CT Seminar Development:
Outcomes, Assessments, and Rubrics

Linda B. Nilson, Ph.D.
Director, Office of Teaching Effectiveness and Innovation
Clemson University, 448 Brackett Hall * 656.4542
nilson@clemson.edu * www.clemson.edu/OTEI
www.linkedin.com/in/lindabnilson
Outcomes for You

• To design a course that is focused on critical thinking (CT) and built solidly on student learning outcomes appropriate to your discipline and on a logical, cohesive learning process.

• Assess your students’ competency in these skills by designing sound assignments and rubrics.

• Assess your students’ competency in the cross-disciplinary CT skills reflected in the rubric that the University has chosen to assess student progress across all CT courses.
Where CT doesn’t apply

• Lower-level thinking/learning: knowledge, remembering, recognizing, reproducing, simple (non-interpretive) comprehension /understanding

• “Cookbook” or “plug-&-chug” procedures and solutions
Where CT *Does* Apply

When a “conclusion” may or may not be valid, complete, or the best possible.

“Conclusion” = belief, value, problem definition, interpretation, generalization, analysis, viewpoint, hypothesis, solution, inference, decision, or conclusion—*not* a fact.
Why a “Conclusion” May Be Questionable

• Evidence is uncertain or ambiguous.
• Problem/task is “fuzzy” and ill-defined.
• Multiple respectable “conclusions” exist (issues of disagreement, debate, controversy).
• Source is suspect.
• Evaluation process is non-routine or non-standardized.
Many Different CT Frameworks

- Brookfield (focus on assumptions)
- Higher-level cognitive operations in Bloom’s Taxonomy
- Perry’s Stages of UG Cognitive Development
- Halpern (cognitive psychology)
- Wolcott (& Lynch) – Steps to More Complex/Critical Thinking
- Paul & Elder, Foundation for Critical Thinking
- Facione and Delphi Report (basis of CCTST)
Points of Overlap

• $\text{CT} = \text{evaluation/judgment}$

• $\text{CT}$ is difficult and unnatural; it takes time to learn.

• $\text{CT}$ is not only cognition but also character (motivation, ability).
For example: Paul & Elder’s “Intellectual Traits” of Character

- Intellectual humility
- Intellectual autonomy
- Intellectual integrity
- Intellectual courage
- Intellectual perseverance
- Confidence in reason
- Intellectual curiosity
- Fairmindedness
CT requires *background knowledge* of subject matter (e.g., to identify the type of problem) 

+ *metacognitive strategies* (e.g., to apply rules of thumb like "consider multiple sides of an issue").
To Design a CT Course, First Write Solid CT Outcomes

• Outcomes = statements of what students should be able to do by end of the day, week, unit, or course.

• “Performances” you can observe so you can assess and set standards for them — not internal states of mind like “know,” “learn,” “feel,” “understand,” “appreciate”

Active verbs list, p. 1
In a CT course, some of your outcomes must be CT skills.
General CT Skills Tested by CCTS

http://www.insightassessment.com/Products/Critical-Thinking-Skills-Tests/California-Critical-Thinking-Skills-Test-CCTST

(Definitions in handout, p. 2)

- Interpretation
- Explanation
- Analysis
- Inference
- Evaluation
- Deduction
- Induction
Discipline-Relevant CT Skills/Outcomes
(See handout pp. 3-5)

- Check those relevant to your course.
- Add more if necessary.
- Start writing your CT course outcomes.
- Start sequencing them: In what order will they achieve them?
To Sequence Outcomes into a Learning Process

- Think flowchart.
- Start with foundational outcomes that will enable students to achieve more advanced outcomes (mediating and ultimate).
- Each outcome leads to an assessment (assignment or activity).
OUTCOMES MAP for COLLEGE TEACHING, Dr. Linda B. Nilson

Foundational Learning Outcomes → Mediating Learning Outcomes → Ultimate Learning Outcomes

To motivate students → To design a course → To design effective student learning experiences, activities → To assess student learning (w/ CATs, effective tests, grading rubrics) → To assess & improve your teaching effectiveness

Students’ cognitive development, cognition, values, motivations, behaviors, learning styles → To set assessable & attainable student learning objectives/outcomes → To design graphic & text syllabi → To design effective student learning experiences, activities → To assess student learning (w/ CATs, effective tests, grading rubrics) → To assess & improve your teaching effectiveness

To set assessable & attainable student learning objectives/outcomes → To design graphic & text syllabi

To design graphic & text syllabi → To design effective student learning experiences, activities → To assess student learning (w/ CATs, effective tests, grading rubrics) → To assess & improve your teaching effectiveness

To obtain a teaching position → To write a teaching philosophy → To meet institutional assessment requirements & goals → To assess & improve your teaching effectiveness
MGT 490: Strategic Management of Information Technology
Outcomes Map

**MODULE I**
- To describe basic IS concepts
- To identify and describe the different types of information systems used in organizations and their evolution over time
- To identify and discuss current and emerging trends in IT/IS

**MODULE II**
- To describe the process of information systems planning
- To evaluate the management of IT/IS in organizations
- To apply some established principles to evaluate IT-enabled opportunities

**MODULE III**
- To assess how organizations can use IT for strategic advantage
- To synthesize the strategic management of IT in a variety of business sectors and organizations
- To assess and evaluate the business value of IT use in organizations
To define the types of information and communication technologies (ICTs)

To explain the implications of ICTs for business and marketing strategies

To assess the impact of the Internet on key sectors of the tourism industry

- eAirlines
- eHospitality
- eTravel agents & eTour operators
- eDestinations

To explain the terminology in your own words and use it correctly

To recognize demand/supply-driven tourism in the business world

To create an online marketing plan for a tourism organization

Irem Arsal
PRTM 391: E-Commerce & Tourism Marketing
Aligned Course Design

Appropriate Assessments of Students’ Achievement of the Outcomes
\[\text{(the measurement of students’ progress toward the ends)}\]

↑

Teaching Methods/Learning Experiences to Help Students Achieve the Outcomes
\[\text{(the means to the ends; the “tools for the job”)}\]

↑

Student Learning Outcomes
\[\text{(the foundation, the ends of instruction)}\]
Basic Teaching Principles

• Address misconceptions about CT & subject matter early. What are these?

• In & out of class, ask CT questions & assign CT tasks that match your outcomes & content.

  Give students *informal* (ungraded or low-stakes) opportunities to *practice* outcomes & get *feedback* from you or each another (Examples in handout pp. 6-11.)
Opportunities for Practice and Feedback

- Class discussions
- Cases to debrief
- Debate or structured controversy
- Worksheets and problems
- Journaling and other writing exercises
- Drafts of papers, reports, projects, portfolio, etc.; have students paraphrase your and peer feedback back.
Assessments Should Mirror Outcomes.
Assessing CT Skills

• Students must generate a product:
  - e.g., answer to question, paper, report, project, portfolio, oral or multimedia presentation, artistic work or performance, or demonstration (e.g., of technical problem solving).

• Students should reflect and report on how s/he did it (metacognition, self-regulated learning).
A Well-Constructed Task

• = Question or task assessing one or more of your CT outcomes
• Multiple, non-standardized respectable answers/products
• Professional judgment needed for assessment
Well-defined and focused; OK to recommend types of thinking and content to use.

Optional plus: Place question/task in a problem/situation that students may face in the future.

(Examples in handout p. 12.)
Turn One of These into a Good CT Task/Question.

*Raise cognitive level, increase focus, and situate in a problem.*

- In view of our current knowledge about Type 2 diabetes, should long-term treatment plans aim to keep diabetics off of insulin?
• Given what you have learned about international politics, should a nation ever negotiate with terrorists?

• What will happen to the biosphere if a large amount of sulfur dioxide is released into the atmosphere?

• Propose a hypothesis about how a certain program will affect the quality of undergraduate education.
Draft a Good CT Task or Question for Your Course

• assesses one or more CT outcomes
• has non-standardized answers
• well-defined and focused
• situated in a realistic problem
Add a Reflective Meta-Assignment (aka “assignment wrapper”)

- “How did you arrive at your response/product?” (See handout p. 13.)
- Develops metacognition/self-regulated learning: awareness, planning, monitoring, control, and evaluation of one’s thinking.
- Where applicable, design meta-assignments to sensitize students to their beliefs and misconceptions that get in the way.
- Grade pass/fail (all or no points).
Draft a Rubric for Your CT Task or Question

- **Analytical Rubric** = an assessment/grading tool that lays out specific expectations for a piece of work and describes each level of performance quality on the selected assessment criteria/skills.
For Rubrics, Accept That:

• You can’t assess/grade student work on **every** criterion/skill you can think of.
• Students can’t work on improving their performance on every criterion/skill you can think of. *They don’t even know what those criteria/skills are.*
• Choose a few key CT (and possibly other) skills to assess.
Step 1: Choose CT Criteria.

What CT skills (outcomes) are most important for students to demonstrate in this assignment or essay?

What CT skills is the assignment or essay supposed to assess?
Step 2: Define Levels and Their Values.

- Number or range of points for each level
- Grades (A, B, C, etc. or 4.0, 3.7, 3.3, etc.)
- Descriptive levels (e.g., high, average, low mastery; exemplary, competent, developing, unacceptable)
- Combination
Step 3: Describe the Performance for Each Level on Each Criteria.

- Usually in a table in sentences, phrases, or lists; “all or most...” alternative.

- Write out descriptions of each level of performance on each assessment criterion. (See samples of rubrics.)
Step 4: Use Rubric to Teach.

• Distribute and explain rubric to students as part of assignment or test instructions.
• Have students in groups use rubric to grade models of varying quality.
• Be sure students know meanings of task verbs on assignments. (See handout pp. 14-15.)
Step 5: Use Rubric to Assess.

- Have students attach rubric to work.
- Mark relevant descriptors on rubric and write comments on work, as time permits.
- Demand any grade challenges in writing with justifications within a tight time limit.