

SECTION 6

CERTIFICATION IN COLLEGE TEACHING

ASSESSING STUDENT LEARNING

Contents:

Reflection Worksheet – Assessing Student Learning
CCT – Examples of Past Mentored Teaching Projects
CCT – Mentored Teaching Project Worksheet
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CCT – Mentored Teaching Project Approval Document (Postdocs)

Assessment

Wiggins + McTighe 1998

Mechanism for providing instructors w/ data for improving teaching methods + for guiding + motivating students' learning

Backward Design → ① Goals → ② Assessment → ③ Instruction * Alignment *

2013
McKeachie's "Teaching Tips"

Students' top priority

what is measured reflects what is valued

⇒ Best way to learn science is to do science → skills/practices of discipline

↳ Interpret, Hypothesis formulation, defend, revise

Data: Are students learning what we think we're teaching?

Formative vs. Summative → Exams, Projects

↳ use this data (feedback)

Quizzes / Clicker's / listening

↓ Create Cognitive Dissonance

→ confront differences of prior/new knowledge

Confront Misconceptions
Connecting to Prior Knowledge

• Know Purpose of Assessment

↳ Audience

↳ Act on the data

• Check Alignment

↳ What kind of learning (Bloom)?

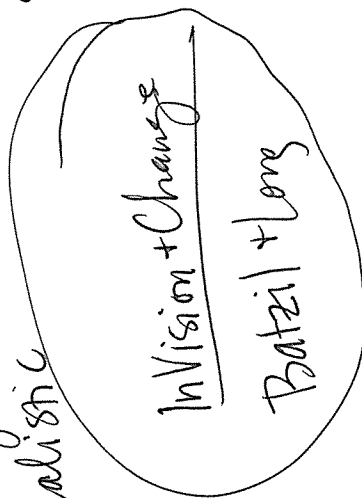
↳ Measured by Assessment?

"Help Students Succeed"

↳ Rubrics / feedback

• Diversity

Be Realistic



Certification in College Teaching Institute, May 11-12, 2017, Michigan State University

Worksheet for Reflections and Applications for Teaching and Learning

Session: Assessing Student Learning Friday

What skills and techniques did I learn that will help me become a better educator?

Develop deeper learning goals
Aligning learning goals/Assessment/Classroom Activities
Creating Exam Q's based on Real Publications
Use Assessments as feedback on teaching/learning

What things am I still uncertain about regarding this topic that I need to investigate further in the future?

~~TA~~ practice these concepts as a TA
Instructor's learning goals vs. Department/institution's learning goals?

How can I apply materials from this session to my own class to enhance the effectiveness of teaching and learning?

Mentored Teaching Project!
Alignment → Planning*
Be Creative

hello

Examples of Mentored Teaching Projects

A primary component of developing and conducting a mentored teaching project is to plan an intervention in the classroom that requires some type of assessment of student learning. When developing your project it is recommended that you use the “backward design” (Wiggins and McTighe 1998) – that of: developing objectives or desired results, developing how will you determine acceptable evidence (assessments) of learning, and plan your teaching and learning experience.

Past projects students have conducted include:

Opinions about climate change among non-science majors and influence of passive and active learning strategies

Writing to learn using journals

Utilizing an informal learning experience to improve students' understanding of the evolutionary concept of variation

Using simple cooperative learning techniques in a plant propagation course

Calculus students' understanding from the inside-out: the relationship between the chain rule and function composition

Examining whether learning space affects the retention of experiential knowledge

Assessing gender differences in response system questions for an introductory physics course

A picture is worth a thousand words: applying image-based learning to course design

Improving critical thinking skills of undergraduates health science students with case studies

Identifying successful technologies for teaching electromagnetics to undergraduates

Assessing students' attitudes towards environmental issues after completing a cascading food-web case study to understand complex ecological interactions

How do outdoor and nature-based experiences differ between science majors and non-majors?

Genetics in the green house: using active learning to improve student performance in plant genetics

Effects of cooperative learning on information assimilation and critical thinking

Field trips through the food system: experiential environmental learning in higher education

developing learning goals / Aligned Assessments? for a course

Experimental / Descriptive vs. Explanatory / Hypothesis-Driven
↓
Inductive or Postulated "fact"
↓
Observation → Explanation

don't let the ambitions

→ Institute for Science + Engineering Educators

IRB Approach?

"Exempt" filing

Mechanisms
epiph → e-poor
Courses / Lab sequencing
Course Goals - Assessment
One-class period activity