategies for re-imagining course material with an emphasis on inquiry focused learning.

Inquiry Projects

- Gather several course objectives or elements together under one essential or inquiry-based question that is "open" rather than "closed" by instructor planning and direction
- Change the focus of a unit from "fixed topics" (often perceived by students as fragmentary and disconnected) to "inclusive inquiry," where learning objectives are met through a larger project and both teacher and students participate in discovery
- Center on student choice and interest (strive to focus on a topic that students find relevant, engaging, and meaningful)
- Involve students exploring some facet of the essential question posed in the larger inquiry unit
- Typically span two or more weeks
- Include at least one product outside of the traditional research paper or presentation (often a genre that reaches a broader audience and excites students)
- Usually include team work (if only at first)
- Often incorporate primary research (observations, interviews, or primary data) in addition to secondary research
- Can include interdisciplinary threads

*A course can be divided into several essential questions within a larger umbrella question. Students can help pose the questions—question posing can be an assignment in itself.

Best Practices for Inquiry Projects

- At the beginning of the unit, activate students' prior knowledge through activities and pre-writing exercises
- Generate student engagement in the topic through questionnaires, personal reflection, class discussion, and media exploration of the issue
- Be careful in choosing essential questions!
    - Questions should be narrow enough to avoid overwhelming the learning and broad enough to generate interest from multiple backgrounds
    - Questions should be relevant to students' lives and as current as possible
    - Questions must be controversial
- Let students drive the questions and projects (where appropriate)
- Choose no more than 2-3 disciplines to include in a project
- When students give presentations, determine a method for the audience to record and share their learning (tracking new terminology, concepts learned, questions, etc.)
- Include sufficient "space" in the syllabus for the project to be successful and well-paced
- Create rubrics for different stages of the project to allow for regular feedback and increase students' grasp of project guidelines

Developing Inquiry Units

Steps

- ✓ List your **objectives** for a particular unit for student learning and **content** to be addressed.
- ✓ Brainstorm essential questions for the unit that
  - Engage students and have relevance to current issues students may care about
  - Encompass the content of the unit
  - Remain open enough for students to have room to explore multiple avenues but narrow enough to inspire deep learning (represent "ill structured" problems)
- ✓ Develop unit activities and/or a large project (based on your essential question) that involves some student choice, group work, and reflection.
- ✓ Choose some readings outside of the traditional textbook for students to learn from.
- ✓ Develop a plan for evaluating student learning.
- ✓ When possible, make interdisciplinary threads visible to students.
- ✓ When possible, integrate an opportunity for students to present or share projects in a formal way.

"A careful reading of the National Science Education Standards reveals a very careful and important distinction between doing inquiry and teaching inquiry. In the classroom, 'doing inquiry' is not simply replicating what scientists do. Rather, it means that students involve their hands and minds in a carefully planned activity which, if carried out thoughtfully, will improve student understanding." (Harry Shipman, 2006)