

COLLEGIATE LEARNING ASSESSMENT (CLA): DEFINING CRITICAL THINKING, ANALYTICAL REASONING, PROBLEM SOLVING AND WRITING SKILLS

RICHARD H. HERSH

The Collegiate Learning Assessment (CLA) is a national effort that provides colleges and universities with information about their students' performance on tasks that require them to think critically, reason analytically, solve realistic problems, and write clearly. These are learning outcomes espoused by all higher education institutions yet there is little evidence regarding to what extent improvement on these learning outcomes is actually achieved.

We conceptually speak of these learning outcomes as if the meaning of these concepts is shared and understood but in actuality the meaning of these concepts can differ. In addition, any measurement of these (or any) skills is limited by the method with which it is measured and by the content being assessed. In the case of the CLA, we measure these concepts by collecting samples of student performance on constructed responses. The CLA tasks are designed as a set of written "work samples" that are similar to tasks a student might face in the "real world." The student must integrate writing, critical thinking, analytical reasoning, problem solving, and reading comprehension skills, plus significant effort in order to perform well. The holistic integration of these skills on the CLA mirrors the requirements of serious thinking and writing tasks we face in life outside of the classroom.

Scoring for every task differs. This document summarizes the types of questions that are addressed by the scoring rubrics in general. Because the tasks on the CLA differ, not every item listed below is applicable to every task. The tasks instead are intended to cover different aspects of critical thinking, analytic reasoning, problem solving and writing and in doing so can in combination better assess the entire domain of performance.

Critical Thinking, Analytical Reasoning, and Problem Solving

Critical thinking, analytical reasoning, and problem solving skills are required in order to perform well on our tasks. We measure performance on open-ended tasks that require the student to use all three skills in combination. We define critical thinking, analytical reasoning, and problem solving skills as a student's demonstrated ability to evaluate and analyze source information, and subsequently to draw conclusions and present an argument based upon that analysis. More specifically, we consider the following items to be important aspects of critical thinking, analytical reasoning, and problem solving, and attend to scoring those items that apply to a given task.

Evaluation of evidence:

How well does the student assess the quality and relevance of evidence?

- Does the student determine what information is or is not pertinent to the task at hand?
- Does the student distinguish between rational claims and emotional ones, fact from opinion?
- Can the student recognize the ways in which the evidence might be limited or compromised?
- Does the student spot deception and holes in the arguments of others?
- Has the student considered all sources of evidence?

Analysis and Synthesis of evidence:

How well does the student analyze and synthesize data and information?

- Does the student present his/her own analysis of the data or information, or do they simply present it as is?
- Does the student commit or fail to recognize logical flaws in an argument. (e.g. does the student understand the distinction between correlation and causation?)
- Does the student break down the evidence into its component parts?
- Does the student draw connections between discrete sources of data and information?
- How does the student deal with conflicting, inadequate, or ambiguous information?

Drawing conclusions:

How well does the student form a conclusion from their analysis?

- Is the student's argument logically sound?
- Is it rooted in data and information rather than speculation and opinion?
- Does the student choose the strongest set of data to support his or her argument?
- Does the student prioritize in his or her argumentation?
- Does the student overstate, or understate, his or her conclusions?
- Can the student identify holes in the evidence, and subsequently suggest additional information that might resolve the issue?

Acknowledging alternative explanations/viewpoints:

How well does the student consider other options and acknowledge that their answer is not the only perspective?

- Does the student recognize that the problem is complex with no clear answer?

- Does the student bring up other options and weigh them in their decision.
- Does the student consider all stakeholders or affected parties in suggesting a course of action?
- Does the student qualify their response and acknowledge the need for additional information in making an absolute determination.

Writing

Analytic writing skills are invariably dependent on clarity of thought. Therefore, analytic writing and critical thinking, analytic reasoning, and problem solving are related skills sets. The CLA measures critical thinking performance by asking students to explain their rationale for various conclusions in writing. In doing so, their performance is dependent on both writing and critical thinking as integrated rather than separate skills. We evaluate writing performance using holistic scores that consider several aspects of writing depending on the task. The following are illustrations of the types of questions we address in scoring various tasks.

Presentation:

How clear and concise is the argument?

- Does the student clearly articulate the argument?
- Does the student clearly articulate the context for that argument?
- Is the evidence used to defend the argument correct and precise?
- Is the evidence presented in a comprehensible and coherent fashion?

Development:

How effective is the structure?

- Is the organization of the argument logical? Is it cohesive?
- Are there any gaps in the development of the argument?
- Are there any significantly extraneous elements in the argument's development?
- In what order is the evidence presented, and how does that structure contribute to the persuasiveness and coherence of the argument?

Persuasiveness:

How well does the student defend the argument?

- What evidence is presented in support of the argument, and how effectively does the student present it?
- Does the student draw thoroughly and extensively from the available range of evidence?
- How well does the student analyze that evidence?
- Does the student consider counterarguments, and address weaknesses in his/her own argument?

Mechanics:

What is the quality of the student's writing?

- Is vocabulary and punctuation used correctly? effectively?
- Is the student's understanding of grammar strong?
- Is the sentence structure basic, or more complex and creative?
- Does the student use proper transitions?
- Are the paragraphs structured logically and effectively?

Interest:

How well does the student maintain the reader's interest?

- Does the student use creative and engaging examples or descriptions?
- Does the structure syntax and organization add to the interest of their writing?
- Do they use colorful but relevant metaphors, similes etc.?
- Does the writing engage the reader?
- Does the writing leave the reader thinking?