UT Tyler Rubric for Real-World Problem-Solving

adapted from LEAP VALUE Problem Solving Rubric

(Revised Spring 2024)

The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The University of Texas at Tyler has translated the core expectations articulated in the original Problem Solving VALUE rubric into the language of our Quality Enhancement plan to ensure its relevance to our institution, disciplines, and even courses.

UT Tyler Adaptation

UT Tyler originally adapted the Columbus State University (CSU) Problem Solving VALUE Rubric and the AAC&U Problem Solving VALUE Rubric by refining the elements which specifically focus on assessment of the student's skill in the problem-solving process versus the end-product. The first revision focused on the problem-solving **process**, while the second revision provided additional clarification to the performance score categories and scaffolded student performance from SLOs 1 to 6. This third revision consolidates the rubric to four dimensions, with an eye to streamlining the problem solving process and improving alignment across performance score categories. Students scoring "Proficient" on every SLO relate the problem definition and its real-world context to every step of the problem-solving process, demonstrating a strong connection to their discipline and the relevance of their work to real-world scenarios.

Definition

Problem-solving is the process of designing, evaluating, and implementing a strategy to answer an open-ended question or achieve a desired goal. *Real-world* includes authentic situations and needs that students could expect to experience/encounter outside the classroom after degree completion that are relevant and appropriate to their discipline.

Framing Language

Problem-solving covers a wide range of activities that may vary significantly across disciplines. Activities that encompass problem-solving by students may involve problems that range from well-defined to ambiguous in a simulated or laboratory context, or in real-world settings. This rubric distills the common elements of most problem-solving contexts and is designed to function across all disciplines. It is broad-based enough to allow for individual differences among learners yet is concise and descriptive in its scope to determine how well students have maximized their respective abilities to practice thinking through problems in order to reach solutions.

This rubric is designed to measure the quality of a **process** rather than the quality of an **end-product**. As a result, work samples or collections of work will need to include some evidence of the individual's thinking about a problem-solving task (e.g., reflections on the process from problem to proposed solution, steps in a problem-based learning assignment, record of think-aloud protocol while solving a problem). The final product of an assignment that required problem resolution is insufficient without insight into the student's problem-solving process. Because the focus is on institutional level assessment, scoring team projects, such as those developed in capstone courses, may be appropriate as well.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- Contextual Factors: Constraints (such as limits on cost), resources, attitudes (such as biases) and desired additional knowledge which affect how the problem can be best solved in the real world or simulated setting.
- Solution: An appropriate response to a challenge or a problem.

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The problem-solving process includes the student's ability to define a problem within discipline-specific real-world contexts; evaluate, propose, and implement solutions; and reflect on lessons learned for future application.

Evaluators are encouraged to assign a "0" to any work sample that does not address the minimal level of performance.

	Proficient	Developing	Minimal
	3	2	1
Define Problem	**Defines** the problem **and** includes the relevant contextual factors that affect how the problem can best be solved in a real-world setting.	**Defines** the problem **but** problem definition includes little relevance to real-world contextual factors.	Problem statement is vague **or** does not include real-world contextual factors.
Evaluate Multiple Solutions	**Evaluates** multiple solutions and connects each solution to the defined problem with consideration of real-world contextual factors.	**Evaluates** multiple solutions but does not connect each solution to the defined problem with consideration of real-world contextual factors.	**Evaluates** a single solution that connects to the defined problem with consideration of real-world contextual factors.
Propose a Solution	**Proposes** and justifies a single solution that is **designed to address** the specific contextual factors included with the defined problem.	**Proposes** and justifies a single solution that **addresses** the defined problem but not the real-world contextual factors.	**Proposes** and justifies a single solution but does not address the defined problem or real-world contextual factors.
Implement a (Potential) Solution	**Implements or plans to implement** the solution in consideration of the defined problem and real-world contextual factors.	**Implements or plans to implement** the solution in consideration of the defined problem **but not** relevant real-world contextual factors.	**Implements or plans to implement** the solution but **does not address** the defined problem or the relevant real-world contextual factors.