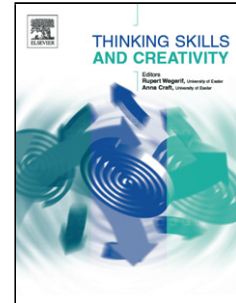


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Authors: Jacob R. Grohs, Gary R. Kirk, Michelle M. Soledad, David B. Knight



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Assessing Systems Thinking: A Tool to Measure Complex Reasoning through Ill-Structured Problems

Jacob R. Grohs^a, Gary R. Kirk^a, Michelle M. Soledad^{a,b}, David B. Knight^a

^aVirginia Tech, Blacksburg, VA 24061, USA

^bAteneo de Davao University, Philippines

Highlights:

- Systems thinking is a critical skill needed to work on problems facing society
- A framework is presented for an interdisciplinary development of systems thinking competency
- A scenario and scoring rubric for measuring systems thinking competency is shared

Abstract

An increasingly important aim of higher education is to develop graduates capable of addressing complex, interdependent problems. Systems thinking is a critical interdisciplinary skill that describes the cognitive flexibility needed to collaboratively work on problems facing society. Although institutions of higher education are asked to develop systems thinkers and many programs strive towards such an aim, mechanisms to assess this competency are lacking. This paper (1) presents a framework for operationalizing systems thinking competency, and (2) shares a novel scenario-based assessment tool based on the framework. The paper describes the iterative development of the community-level problem scenario and associated scoring rubric based on a set of 93 student responses. Appendices contain the full tool consisting of the problem scenario, scoring rubric, and other guiding documents to enable others to adopt the tool for research purposes or to assess student outcomes from university programs.

Critical thinking scholar Richard Paul (1993) writes, “Governmental, economic, social, and environmental problems will become increasingly complex and interdependent. . . . The forces to be understood and controlled will be corporate, national, trans-national, cultural, religious, economic, and environmental, all intricately intertwined” (p. 13). A look across the global landscape suggests

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