

**Project Name**

Developing Co-curricular Courses that Lead to Critical Thinking in On-line and Hybrid Coursework

**Principal Investigator** Jeffrey Linn

**Campus** Brockport, State University College at

**Year of Project** 2013

**Tier** Tier Two

**Project Team**

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- Frank McDonald, Assistant Professor, Master of Arts in Teaching, Empire State College
- Elizabeth Heavey, Associate Professor, Nursing, SUNY College at Brockport

**Overview Summary**

Interdisciplinary project with professors in Educational Administration, Nursing and Teacher Education to investigate, design and implement curriculum for asynchronous courses that combine rigorous assignments and assessments that lead to critical thinking and are aligned with the K-12 Common Core Learning Standards.

**Outcomes Summary**

Outcomes TBD.

**Project Abstract**

Project Description:

Hybrid and on-line courses have vast potential to enhance student learning. A meta-analysis by the U. S. Department of Education found that students in on-line courses performed modestly better on assessments

than those receiving face-to-face instruction (Means, et. al., 2010). But the authors also reported that research findings in on-line learning did not support putting existing courses on-line. Instead they advised that future courses must be redesigned and restructured to promote student critical thinking and reflection in on-line settings.

Based on the research from the US Department of Education and other sources the project is based the following assumptions:

1. Technology is not pedagogy. In on-line learning pedagogical teaching skills and curriculum design are at least equally important as technological skills.
2. Learning a complex body of knowledge on-line requires questions, tasks and assessments that are designed at multiple levels of a learning taxonomy.
3. As reported by the U. S. Department of Education, more media does not appear to enhance learning (2010). However, asynchronous on-line communication like discussion boards has been found to lead to more self-reflection and deeper learning.

Purpose of the study:

Investigate, design and implement rigorous questions, assignments, and assessments that will lead to critical thinking in four asynchronous on-line or hybrid courses at Empire State and the College at Brockport and can be replicated in other SUNY wide on-line and hybrid courses.

Discussion:

Teaching and learning at the K-12 level is undergoing one of the biggest paradigm shifts in the modern era of education: The implementation of the common core Learning Standards (CCLS) in New York State as part of the Race to the Top (RTTT) initiative is already teaching students more critical thinking skills in traditional classrooms. But we must also investigate both the opportunities and challenges faced by instructors in on-line and hybrid courses at the college level because implementation of the standards has the potential to produce students who are more prepared to tackle higher level thinking at the K-12 level but also expect to have access to the technological means to accomplish this learning.

The standards address the fact that the literacy demands of college and the workplace continue to grow and that for students to thrive in an information rich society they must master domain specific tasks that require them to extract and use information from a variety of sources, balance and weigh evidence obtained from “deep reading”, and write from sources using evidence to support and define their positions or conclusions. In math the CCLS require students to gain “deep conceptual understanding” of math concepts by applying processes to problems that help make meaning.

David Conley (2011), Director of the Center for Educational Policy Research at the University of Oregon reports that the key cognitive strategies embedded in the standards are: problem formulation, research, interpretation, communication, and precision and accuracy. On-line and hybrid higher education course designers need to address the fact that content mastery in any discipline is not sufficient. Students need opportunities to solve problems, struggle with the essential questions of the field and deeply examine issues that may not have one correct answer. These skills constitute critical thinking and colleges are not asking students to do enough of it as on-line and hybrid course are typically designed.

Study Design:

Professors of four distinct and specific on-line and hybrid courses at the College of Brockport and Empire State College will use a “Backward Curriculum Design Model” to design course assignments, discussion formats and assessments that align with the Common Core Learning Standards and critical thinking theory.

The theoretical framework for the course design will be based on the work of Wiggins and McTigue (1998). In their landmark book, *Understanding by Design* the authors provide a framework to teach understanding and critical thinking.

#### Step 1 – Identify Desired Results

Participants will meet personally and in on-line settings to consider the CCLS and the curricular priorities of the course as defined by state and national standards and determine the specific content and skills that students must master in the course. At this stage questions will include the extent that course topics lay at the heart of the discipline, have the potential to engage student inquiry and represent essential understandings. For example students entering in all teaching and administrative professions must understand the curriculum shifts in their field. And all fields of study require problem solving and clear written communication as skills. Wiggins and McTigue (1998) point out that the key is that no content in and of itself is worth “covering. Instead we must uncover the essential questions of a content area.

#### Step 2 – Define Acceptable Evidence of Understanding

After determining the evidence and essential understandings of a course, participants’ will determine and design valid, reliable and authentic assessments that measure student understanding and critical thinking. Good assessments will be on a continuum. They may include more traditional on-line quizzes to measure knowledge level tasks and progress to open-ended prompts, performance tasks, and group projects that get at critical thinking. The key is that assessments are designed prior to the lessons; hence they serve as a mechanism for “sharpening the focus of instruction” (Wiggins and McTigue 1998, pg. 17). Because we know in specific terms from part one of our design what we want the students to understand and and be able to do we will structure assessments that utilize the online nature of the course work within the context of the body of knowledge.

In this step we will also address the task of grades and grading in an on-line environment, a topic on which little has been written.

#### Step 3 - Plan Learning Experiences and Instruction

After the course designers identify results and appropriate evidence to measure understanding at both the course level and of the CCLS skills embedded in the course the participants will design on-line and hybrid units based on the following criteria:

- a. What knowledge (facts, concepts, principals and skills) will students needs to complete assessment?
- b. What on-line lessons will equip students with the needed critical thinking skills and knowledge?
- c. What methods/activities will best lead to critical thinking skills?
- d. Is the on-line design coherent and effective to the extent it will lead to critical thinking and knowledge of the CCLS?

#### **Reports and Resources**

- [Critical thinking for college learners: Blended and online activities in multiple disciplines](#)
- [Mid-project report](#)
- [Project outcomes report](#)

**Instructional Design**

- Course Design/Development/Re-Design
- Hybrid/Flipped/Blended Learning

**Instructional Technologies**

- Open Educational Resources (OER)