Bernard L. Madison ● Stuart Boersma ● Caren L. Diefenderfer ● Shannon W. Dingman

Quantitative Literacy Assessment Rubric

History

The Association of American College and Universities (AAC&U) released a Quantitative Literacy VALUE Rubric in 2009 which was designed by a team of college and university faculty from across the United States. The QL VALUE Rubric was one of 15 VALUE rubrics designed around a variety of learning outcomes. The intent of the designers was to provide an instrument for faculty to assess QL achievement in different types of student work, or collections of work. We have slightly modified the core competencies (names and definitions) and have rewritten the milestone descriptors. In order to avoid confusion with AAC&U's original rubric, we call the resulting instrument the "Quantitative Literacy Assessment Rubric".

Scope

The quantitative literacy we seek to assess includes command of both the enabling skills needed to search out quantitative information and the power of mind necessary to critique it, reflect upon it, and apply it in making decisions.

Use

The QL Assessment Rubric is intended to measure achievement levels of the associated QL core competencies in a variety of student work. Depending on the nature of the prompt, not all competencies will be present in every student response. Occasionally there may be a perceived overlap of the QL core competencies. In which case, one competency should be chosen as the dominant one to assess. Careful wording of the prompt is often crucial to obtaining detailed student responses.

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Quantitative Literacy Core Competency	Achievement Level			
	3	2	1	0
Interpretation *Ability to glean and explain mathematical information presented in various forms (e.g. equations, graphs, diagrams, tables, words)*	Correctly identifies all relevant information.	Correctly identifies some, but not all, relevant information.	Some relevant information is identified, but none is correct.	No relevant information identified.
Representation *Ability to convert information from one mathematical form (e.g. equations, graphs, diagrams, tables, words) into another.*	All relevant conversions are present and correct.	Some correct and relevant conversions are present but some conversions are incorrect or not present.	Some information is converted, but it is irrelevant or incorrect.	No conversion is attempted.
Calculation *Ability to perform arithmetical and mathematical calculations.*	Calculations related to the problem are correct and lead to a successful completion of the problem.	Calculations related to the problem are attempted but either contain errors or are not complete enough to solve the problem.	Calculations related to the problem are attempted but contain errors and are not complete enough to solve the problem.	Calculations given are not related to the problem, or no work is present.
Analysis/Synthesis *Ability to make and draw conclusions based on quantitative analysis.*	Uses correct and complete quantitative analysis to make relevant and correct conclusions.	Quantitative analysis is given to support a relevant conclusion but it is either only partially correct or partially complete (e.g. there are logical errors or unsubstantiated claims).	An incorrect quantitative analysis is given to support a conclusion.	Either no reasonable conclusion is made or, if present, is not based on quantitative analysis.
Assumptions *Ability to make and evaluate important assumptions in estimation, modeling, and data analysis.*	All assumptions needed are present and justified when necessary.	At least one correct and relevant assumption is given (perhaps coupled with erroneous assumptions), yet some important assumptions are not present.	Attempts to describe assumptions, but none of the assumptions described are relevant.	No assumptions present.
Communication *Ability to explain thoughts and processes in terms of what evidence is used, how it is organized, presented, and contextualized.*	A correct and complete explanation is clearly presented.	A partially correct relevant explanation is present, but incomplete or poorly presented.	A relevant explanation is present, but is illogical, incorrect, illegible, or incoherent.	No relevant explanation is provided.